

FACTORS AFFECTING OCCUPATIONAL MOBILITY IN THE CONTEXT OF CLIMATE CHANGE IN THE MEKONG RIVER DELTA

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Abstract

The article focuses on analyzing the factors affecting occupational mobility in the context of climate change in the Mekong Delta. The paper show that: 1) The changes in the environment, climate as well as changes in science and technology in recent years have led to major changes in the structure of labor, employment and causing more people to change their jobs and occupation; 2) The size and trend of occupational mobility depends heavily on factors such as: type of employment, level of income, age, education level, professional qualification when having a first job; level of loss in production and life caused by unusual weather and climate events.

Keywords: *Climate Change; occupational mobility*

1. Introduction

The Mekong River Delta ranks as one of the geographic areas most affected by the likelihood of a natural disaster, with the highest ranking for flood risk; saltwater intrusion, storms, riverbank erosion, high tide, and fire. The existing potential impact of environmental and climate change on labor and employment is a topic that attracts the attention of many scholars, policymakers, and, more broadly, the public. Several studies showed the effects of climate change on employment and labor. However, there is very little research that can generally describe the process of redistribution of human resources and job prospects when workers move to new jobs. For a more in-depth understanding of this topic, the article describes the occupational mobility model while analyzing the factors that influence the size and orientation of individuals' occupational mobility. Research results have important implications in designing policies to help employees best prepare to adapt to career changes in new contexts.

2. Method

The data used in the article are taken from the quantitative survey on occupational mobility in Can Tho city in the Mekong River Delta -based sample of 784 individuals (age: 15-60 years). Questionnaires were used to collect information on current employment status, current or main occupation before job strain. Occupation groups are classified according to the General Statistics Office's classification of occupations. Based on 10 Occupation groups

are listed in Vietnamese occupational billboards in 2009, the author classified into 4 main occupational groups: 1) Management leadership and high expertise; 2) Middle-level technical expertise and staff; 3) workers and Skilled labor; 4) Farmers and other simple labor.

The concept of occupational mobility in the article is used to refer to the change of job /change of position in the occupational stratification of individuals at different times (intra-generational occupational mobility). In which, changes in job that "not related to change of class" / without transition status in the occupational stratification system are defined as horizontal mobility or "horizontal mobility"⁴. (Horizontal mobility means workers often remain in the same occupation when they change jobs). "Vertical mobility" is used to refer to the transition of an individual's occupation status or social advancement or regression compared to the previous occupation status.

Linear regression was used to estimate associations of the number of times worker change thier job with individuals' characteristics such as: age, sex, socioeconomic position and several risk caused by unusual changes in weather and climate. Multivariate regression models was used to to estimate associations of family factors/the origin of the individuals; Personal characteristics such as: age, sex, education level, skills, efforts, hobbies with occupational mobility trends. In addition, I compare net mobility/ exchange mobility to structural mobility to determine the impact of the conversion factor on occupational mobility.

3. Results

3.1. Factors affecting the degree of job change in the Mekong River Delta

Occupational mobility refers to the process of workers transitioning from one occupation to another in order to find earning jobs or meet labor needs. When conditions allow for high degrees of occupational labor mobility, it can help maintain strong employment and productivity levels. In an economy, if workers can easily switch jobs from one industry to another, it means that economy has a rapid transition (Adam Hayes, 2019)⁵.

Over the past years, with the rapid change of the scientific and technological revolution; Climate and environmental changes are affecting each industry and profession, affecting each employee. In the new context, many people had to change their jobs; career and consequently change in occupational skills that have followed them throughout their life. (*Chart 1*).

⁴ Gunter Endruweit và Gisela Trommsdorff (2002), *Từ điển xã hội học (Sociological dictionary)* (Nguy Hữu Tâm và Nguyễn Hoài Bảo dịch từ tiếng Đức), NXB Thế giới, tr.119

⁵ Adam Hayes (2019), Occupational Labor Mobility, tại trang <https://www.investopedia.com/terms/o/occupational-labor-mobility.asp>, [truy cập ngày 03/01/2021].

