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Foreign Job Opportunities and Internal Migration in Vietnam

Emiko Fukase

Abstract

This paper investigates the role of employment opportunities created by foreign-owned firms as a determinant of internal migration and destination choice using the *Vietnam Migration Survey* 2004 and the *Vietnam Household Living Standards Survey* 2004. Multinomial logit and conditional logit models are estimated to study both origin and destination-specific characteristics of migrants. The paper finds that the migration response to foreign job opportunities is larger for female workers than male workers; there appears to be intermediate selection in terms of educational attainment; and migrating individuals on average tend to go to destinations with higher foreign employment opportunities, even controlling for income differentials, land differentials, and distances between sending and receiving areas.

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in Vietnam

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The World Bank

I. Introduction

Since Vietnam adopted its *doi moi* ("renovation") policy in 1986, Vietnam has gradually enacted a series of reforms to transform a centrally planned economy into a market-oriented one. Vietnam also made considerable progress in liberalizing its trade and Foreign Direct Investment (FDI)[2] policies. These reforms were accompanied by high economic growth[3] and substantial reductions in poverty: the poverty rate dropped from 58.1 percent in 1993 to 37.4 percent in 1998 and 19.5 percent in 2004 (ADB, 2006). On the other hand, several studies indicate that the economic reforms have widened economic disparities across Vietnam's regions (e.g., ADB, 2006; Glewwe, Gragnolati, and Zaman, 2002). New economic opportunities under *doi moi*, together with increasing regional differences in these opportunities, led to a considerable increase in rural-urban migration.[4]

According to the 2009 *Population and Housing Census*, about 6.7 million individuals or 8.6 percent of the population aged five and older in Vietnam changed their places of residence during the period 2004-2009 (General Statistics Office (GSO) of Vietnam, p.21, 2011). This was a substantial increase relative to the previous decade, since only about 6.5 percent of people at or above five years old migrated during the census period 1994-1999 (GSO/UNDP, 2001). In particular, the number of migrants who moved *inter*-provincially rose much faster than those who moved within provinces and this trend is particularly pronounced among female migrants (GSO, 2011). During the early stage of *doi moi* reform, more males migrated inter-provincially, but the gender-based trend reversed in recent years as more females moved across provinces

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[2] Since the first Law on Foreign Direct Investment took effect in 1987 and was subsequently amended in 1990, 1992, 1997 and 2000 (Van Arkadie and Mallon, 2003), FDI has played an important role in Vietnam's economy. For the year 2009, foreign-owned firms accounted for 18.7 percent of Vietnam's Gross Domestic Product (GDP) and 43.2 percent of industrial output (GSO, 2010).

[3] During the period 1986-2011, Vietnam experienced an average annual growth rate of 6.9 percent (the World Development Indicator, the World Bank).

[4] The urban share of the population increased from 23.7 percent in 1999 to 29.6 percent in 2009 (GSO, 2011).

during the last census period (see Figure 2 below). The employment opportunities created by foreign firms, which generated more jobs for females than for males (Fukase, 2013a) might have contributed to this trend. Since Todaro's (1969) seminal paper, many researchers have explored the idea that, in addition to earnings differentials, migrants may move responding to a higher probability of obtaining a modern sector job. Foreign-owned firms might have created such jobs.

This paper explores the role of employment opportunities created by foreign-owned firms as a determinant of internal migration and destination choices using the *Vietnam Migration Survey* (VMS) 2004 and the *Vietnam Household Living Standards Survey* (VHLSS) 2004. The *VMS* is an intercensal survey between the 1999 and 2009 censuses and includes information on about 5,000 migrants who moved to eleven cities and provinces[5] during the five years prior to the survey. The year 2004 and preceding years coincide with the time when employment in foreign firms expanded substantially from 0.41 million in 2000 to 1.04 million in 2004, spurred by the United States-Vietnam Bilateral Trade Agreement (BTA). When the BTA came into effect in December 2001 with the United States granting Most-Favored-Nation (MFN) status to Vietnam (Fukase and Martin, 2000), Vietnam's exports to the United States, in particular, those of labor-intensive manufactured goods, expanded dramatically and this appears to have accelerated the expansion of foreign employment (Fukase, 2013ab). Since the U.S. tariff cut against Vietnam's goods was exogenous (Fukase, 2013b; McCaig, 2011), the event provides an opportunity to analyze how "exogenous trade shock" may have influenced Vietnam's labor market, including its impact on migration patterns.

The contribution of this paper to the literature is threefold. First, the paper particularly focuses on the role of foreign firms in creating "formal' job opportunities (hereafter "foreign job opportunities") as a determinant of migration. As a proxy of the probability of obtaining a job in

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[5] These eleven destinations were selected based on the high levels of *in*-migrants in the 1999 census (GSO, 2005).

the foreign sector in each location, the proportion of workers employed by foreign firms relative to total workers is computed from the *Enterprise Survey* data which cover all registered enterprises. Second, the study differentiates how the determinants of migration vary depending on job outcomes defined by ownership and destination. Finally, whereas the previous studies using the micro data usually investigated characteristics either in sending or receiving areas,[6] this paper employs a two-stage approach investigating characteristics of both areas. In the first stage, a multinomial logit model is employed to determine how the characteristics in source areas and personal attributes "push" individuals to move out (out-migration). In the second stage, conditional logit models are estimated to investigate how destination-specific characteristics "pull" different types of migrants (in-migration), given the migration that has actually taken place.

Following this introduction, Section II presents an overview of the trends and context of internal migration in Vietnam. Section III reviews related studies in the current literature. Section IV describes data sources and descriptive statistics. Section V uses a multinomial logit model to investigate the determinants of the out-migration decision. Section VI implements conditional logit models to explore the determinants of destination choices among migrants. Section VII presents concluding remarks.

II. Background

Following the country's reunification in 1975, the Government of Vietnam implemented an extensive national population and labor relocation policy (Dang, Goldstein and McNally, 1997; Dang, Tacoli and Hoang, 2003). *Inter alia*, the government organized resettlement programs with the establishment of the so-called "New Economic Zones". In order to redress imbalances in

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[6] One exception is Liang and White's (1997) study which estimates both in-migration and out-migration models in China.

population density, the government encouraged rural to rural and urban to rural migration, and migration flows to urban areas were strictly controlled through a variety of policies. The most important of such policies was the system of household residence certificates (*ho khau*), which were required for access to subsidized food, housing, education and social services (Dang *et al.*, 2003).

