

# WAGE DIFFERENTIALS OF MIGRANTS AND NON-MIGRANTS IN EASTERN SOUTH VIETNAM

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*This study examines the wage differentials between migrant and non-migrant workers. Based on data from Vietnam Migration Survey in 2004, earnings equations with and without Instrumental Variable (IV) are estimated for migrant workers and non-migrant workers. From these results, the study compares the wage structure for migrant workers and non-migrant workers. Oaxaca decomposition of the wage differentials of the two groups workers are carried out. Results, which are controlled for observed characteristics and selection bias, indicate some main points. The wage differentials between non-migrant and migrant workers are mostly due to the difference in structural factors. Besides, there are differences in endowment factors.*

*Keywords: migration, education, worker's earnings, income gap*

## 1. Introduction

Since the year of 1986, Vietnam has gone through a process of Đổi Mới toward a market-oriented economy. Besides, it is widely recognized that urbanization is inevitable and that population movements are integral features of the process of growth, which makes many changes in Vietnamese labor market. One of the remarkable changes is the increasing participation of migrants in local labor force.

In fact, migration is an inevitable result of development because Vietnam has been developing fast after reforms in the late 1980. Therefore, the increasing migration level is not surprised. The increasing portion of migration moves primarily to the urban areas, especially big cities as HCMC and Hà Nội, and adjacent industrial zones to these cities such as Bình Dương and Đồng Nai industrial parks.

Like many other cities and industrial zones, migration also causes the earnings differentials.

An earnings gap can be observed between migrants and non-migrants. Therefore, there are several considerations to examine wage differentials among labors, especially between migrants and non-migrants. Lower returns to migrants in these local labor markets could be due to many different reasons. Probably, important crucial reasons are the migrants' lack of specific knowledge, skills or experience. Moreover, the demand for some particular skills acquired in homeland might be nonexistent. All of above problems mentioned an urgent issue that whether the earnings gap exists in Vietnam, especially in big cities and industrial parks. Then, in case the wage gap exists, what factors contribute to this problem? Answers to those questions are of interest to policy makers in labor market. In this study, HCMC and Bình Dương, Đồng Nai are selected to study migrants' and non-migrants' wage differentials. Being economic centers with high economic-cultural-social development, these provinces have attracted lots

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of migrants.

The aims of this study are to address the following questions:

(1) Are there differences in demographic and socioeconomic characteristics of migrants and non-migrants?

(2) What are the determinants affecting earnings of migrants and non-migrants?

(3) What factors contribute to migrants and non-migrants wage differentials in HCMC, Bình Dương, and Đồng Nai?

The data set from Vietnam National Migration Survey 2004 was used in the study. According the definition of GSO in this survey, migrants include those who are in the age group 15 – 59, and have moved from their home provinces to another within five years before the survey (from 1999 to 2004) and have resided in the surveyed area for one month and over. Please note that for HCMC, those who moved from one district to another within the city are not covered by this definition. Conversely, non-migrants include those who are in the age group 15 – 59 staying in the same district at least five years before the survey.

In the survey, there is a total of 37,546 observations. A sub-data set of 4,005 observations of this survey are extracted and used to provide a better understanding of a profile of migrants and non-migrants in HCMC, Bình Dương and Đồng Nai. In addition, out of the sub-data set of 4,005 only 1,341 observations have earnings and belong to one-generation families. These 1,341 observations are used to describe the relationship between earnings and educational levels, types of occupation, gender and working sector. Besides, they are also used to estimate the coefficients and calculate the wage differentials in the proposed models.

## 2. Theoretical considerations and related empirical studies

The Human Capital Theory of migration originated in neo-classical economics states that people migrate for purpose of increasing their earning capacity to an optimal point (Sjaastad, 1962). In the human capital view of migration, migration is considered as an investment decision. It means that individuals and families look at the net present value of a movement to make a decision whether to migrate or not. Private economic returns to ed-

ucation have been estimated using Mincer's semi-logarithmic approach in a regression relating individual earnings with additional years (or levels) of schooling completed (Mincer, 1974).