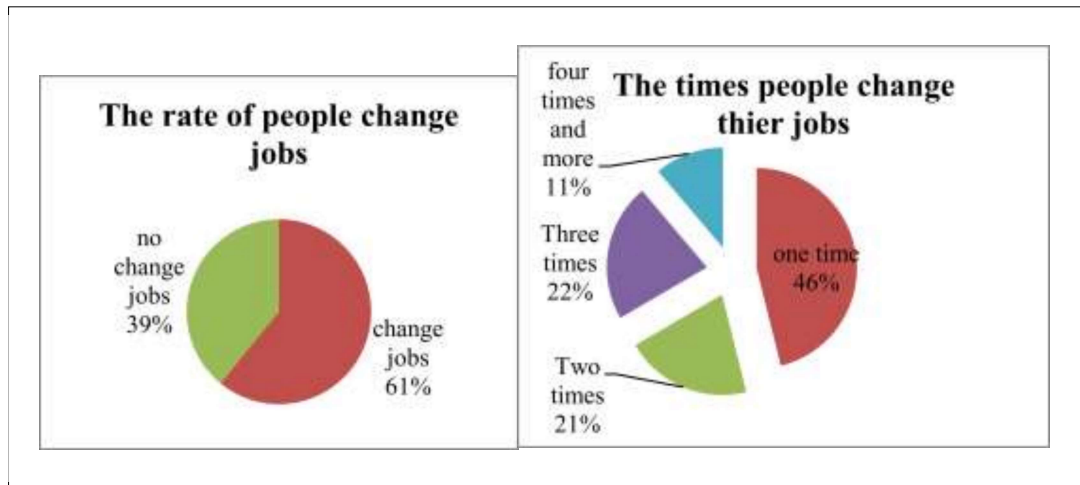


Chart 1: Proportion of people and the times People change their Jobs in the Can Tho city in 2020

Source: Survey data of author

Chart 1 shows the number of people that changed their job and the times they have changed their job. The data point that out of 784 study participants, 464 people, accounting for 61%, confirmed that they have changed their job, only 298 people, accounting for 39%, have not changed jobs. Among those who change jobs, 214 people, accounting for 46%, change jobs once, the number of people who change jobs twice is 95 people, accounting for 20.5% and the number of people who change jobs three times is 103 people, accounting for 22.2%, and 11% of people have changed jobs four or more times. Thus, from the time of the first job to the time of the survey, the average number of job changes per employee is 1.87 times. The average number of job changes is not large, which shows that the speed of economic transformation in the study area over a long period of time has been relatively slow. However, the environmental and climate changes as well as changes in science and technology in recent years have resulted in greater changes in the structure of labor and employment and forcing more people to change their jobs and occupation (*Chart 1*).

The number of time people changes job depends on factors such as: type of employment, income level, age, education level, professional qualification when having the first job; level of loss in production and life caused by unusual weather and climate events. Those who work under contracts or are civil servants and public employees are less likely to change jobs than those who work without a contract. The higher income, the less there is any change; The people with a stable job, whose less change their jobs; The age you start to work, affect the number of time people changed their jobs; Increasing the number of years in high school increases the number of times workers change thier job, whereas increase in professional qualifications reduces the number of times people change thier jobs; People affected more by environment and climate change, whose more changes thier jobs. (*Table 1*). The Linear Regression Equation has the form:

The number of times change jobs = $4.81 - 0.27*X_1 - 0.401*X_2 - 0.8*X_3 + 0.081*X_4 - 0.082*X_5 + 0.253*X_6 - 0.411*X_7$.

X₁: Income level of main occupation;

X₂: The level of stability of the first job;

X₃: The age when worker have the first job;

X₄: The highest class has completed at high school;

X₅: Professional qualifications;

X₆: The level of losses caused by unusual changes in weather and climate;

X₇: Labor under contract, or public employee under the state payroll.

Table 1: Factors Affect the times worker change their jobs

The independent variables		Marginal impact(B)
	(Constant)	4.810
X ₁	Income level of main occupation	-.270*
X ₂	The level of stability of the first job	-.401*
X ₃	The level of stability of the first job	-.080*
X ₄	The highest class has completed at high school	.081*
X ₅	Professional qualifications	-.082**
X ₆	The level of losses caused by unusual changes in weather and climate	.253*
X ₇	Form of fist job (temporary labor comparison group time, labor without contract); Labor under contract, or public employee under the state payroll	-.411*
a. Dependent Variable: B9.2 The times worker change their jobs		

Source: Survey data of author

3.2. Factors affecting occupational mobility trends

3.2.1. The occupational mobility network

In the above section, I describe the size and factors influencing the job change in the next section I describe the network and the factors that influence the occupational transition.