The *doi moi* policy adopted since 1986 brought about a number of changes that facilitated the development of a variety of migration flows (Dang *et al.,* 1997; Dang *et al.*, 2003, Phan and Coxhead, 2010). First, the household contract system released farmers from collective employment and allocated land-use rights to individual households. This in turn raised agricultural productivity and exacerbated labor surpluses in rural areas. Second, although the *ho khau* system continued, the subsidy system was abolished, making the *ho khau* system less effective as a tool to control labor movement. Finally, the development of transport systems and telecommunications across regions has facilitated spatial mobility.

According to the 1999 *Population and Housing Census*, about 4.5 million individuals or 6.5 percent of the population aged five and older in Vietnam changed their places of residence during the period 1994-1999 (GSO/UNDP, 2001). The 2009 census indicates that internal migration accelerated in the past decade as 6.7 million individuals at or over five years of age (8.6 percent of the population) moved during the period 2004-2009 (GSO, p.21, 2011). In particular, inter-provincial migration rose faster than intra-provincial migration: the number of individuals moving across provinces increased from 2.0 million in the 1999 census period to 3.4 million in the 2009 census period whereas those who moved within provinces rose from 2.5 million to 3.3 million during the same period.

Figure 1 displays the numbers of net inter-provincial migrants (defined as the balance between in-migrants and out-migrants) by eight regions/two major cities and by the two census periods. During the period 1994-1999, inter-provincial migration was driven by rural-urban flows mainly to two large cities and the Southeast region. The Central Highlands also attracted mainly agricultural migrants, partly stimulated by the coffee boom in the 1990s (Ha and Shively, 2008). During the period 2004-2009, the number of net migrants more than doubled from the prior census period in two big cities and in the Southeast, while the gain in the Central Highlands was much smaller relative to the previous period. The Central Coasts and Mekong River Delta experienced large net population losses to migration during the same period.

Figure 2 demonstrates the number of inter-provincial migrants by gender and by three census periods. Whereas male migrants outnumbered females during the census period 1984-1989, this was reversed in recent years as more females moved inter-provincially during the last census period. In particular, several studies point out a growing trend of internal migration among young women moving to the regions that are the main recipients of FDI (e.g., Dang *et al*., 2003; GSO, 2005, 2011).

Although Vietnam received substantial FDI inflow in the 1990s, the contribution of FDI to employment was limited (Jenkins, 2006). Some economists attribute the slow growth of foreign jobs in the 1990s to the capital-intensive and domestic-market-oriented nature of production under protectionist trade and investment regimes (Athukorala and Tien, 2012). In contrast, partly stimulated by the BTA (2001) and Vietnam's accession to the World Trade Organization (2007), the re-orientation of foreign firm activities toward export-oriented production in the 2000s appears to have had positive impacts on foreign employment growth.

Figure 3 shows the evolution of employment by foreign firms by gender for the period 2000-2007. The number of workers employed by foreign firms more than quadrupled, increasing from 0.41 million in 2000 to 1.04 million in 2004 and to 1.69 million in 2007. The acceleration of growth in employment in 2001 shown in Figure 3 may reflect the impacts of the U.S.-Vietnam BTA, which came into effect in December 2001, with the United States granting MFN status to Vietnam (Fukase and Martin, 2000). As a result, Vietnam's exports to the United States, in particular, those of labor-intensive manufactured goods (e.g., clothing, footwear and furniture), expanded dramatically (Fukase, 2013b). Vietnam's FDI inflow in the aftermath of the BTA experienced a disproportionately large increase in those sectors in which exports to the U.S. expanded (Parker, Riedel, and Quang, 2007).

Figure 3 demonstrates that the expansion of employment by foreign firms was faster for female workers relative to male workers, as the share of females employed by foreign firms increased from 60.4 percent in 2000 to 66.5 percent in 2004 and further increased slightly to 67.5 percent in 2007 (the *Enterprise Survey* data, GSO). As Vietnam became increasingly integrated into the world economy, the expansion of export-oriented and female-intensive manufacturing production in which Vietnam had a comparative advantage (e.g., clothing, footwear and electronics) appears to have created employment disproportionately for females (Fukase, 2013a). Overall, high export-orientation and high female intensity in foreign firms in Vietnam are consistent with the view that expansion of exports has boosted the demand for female labor in manufacturing in developing countries (e.g., Wood, 1991).[7]

In addition to the employment effect described above, the relatively high earning opportunities in the foreign sector may be another reason why foreign firms attract migrants. Previous studies

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[7] Measuring the impact of North-South trade on the female intensity of manufacturing, Wood (1991) finds that developing countries which exported a rising proportion of their manufactured output tended to experience rising female intensity in their manufacturing sectors.

have found that foreign firms usually pay higher wages relative to domestic counterparts.[8] For instance, using the cross sectional and individual panel data from the VHLSS 2002 and 2004, Fukase (2013a) finds that foreign firms pay higher wages relative to domestic counterparts after controlling for workers' personal characteristics and that longer hours of work in foreign firm jobs relative to working in the informal wage sector are an important component of the wage gains. Furthermore, analyzing foreign wage premium separately by gender, she finds that foreign wage differential relative to informal wage sector jobs for the subset of lower skilled workers (without upper-secondary education) is larger for female than male workers, reflecting low earning opportunities for females in the informal wage sector in Vietnam.[9] The existence of foreign wage premium, in particular, relative to the informal sector, is likely to be another reason why foreign firms are drawing Vietnamese workers from rural areas.

Finally, foreign firm employment is concentrated in a few provinces. Figure 4 shows the foreign sector employment levels in seven provinces (out of 64 provinces) in which foreign enterprises generated the most employment during the period 2000-2007. Foreign sector employment was overwhelmingly concentrated in Ho Chi Minh City (HCMC) and two provinces adjacent to HCMC, namely Binh Duong and Dong Nai provinces, as foreign sector employers in these three provinces alone accounted for about 73 percent of total foreign employment in 2004. Although the employment by foreign firms in two big cities in the North (namely Hanoi and Hai Phong) has grown, the number of individuals employed in the foreign sector in these cities was relatively small compared to the South. The high concentration of foreign job opportunities in the Southeast may be among the reasons why the latter region attracted migrants.

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[8] See Lipsey (2004) for a review of the earlier literature.
[9] The findings in Vietnam are consistent with Glick and Roubaud's (2006) study which concludes that Zone Franche (the Export Processing Zones) employment in Madagascar represents a significant step-up in pay for women who would otherwise be engaged in low-wage informal sector work.

III. Determinants of Internal Migration[10]

The literature has long recognized that migrants tend to move in response to differences in economic opportunities. For instance, the human capital model of Sjaastad (1962) hypothesizes that the migration decision is influenced by the present value of the difference in income streams between alternative locations. According to this model, the higher rate of migration among the young can be understood as a logical outcome of investment decision-making since the young face a longer life investment horizon. Extending the wage-differential approach, Todaro (1969) formulates a rural-urban migration model that incorporates the probability of obtaining a modern sector job as an additional determinant of migration. Furthermore, the model of Harris and Todaro (1970) demonstrates that, under certain circumstances, urban job creation may actually increase local unemployment by inducing more migrants to move to urban areas.