Besides, according to Cotton (1988), a meaningful explanation of wage differentials can be found when the theories of human capital and discrimination are combined together. The resulting combination suggests that average wages of two groups could differ because of differences not only in productivity and skills, but also in treatment received by a group of workers against the other group, despite level of skills.

Drawing on this framework, Barth and Dale-Olsen (2009) suggest that (apparently) unexplained wage differentials are associated with the existence of monopolistic employers and different labor supply elasticity across population. Other things being equal, those collectives with more rigid labor supplies earn less than otherwise. If immigrant workers are employed in sectors where firms have some market power and their labor supply is less elastic than the local one (for example, because of a lower access to unemployment benefits and so on), their pay will be lower.

Regarding to wage differentials between men and women, Oaxaca's (1973) supposes that discrimination against females can be said to exist whenever the relative wage of males exceeds the relative wage that would have prevailed if males and females were paid according to the same criteria. The decompositions of the wage differentials arise from the differences in individual characteristics and the estimated effects of discrimination, respectively.

In Vietnam, Tuan (1996) found that the total earnings disparities are about 0.94, in which the main cause of the wage differential between migrants and non-migrants in the Mekong Delta was due to the differences in structural factors. Likewise, Trang (1997) showed that average income of migrants did not differ much from that of non-migrants, and only woman migrants were discriminated against. The income difference between non-migrants and female migrant workers mainly resulted from the fact that female migrant workers concentrate on low-paid occupations rather than their lower educational level. Conversely, male migrant workers not only have higher productivity-related endowments but also

are in advantageous employment position compared to non-migrants. However, a limitation found in both studies is that they have not correct selection bias in earnings model.

In Pakistan, Ather's (1998) regressed wage equations with and without selectivity correction are estimated sources of earnings differentials among migrants and natives. In this study the Oaxaca (1973) wage decomposition to wage differentials for natives and migrants has been applied. Findings showed that earnings differentials has been decomposed into amount attributable to personal characteristics or the endowment effect, and the differential attributable to coefficients or the structural effect. The analysis reveals that nearly 76% of the difference in earnings can be attributed by the different endowments.

### 3. Empirical model

This study adopts the standard Mincerian approach (Mincer, 1974) of estimating earnings functions to estimate the average private rates of returns to education. The earnings-schooling relationship can be stated in the form of a semi-logarithmic relationship as follows:

$$(1) \ln W = \beta_0 + \beta_1 S + \beta_2 Exp + \beta_3 Exp^2 + \beta_4 Gen + \beta_5 Occ + \beta_6 Sec + \varepsilon$$

To analyze the sources of migrant and non-migrant earnings differentials, a decomposition analysis proposed by Oaxaca (1973) is applied:

$$(2) \ln \bar{W}_m - \ln \bar{W}_n = (b_{0m} - b_{0n}) + \sum (\bar{X}_m - \bar{X}_n) b_m + \sum \bar{X}_n (b_m - b_n)$$

$\ln \bar{W}_m$  and  $\ln \bar{W}_n$  denote mean value of predicted log wages of migrant and non-migrant,  $\bar{X}_m$  and  $\bar{X}_n$  denote a vector of observable productivity characteristics for the two groups, while  $b_m$  and  $b_n$  are the estimated parameters from the wage equation. The left-hand side of this equation is the earnings differentials between the two groups, which has been divided into two portions. The first component is the first term of the right-hand side of equation (2) and stands for the difference in constant terms. The second portion explains the earnings disparities that remain after taking control of the different productivity related to characteristics of the individuals of the two groups. This portion of earnings differentials reflects the differences in the observed characteristics of workers between two groups of migrants and natives, and is called the earnings disparities due to the differ-

ences in endowments. The third portion in the right-hand side of equation (2) represents the difference in the coefficients of explanatory variables. The first and the third components constitute the total structure differential. In sum, equation (2) states that the mean difference of the migrant and non-migrant log wage is the results of: (a) the difference in average endowments or the "explained" factors; and (b) the "unexplained" or structural factors in the labor market.

The Table 1 below presents the definition of variables used in the models (independent variables as well as the dependent one), their meanings, and expected signs of their estimated parameters.

