Are Migrants in Large Cities Underpaid? Evidence from Vietnam

Nguyen, Viet Cuong and Pham, Minh Thai

16 May 2012

Are Migrants in Large Cities Underpaid?

Evidence from Vietnam

Nguyen Viet Cuong[1]

Pham Minh Thai[2]

Abstract

This paper examine the difference in wages between migrants and non-migrants (native workers) in large cities in Vietnam. It is found that migrants receive substantially lower wages than non-migrants. The wage gap tends to be larger for older migrants. However, once observed demographic characteristics of workers are controlled, there is no difference in wages between migrants and non-migrants. The main difference in observed wages between migrants and non-migrants is explained by differences in age and education between migrants and non-migrants.

JEL Classification: O15, R23, I32

Key words: migration, underpaid, decomposition, household survey, Vietnam.

[1] Nguyen Viet Cuong from National Economics University, and Indochina Research & Consulting, Hanoi, Vietnam. Email: c_nguyenviet@yahoo.com.

[2] Pham Minh Thai from Centre for Analysis and Forecasting, VASS, Hanoi, Vietnam.
Email: phamminhthai80@gmail.com

1. Introduction

According to New Economic of Labor Migration (NELM) theory, families send their member(s) to other regions or countries to work as a method of copping with the failures in market protections, such as natural disasters or other economic shocks. By doing so, families hope that they do not have to face the same threats at their hometown, and they also have more protection against economic threats by diversifying their livelihood (Silver, 2006). Furthermore, in the destination communities, migration people will receive higher wage opportunities that allow them to save money to invest in their home communities or send remittances back to their families. Thus, the most importance reason for migration is the financial motivation or better employment and earnings possibilities (Hicks, 1932; Borjas 2000, 2005; Posel, 2002). *"Differences in net economic advantages, chiefly differences in wages, are the main causes of migration"* - John Hicks (Hicks, 1932).

International migration is a major source that has contributed to poverty reduction in developing countries (Taylor et al., 2005; Acosta et al., 2007). Adams and Pages (2005) report that remittances from abroad migration significantly reduce the poverty's depth, level, and severity in the developing word. Many studies also confirm that migration promotes investment and development in the sending communities largely through the remittances transfers contribution (Posel, 2002). Migration might have additional positive impact on education (Mountford 1997; Stark, Helmenstein, and Prskawetz 1997; Beine, Docquier, and Rapoport, 2001; McKenzie, 2006).

However, there are several negative effects of migration on the remaining people in home areas such as marital breakdown, emotion, education and health care. A negative impact of migration on the staying family's members is the loneliness and depression (Silver, 2006; Posel, 2002). The absence of parents might make their children less likely to well receive health and education investments (McKenzie, 2006). Migration can lead to the brain drain. Migrants can have high education, but leave the original countries and might not contribute directly to technology development and productivity growth of the original countries (Katseli, Lucas, and Xenigiani, 2006).

Migration has negative impacts on not only home people but also migrants themselves. Migrants are less likely to have access to social services and assistances in destination areas. Migrating workers can be paid lower than native workers (Çaglar and

Maurice, 2006). Borjas (2005) shows that the earnings of immigrants are initially below the earnings of the natives' because when the immigrants first arrive in a new area, they tend to lack language skills, educations, and employment information. However, the gap in earning between the migrants and native workers tend to decrease overtime as the migrant accumulate human capitals and have better access to information. Earnings of immigrants can even workers could surpass the native workers' earnings if they are positively selected from the migration population (Borjas, 2005).

Although there are a large number of studies on the effect of migration on home households as well as migrants, few studies examine the earning gap between migrating workers and native workers. Using the U.S Census data, Özden (2006) finds that with the same skills, migrants earn less than the natives. Migrant workers are often hired to do jobs that they are overqualified, and highly educated immigrants from several Eastern European, Middle Eastern and Latin American countries to the U.S are less likely obtain skilled jobs, so their wages is lower than the native ones (Özden, 2006). Camarota (1998) examines relationship between the concentration of immigrants and the wages of natives in and she finds that there was a significant negative effects on the wages of unskilled workers in the US using data from Current Population Survey in the US. On average, the wages of the native workers in a low skilled occupation has reduced by perhaps 12 percent by immigration. However, there was a not negative effect of immigration on the high-skilled occupation of the native workers.

In this study, we examine the wage gap between migrating workers and native workers in Hanoi and Ho Chi Minh city, the two largest cities in Vietnam. Internal migration has been an important aspect of Vietnamese society (Marx and Fleischer, 2010). According to the 2009 Census results, there were 6.6 million people migrated within the country over the 2004-2009 period. This is a significant increase compared with the 1999 Census data with 4.5 million people migrated internally in Vietnam. Most internal migration in Vietnam is rural-to-urban migration, especially migration to Hanoi and Ho Chi Minh city.

There are several studies on internal migration in Vietnam. Marx and Fleischer (2010) highlight that most of migrants are young with the increasingly number of female migrants and specially a large majority of them are alone. They also find that migrants are subject to less job security and lower paid work compared to local residents, and particularly, their access to social, health and employment insurances are very limited in

the destination areas. It means that migrants are very vulnerable if they are not covered by a labor contract and others support from the destination communities.

Using panel data of Vietnam Households Living Standard Surveys (VHLSS) 2004 and 2006, Nguyen et al. (2011) find that the growth rate of households' income with work migration (50 per cent) is higher than that of households without migration (20 per cent). They also show that per capital expenditures of households with migration increased by around 28 per cent compared to the 12 per cent of households without migration. DeBrauw and Harigaya (2007) also conclude that internal migration helps keep households from stagnation and helps home households escape poverty. Nguyen et al. (2008) find a strong positive impact of internal migration on households expenditures.

However, migration can have several negative effects. McDowell and Haan (1997) suggest that migration labor might indeed lead to marital breakdown. Dang et al. (2010) show that the proportion of returned migrants divorced or separated is three times higher than that of non-migrants. The reason why the proportion is so high is that the views toward family life and structure of returned migrants were affected by the Western countries life's styles. Another reason for the higher incidence of separated or divorce might be due to long separations with spouse of migration people. Nearly a half of surveyed households reported that they believe it is easier for family relationship to be broken when people migrate with their family (Dang et al., 2010).