There exists a large body of literature which investigates the determinants of migration empirically. One popular approach is to use the macro gravity model of migration, inspired by Newton's law of gravity.[11] Several studies have applied the macro gravity model (or a variation thereof) to Vietnam (Dang *et al.*, 1997; Nguyen-Hoang and McPeak, 2010; Phan and Coxhead, 2010). Studying the 1989 census data, Dang *et al.* (1997) find that while government intervention played a key role in moving people from sending provinces/cities to targeted resettlement areas, people still moved into the urban areas which gained population, on balance, from migration. Their study also finds that, even during the initial phase of the *doi moi* policy, women tended to go to areas with higher relative levels of industrial development.

Using the 1989 and 1999 *Censuses of Population and Housing* data, Phan and Coxhead (2010) estimate a standard macro migration equation to examine the determinants of inter-provincial

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[10] This section is not intended to be exhaustive. See, for instance, Lucas (1997) for an excellent review.
[11] The model specifies migration as a positive function of the attractive "mass" (measured by income or by population) of origin and destination areas and a negative function of distance between them.

migration flows in Vietnam. Whereas they find that provinces with a higher per capita income attract more migrants, the coefficient for income in the sending province in their regression turns out to be positively significant. As a potential explanation, they suggest that the "liquidity constraint effect"[12] in poorer regions outweighs the "push" effect of migration in Vietnam. Relating the migration rate between pairs of provinces in one period to the change in income differential between these provinces in the next period, they also find an inequality-reducing impact of migration for the flows going to HCMC and surrounding provinces.[13]

Nguyen-Hoang and McPeak (2010) extend the macro gravity model by introducing urban unemployment rates at origin and destination provinces as a proxy for the probability of finding employment. Whereas they find that higher unemployment at places of origin generates more out-migrants, they also find, contrary to theoretical predictions, that higher unemployment at destination is associated with more in-migrants.

Nguyen, Tran, Nguyen and Oostendorp (2008) employ a micro approach to explore the determinants of out-migration using the data on panel households in the VHLSS (2002, 2004). Using a probit model, they specify the dichotomous outcome of migration (stay or move) as a function of household characteristics and the conditions in the sending areas. They find that larger households tend to have more out-migrants; households with members of age between 15 and 25 years are more likely to have out-migrants; and higher educational attainments of household members increase the probability of out-migration. Interestingly, for "economic" migrants, they find evidence of the existence of a "migration hump" with an inverted U-shape

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[12] According to Phan and Coxhead (2010), the "liquidity constraint effect" means that poorer provinces have low capacities to finance migration costs and that this in turn leads to poverty related labor immobility. The liquidity constraint hypothesis predicts that the out-migration rate first increases with respect to a sending province's income and then decreases as income rises.

[13] These results are consistent with Niimi, Pham and Reilly's study (2009), which finds that a migrant who works in the foreign sector is more likely to remit money home, thus trickling-down the benefits of FDI to rural areas.

revealing that the probability of out-migration rises with per capita expenditure levels up to a certain threshold level and falls afterwards.[14] However, Nguyen *et al.* (2008) did not find evidence that the presence of non-farm economic activities deters economic out-migration.[15]

If more than one migration destination or outcome needs to be specified, a common approach to deal with multiple choices is to use a multinomial logit model (e.g., Liang, Chen and Gu, 2002 for China; Lucas, 1985 for Botswana). Liang *et al.* (2002) investigate the determinants of both intra-provincial and inter-provincial out-migrations focusing on the characteristics of sending provinces in China. In particular, they focus on the role of rural enterprises (measured by the share of workers employed in rural enterprises in a province) and find no evidence that rural industrialization reduced either intra-provincial or inter-provincial out-migration. One limitation of models focusing on sending areas is that the approach fails to take account of the characteristics of potential destination areas.

Some papers use in-migration models to study migrants' choices of destination. In particular, several studies estimate conditional logit models and identify what kinds of characteristics of destination areas "pull" migrants (e.g., Davies, Greenwood, and Li, 2001 for the United States; Fafchamps and Shilpi, 2013 for Nepal; and Liang and White, 1997 for China). Davies *et al.* (2001) use a conditional logit model to investigate migration responses to relative economic opportunities in the United States and find that migrants are more likely to move to destinations with relatively high per capita incomes and less likely to move to destinations with relatively high unemployment rates. For China, Liang and White's (1997) in-migration models reveal that

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[14] Nguyen *et al.* (2008) find that the probability of economic out-migration peaks when annual per capita expenditure level reaches 4,674,000 dong or 3,878,000 dong in the regressions without and with commune characteristics respectively.

[15] Nguyen *et al.* (2008) find a negatively significant coefficient for the dummy variable indicating whether or not the household resides in a "commune with enterprises, factories, or trading village within 10 km" and suggest the importance of non-farm economic activities to deter migration. However, for the sample limited to "economic" migrants, the coefficient for the latter variable turns out to be insignificant.

temporary and less educated inter-provincial migrants are more likely to move into provinces with well-developed rural enterprises. They also find that migrants (temporary migrants especially) are more likely to choose provinces with high levels of foreign capital investment as destinations.

IV. Data Sources and Descriptive Statistics

The *Vietnam Migration Survey* (VMS) 2004 was conducted as an intercensal survey between the 1999 and 2009 censuses by Vietnam's General Statistics Office (GSO) with the technical support of the United Nations Population Fund (UNFPA) (GSO, 2005). In the VMS, about 5,000 migrants were interviewed in the destination areas which recorded high levels of in-migrants in the 1999 census (GSO, 2005). A migrant is defined as "a person aged 15-59 who had moved to their current district/quarter from another district/quarter during the five years prior to the survey, and who had resided at their current place of residence one month or more" (GSO, 2005, p. 14). The eleven cities and provinces covered by the VMS represent five areas, namely, Hanoi, the Northeast Economic Zone (including Quang Ninh, Hai Phong and Hai Duong), HCHC, the Southeast Industrial Zone (Binh Duong and Dong Nai) and the Central Highlands (Gia Lai, Dac Lac, Dac Nong, and Lam Dong). Most of the migrants who went to the Central Highlands were interviewed mainly to understand the pattern of rural-rural migration as compared to rural-urban migration (GSO, 2005).