### 4. Result Analysis

#### *a. Monthly income of migrant and on-migrant workers:*

Monthly income is examined via different characteristics of migrant and non-migrant workers. In general, figures in Table 2 show that the mean wage differences of almost characteristics such as gender, sectors, occupations, educational levels, regions for migrant workers and non-migrant workers, are statistically significant at level 1 or higher, except public sector (Table 2).

Interestingly, it reveals that non-migrants, no matter of characteristics examined, get higher income than migrant workers do. For example, female migrants wage levels are lower than non-migrants' (VND676,443); and working in staff occupation, non-migrant employees get higher earnings than migrants do (VND609,953). Moreover, the average earnings are increased more and more in association with higher education. This problem probably rises from the fact that the quality of the schooling and experience of migrants from poor countryside obtained in the hometown is lower than the quality of schooling and experience in big cities or industrial zones. However, there is no mean wage difference in public sector between two groups of workers, because wages of most workers working in this sector are based on the salary scale set by the state.

#### *b. Determinants of earnings:*

- Estimation results of regression model with OLS and 2SLS

The results in Table 3 show a difference between the two estimated coefficients. Especially,

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**Table 1: Definitions and notations of variables**

Variables (Var.)	Meaning	Expected Sign	Unit measurement	Notations of Variables
Wage	Dependent variable: monthly income including total salary of main and sub-jobs and other benefits from these jobs within a month.		Income (VND)	<i>LnW</i>
Schooling year	The number of years of schooling completed.	+	Year	<i>School</i>
Experience	Working experience: the number of working years	+	Year	<i>Exp</i>
Experience square	Square of working experience	-	Year square	<i>Exp2</i>
Gender	Gender dummy variable is used to control the difference in wage across the sexes.	+	Gender =1 if male, 0 otherwise	<i>Gen</i>
Occupation	Occupation dummy variable is used to control the job of migrants and natives	+	Occ1=1 if professionals, 0 otherwise Occ2=1 if staffs, 0 otherwise Occ3=1 if elementary occupations, 0 otherwise	<i>Occ1</i> <i>Occ2</i> <i>Occ3</i>
Sector	Sector dummy variable is used to control the working sector of migrants and natives	+	<i>Sector</i> =1 if state, 0 conversely	<i>Sec</i>
Parents' education (*)	Schooling years of parents or household head of schooling completed	+	Years	<i>Edufather/ Edu-mother</i>

(\*) This variable is used in Instrument Variable regression method to detect bias ability of coefficients of SCHOOL due to omitting innate ability variables from the model.

**Table 2: Monthly average income classified by characteristics of migrant and non-migrant workers (in VND)**

	Non – migrants	Migrants	Mean diff.	t-test
Male	1,772,488	1,344,146	428,342	3.15***
Female	1,503,036	826,593	676,443	8.40***
Public	1,331,122	1,255,556	75,566	0.53ns
Private	1,664,466	1,105,966	558,500	6.32***
Professionals	1,868,750	1,011,111	857,639	3.09***
Staffs	1,902,937	1,292,984	609,953	3.58***
Elementary Occupation	1,330,071	979,518	350,553	5.01***
Primary	1,220,583	774,000	446,583	3.57***
Secondary	1,545,498	987,302	558,196	5.87***
High school	1,738,332	1,429,633	308,699	2.00*
College/University	1,771,429	935,714	835,715	3.37***
HCMC	1,568,249	1,045,306	522,943	6.11***
Bình Dương	2,026,611	1,330,702	695,959	2.06**
Đồng Nai	1,360,518	1,067,639	292,879	3.75***

Source: Calculated using the sub-data set of the GSO's migration survey, 2004 (n=1,341)

Note: \*\*\*, \*\*, \* denoted statistical significances at 1%, 5%, and 10%, respectively; ns meant 'not significant'

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coefficient of School variable in the IV estimate is almost half as large again as the OLS estimate. For this reason, it is inferred that the coefficient of School variable in the two estimations shows the impact of education of parents on wage equation of workers. However, the 2SLS method shows better estimates of the ceteris paribus effect of School variable on wage when School variable and  $\varepsilon$  are correlated;

rejected. That means School variable is an endogenous one and the use of 2SLS estimator is necessary. Hence, the 2SLS method hereby will be implemented in estimation of parameters in research models.