The remainder of the paper is structured as follows. The second section introduces the data set used in this study. The third section describe the pattern of migration and characteristics of migrants in large cities in Vietnam. The fourth section presents the estimation methodology. Empirical findings will be presented in the fifth sections, and The sixth section concludes.

2. Data source

This study relies mainly on data the Urban Poverty Survey (UPS) which was conducted by the Hanoi Statistics Office and the Ho Chi Minh City (HCMC) Statistics Office in October 2009. This sample of households and individual persons is representative for Hanoi and HCMC. The main objectives of the 2009 UPS are to assess urban poverty in Hanoi and HCMC. Normally, household surveys often rely on a population frame which contains

only registered households. As a result, household surveys tend to underestimate the proportion of migrants. The 2009 UPS has a special sampling selection design so that it covered not only the registered households but also unregistered households and individuals. In addition, it also sampled homeless individuals and those living in dormitories and company campuses.

Data from this survey are very detailed, including income, consumption, employment, education, health care, risks and so on. The number of observations of the 2009 UPS is 1,637 and 1,712 households for Hanoi and Ho Chi Minh city, respectively.

3. Migrants to large cities in Vietnam

A large proportion of people in Hanoi and Ho Chi Minh cities are migrants from other areas. In this study, we use two definition of migrants. The first definition of the registration book in Hanoi or Ho Chi Minh city. In Vietnam, a person have to register his/her residence in an local areas and is provided with a registration book of that area (a permanent residence permission in that area). Having registration book in an area, people are more easily to have access to social services such as education and health insurance in that area. According to this definition, migrants are those who do not have a registration book in Hanoi and Ho Chi Minh city, while non-migrants are those having this registration book.

Prior 2007, the residence regulation in Vietnam requires that anyone who are living in a place other than their permanent residence over 30 days have to register their temporary status with the destination police. However, changing residential status was very complicated process because the migrants had to obtain a letter of release from sending authorities where they hold their registration book. It is much more complicated and difficult to get a permanent registration in cities. Since 2007, when the new Law on Residence took effect, many requirements and conditions obtain permanent residency are eased. According to the new Law the number of residence status are just two – temporary and permanent and the Law also removed any legal conditionality of employment for registration. It means that a temporary resident who want to apply to become permanent resident in centrally administered cities (i.e., obtaining a registration book in the cities) are required to have only one year of uninterrupted employment and residence in that city

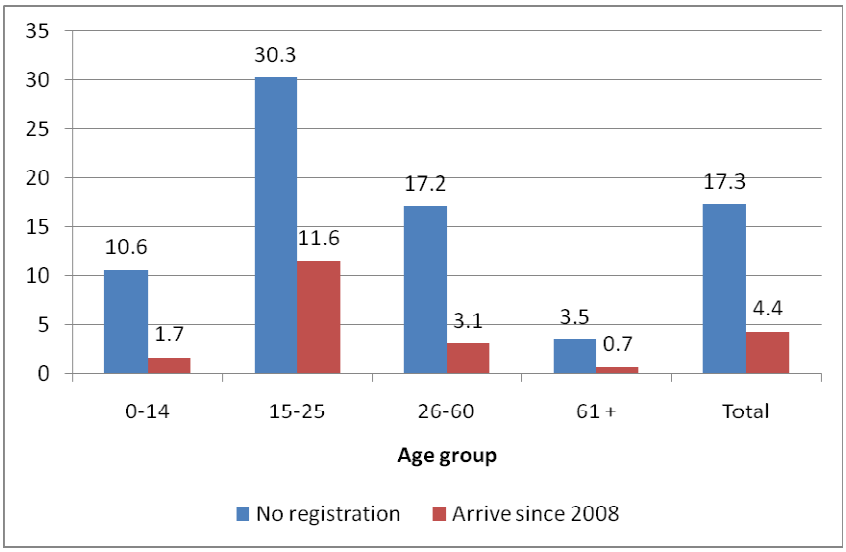
rather than proving three years of continuous residence as previous regulation (Marx and Fleischer, 2010)

The second definition is whether a person has no registration book and has been arriving Hanoi and Ho Chi Minh city since 2008. It means that a person is defined as a migrant in the cities if she/he have been living in the cities less than two years and without a registration book.

Individuals who have a registration book (permanent residence permission) in Hanoi or Ho Chi Minh city are defined as non-migrants. They can include native people and those who are migrating and possess a registration book.

Figure 1 shows that the proportion of people without registration book in Hanoi and Ho Chi Minh city is 17.3 percent. The proportion of people staying in the cities since 2008 is around 2.4 percent. The proportion of migrants is very high among young adults aged from 15 to 25.

Figure 1: Percentage of migrants by age



Source: Authors' estimation from the 2009 UPS

Table 1 compares the employment status between migrants and non-migrant workers in the two largest cities in Vietnam. The proportion of unskilled and agricultural workers is much higher in migrants, especially in Hanoi. In Hanoi, the proportion of unskilled and agricultural workers unskilled 34.7 and 55.2 percent for migrants without a registration book and migrants since 2008, respectively. This figure is only 7.6 for individuals with a registration book.

Migrants are more likely to work in the industrial private and foreign sector. Non-migrants tend to work in public sectors and services. However, migrants tend to work in informal sectors (without labor contracts) and do not have health insurance. Migrants have much lower wages than native workers. Monthly wages of workers with and workers without a registration book are 3590 and 2480 thousand VND, respectively. Workers without a registration book and arriving the cities since 2008 has lower wages, around 2066 thousand VND per month.