On the one hand, since the survey covers only eleven provinces as migrants' destination areas, and information to construct sampling weights that would adjust for the unequal probability of selection is not available (GSO, 2005), the VMS is not a suitable data source to evaluate the general trend of internal migration in Vietnam. On the other hand, the VMS has several features which make it a suitable source for data to analyze the role of foreign job opportunities in

influencing migration patterns. First, the sample includes the majority of provinces which attracted FDI.[16] Second, unlike the VHLSS data, the sampling framework of which is based on permanent registration status (thus excluding temporary migrants), the VMS includes migrants with temporary or no household registration. Coverage of the latter migrants is important since many migrants who work for foreign firms tend to hold a temporary status.[17] Third, the VMS includes detailed information on individual characteristics and migration outcomes in destination areas, this permits an analysis of differential patterns of migration depending on job outcomes. Finally, since one can identify from the VMS where migrants came from, this in turn makes it possible to examine the characteristics of their origin areas.

In order to study the characteristics of migrants relative to non-migrants, the data on non-migrants are taken from the VHLSS 2004. The VHLSS 2004 was conducted by the GSO of Vietnam with the technical support of the World Bank and is generally recognized to be of high quality and representative of all of Vietnam. The VHLSS 2004 data are also used to compute the province (and urban/rural) level variables in origin and destination areas.

The first and second columns of Table 1 compare the descriptive statistics of migrants vs. non-migrants constructed from the VMS 2004 and VHLSS 2004 respectively. For the sample of migrants taken from the VMS, individuals between 15-59 years of age who work, and those who do not work but sought employment, are included. As a comparison group, the sample of non-migrants is constructed from the VHLSS 2004. Non-migrants are defined as those who are 15-59 years of age and either work, or don't work but sought employment, and who resided at the same

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[16] The eleven provinces covered by the VMS accounted for 83.3 percent of foreign employment in 2004 (author's calculation based on the *Enterprise Survey* data (GSO)).

[17] According to the VMS, only 10.2 percent of the migrants who work for foreign firms possess permanent registration status.

place five years prior to the survey.[18] From both samples, individuals who are students, do housework, or are unemployed but are not seeking employment, have been excluded. This results in a sample of 4,476 migrants and 16,878 non-migrants.

For migrants, the data are further disaggregated into four categories of migration outcomes defined by ownership and destination: migrants who reported working in foreign, state and private sectors[19] in two big cities and economic/industrial areas are referred to "Foreign", "State" and "Private" respectively. I classify migrants who went to the Central Highlands as a proxy for agricultural migrants ("Agriculture").

Table 1 reveals that there are substantial differences in demographic and economic characteristics between migrants and non-migrants, and among migrants, depending on migration outcomes. In terms of demographic characteristics, the migrants are generally younger (with an average age of 28.7 years for migrants as opposed to 35.2 years for non-migrants) and are more educated (with their average education of 9.2 years as compared to 7.9 years for non-migrants). However, there exists a large variation in education levels depending on migration types. Whereas the state sector appears to have attracted the most educated migrants (with 12.4 years of average educational attainment), followed by those ending up in the foreign sector (with 9.7 years of education), migrants who moved to seek agricultural activities (with 6.7 years of education) are on average less educated than non-migrants. The proportion of female migrants in

[18] In order to exclude migrant households, I only included households who responded that they have lived in the same house since 1999 or earlier.

[19] Those workers who reported working for "foreign investment organization" in the VMS are referred to as "foreign". The "state" sector includes government and state-owned enterprises (SOE). In terms of jobs for migrants who ended up in the domestic private sector, the VMS does not distinguish between formal vs. informal work nor between farm vs. non-farm activities. One important event in the early 2000s was the enactment of the Enterprise Law (2000) which greatly improved the institutional environment for private business (Van Arkadie and Mallon, 2003). The implementation of the Enterprise Law in turn encouraged the establishment of new enterprises and created formal job opportunities for Vietnamese workers. However, limitations in the VMS made the data of little use in investigating the impacts of growth of formal private enterprises on migration.

the foreign-owned sector is especially high with three quarters of migrant workers being women. In 2004, the proportion of individuals who were unemployed (defined as "those who are not working but sought employment") is relatively low for both migrants and non-migrants registering 0.9 percent and 1.1 percent respectively. For migrants, the proportion of those who were unemployed in origin areas[20] is 2.6 percent, which is a much higher rate than the average proportion of the unemployed after migration.

The average monthly earnings reported in the VMS,[21] are 1.25 million dong, 1.11 million dong and .91 million dong for "State", "Private" and "Foreign" workers respectively,[22] whereas the migrants who went to the Central Highlands earned .50 million dong on average. Although the income levels of migrants before migration are not reported in the VMS, the survey questionnaire includes a question about migrants' self-assessments of the change in income before vs. after migration. Table 1 demonstrates that approximately 84.7 percent of migrants feel that their incomes are better whereas few migrants (3.5 percent) reported that their incomes are worse. For those who work for foreign firms, the proportion of migrants who responded that their incomes are better is slightly higher than the average of migrants at 87.9 percent. Migrants who went to the Central Highlands did not improve their incomes as much: the proportion of those who feel that their incomes are better is lower than average at around 74.1 percent whereas that of those who think that their incomes are worse is higher than average (9.7 percent).

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[20] In the survey, each migrant is asked about the main activity in the last six months before migrating. The proportion of those who responded as "unemployed and looking for work" is defined as the proportion of unemployed in the origin area.

[21] The actual income figures are not used in the empirical analyses since the income differentials in the model are computed based on expectations. Comparing actual wages and predicted wages, it turns out that the Mincerian wage regressions in the empirical section predict migrants' actual incomes reasonably well.

[22] The lower wages amongst the workers in foreign firms relative to the other sectors may reflect partly their younger age, the higher proportion of females who work in this sector and the low-wage industries for which they work such as clothing and footwear manufacture (Fukase, 2013a).

The migrants interviewed in the VMS originated in all Vietnam's 64 provinces. Whereas about two thirds (63.7 percent) of them resided in urban[23] areas after their migration in this sample, about 78.3 percent of them came from rural areas. The "distance"[24] of re-location, which is approximated by the distance between the capitals of a migrant's source province and destination province, averaged around 563 kilometers for the entire sample. About 79.8 percent of those who work for foreign firms came from rural areas, traveling long distances (771 kilometers on average). The migrants to the Central Highlands also tended to come from remote provinces at an average "distance" of 874 kilometers. In contrast, the "distance" of re-location for those who work for the state sector is relatively small at 226 kilometers on average.[25]

Table 2 presents some key economic and demographic indicators by urban/rural locations and by Vietnam's two biggest cities and eight regions, which are computed from the VHLSS 2004 and the *Enterprise Survey* data.[26] Evaluating the standard of living by per capita expenditure, Table 2 reveals disparity between urban and rural areas and across regions. In 2004, the per capita average monthly expenditure in urban areas (.66 million dong) was more than double that in rural areas (.32 million dong). By this measure, HCMC, followed by Hanoi, and the Southeast (other than HCMC) attained the highest standard of living, while people living in the mountainous areas in the Northwest, Northeast and Central Highlands, as well as those residing in the North Central Coast, lagged behind.