What will happen if we use the instrumental variables with a "poor" or "weak" instrument? According to Wooldridge (2001), a weak correlation between explanatory variable and instrumental

**Table 3: Estimation results of regression model with OLS and 2SLS**

Dependent variable: $\ln(W)$				
	OLS		2SLS (IV)	
Explanatory variables	Coefficients	Std. error	Coefficients	Std. error
<i>School</i>	0.03***	0	0.05***	0
<i>Exp</i>	0.02***	0	0.03***	0
<i>Exp</i> <sup>2</sup>	- 0.00*	0	0	0
<i>Gen</i>	0.19***	0.03	0.20***	0.03
<i>Occ1</i>	0.41***	0.09	0.34***	0.09
<i>Occ2</i>	0.31***	0.04	0.31***	0.04
<i>Sec</i>	- 0.19***	0.05	- 0.21***	0.05
<i>Constant</i>	12.99	0.07	12.83	0.1
R-square	0.17		0.16	

Source: Calculated using the sub-data set of the GSO's migration survey, 2004 (n=1,341)

Note: \*\*\*, \*\*, \* denoted statistical significances at 1%, 5%, and 10%, respectively

The 2SLS estimator is less efficient than OLS when the explanatory variables are exogenous. Therefore, it is useful to have a test for endogeneity of an explanatory variable that shows whether 2SLS is even necessary. It means that we test the null hypothesis to determine whether School variable is exogenous by "Durbin-Wu-Hausman" (DWH) test.

**Table 4: Testing for endogeneity**

Tests of endogeneity of: school			
$H_0$ : Regressor is exogenous			
Wu-Hausman F test:	5.50246	F(1,1332)	P-value = 0.019
Durbin-Wu-Hausman chi-sq test:	5.51685	Chi-sq(1)	P-value = 0.019

Source: Authors' calculation

As shown in the above output table, the P-value = 0.019, less than 5%, thus the  $H_0$  hypothesis is

variable will bring a sizable bias in the estimator. If there is any correlation between IV and residuals, a weak correlation between explanatory variable and IV will render 2SLS estimates inconsistent. Although we cannot observe the correlation between IV and residuals, we can empirically evaluate the correlation between the explanatory variable and its instrument, and should always do so.

**Table 5: The correlation matrix between the explanatory variable and its instrument**

	School	edufather	edumother
School	1		
Edufather	0.5225	1	
Edumother	0.5582	0.5316	1

Source: Authors' calculation

Table 5 shows that the correlation between the explanatory variable and its instrument is a positive linear relationship. Besides, the correlations



between variables are rather strong (0.5225 and 0.5582, closer to 1). Moreover, the reality also proves that father's education or mother's education produces a big effect on their children's educational level. Parents with high qualifications often have a tendency to encourage their children to take as much higher education as possible. Hence, we conclude that the choice of education father/ education mother as instrumental variable is appropriate.

- Determinants of earnings for migrants and non-migrants:

Comparing the regression coefficients of earnings equation for migrants and natives, we note that most of variables have expected signs, excluding variable 'sector' in non-migrants' earnings equation. Variable 'education' (school) is significant for the two estimations (at 1%) reflecting the important role of education in income. For an additional year of schooling, monthly income will increase by approximately 5% for migrants and 4% for non-migrant (natives). Therefore, we can see that the returns to schooling do not differ much between two groups of workers.

The variable 'experience' (Exp) is significant for two groups of workers. It shows that one more year of working will help increase the monthly income of migrant and native workers to 4% and 2% respectively. Meanwhile, the experience squared (Exp2), which are used in the earnings equation to capture the decrease in income when a certain worker gets older, is significant for migrants, but insignificant for non-migrants. The reason of this issue arises from the majority of native respondents concentrate on younger ages; therefore, their earnings are not affected by the variable 'experience-squared'.