Table 1: Employment and wages of workers with and without registration book

Variable	ALL			HANOI			HCM CITY		
	With regist. book	Without regist. book	Arrive since 2008	With regist. Book	Without regist. book	Arrive since 2008	With regist. book	Without regist. book	Arrive since 2008
Proportion of workers by occupation (in percent)									
Manager and army	4.02	0.04	0.06	4.91	0.16	0.17	3.48	0.00	0.00
Technician	34.52	13.32	4.70	46.02	21.14	4.18	27.59	10.66	4.98
Service, clerk, officer	18.56	13.91	11.96	14.66	15.16	13.43	20.91	13.49	11.18
Skilled worker	16.32	24.07	24.64	16.08	22.13	20.61	16.47	24.73	26.78
Machine users	14.90	24.47	23.95	10.69	6.74	6.44	17.43	30.49	33.23
Unskilled & Farmers	11.68	24.19	34.68	7.64	34.67	55.17	14.11	20.62	23.84
Proportion of workers by industry (in percent)									
Agriculture	1.11	0.68	1.06	0.93	0.43	0.68	1.22	0.76	1.27
Industry	38.87	58.20	59.38	33.89	35.37	29.19	41.88	65.96	75.36
Services	60.02	41.12	39.56	65.18	64.20	70.13	56.90	33.28	23.37
Proportion of workers by economic sector (in percent)									
State	35.22	5.86	2.52	51.72	9.76	3.26	25.27	4.53	2.13
Private firms	32.31	40.05	37.63	24.02	29.04	17.05	37.31	43.80	48.52
Households	20.65	35.74	44.57	14.41	50.42	68.60	24.42	30.75	31.85
Foreign	11.82	18.34	15.28	9.85	10.78	11.08	13.00	20.92	17.50
Monthly wage (thousand VND)	3590.3	2480.6	2066.1	3704.5	2590.3	2010.1	3521.3	2443.3	2095.8
Proportion of workers having labor contract *(in percent)*	70.79	49.09	37.70	81.46	46.30	29.68	64.36	50.04	41.94
Proportion of workers having health insurance *(in percent)*	70.34	41.27	26.26	78.38	32.42	19.41	65.49	44.28	29.89
Number of observations	2008	1770	566	1122	777	294	886	993	272

Note: Migrants are those who do not have a registration book in Hanoi or Ho Chi Minh city. Migrants since 2008 do not have a registration book in Hanoi and Ho Chi Minh city. Non-migrants are those who have a registration book in Hanoi or Ho Chi Minh city.
Source: Estimation from the 2009 UPS.

Table 2 presents basic characteristics of the migrants and non-migrants. Compared with non-migrants (who have a registration book in Hanoi and Ho Chi Minh city),

migrants, especially those arriving Hanoi and Ho Chi Minh city since 2008, tend to be younger, single and have lower education degree. Migrants are more likely to live in a temporary house without tap water. Many migrants are living in a dormitory. More specially, 56.8 percent of migrants and 65.7 percent of migrants since 2008 live in a dormitory.

Table 2: Other characteristics of workers with and without registration book

Variable	ALL			HANOI			HCM CITY		
	With regist. book	Without regist. book	Arrive since 2008	With regist. Book	Without regist. book	Arrive since 2008	With regist. book	Without regist. book	Arrive since 2008
Basic demography									
Age	34.82	28.32	26.00	35.90	29.63	29.49	34.18	27.87	24.15
% male	54.75	49.07	48.70	55.13	39.28	29.47	54.52	52.40	58.88
% never married	29.44	51.96	64.79	20.65	49.49	51.51	34.75	52.80	71.82
% living in urban areas	74.85	77.49	73.98	64.06	69.27	72.63	81.36	80.29	74.69
Proportion of workers by education degree (in percent)									
No degree	4.68	8.98	8.59	0.61	3.95	5.33	7.13	10.70	10.31
Primary	9.72	21.06	25.34	1.96	11.23	16.36	14.40	24.40	30.10
Lower secondary	21.84	33.24	37.19	17.15	30.23	40.76	24.68	34.26	35.31
Upper-secondary	29.77	25.09	24.34	36.56	36.20	30.87	25.68	21.31	20.88
Post secondary	33.99	11.63	4.54	43.72	18.39	6.68	28.11	9.33	3.40
Household composition									
Household size	4.36	2.13	1.63	4.39	1.76	1.20	4.34	2.25	1.85
Percentage of children under 15 in household	19.35	7.53	2.92	20.90	5.84	2.25	18.42	8.11	3.28
Percentage of old above 60 in household	7.96	1.15	0.10	8.75	1.57	0.28	7.48	1.00	0.00
Proportion of workers who live in (in percent):									
Dormitory	2.46	56.76	65.73	0.43	55.01	66.75	3.68	57.36	65.19
House with concrete roof	41.65	18.77	17.58	71.84	31.07	24.15	23.44	14.59	14.10
House with flush toilet	92.06	81.16	72.93	91.38	70.70	53.15	92.47	84.71	83.40
House with tap water	67.71	35.96	31.47	75.43	53.17	36.42	63.05	30.10	28.84
Number of observations	2008	1770	566	1122	777	294	886	993	272

Note: Migrants are those who do not have a registration book in Hanoi or Ho Chi Minh city. Migrants since 2008 do not have a registration book in Hanoi and Ho Chi Minh city. Non-migrants are those who have a registration book in Hanoi or Ho Chi Minh city.

Source: Estimation from the 2009 UPS.

4. Methodology

4.1. Wage gaps between migrants and non-migrants

In this study, we use regression and propensity to examine the wage gap between the migrants and non-migrants and control for the difference in observed characteristics between the migrants and non-migrants. We assume log of wages as a function of individual and community variables as follows:

$$\ln(W_i) = \alpha + X_i\beta + M_i\gamma + \varepsilon_i, \qquad (1)$$

where W_i is monthly wages of individual i, X_i is a vector of individual and community variables of individual i, M_i is dummy variable of migration which is equal to 1 for migrant and 0 otherwise, ε_i is unobserved variables that follow a normal distribution with zero mean. The wage gap between the migrants and non-migrants is measured by γ.

In this study, we use two indicators of migration in cities including 'no registration book' and 'arrival since 2008' (one year before the survey year). The control variables are exogenous including sex, age, education, marital status, urban and dummy of Hanoi.

In addition to regression analysis, we also use the matching method to estimate the wage gap.[3] The difference in wages between the migrant and non-migrants give observed variables *X* can be expressed as follows:

$$\Delta E(W \mid X) = E(W \mid X, M = 1) - E(W \mid X, M = 0), \qquad (2)$$

The matching method compares the average wages of migrants with the average wages of non-migrants who have similar distribution of the *X* variables. To match the migrants and non-migrants, we use the method of propensity score matching (Rosenbaum and Rubin, 1983). More specifically, we start by estimating the probability of being migrants conditional on the *X* variable using a probit model (this probability is called propensity score). Then, the migrants are matched with non-migrants based on the closeness of the propensity score. These matched non-migrants form the comparison group who have

[3] Matching methods are widely used in impact evaluation (for review see Heckman et al., 1997; Augurzky and Schmidt, 2001; Imbens and Wooldridge, 2009).

similar *X* variables as the migrants.[4] The difference in the wages between the migrants and the matched non-migrants is the wage gap controlled for the difference in the observed variables *X*. Compared with parametric regression, the propensity score matching relaxes the assumption on functional forms of monthly wages.