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[23] Destination or origin areas are referred to as "urban" if migrants reported that they reside(d) in "large city", "small city", or "town"; areas are referred to as "rural" if migrants reported living in "countryside."

[24] Geographical distance between origin and destination areas is typically used as a proxy for the cost of migration in the literature, assuming that the latter variable captures transportation costs, psychological costs, and costs of acquiring information (Lucas, 1997).

[25] The shorter distance may partly reflect a large migration flow to Hanoi and other northern cities from neighboring provinces, and partly a governmental practice of transferring personnel on a local basis (GSO/UNDP, 2001).

[26] Whereas the variables in the empirical section are computed at the province and urban/rural level, Table 2 shows them at a more aggregated level to facilitate the presentation. See notes in Table 2 for the definitions of each variable.

The gap in living standards correlates in part to personal characteristics of residents such as ethnicity and education level. In particular, it is recognized that poverty in Vietnam is strongly associated with ethnicity (ADB, 2006; Epprecht, Müller, and Minot, 2011; Hung and Reilly, 2009).[27] Table 2 shows that minorities are especially concentrated in the mountainous regions. Educational attainments varied across locations; urban dwellers tended to be better educated with 8.7 years of educational attainment on average as compared to those in rural areas with 6.6 years of education.

The regional disparities can also be viewed in terms of employment opportunities. Whereas the unemployment rate in Vietnam for the year 2004 was relatively low, underemployment is a common phenomenon in Vietnam especially in rural areas.[28] Foreign- and state-owned sectors may provide superior jobs, offering workers full-time employment opportunities and paying higher wages given personal characteristics (Fukase, 2013a). Table 2 demonstrates that the proportions of workers who are employed in state and foreign sectors relative to total workers are 10.1 percent and 2.2 percent respectively. Employment in both sectors is nearly four times higher in urban areas relative to rural areas. As one might expect, state employment is highest in proportion in Hanoi (32.7 percent). As seen in Figure 4, employment by foreign firms is particularly unevenly distributed across regions with its highest concentration to be found in the Southeast.

V. First-Stage Model of the Determinants of Out-migration

A multinomial logit model (Greene, 2003, Chapter 21.7.1) is a useful tool to examine how the determinants of migration differ according to the four migration outcomes defined above. The VMS includes information about the province from which each migrant originated and whether

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[27] While only 13.5 percent of the ethnic Vietnamese (Kinh) and Chinese were poor, 60.7 percent of ethnic minorities lived below the poverty line in 2004 (ADB, 2006). See Hung and Reilly (2009) for analyses of ethnic wage gap.
[28] Rural workers of working age worked only about 79 percent of working hours in 2004 (GSO, 2006, p.57).

or not the area of origin is urban or rural. This information in turn enables us to link migration outcomes in the destination areas with characteristics of the sending areas.

The models are motivated by a random utility model for the ith individuals faced with J choices. Let utility of the jth choice be defined as

$$U_{ij} = x_i' \beta_j + \varepsilon_{ij}$$

where x_i is a vector of a set of individual- and origin-specific characteristics. The probability of person i choosing choice j (P_{ij}) is a nonlinear function: $P_{ij} = P(x_i)$ in which the dependent variable is a logistic function of the explanatory variables.[29] The dependent variable takes discrete values one through five according to the person's choice ($J = 5$) including: staying in home areas (category 1), moving out to big cities/industrial areas and work in "Foreign" (category 2), "State" (category 3) and "Private" (category 4) sectors, and moving to the Central Highlands for agricultural activities (category 5).

For the purpose of identification, the coefficient for the outcome being non-migrant (category 1) is normalized and all the migration outcomes are estimated in relation to this benchmark. Personal characteristics include age, gender (a value of one if female), education and minority status (a value of one if minority).[30] Employment status is a dummy variable indicating whether

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[29] If the individual makes choice j, it is assumed that U_{ij} is the maximum among the J utilities. Thus, the model is driven by the probability that choice j is made, which is
$P_{ij} \equiv P(U_{ij} > U_{ik}$ for all other $k \neq j)$. If the error terms are assumed to be independent and identically distributed with the Gumbel distribution, this gives rise to the multinomial logit model. The probability of an individual being in a selected outcome can be expressed as

$$P_{ij} = \frac{\exp(x_i' \beta_j)}{\sum_{k=1}^{5} \exp(x_i' \beta_k)} \quad j=1,\ldots,5.$$

For the purpose of identification, the coefficient for the outcome being non-migrant (category 1) is set to zero ($\beta_1 = 0$).

[30] Vietnam's population is comprised of about 54 ethnic groups of which the largest group is the Kinh (84 percent of total population). The minority is defined to represent all ethnic groups other than the Kinh majority and Hoa (Chinese).

or not the individual is unemployed (for migrants, the dummy represents the status before migration).

In order to proxy for the origin characteristics,[31] a set of economic variables aggregated at the province (and urban/rural) level is used. Since there are 64 provinces and each province consists of urban and rural areas, there are 128 sending areas in my regressions. Thus, average per capita monthly household expenditures and average per capita land areas owned by households[32] are computed by province (and urban/rural) from the VHLSS 2004 in order to capture the living standards and the opportunities for agricultural, forestry, and fishery activities respectively. To proxy for the chance of obtaining a job in the state sector, the proportion of state workers in total employment at each sending area is calculated from the VHLSS 2004. In terms of the proportion of workers employed by foreign firms, the number of workers in the latter sector for each location is taken from the *Enterprise Survey* data (GSO)[33] and divided by the total employment.

In order to study the determinants of the migration decision for the migrants as a whole, I first run a logit model relating a dichotomous outcome of migration (migrant vs. non-migrant) to a set of personal and origin characteristics.[34] Table 3 demonstrates the results of logit regressions. All coefficients are reported in terms of the impacts of the variables on the odds ratios, i.e., the ratios of the odds of migration occurring relative to staying. Thus, an estimated coefficient more (less) than one indicates that the independent variable is associated with a higher (lower) probability of

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[31] For the migrant sub-sample that is drawn from the VMS, information on economic conditions (such as income levels or the type of work) prior to the migration decision is not available beyond whether or not he or she was employed.

[32] The per capita land area owned by the household members consists of "farming, forestry land and water surface area for aquaculture, residence land and garden, pond next to housing land" (the VHLSS 2004).