Variable 'gender' (Gen) is significant for the two estimations (at 1%) reflecting the wage differentials between male and female. For migrants, if gender of workers is male, their monthly income will be some 3.8% higher than female workers'. Meanwhile, for non-migrants, monthly income of male workers is 1.5% higher than female ones'.

The result shows that the variable Occ1 has positive effect on wage and significant at 1% for non-migrant workers. It means that if their occupation is professional, their monthly income increases about 4.5% compared to other occupations. Conversely, the Occ1 is insignificant for migrant

workers because few of them can get professional job (only 9 observations compared to 299 observations). Therefore, it does not reflect the effect of professional job on migrants' wage. Meanwhile, the Occ2 is significant for two estimations. It reveals that certain workers get staff job that is higher paid than elementary occupation. Respectively, compared to elementary occupation, monthly income of staff job is 1.9% and 3.2% higher for migrant workers and non-migrant workers, respectively.

Interestingly, the variable 'sector' (Sector) has expected sign but insignificant for migrants, because most migrant workers are working in the private sector with low skill and qualification. For this reason, the wage they receive is not also higher than that of workers in the public sector with higher educational level. For migrants, it shows that there are no wage differentials between public sector and private sector. Conversely, there is a significant effect on earnings at 1% level for non-migrant workers but it does not have the expected sign. This means that native workers in private sector get higher wages than those in public sector do. For non-migrants with college and higher degree, public wages are lower than private wages. The public sector may have difficulty in retaining and attracting workers with college and higher degree.

**Table 6: Estimating results of model for migrants and non-migrants**

Variables	Migrants		Non-migrants	
	Coefficient	t-value	Coefficient	t-value
Constant	12.58	58.22	13.05	117.51
School	0.05***	2.74	0.04***	3.84
Exp	0.04***	5.09	0.02***	3.51
Exp2	-0.0008***	-4.11	0	-0.56
Gen	0.38***	7.07	0.15***	3.78
Occ1	0.09	0.54	0.45***	4.51
Occ2	0.19***	3.49	0.32***	7.71
Sec	0.15	1.63	-0.03***	-4.47
R_squared	0.29		0.17	
F_statistics	17.91		36.44	
Observations	299		1,042	

Source: Calculated using the sub-data set of the GSO's migration survey, 2004 (n=1,341)

Note: \*, \*\*, \*\*\* indicate statistical significances at 10%, 5% and 1%, respectively.

- Wage differentials between migrants and non-migrants

The estimated coefficients in two earnings equations are used as the base earnings structure to decompose the following overall earnings differentials between migrants and non-migrants by using Oaxaca's decomposition analysis technique. The decomposed results are represented in the Table 7.

**Table 7: Earnings differentials between migrants and non-migrants by Oaxaca's method**

Explanatory variables	$b_m(\bar{X}_m - \bar{X}_n)$	%	$(b_m - b_n)\bar{X}_n$	%
(1)	(2)	(3)	(4)	(5)
<i>School</i>	-0.011814	34.83	0.177997	80.62
<i>Exp</i>	-0.108022	318.48	0.468395	212.16
<i>Exp2</i>	0.0783437	-230.98	-0.49984	-226.4
<i>Gen</i>	0.0328969	-96.99	0.105989	48.01
<i>Occ1</i>	-0.0015	4.42	-0.01622	-7.35
<i>Occ2</i>	-0.011442	33.73	-0.0608	-27.54
<i>Sec</i>	-0.012381	36.5	0.045252	20.5
Total	-0.033918	100	0.220776	100
Earnings differentials due to different endowments = -0.03 (11.11%)				
Earnings differentials due to differences in the coefficients of explanatory variables = 0.22				
Constant term = -0.46				
Earnings differentials due to structural differences = -0.24 (88.89%)				
Total wage gap = -0.27 (100%)				

Source: Calculated using the sub-data set of the GSO's migration survey, 2004 (n=1,341)

The column (2) and (3) are the contributions made by various explanatory variables towards the differences in endowments of the workers. Meanwhile, column (4) and (5) are distributions created by the earnings differentials portion due to the differences in structural factor. Negative value shows advantages in favor of non-migrants, while positive values show advantageous in favor of migrants. Table 7 shows almost components are of negative value. It reveals that natives possess more human capital. In these workers' characteristics, education and experience are the most im-

portant elements accounting for wage differentials.