* p<0.01; ** p<0.05; ***p<0.1

Table 2: Model of occupational transition in Can Tho in 2020

		C1 Current occupation				Total
		Management leadership and high expertise	Middle-level technical expertise and staff	workers and skilled labor	Farmers and other simple labor	
D1. Occupation before current occupation	Management leadership and high expertise	174 98.3%	2 1.1%	1 0.6%	0 0.0%	177 100.0%
	Middle-level technical expertise and staff	18 10.5%	147 85.5%	5 2.9%	2 1.2%	172 100.0%
	workers and skilled labor	10 6.4%	37 23.6%	105 66.9%	5 3.2%	157 100.0%
	Farmers and other simple labor	0 0.0%	12 4.3%	3 1.1%	263 94.6%	278 100.0%
Total		202 25.8%	198 25.3%	114 14.5%	270 34.4%	784 100.0%
No transition		662 (84.4%)				
Overall mobility rate		122 (15.6%)				
Structural mobility rate ⁶		6.5%				
Net mobility ⁷		9%				

Source: Survey data of author

Table 2 shows the percentage of the worker who transitioning between occupation. Out of a total of 784 people in the study sample, there are 662 people, accounting for 84.4% who did not change their job status at the time of the survey (662 people who did not change occupation); 122 people who changed their occupation accounting for 15.6% (122/784). If compared with developed countries where the occupational structure is relatively stable, the level of

⁶ Structural mobility rate = $(\{[177-202]+[172-198]+[157-114]+[278-270]\}/(2 \times 784)) \times 100 = 6.5\%$

⁷ Net mobility = Overall mobility rate – Structural mobility rate = 15.6 - 6.5 = 9%

occupational mobility in Mekong River Delta is much larger. Earlier research has shown that **the** average occupational mobility rates for France were 4.7% and 7.4% (7.4% of French workers are employed in an occupation that different from their reported occupation before)⁸. Research on labor and employment in European countries showed that on average 3% of workers in Europe changed their occupation each year.⁹ The high rate of occupational mobility showed the change in the structure of labor and employment in the study area and at the same time, it shows occupational instability in the context of science and technology, environment and climate changes.

Table 2 also shows that workers and skilled labor are the groups that transition occupation highest; 33.1% of them moved to other occupations, of which 23.6% work in intermediate technical or professional qualification group; 6.4% move up to senior management or technical expertise and 3.2% of mobile workers go down to freelance jobs or farmers. Groups that are the highest rate of maintaining an occupation status are leaders, managers, senior technical professionals, and simple workers and farmers. 98.3% of those in the group of managerial leadership, high-level technical expertise did not change their occupation status. The unchanged rate in the group of simple labor and farmers is 94.6% this means there is not much movement of workers out of the agricultural sector. This shows that the speed of economic structural transformation towards industrialization took place relatively slowly in the Mekong River Delta

3.2.2. Factors affecting worker's occupational mobility trend in the Mekong River Delta

To indicate the worker's occupational mobility trend, we need to find out how many people changed their job horizontal mobility (change job does not change occupation status) and how many people changed job, that leads to a change in occupation status in the occupational stratification pyramid (vertical mobility) The occupational mobility model shown in Table 3 shows the occupational transition trend in the Mekong River Delta in recent times.

Table 3: Labor mobility flows in Can Tho city by 2020

Horizontal mobility (change job does not change occupation status)	395 (85.12%)	
Vertical mobility 69 (14.87%)	Upward mobility	56 (12.06%)
	Downward mobility	13 (2.81%)

Source: Survey data of author

⁸ Etienne Lalé, *Trends in Occupational Mobility in France: 1982-2009*, Sciences-Po Department of Economics, – 28 rue des Saints-Pères, 75007 Paris, France.

⁹ Ronald Bachmann Peggy Bechara Christina Vonnahme (2019), *Occupational Mobility in Europe: Extent, Determinants and Consequences*, tại trang https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3468627, [truy cập ngày 28/11/2020], p.1

Table 3 shows that the main occupational flows in Can Tho by 2020 is horizontal mobility. The rate of horizontal mobility is higher than the rate of vertical mobility (85.12% and 14.87 %) Out of 464 people, who changed their job, in which 395 people account for 85.12% did not change their occupation, only 69 people, accounting for 14.87. % changed their occupational status. In vertical mobility, upwards mobility is higher than downward mobility. Upwards mobility is 12.06% compared to 2.81% of downward mobility.