[33] There are two reasons why the *Enterprise Survey* data are more suitable to compute the number of foreign jobs than the data from the VHLSS 2004. First, the VHLSS is likely to under-represent the temporary migrants working in the foreign sector since the sampling of the latter data is based on the households' permanent registration status. Second, the number of workers who reported working in the foreign sector (278 observations) in the VHLSS 2004 is too small to reflect the varying employment opportunities at the province and urban/rural level.

[34] The logit model can be viewed as a special case of the multinomial logit model when J=2.

migration. Since there are both individual and province level variables in my regressions, the standard errors are adjusted for within province and urban/rural correlation (clustering). It is found that younger and more educated individuals are more likely to migrate; these results are in line with theory (e.g., Sjaastad, 1962). The result of a regression model that includes dummies to denote the levels[35] of education (column 2) confirms that the probability of migration increases monotonically as the education level increases (the upper secondary education is the omitted category). Females are more likely to migrate relative to males, which is in line with the trend found in the 1999 and 2009 census data (GSO/UNDP, 2001; GSO, 2011). Consistent with Nguyen-Hoang and McPeak (2010), higher unemployment at the place of origin appears to be a factor which generates out-migration.

In order to proxy for the standard of living in the location where an individual resides, Model (3) introduces per capita expenditure as a set of dummy variables by four quartiles.[36] (The upper-middle quartile is the omitted category). The coefficient estimates turn out to be consistent with the "liquidity constraint hypothesis" (Phan and Coxhead, 2010) and with the existence of a "migration hump" (Nguyen et al., 2008), but are not statistically significant.[37]

Table 4 presents the results of multinomial logit model relating four migration outcomes to a set of personal and origin characteristics. For the purpose of identification, non-migrants constitute the base category. The coefficients are reported in terms of the impacts of the variables

[35] Five levels of education - college (and above), upper secondary (grade 12 completed), lower-secondary (grade 9-11 completed), primary (grade 5-8 completed) and no primary (less than grade 5 completed) - are considered.

[36] The lowest quartile represents those who live in a location where the average monthly per capita expenditure is less than 298,000 dong. The ranges of average expenditures of the lower-middle, upper-middle, and highest quartiles are 298,000-339,000, 339,000-449,000 and above 449,000 dong respectively.

[37] The results are sensitive to adjustment for within province and urban/rural correlation. In terms of the coefficient estimates, the coefficient for the lower-middle quartile is found to be greater than one and those of the lowest and the highest quartiles turn out to be less than one, suggesting that individuals residing in the areas with a living standard belonging to the lower-middle quartile are most likely to migrate. I also run an alternstive regression including the log of the monthly per capita expenditure and its square terms. In line with Nguyen et al. (2008), my coefficient estimates imply that the probability of out-migration peaks when the monthly expenditure level reaches around 356,000 dong. Whereas these coefficients are found to be significant without the adjustment, they lose statistical significance when corrected for clustering.

on the relative risk ratios, i.e., the ratios of the probability of each outcome relative to the probability of the base category. Thus, an estimated coefficient more (less) than one indicates that the explanatory variable increases (reduces) the probability of the individual selecting each migration category relative to staying in the origin area. The Hausman and McFadden (1984) test results failed to reject the null hypothesis that the Independence of Irrelevant Alternatives (IIA) assumption holds.

The results show a striking difference in migration patterns among different types of migration. Relative to males, female workers are highly likely to migrate to work in the foreign sector, and, to a lesser extent, in the state sector. The relative risk ratio of 3.25 implies that, *ceteris paribus*, the relative probability of moving to work in the foreign sector is 225 percent higher for females relative to males.[38] There is no statistically significant impact of gender on the relative probability of migrating for those who belong to the other migration categories.

In terms of educational attainments, the relative probability of migrating and working in state sector employment increases monotonically as the stage of educational achievement increases. In terms of the migrants who end up working in the foreign and private sectors, there appears to be an intermediate selection: the coefficients for the education categories are less than one implying that individuals who have an upper-secondary education (followed by workers with a lower-secondary education) are those most likely to be drawn into the "Foreign" and "Private" migration categories. The migrants who moved for agricultural activities are less likely to have attained upper secondary education.

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[38] For instance, the relative risk ratio is:

$\frac{P_{foreign}}{P_{stay}} = Exp\ (Female\ \cdot \beta_{female} + other\ variables)$ where *female* = 1 if female, = 0 otherwise, and β_{female} is the regression coefficient obtained from the multinomial logit model. As $\beta_{female} \approx 1.18$, the relative risk ratio is $Exp\ (1.18) \approx 3.25$.

Ethnic minority status is associated with a significantly lower probability of moving to big cities/industrial areas relative to staying in comparison with the Kinh majority and Hoa, but with a higher relative probability of moving to the Central Highlands.

In terms of job opportunities in origin areas, it is found that living in the areas with higher levels of foreign job opportunities prior to migration raises one's relative probability of moving to work for foreign sector employers. Similarly, residing in areas with higher job opportunities in state organizations is associated with a higher relative probability of migrating to work for state sector employment. This is perhaps because those who live in the areas with higher foreign or state job opportunities are better informed and able to take advantage of migration opportunities. Migrants who ended up working in foreign firms in the VMS came from 56 provinces in every region of Vietnam. On the one hand, many of them came from poorer areas where there are few foreign employment opportunities.[39] On the other hand, many provinces with relatively high foreign presence such as Hai Duong, Dong Nai, Hai Phong, and HCMC, became source provinces to supply labor to firms in the expanding foreign sector. It is likely that the latter effect outweighed the former in the out-migration model.

Overall, the multinomial logit model proved to be useful to analyze how individual attributes and origin characteristics would affect different migration outcomes. However, the model focusing on sending areas did not reveal insights on whether foreign job opportunities play a role in rising rural-urban migration. This limitation suggests a need to pursue an in-migration model.

VI. Second-Stage Models on Destination Choices

This section implements conditional logit models (Greene, 2003, Chapter 21.7.2) to examine how the differences in a series of economic opportunities in potential destinations would have affected the migrants' destination choices. Each migrant in the sample faces 18 location choices

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[39] The three most important source provinces were Than Hoa, Nghe An, and Ha Tinh in the North Central Coast.

(N=18), i.e., 17 alternative destination[40] choices (if moved) and a choice to stay in the source province. Suppose that the utility level of choosing area j for the ith individual is

$$V_{ij} = z_{ij}'\gamma + e_{ij}$$

where z_{ij} is a vector of destination-specific attributes including expected income defined below ($\widehat{W_{ij}}$), land availability, the likelihood of obtaining a job in the foreign sector, the prospect of obtaining a job in the state sector, and distance between origin and potential destination areas. The conditional logit model estimates the probability that an individual will choose a certain destination, conditional on choice characteristics.[41] Unlike the multinomial logit model, in the conditional logit model, z_{ij} varies across potential destinations whereas the parameter γ is constant across choices.