The earnings differentials in logarithm form between two groups: migrants and non-migrants are derived as follows:

$$\ln \bar{W}_m - \ln \bar{W}_n = -0.27$$

The above results reveals that the total earnings differentials is about 0.27, in which approximately 0.03 (11.11%) is due to the differences in the endowments of the two groups of workers and about 0.24 (88.89%) is due to the structural differences in their earnings equation. Herein, the magnitude of earnings differentials due to the differences in the endowments reveals that part of the wage gap can be explained by differences in characteristics. Meanwhile, the magnitude of earnings differentials due to structural difference reflects the extent of labor market discrimination – this is the main cause of the earnings differentials between migrants and non-migrants in HCMC, Đồng Nai and Bình Dương. Among factors attributable to structural differences, the main contributing factor of these large gains was non-migrants' investment in education and skill. Moreover, the structural differences also reflect the extent to which the labor market is differentiated. The labor market differentiation, partly caused by policies, has produced imperfections, such as insufficient information, costly migration and various other obstacles to migration. They create and maintain unequal productivity, which is one of key determinants of earnings differential due to structural factors between two groups of migrant and non-migrant workers. This finding is similar to that conducted by Tuan (1996) who also used Oaxaca's method to calculate earnings differentials between migrants and non-migrants in the Mekong Delta.

## 5. Conclusion

This research contributes more empirical evidences to study of the regression Mincer's earnings model by 2SLS method and wage differentials by Oaxaca method, between migrants and non-migrants in HCMC, Đồng Nai and Bình Dương. Via regression results and findings just mentioned, this study has investigated the determinants of migrants' and non-migrants' earnings. In general, the number of schooling years and gen-

der are significant to the two estimations that reflect their important role in income of both migrant and native workers and the wage differentials between male and female ones as well. Besides, the working experience is also significant to two groups of workers. It shows that one more year of working will help increase monthly income of migrant and native workers. Meanwhile, the variable Occ2 is significant to two estimations. It reveals that workers who get staff job receive higher earnings than those in elementary occupation do. Interestingly, when compared to the variable 'sector' in two equations, it shows that there are almost no earnings differentials between public sector and private sector for migrants. In contrast, native workers in private sector get higher wages than those in public sector do.

In order to examine factors contributing to migrant and non-migrant wage differentials in the surveyed areas, Oaxaca's wage decomposition method is used. The results reveal that the total earnings differential is about 0.27, in which approximately 0.03 (11.11%) is due to the differences in the endowments of the two groups of workers and about 0.24 (88.89%) is due to the structural differences in their earnings equation. Meanwhile, the differences in structure are the main cause of the earnings differentials between migrants and non-migrants in HCMC, Đồng Nai and Bình Dương. Moreover, the structural differences also reflect the extent to which the labor market is differentiated. Among factors attributable to structural differences, the main one that explains these large gains was non-migrants' investment in education and skill.

## 6. Policy implications

Decomposition analysis shows that the main component contributing to the wage differentials between migrant and non-migrant workers was the difference in structure of these two groups of workers. In other words, the earnings gap reflects the extent of labor market differentiation - the significant factor in structural differences that creates and maintains unequal productivity between the two groups of migrant and non-migrant workers. Beside, the earnings differentials also primarily arise from the differences in the observed characteristics of workers, such as education and work experience. Among them, education contin-

ues to be an important factor that may bridge the wage gap. For this reason, to reduce the wage gap between migrants and non-migrants, the government should expand its education service, together with the adoption of long-term plan for expanding education. It is better for enterprises to provide on-the-job training for their workers to improve their working skills. Though the study uses the data from the Vietnam National Migration Survey 2004, it is the latest survey of the immigration issue up to date. The estimation results can be used to forecast the earnings of migrant and non-migrants, and their income gaps, using the update data on the dependent variables. Thus, the findings are unique ones in analysis using an advanced technique in econometrics, and could be used as a baseline for further comparison with later studies■

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