4.2. Decomposition of wage gaps

As presented in the third section, there is a large gap in monthly wages between migrants and non-migrants in large cities. We use the decomposition analysis to examine the factors associated with this wage gap. Firstly, we run separate regressions of wages for migrants and non-migrants:

$$\ln(Y_m) = \alpha_m + X_m\beta_m + \varepsilon_m, \tag{3}$$

$$\ln(Y_{nm}) = \alpha_{nm} + X_{nm}\beta_{nm} + \varepsilon_{nm}. \tag{4}$$

The subscript *i* is dropped for simplicity. Subscripts '*m*' and '*nm*' denote migrants and non-migrants, respectively.

The Oaxaca-Blinder decomposition technique is widely used to decompose gaps in the dependent variable (log of monthly wages) between two groups into a gap due to differences in explanatory variables and a gap due to differences in coefficients of the explanatory variables. The estimator of the gap in the monthly wages is presented as follows:

$$\begin{aligned}\Delta\hat{E}[\ln(Y)] &= \hat{E}[\ln(Y_{nm})] - \hat{E}[\ln(Y_m)] \\ &= \left(\hat{\alpha}_{nm} + \overline{X}_{nm}\hat{\beta}_{nm}\right) - \left(\hat{\alpha}_m + \overline{X}_m\hat{\beta}_m\right) \\ &= \left(\overline{X}_{nm} - \overline{X}_m\right)\left(\frac{\hat{\beta}_{nm} + \hat{\beta}_m}{2}\right) + \left(\hat{\beta}_{nm} - \hat{\beta}_m\right)\left(\frac{\overline{X}_{nm} + \overline{X}_m}{2}\right) + \left(\hat{\alpha}_{nm} - \hat{\alpha}_m\right),\end{aligned} \tag{5}$$

whether $\hat{\alpha}$ and $\hat{\beta}$ are estimators of parameters in regression (3) and (4). $\overline{X}_m$ and $\overline{X}_{nm}$ are the average of explanatory variables of migrants and non-migrants, respectively.

The first term in equation (5) is the gap in monthly wages between migrants and non-migrants resulting from the difference in household characteristics. The second term

[4] Rosenbaum and Rubin (1983) show that a treatment and a control group can be matched based on the propensity score instead of the vector of *X* variables.

can be explained as the difference in monthly wages resulting from the different returns to individual characteristics. The third term is the difference that is still unexplained by the current wage models.[5]

5. Empirical results

This section presents the empirical analysis of wage gaps between migrants and non-migrants in the largest cities in Vietnam. The second and third columns present the probit regressions of probability of migration. We select exogenous control variables including gender, age, marital status, urban, dummy variable of Hanoi, and education. The summary statistics of the control variables is presented in Table A.1 in Appendix.

Workers migrate for higher wages and employment opportunities. Migration is most common among younger and more educated workers because older people are less likely to move since migration is a human capital investment. In the other words, older workers have a shorter period to collect the migration investment returns. The shorter payoff period decreases the net gains to migration, thus it lowers the probability of migration (Borjas, 2005). Thus the migrants are younger than the non-migrants. Similar to descriptive analysis in Table 2, migrants are more likely to be single and have lower education than non-migrants even after the control variables such as age and gender are controlled.

Table 3 also presents the regressions of log on monthly wages. As discussed in the previous section, migrants have substantially lower wages than non-migrants. However, Table 3 shows that once observed variables are controlled, the gap in monthly wages between the migrants and non-migrants is very small and not statistically significant.

Other control variables are statistically significant and have expected sign. Female workers tend to have lower wages than male workers. Married workers, older workers and

[5] Oaxaca-Blinder decompositions can have other expressions as follows:

$$\Delta E[\ln(Y)] = (\overline{X}_{nm} - \overline{X}_{m})\hat{\beta}_{nm} + (\hat{\beta}_{nm} - \hat{\beta}_{m})\overline{X}_{m} + (\hat{\alpha}_{nm} - \hat{\alpha}_{m}).$$

$$\Delta E[\ln(Y)] = (\overline{X}_{nm} - \overline{X}_{m})\hat{\beta}_{m} + (\hat{\beta}_{nm} - \hat{\beta}_{m})\overline{X}_{nm} + (\hat{\alpha}_{nm} - \hat{\alpha}_{m}).$$

For a neutral selection of the coefficients of the differences, we use equation (5) in this study.

highly educated workers have higher wages than single workers, younger workers and workers with low education, respectively.

Table 3: Regression of migration and wages

Explanatory variables	Probit: Dependent variable is 'no registration book'	Probit: Dependent variable is 'migration since 2008'	OLS: Dependent variable is 'Log of monthly wages'	OLS: Dependent variable is 'Log of monthly wages'
Do not have registration book			0.0164	
			[0.0248]	
Migration since 2008				-0.029
				[0.0314]
Age	-0.0589***	-0.0605***	0.0698***	0.0686***
	[0.0069]	[0.0108]	[0.0090]	[0.0091]
Age squared			-0.0009***	-0.0009***
			[0.0001]	[0.0001]
Sex (male=1; female=0)	-0.1471	-0.0876	0.2201***	0.2198***
	[0.1048]	[0.1513]	[0.0232]	[0.0232]
Never married (yes=1)	0.2734**	0.6248***	-0.1098***	-0.1084***
	[0.1228]	[0.1733]	[0.0286]	[0.0285]
Urban (urban=1; rural=0)	0.5531***	0.3824**	0.0919***	0.0944***
	[0.1286]	[0.1919]	[0.0230]	[0.0225]
Hanoi (yes=1)	0.0323	0.8329***	-0.0800***	-0.0786***
	[0.1111]	[0.1883]	[0.0237]	[0.0238]
No degree	Omitted			
Primary	-0.0928	0.1652	0.067	0.0678
	[0.2709]	[0.3499]	[0.0601]	[0.0599]
Lower secondary	-0.4352*	-0.2894	0.1566***	0.1548***
	[0.2484]	[0.3346]	[0.0562]	[0.0562]
Upper-secondary	-1.1291***	-1.1008***	0.3288***	0.3232***
	[0.2581]	[0.3682]	[0.0572]	[0.0574]
Post secondary	-1.9677***	-2.6512***	0.9042***	0.8957***
	[0.2651]	[0.4136]	[0.0615]	[0.0616]
Constant	1.3528***	-0.7005	6.1532***	6.1869***
	[0.3425]	[0.5561]	[0.1647]	[0.1661]
Observations	3778	3778	3778	3778
R-squared	0.14	0.16	0.40	0.40