Since the outcome variables are not available for alternative locations except for the location where the migration actually took place, the differentials in economic opportunities are constructed based on migrants' expectations. The expected incomes for migrants across different locations are likely to depend on both individual- and location-specific characteristics (see Table 2). Thus, predicted earning equations (Lucas, 1985)[42] are estimated using the data from the VHLSS 2004. The expected monthly wages for 18 alternative locations for each migrant are

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[40] Whereas the migrants who moved to HCMC, Hai Phong, and Hai Duong were interviewed only in urban areas, those who went to Dac Lac and Dac Nong were surveyed only in rural areas. This results in 17 alternative destinations.

[41] If the individual chooses destination j over all other locations, it is assumed that the utility is the highest; i.e., $V_{ij} > V_{ik}$ for all other $k \neq j$. Then, provided that e_{ij} has an independent Gumbel distribution, the probability of an individual i choosing area j is $P_{ij} = \dfrac{\exp(z_{ij}'\gamma)}{\sum\limits_{k=1}^{18}\exp(z_{ik}'\gamma)}$ j=1,…18.

[42] Lucas (1985) explores empirically Todaro (1969) and Harris-Todaro (1970) hypotheses adopting micro data at the individual level in the context of Botswana. Developing prediction equations for wages and likelihood of employment, his results reveal that the higher the chance of finding employment in town and the higher the person's expected earnings in town, the more likely it is that a person will migrate to town from his or her home village. Conversely, the greater the chance of finding employment in the home village and the higher the wage for a person at home, the lesser the propensity to migrate.

estimated applying the standard Mincerian equations. Since the returns to personal characteristics may be different depending on Vietnam's regions, region-specific wage regressions are run to derive estimated coefficients α for each region k.[43]

$$Ln\hat{W}_{ijk} = X_i\hat{\alpha}_k + D_{ijk}\hat{\delta}_{jk}$$

where X_i is a vector of individual characteristics for migrant i including gender, minority status, years of schooling, potential experience,[44] experience squared and marital status as well as a dummy for whether or not the location is an urban as opposed to rural area. Province dummies (D_{ijk}) consist of dummy variables for Vietnam's provinces. Then, $\widehat{\alpha_k}$ and $\widehat{\delta_{jk}}$ are used to predict the wage level of individual i in specific location j ($\widehat{W_{ij}}$), and inserted into the conditional logit model. In this specification, there remains a potential sample selection problem into wage employment. For this reason, region-specific wage equations with selection correction terms were also considered using Heckman's two-step procedure (Heckman, 1979) but these estimates were dismissed because the predicted wages took on implausible values.[45]

To proxy for migrants' expectations of obtaining a modern sector employment (Tadaro, 1969), the proportions of foreign-owned and state-owned employment relative to total employment at the province (and urban/rural) level, which are the same variables defined at the first stage, are used. These variables may better capture the employment prospect in destination areas than an

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[43] Since there are not enough observations to run earnings regressions at the province level, the regressions are run at the level of Vietnam's regions and two major cities.

[44] Potential experience is calculated as age minus six minus education years.

[45] In the first stage, probit models are used to determine the selection process into wage employment. The coefficients for the selection terms turn out to be either insignificant or positively significant (depending on the regions) implying that individuals selected into wage employment tend to earn higher wages than those with similar observable characteristics randomly drawn from the population. Then, expected monthly wages are computed applying the coefficient estimates obtained in the second stage and removing the selection correction terms. However, comparing the predicted wages and the actual wages reported in the VMS, the predicted wages for the cities/industrial areas turn out to be lower than plausible levels. This is perhaps because individuals' selections into wage and destination are not random, i.e., migrants who went to the cities/industrial areas may have moved in order to find wage employment whereas those who moved to the Central Highlands may have migrated for non-wage activities.

"unemployment rate" measure which is more commenly used in the literature (e.g., Nguyen-Hoang and McPeak (2010) for Vietnam), if migrants move seeking *better* employment opportunities. The land holding variable employed at the first stage is assumed to represent migrants' expectation toward agricultural, forestry and fishery opportunities in potential destination areas. Finally, the distance in kilometers between the capital cities of the source province and those in potential destination provinces is included as a proxy for the cost of migration.

Column 1 in Table 5 demonstrates the results of the conditional logit regressions by different control variables. The regressions are estimated on the sample of migrants surveyed in the VMS only. In the conditional logit model, the impacts of individual characteristics are not directly estimated since the latter variables do not vary across potential destinations. Thus, a strategy to run separate regressions by the subsets of different types of workers, namely by gender (columns 2-3), by educational attainment (columns 4-8), and for a subset of ethnic minority (column 9), is employed.

In Panel A, I begin with a specification that includes only the proportions of workers employed in foreign firms relative to total employment in potential destination areas. The coefficients for the foreign job turn out to be positively significant at the one percent level both for male and female suggesting that migrants on average tend to move to destinations with a greater presence of foreign job opportunities. The latter result contrasts with the first-stage model of out-migration, which did not reveal a clear insight on the role of foreign job opportunities on internal migration; and is consistent with Liang and White's (1997) in-migration model which finds a positive impact of foreign capital in the destination province in pulling migrants in China.

Panel B through Panel E sequentially add control variables including the prospect of obtaining a job in the state sector (Panel B), expected earnings (Panel C), land availability (Panel D) and distance (Panel E). Several general patterns emerge from the regression matrix by control variables and by the subset of migrants in Table 5. The magnitudes of the coefficients of the regressions by gender suggest that migration responses to the presence of foreign job opportunities are stronger for female than for male workers. The coefficients for the foreign job for a subset of the ethnic minority individuals turn out to be either negatively significant or insignificant, implying that they are less likely to go to areas where the chance of obtaining a foreign sector job is greater.

The coefficients for the foreign job obtained by the subset of workers with different educational attainments demonstrate that those who have upper-secondary education, followed by those with lower-secondary and primary education, are most strongly pulled to the areas with higher foreign job opportunities. In contrast, the coefficients for the foreign job variable for the higher-educated migrants (college or above) are unstable with their signs changing depending on the control variables. The coefficients for foreign job for those without primary education are negatively significant implying that the least educated workers are less likely to be pulled to locations with higher foreign employment opportunities.[46] These results are consistent with the findings in the first-stage model, i.e., an intermediate selection of the migrants who ended up working in the foreign sector. The coefficients for the state job by the subsets of different educational attainments also turn out to be consistent with the finding from the first-stage model, which reveals that the probability of migrating and working in the state sector increases

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[46] Further examination of the data reveals that the very different coefficients for the foreign job for the subset of "no primary" migrants are largely driven by the minority migrants who account for about 51 percent of the latter migrants in my sample. Excluding the minority migrants, the coefficients for the foreign job for the "no primary" migrants turn out to be either positively significant or insignificant.

monotonically with educational achievement: whereas those who attended college or have at least some secondary education tend to go to the areas with high state presence (as the coefficients for state sector for these individuals are positively significant), the coefficients for state sector employment for those without secondary education are found to be negatively significant. Perhaps, these results reflect that the governments and SOEs tend to hire educated individuals.