Horizontal mobility occurs predominantly among leaders, managers, senior technical professionals and unskilled workers and farmers. The horizontal mobility rates of these groups are 98.2% and 92%. The rate of vertical mobility shown in outward and inward mobile flows of these two occupational groups is very low, suggesting that this is still a relatively closed occupation group. Vertical mobility occurs mainly in the workers and skilled labor, the vertical mobility of this group is 62.2%, of which 51.1% is in an upward mobility and 11.1% is in a downward mobility.

Occupational mobility trend depends closely on factors such as: age, gender, professional education, economic sector, and the level of damage caused by the climate to the household. In terms of age, if the employee increases by one year, the ability to mobility increases by 0.074 compared to the increase in mobility and the decrease of 0.073 times to increase in mobility. If increases one-year attendance in high school, non-mobility decreases by 0.652 times compared to rising mobility, and mobility decreases by 0.288 compared to increased mobility. If increases professional qualification one notch, non-mobility increases 0.156 times as mobility goes up, and mobility drops 0.518 times as mobility goes up; The damage level goes up by one tier, upside mobility 0.879 times lower than the go up and down 0.217 times the go up; Compared to workers living in urban areas, the non-mobility of workers in rural areas increased by 3,377 times compared to upward mobility and downward mobility of the group. This is 3,527 times more than up-going mobility. If moving from the informal economy to the formal sector, the non-mobility of the group of workers working in the formal economy decreases by 0.64 times compared to upward mobility and mobility. This group's downward movement is down 0.64 times compared to the upward mobility. (Table 4)

Table 4: Factors influencing occupational mobility trends (Model of transition occupation (competition current occupation to the previous occupation))

competition current occupation to the previous occupation	Horizontal mobility (Changed job but did not change occupational status)		Downward mobility	
	B	Exp(B)	B	Exp(B)
Independent variables				
Intercept	9.967		5.279	
age	.074*	1.077	.073	1.075
Number of years attendance in high school	-.652*	.521	-.288	.750
professional qualification	.156	1.169	-.518***	.596
level of damage caused by unusual changes in weather or climate	-.879*	.415	-1.526*	.217
Male	-.399	.671	-.120	.887
gender (female comparison group)	0 ^b	.	0 ^b	.
Rural areas	1.217*	3.377	1.260	3.527
urban areas (comparison group)	0 ^b	.	0 ^b	.
formal economy sector	-2.753*	.064	-2.747*	.064
informal economy sector (comparison group)	0 ^b	.	0 ^b	.
Intercept	5.279			

- a. The reference category is: upward mobility.
b. This parameter is set to zero because it is redundant.

Source: Survey data of author

3.2.3 Factors affecting the ability of workers to move forward in occupation in the Mekong River Delta

The occupational mobility model (Table 4) gives us a look at the occupational mobility trend that took place in the recent time period of the people in Can Tho city. However, in order to see the long-term transition trend, or rather to indicate the move up or move down in employees' occupations, we need to consider the transition occupation

compares the first occupation with the occupation at the time of the census (*Table 5*)

Table 5: Model of occupational transition in Can Tho (Model of transition occupation (competition current occupation to the fist occupation))

		current occupation				Total
		Management leadership and high expertise	Middle-level technical expertise and staff	workers and skilled labor	Farmers and other simple labor	
The fist occupational	Management leadership and high expertise	78 98.7%	0 0.0%	0 0.0%	1 1.3%	79 100.0%
	Middle-level technical expertise and staff	93 72.1%	35 27.1%	1 0.8%	0 0.0%	129 100.0%
	Workers and skilled labor	6 4.2%	20 14.0%	20 14.0%	97 67.8%	143 100.0%
	Farmers and other simple labor	14 12.4%	14 12.4%	3 2.7%	82 72.6%	113 100.0%
Total		191 41.2%	69 14.9%	24 5.2%	180 38.8%	464 100.0%
Horizontal mobility (change job does not change occupation status)		215 (46.4%)				
Vertical mobility		Upward mobility			150 (32.3%)	
249 (53.6%)		Downward mobility			99 (21.3%)	

Source: Survey data of author

Table 5 shows the occupational mobility trend of workers in Can Tho over a long period. Considering over a long period, we see that the rate of vertical mobility is greater than the rate of horizontal mobility. Out of 464 people who changed their jobs, in which 215 people account for 46.4% only changed their job but did not change their occupation and

249 are for 53.6% changed their occupation. Upward mobility makes up 32.3 % of vertical mobility and downward mobility makes up 21.3%. Compared with occupational mobility which took place recently shown in Table 3, the proportion of vertical mobility in this model is much higher (53.6% compared to 14.87%). The data shows that: the transformation in the economic structure thanks to the scientific and technological changes along with the changes caused by the urbanization process taking place over a long time has created many jobs in the upper part of the occupational stratification. Therefore, it creates many opportunities for workers to move in the upward direction.