Note: Migrants are those who do not have a registration book in Hanoi or Ho Chi Minh city. Migrants since 2008 do not have a registration book in Hanoi and Ho Chi Minh city. Non-migrants are those who have a registration book in Hanoi or Ho Chi Minh city.
Post-secondary education degrees include college, bachelor, and above.
Robust standard errors in brackets (standard errors are corrected for sampling weights and cluster correlation).
* significant at 10%; ** significant at 5%; *** significant at 1%.
Source: Estimation from the 2009 UPS.

In Table 4, we include interactions between migration variables and age and age squared of workers to examine how the wage gap between migrants and non-migrants change across age. According to Borjas (2005), the wage gap is larger for younger workers and tend to be converge as the workers' age increases. If the migrants have high

education and skills, their wage can be even higher than the wage of the local workers. In other words, there can be an inverted-U shape relation between age and wage gap between migrants and non-migrants. Table 4 shows that the interaction between migration and age squared variable is not statistically significant. It implies that there is no an inverted-U shape or a U-shape relation between the wage gap and age. Interestingly, the interactions between age and migration are negative and statistically significant. The negative sign of the interactions means the wage gap is larger for the older migrants than the younger workers. Possibly, younger migrating workers are more dynamic and can find high wage employment than older migrating workers.

It should be noted that this finding is not absolutely contradictory to the prediction of Borjas (2005). According to our definition, non-migrants also include non-native-born people. There are migrants who obtained a registration book in Hanoi or Ho Chi Minh city. To test the hypothesis of the inverted-U shape relation in Borjas (2005), we need panel data on migrants and non-migrants. However, the panel data are not available in our study.

Table 4: Regression of wages with interaction between migration and migrants' age

Explanatory variables	OLS: Dependent variable is 'Log of monthly wages'	OLS: Dependent variable is 'Log of monthly wages'	OLS: Dependent variable is 'Log of monthly wages'	OLS: Dependent variable is 'Log of monthly wages'
Do not have registration book	0.2337***	0.5313**		
	[0.0834]	[0.2447]		
Do not have registration book * age	-0.0073***	-0.0261*		
	[0.0026]	[0.0144]		
Do not have registration book * age squared		0.0003		
		[0.0002]		
Migration since 2008			0.1840**	0.5123**
			[0.0813]	[0.2353]
Migration since 2008 * age			-0.0075***	-0.0304**
			[0.0026]	[0.0151]
Migration since 2008 * age squared				0.0003
				[0.0002]
Age	0.0740***	0.0780***	0.0697***	0.0711***
	[0.0093]	[0.0110]	[0.0093]	[0.0097]
Age squared	-0.0009***	-0.0010***	-0.0009***	-0.0009***
	[0.0001]	[0.0001]	[0.0001]	[0.0001]
Sex (male=1; female=0)	0.2122***	0.2136***	0.2141***	0.2149***
	[0.0232]	[0.0231]	[0.0232]	[0.0232]
Never married (yes=1)	-0.1106***	-0.1124***	-0.1092***	-0.1096***
	[0.0283]	[0.0282]	[0.0282]	[0.0282]
Urban (urban=1; rural=0)	0.0843***	0.0823***	0.0913***	0.0903***
	[0.0230]	[0.0232]	[0.0222]	[0.0223]

Explanatory variables	OLS: Dependent variable is 'Log of monthly wages'	OLS: Dependent variable is 'Log of monthly wages'	OLS: Dependent variable is 'Log of monthly wages'	OLS: Dependent variable is 'Log of monthly wages'
Hanoi (yes=1)	-0.1099***	-0.1123***	-0.1070***	-0.1079***
	[0.0236]	[0.0238]	[0.0237]	[0.0237]
No degree	Omitted			
Primary	0.0649	0.0649	0.0723	0.0712
	[0.0591]	[0.0591]	[0.0596]	[0.0596]
Lower secondary	0.1453***	0.1477***	0.1534***	0.1523***
	[0.0553]	[0.0551]	[0.0560]	[0.0561]
Upper-secondary	0.3148***	0.3187***	0.3163***	0.3167***
	[0.0563]	[0.0561]	[0.0572]	[0.0573]
Post secondary	0.8794***	0.8830***	0.8809***	0.8809***
	[0.0606]	[0.0603]	[0.0615]	[0.0616]
Constant	6.0866***	6.0154***	6.1770***	6.1554***
	[0.1727]	[0.1985]	[0.1693]	[0.1755]
Observations	3778	3778	3778	3778
R-squared	0.40	0.40	0.40	0.40

Note: Migrants are those who do not have a registration book in Hanoi or Ho Chi Minh city. Migrants since 2008 do not have a registration book in Hanoi and Ho Chi Minh city. Non-migrants are those who have a registration book in Hanoi or Ho Chi Minh city.
Post-secondary education degrees include college, bachelor, and above.
Robust standard errors in brackets (standard errors are corrected for sampling weights and cluster correlation).
* significant at 10%; ** significant at 5%; *** significant at 1%.
Source: Estimation from the 2009 UPS.

Table 5 presents the comparison of the wage gap between the migrants and non-migrants using the propensity matching method. Similar to regression results, the wage gap estimated by the propensity score matching method is very small and not statistically significant.

Table 4: Estimates from propensity score matching

Matching scheme	Effect of 'no registration book'				Effect of 'migration since 2008'			
	Treated (migrant) (Y_1)	Controls (non-migrant) (Y_0)	Difference ($Y_1 - Y_0$)		Treated (migrant) (Y_1)	Controls (non-migrant) (Y_0)	Difference ($Y_1 - Y_0$)	
			Mean	Std. Er.			Mean	Std. Er.
1 nearest neighbor	2630.0	2539.6	90.4	113.8	2278.0	2312.6	-34.6	146.0
5 nearest neighbor	2630.0	2529.9	100.1	99.5	2278.0	2366.7	-88.7	93.5
Kernel, bandwidth 0.01	2630.0	2516.9	113.1	117.8	2280.3	2379.7	-99.5	109.1
Kernel, bandwidth 0.03	2630.0	2527.2	102.8	115.4	2278.0	2392.9	-114.9	106.1
Kernel, bandwidth 0.05	2630.0	2533.4	96.7	114.8	2278.0	2415.1	-137.1	104.5

Note: Treated are migrants (those who do not have a registration book in Hanoi or Ho Chi Minh city) and migrants since 2008 do not have a registration book in Hanoi and Ho Chi Minh city. Controls are matched non-migrants (those having a registration book in Hanoi or Ho Chi Minh city).
Standard errors are calculated using bootstrap with 500 replications (standard errors are corrected for sampling weights and cluster correlation).
* significant at 10%; ** significant at 5%; *** significant at 1%.
Source: Estimation from the 2009 UPS.

Tables 6 and 7 present separate regressions of monthly wages for migrants and non-migrants and decomposition of wage gaps. The last two column present the contribution of the demographic variables and wage returns to these variables to the total wage gap. The difference in the controlled demographic variables contribute 97.1 percentage points to the wage gap (Table 6). Among these demographic variables, age and holding a post-secondary education degree are the most important factor contributing the wage gap. The returns to these demographic variables (contribution of β) is lower for the migrants than the non-migrants. The difference in the returns accounts for 30.8 percentage points of the wage gap. So the unobserved factors reduce the wage gap between the migrants and non-migrants by 27.9 percentage points.

Table 7 presents the decomposition of the wage gap between the migrant arriving since 2008 and non-migrants. This migrant group has substantially lower returns to human capital than the non-migrant group. As a result, the difference in the demographic variables contributes 85.1 percentage points to the wage gap, while the difference in the returns to these variables contributes 181.7 percentage points to the wage gap. Factors that are not controlled in the model reduce the wage gap by 166.8 percentage points.

Table 6: Decomposition of wage gap between employees with registration book and employees without registration book

Variables	X_{nm}	X_m	β_{nm}	β_m	$(X_{nm} - X_m)^* ((\beta_{nm} + \beta_m)/2)$	$(\beta_{nm}-\beta_m)^* ((X_{nm}+X_m)/2)$	Contrition of X (%)	Contrition of β (%)
Age	34.823***	28.316***	0.0763***	0.0692***	0.4733***	0.2220	184.67***	86.61
	[0.299]	[0.377]	[0.0114]	[0.0111]	[0.0652]	[0.5279]	[32.65]	[209.17]
Age squared	1331.64***	892.82***	-0.0010***	-0.0009***	-0.4222***	-0.0387	-164.73***	-15.12
	[23.53]	[26.98]	[0.0002]	[0.0002]	[0.0625]	[0.2507]	[30.77]	[98.67]
Sex (male=1; female=0)	0.5475***	0.4907***	0.2120***	0.2402***	0.0128**	-0.0147	5.00***	-5.72
	[0.0136]	[0.0186]	[0.0305]	[0.0291]	[0.0053]	[0.0228]	[2.06]	[9.17]
Never married (yes=1)	0.2944***	0.5196***	-0.1389***	-0.0376	0.0199***	-0.0412**	7.75***	-16.09**
	[0.0131]	[0.0187]	[0.0383]	[0.0314]	[0.0061]	[0.0203]	[2.49]	[8.09]
Urban (urban=1; rural=0)	0.7485***	0.7749***	0.1032***	0.0144	-0.0016	0.0676**	-0.61	26.39**
	[0.0112]	[0.0147]	[0.0308]	[0.0322]	[0.0013]	[0.0346]	[0.52]	[13.37]
Hanoi (yes=1)	0.3763***	0.2537***	-0.1008***	-0.0209	-0.0075**	-0.0252**	-2.91***	-9.82*
	[0.0121]	[0.0135]	[0.0307]	[0.0308]	[0.0028]	[0.0137]	[1.14]	[5.29]
Primary	0.0972***	0.2106***	-0.0282	0.1741**	-0.0083	-0.0311*	-3.23	-12.15*
	[0.0082]	[0.0163]	[0.0834]	[0.0818]	[0.0069]	[0.0175]	[2.64]	[6.92]
Lower secondary	0.2184***	0.3324***	0.0664	0.2593***	-0.0186**	-0.0531*	-7.24***	-20.73*
	[0.0121]	[0.0169]	[0.0752]	[0.0786]	[0.0070]	[0.0296]	[2.73]	[11.78]
Upper-secondary	0.2977***	0.2509***	0.2791***	0.3556***	0.0149**	-0.0210	5.80**	-8.18
	[0.0124]	[0.0164]	[0.0753]	[0.0806]	[0.0072]	[0.0296]	[2.84]	[11.66]
Post secondary	0.3399***	0.1163***	0.8633***	0.8006***	0.1860***	0.0143	72.58***	5.58
	[0.0121]	[0.0113]	[0.0786]	[0.0872]	[0.0196]	[0.0261]	[8.12]	[10.31]
Constant			6.0938***	6.1652***				
			[0.2110]	[0.2110]				
Observations			2008	1770				
R-squared in regression			0.40	0.37				

Decomposition

	$\ln(Y_{nm})- \ln(Y_m)$	Contrition of X	Contrition of β	Contrition of α	Contrition of β & α
Absolute	0.2563***	0.2488***	0.0789	-0.0714	0.0074
	[0.0258]	[0.0198]	[0.3069]	[0.3132]	[0.0261]
Percentage	100***	97.10***	30.78	-27.88	2.90
	[0]	[10.21]	[121.03]	[123.80]	[10.21]

Note: Migrants are those who do not have a registration book in Hanoi or Ho Chi Minh city. Migrants since 2008 do not have a registration book in Hanoi and Ho Chi Minh city. Non-migrants are those who have a have a registration book in Hanoi or Ho Chi Minh city.

Robust standard errors in brackets. Standard errors are estimated using bootstrap with 500 replications (standard errors are corrected for sampling weights and cluster correlation). * significant at 10%; ** significant at 5%; *** significant at 1%

Source: Estimation from the 2009 UPS.