Occupational advancement ability depends closely on factors such as occupation group, education level, professional qualifications, gender, area of residence or population composition, age. In the occupational mobility model that compares the first job with the current job, if the employee's age increases by one year, the rate of employee's horizontal mobility will increase by 1,012 times compared to the rate of their upward mobility and the rate of downward mobility will decrease by 0.894 times compared to upward mobility. If increases one year the labor attended in high school, the horizontal mobility of the employee will decrease by 0.295 times compete to upward mobility and the downward mobility will decrease by 0.339 times compete to upward mobility. If the professional qualification of the labor increases by one level, for example, from college to university, the horizontal mobility rate will increase 1,079 times compared to the upward mobility ability and downward mobility ability will decrease 0.532 times.

Regarding sex, compared with the female group, the decrease of downward mobility of the male group will decrease by 0.552 times compared to upward mobility. Compared to indigenous people, if they are migrants, their job change ability will decrease 0.773 times compared with their upward mobility and downward mobility will decrease by 0.433 times. Compared with workers without contracts, job transition ability of contracted workers and payroll workers will increase 1,912 times compared to the upward occupational mobility of this group (Table 6).

Table 6: Factors influencing occupational mobility trends (Model of transition occupation (competition current occupation to the fist occupation))

First Job - Current Job ^a	Horizontal mobility (Changed job but did not change occupational satus)		Downward mobility	
	B	Exp(B)	B	Exp(B)
Intercept	15.569		19.228	
Independent variables				

age	.012	1.012	-.112*	.894
Number of years attendance in high school	-1.221*	.295	-1.083*	.339
professional qualification	.092	1.097	-.631*	.532
Man	-1.770*	.170	-.594***	.552
gender (female comparison group)	0 ^b		0 ^b	.
Rural areas	-.604	.547	-2.444*	.087
urban areas (comparison group)	0 ^b	.	0 ^b	.
Immigrants	-.258	.773	-.836**	.433
The indigenous people (comparison group)	0 ^b	.	0 ^b	.
Contracted Labor, Payroll	-.469	.625	.648***	1.912
Labor without contracts (comparison group)	0 ^b	.	0 ^b	.
a. The reference category is: upward mobility.				
b. This parameter is set to zero because it is redundant.				

Source: Survey data of author

4. Discussion and Conclusion

The research shows that the environment, climate change, and economic structural transformation along with the process of industrialization have created challenges, so many people have to change their job or their occupation. However, the pressure of transformation also creates many opportunities for people to change job skills so that they can move up to occupy a better occupation. In terms of overall scale, we see that the transition in the economic structure over the years has created many job vacancies at the top of the occupational stratification. The upward occupational mobility rate are high. However, the sizes, speeds, and the trend of occupational mobility are very different when comparing in groups with different social characteristics.

In addition to context factors, individual characteristics such as occupational groups, education, professional qualifications, gender, area of residence, or demographic composition, age are a major factor, that has great effect to occupational mobility. Accordingly, in the coming years, to support people in the transition context, the government should create an environment, policies to help workers to have knowledge and skills to improve their adaptive ability to changes, sho labor can take opportunities, reduce risks caused by the transition. The policies need to be implemented such as 1) Implement

* p<0.01; ** p<0.05; ***p<0.1

programs and policies to help employees to better access training services, improve basic skills to create a prerequisite for the career transition process. The implementation of labor and employment policies should not be based on job stability, but rather on workers' adaptation to economic changes to promote development livelihood diversification. The government needs to invest appropriately for people through health care policies, improve the quality of education, provide skills in labor, and jobs, whereby continued investment in basic education is required. the reform period improves the quality of vocational education and training, training high-quality human resources to meet the labor market demand.2) In addition to improving adaptive capacity through basic skills training, the state should pay attention to promoting labor market expansion through promoting economic structural transformation. Besides, it is necessary to diversify forms of providing labor-employment information for workers, especially for female workers and other disadvantaged groups.

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