Table 7: Decomposition of wage gap between employees with registration book and employees without registration book and migration since 2008

Variables	X_{nm}	X_m	β_{nm}	β_m	$(X_{nm} - X_m)^*$ $((\beta_{nm} + \beta_m)/2)$	$(\beta_{nm}-\beta_m)^*$ $((X_{nm}+X_m)/2)$	Contrition of X (%)	Contrition of β (%)
Age	33.592***	25.996***	0.0728***	0.0382***	0.4216***	1.0336**	107.46***	263.45**
	[0.251]	[0.648]	[0.0098]	[0.0138]	[0.0754]	[0.5042]	[20.35]	[137.03]
Age squared	1244.60***	781.70***	-0.0009***	-0.0006***	-0.3543***	-0.3615	-90.30***	-92.14
	[19.25]	[42.61]	[0.0001]	[0.0002]	[0.0649]	[0.2348]	[17.96]	[62.54]
Sex (male=1; female=0)	0.5353***	0.4870***	0.2197***	0.2229***	0.0107	-0.0017	2.72	-0.42
	[0.0122]	[0.0346]	[0.0251]	[0.0461]	[0.0084]	[0.0276]	[2.11]	[7.14]
Never married (yes=1)	0.3327***	0.6479***	-0.1041***	-0.1873**	0.0459***	0.0408	11.71***	10.40
	[0.0112]	[0.0323]	[0.0298]	[0.0937]	[0.0170]	[0.0504]	[4.72]	[13.28]
Urban (urban=1; rural=0)	0.7575***	0.7398***	0.0935***	0.0885	0.0016	0.0038	0.41	0.97
	[0.0093]	[0.0306]	[0.0243]	[0.0546]	[0.0031]	[0.0446]	[0.81]	[11.49]
Hanoi (yes=1)	0.3409***	0.3461***	-0.0785***	-0.0526	0.0003	-0.0089	0.09	-2.27
	[0.0099]	[0.0299]	[0.0258]	[0.0499]	[0.0022]	[0.0195]	[0.56]	[5.02]
Primary	0.1184***	0.2534***	0.0609	0.1085	-0.0114	-0.0089	-2.91	-2.26
	[0.0082]	[0.0295]	[0.0673]	[0.0823]	[0.0083]	[0.0201]	[2.18]	[5.21]
Lower secondary	0.2401***	0.3719***	0.1508**	0.1470*	-0.0196**	0.0012	-5.00**	0.29
	[0.0103]	[0.0307]	[0.0627]	[0.0799]	[0.0085]	[0.0322] **	[2.21]	[8.39]
Upper-secondary	0.2880***	0.2434***	0.3250***	0.2626**	0.0131	0.0166	3.34	4.23
	[0.0104]	[0.0281]	[0.0634]	[0.1041]	[0.0098]	[0.0328]	[2.53]	[8.47]
Post secondary	0.2968***	0.0454***	0.8917***	0.9052***	0.2259***	-0.0023	57.58***	-0.59
	[0.0106]	[0.0107]	[0.0670]	[0.1367]	[0.0258]	[0.0259]	[7.65]	[6.68]
Constant			6.1056***	6.7598***				
			[0.1796]	[0.2509]				
Observations			2008	566				
R-squared in regression			0.39	0.30				

Decomposition

	$\ln(Y_{nm})- \ln(Y_m)$	Contrition of X	Contrition of β	Contrition of α	Contrition of β & α
Absolute	0.3923***	0.3339***	0.7127**	-0.6542**	0.0585*
	[0.0296]	[0.0274]	[0.2999]	[0.3087]	[0.0330]
Percentage	100***	85.10***	181.66**	-166.76**	14.90*
	[0]	[7.85]	[81.02]	[83.69]	[7.85]

Note: Migrants are those who do not have a registration book in Hanoi or Ho Chi Minh city. Migrants since 2008 do not have a registration book in Hanoi and Ho Chi Minh city. Non-migrants are those who have a have a registration book in Hanoi or Ho Chi Minh city.

Robust standard errors in brackets. Standard errors are estimated using bootstrap with 500 replications (standard errors are corrected for sampling weights and cluster correlation). * significant at 10%; ** significant at 5%; *** significant at 1%

Source: Estimation from the 2009 UPS.

6. Conclusions

Vietnam is a transition country with an increasing migration. Migration can have positive effects on welfare of migrant-sending households as well as migrants. However, migration can also lead to negative effects. Migrants in destination areas are less likely to have access to social services and assistances. Migrants have lower skills, networks and information than the native people, and they can find it more difficult to have high wage employments. Some employers prefer employees with permanent residence permission or registration book in cities than migrants (without permanent residence permission).

Although there is a large number of studies on migration and remittances in Vietnam, there have been no studies on the wage gap between migrants and non-migrants. Using a survey of households and individuals in Hanoi and Ho Chi Minh city, this study examines the characteristics of migrants and the wage gap between migrants and non-migrants. It is found that a large proportion of migrants are young and have lower education degrees than non-migrants. As a result of low experiences and education, migrants are more likely to work in agricultural and industrial sectors without social insurance and labor contract. Migrants receive lower wages than non-migrants.

Using regression analysis, we find that the wage gap between migrants and non-migrants is negligible once the observed variables are controlled for. In other words, migrants are not underpaid given their age and education. We also use the decomposition techniques to examine how the difference in the observed control variables and the difference in the earning return to these variable contribute the wage gap between migrants and non-migrants. The difference in the controlled demographic variables contribute mainly to the wage gap. Among these demographic variables, age and holding a post-secondary education degree are the most important factor contributing the wage gap. The returns to these demographic variables is lower for the migrants than the non-migrants. However, the difference in the returns does not contributes largely and significantly to the wage gap.

References

Acosta, P., C. Calderon, P. Fajnzylber, and H. Lopez., (2007). What is the impact of international remittances on poverty and inequality in Latin America?. *World Development* 36(1): 89-114

Adams, Jr. R., (2006) "Remittances, Poverty, and Investment in Guatemala" in "International Migration, Remittances, and the Brain Drain" edited by Çaglar, Ö., and Maurice, S., (2006)

Adams, R.H. and Page, J., (2005) "Do International Migration And Remittances Reduce Poverty In Developing Countries?" World Development Vol. 33, No 10., pp. 1645-1669

Augurzky, B. and Schmidt, C.M. (2001), "The Propensity Score: a Means to an End", IZA Discussion Paper Series No. 271.

Beine, M., Docquier, F., and Rapoport, H., (*2001*) "Brain Drain and Economic Growth: Theory and Evidence", Journal of Development Economics, 64, 1: 275-89.

Borjas, G. (2000), "Economics of Migration", International Encyclopedia of the Social and Behavioral Sciences, Section No. 3.4, Article No. 38

Borjas, G.J., (2005), "Labor Economics", Third Edition, McGraw Hill/Irwin, 2005.

Camarota, S. A., (1998), "The Wages of Immigration: The Effect on the Low-Skilled Labor Market", Center for Immigration Studies, 1522 K Street N.W., Suite 820, Washington, DC 20005-1202 (202) 466-8185 • fax (202) 466-8076 • center@cis.org.

Cohen, R. (2006) "Migration and its Enemies: Global Capital, Migrant Labour and the Nation-State", Ashgate Publishing Limited, Gower House, Croft Road, Aldershot, Hampshire, GU11 3HR, England.

Cuong Viet Nguyen, Berg, M.V., and Lensink, R. (2011), "The Impact of Work and Non-work Migration on Household Welfare, Poverty and Inequality: New Evidence from Vietnam". Economics of Transition, 2011, 1-29.

Dang, N. A, Tacoli, C., and Hoang, X. T (2003), "Migration in Vietnam: A Review of Information on Current Trends and Patterns, and Their Policy Implications", Regional Conference on Migration, Development and Pro-Poor Policy Choices in Asisa, www.livelihoods.org

Dang, N.A., Tran, T.B., Nguyen, N.Q., and Dao, T. S., (2010), "Development on the Move: Measuring and Optimising Migration's Economic and Social Impacts in Vietnam", Country Report, Global Development Network.

De Brauw, A. and Harigaya, T. (2007). 'Seasonal migration and improving living standards in Vietnam', American Journal of Agricultural Economics, 89(2), pp. 430–447.

Docquier, F., and Marfouk, A., (2006), "International Migration by Education Attainment, 1990 -2000" in "International Migration, Remittences, and the Brain Drain" edited by Özden, C., and Maurice, S.,(2006)

Haas, H.D., (2007), "Remittances, Migration and Social Development: A Con ceptual review of the Literature"., Social Policy and Development Programme Paper Number 34, October, 2007. Code: PP-SPD-34

Heckman, J., R. Lalonde and J. Smith (1999). The Economics and Econometrics of Active Labor Market Programs. *Handbook of Labor Economics, Volume 3*, Ashenfelter, A. and *D*. Card, eds., Amsterdam: Elsevier Science.

Imbens, G., and Wooldridge, J. (2009), "Recent Developments in the Econometrics of Program Evaluation", *Journal of Economic Literature*, Vol 47(1), 5-86.

John R. Hicks (1932)"The theory of Wages", London:Macmillan, 1932, p.76

Katseli, L. T., Lucas, R., and Xenigiani, T (2006) "Effect of Migration on Sending Countries: What Do We Know?" OECD Development Centre, Working Paper No. 250. Research Programme on: Economic and Social Effects of Migration on Sending Countries, June 2006.

Marx, V., and Fleischer, K., (2010), "Internal Migration: Opportunities and Challenges for Socio-Economic Development in Vietnam", the Programme Coordination Group on Social and Economic Policies of the United Nations in Viet Nam.

McDowell,C. and A. de Haan (1997), "Migration and Sustainable Livelihoods: A Critical Review of The Literature", IDS Working Paper 65

McKenzie, D. J.,(2006). "Beyond Remittances: The Effects of Migration on Mexican Households" in "International Migration, Remittances, and the Brain Drain" edited by Özden, C., and Maurice, S.,(2006).

Mountford, A., (1997) “Can a brain drain be good for growth in the source economy?", Journal of Development Economics Vol.53 (1997):287-303.

Nguyen,T.P., Tran, N.T.M.T., Nguyen, T. N., and Oostendorp, R. (2008) “Determinants and Impacts of Migration in Vietnam”, Depocen Working Paper Series No. 2008/01, Hanoi, Vietnam: Development and Policies Research Center.

Özden, C.(2006), “Educated Migrants: Is There Brain Waste? ” in “International Migration, Remittances, and the Brain Drain” edited by Çaglar, Ö., and Maurice, S., (2006)

Özden, C., and Maurice, S.,(2006) “International Migration, Remittences, and the Brain Drain”. A co-publication of the World Bank and Palgrave Macmillan.

Posel, D. (2002) “A Review of Current Literature and Recent Research on Migration in Southern Africa”, Working Paper

Rosenbaum, P. and R. Rubin (1983), “The Central Role of the Propensity Score in Observational Studies for Causal Effects”, *Biometrika* 70 (1), 41-55.

Silver, A. (2006), “Families Across Borders: The Effects of Migration on Family Members Remaining at Home”.

Stark O., C. Helmenstein, and A. Prskawetz (1997), “A Brain Gain with a Brain Drain”, Economic Letters, Vol. 55, Issue 2, pp. 227-234**.**

Taylor, J. E., J. Mora, R. Adams, and A. Lopez-Feldman (2005), “Remittances, Inequality, and Poverty: Evidence from Rural Mexico”. Mimeo, University of California.

Appendix

Table A.1. Summary statistics of variables in regressions

Variables	Type	Mean	Std. Dev.
Monthly wages (thousand VND)	Continuous	3062.0	2577.9
Do not have registration book	Binary	0.469	0.499
Migration since 2008	Binary	0.150	0.357
Age	Discrete	31.132	10.718
Sex (male=1; female=0)	Binary	0.555	0.497
Never married (yes=1)	Binary	0.439	0.496
Urban (urban=1; rural=0)	Binary	0.680	0.467
Hanoi (yes=1)	Binary	0.503	0.500
No degree	Binary	0.049	0.215
Primary	Binary	0.134	0.341
Lower secondary	Binary	0.262	0.440
Upper-secondary	Binary	0.300	0.459
Post secondary	Binary	0.255	0.436
Number of observations		3778	

Source: Estimation from the 2009 UPS.