The coefficients for expected income, based on the predicted income equations, are positive and significant for most of the cases confirming the importance of the income differential as a determinant of destination choice. With the inclusion of the income variable, the magnitudes of the coefficients for foreign job are reduced, but remain positively significant implying that the foreign job opportunities are an additional determinant of migration. As a robustness check, I inserted the province (and urban/rural) specific per capita expenditure (the same variable used at the first-stage) in place of the individual specific expected income, as the former variable may more generally represent the standard of living in the potential destination area (the regressions are not reported). The coefficients for the per capita expenditure turn out to be highly positively significant suggesting that the individuals tend to move to the areas with higher standards of living, but the coefficients for the foreign job remain essentially unchanged.[47]

In terms of the impact of land differential, a robust pattern emerges: the less educated the migrant, the more important is land availability as a determinant of destination choice. In particular, as the level of educational attainment increases, the sign of the coefficients for land availability changes from positive to negative and the magnitudes of the coefficient tend to decrease. A potential explanation is that land availability reflects land-intensity of jobs that

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[47] The coefficients for the foreign job are stable even I adjust for both expected incomes and the standards of living in destination areas. However, the coefficients for the state job turn out to be sensitive to the choice of control variables.

migrants seek at destination areas, i.e., more educated workers tend to seek less land-intensive work whereas less educated individuals are more likely to pursue more land-intensive activities. The result is also consistent with the observation that the least educated workers tend to be engaged in farming in Vietnam (Vijverberg *et al.*, 2006). Workers in the ethnic minority category are also found to be strongly pulled to the locations where land is abundant.

The coefficients for distance reveal expected negative signs for all the regressions except for the ethnic minority subset, confirming that individuals are usually more likely to choose destinations which are closer. The positive coefficients for distance for ethnic minority are likely to reflect a large migration flow from the northern remote provinces to the Central Highlands.[48]

Finally, the regression model in this section is parsimonious and not intended to explain comprehensively the determinants of in-migration. For instance, the data limitation does not allow me to analyze how job opportunities in the emerging (domestically-owned) private enterprises (Van Arkadie and Mallon, 2003) influence migration pattern. In addition, some coefficients for the state job become unstable, suggesting that further research is needed to better understand the migration mechanism in the state sector.

VII. Concluding Remarks

This paper investigates the differential impacts of different job opportunities as determinants of internal migration and destination choices using the *Vietnam Migration Survey* 2004 and the *Vietnam Household Living Standards Survey* 2004. A particular focus is given to analyze the role of foreign employment opportunities in influencing migration patterns. I first run a logit model relating a dichotomous outcome of migration (migrant vs. non-migrant) to a set of personal and origin characteristics. The results turn out to be broadly in line with the previous literature:

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[48] Amongst minority migrants reported in the VMS, 80.9 percent of them moved to the Central Highlands of which 42.0 percent came from the Northeast region.

migrants tend to be younger and more educated relative to non-migrants (Sjaastad, 1962); higher unemployment at the place of origin appears to be a factor which generates out-migration (Nguyen-Hoang and McPeak, 2010); and the coefficient estimates for the standard of living in the origin area are consistent with the existence of a "migration hump" (Nguyen *et al.,* 2008) although they are statistically insignificant.

The paper then turns to a multinomial logit model to extend migrants' choices to four job outcomes and finds that migrants are highly heterogeneous. In particular, for migrants who ended up in the foreign sector, the migration response to foreign job opportunities is larger for female relative to male workers; there appears to be intermediate selection in terms of educational attainment; and ethnic minorities are less likely to relocate in search of a foreign job relative to the Kinh majority and Hoa whereas they are more likely to move in search for agricultural opportunities.

In order to explore how availability of foreign jobs in each location would push or pull migrants, the paper investigates characteristics in both sending and receiving areas. The results of a multinomial logit model that focuses on the origin areas reveal that those residing in areas with higher foreign job opportunities are on average *more* likely to move out to work for foreign firms, but the analysis does not reveal clear insights on the role of foreign job opportunities in influencing the rural-urban migration flow. In contrast, the conditional logit regressions that study the characteristics in destination areas reveal a robust pattern indicating that migrating individuals on average tend to go to locations with higher foreign employment opportunities, even controlling for income differentials, land differentials and distances between sending and receiving areas.

Finally, a limitation of this study is that, since the VMS 2004 conducted interviews only in eleven provinces, the data should not be viewed as representing the migration patterns of Vietnam as a whole. In particular, whereas this research emphasizes differential migration patterns depending on job outcomes, it is not within the scope of this paper to analyze the relative importance of each type of migration. This paper also suggests that the impact of foreign job opportunities on internal migration must be understood in the context of the external environment. Specifically, the year 2004 and the preceding years covered by the VMS were a time when the labor demand of foreign firms expanded substantially, mainly stimulated by the U.S.-Vietnam BTA. The expansion of export-oriented and female-intensive manufacturing production in foreign firms is likely to have accelerated a migration flow of women towards the areas where foreign firms are concentrated. How negative external shocks would affect labor demand, urban unemployment, and migration patterns in a developing country is an important issue and a subject for future research.

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Table 1 Characteristics of Migrants and Non-Migrants

	Non-migrants	Migrants[1]				
	Total	Total	Foreign	State	Private	Agriculture
Number of Observations	16878	4476	922	560	2008	938
Urban (%)	24.3	63.7	72.1	85.0	82.0	4.2
Share of female (%)	49.5	55.6	75.4	51.4	49.9	50.7
Average age	35.2	28.7	23.5	29.1	29.3	32.3
Minority (%)	16.3	9.4	4.2	.9	1.0	37.8
Unemployed[2] (%)	.9	1.1				
Monthly income[3] (1,000 dong)	888.7	957.8	907.1	1247.5	1112.1	504.2
Average education years	7.9	9.2	9.7	12.4	9.3	6.7
Education by Stages						
College (%)	4.8	7.3	2.9	33.2	4.6	1.5
Upper secondary (%)	15.8	25.3	31.3	41.6	26.3	8.2
Lower secondary (%)	32.7	36.5	45.3	19.8	40.6	30.2
Primary (%)	28.4	22.1	17.7	4.5	23.2	35.7
No primary (%)	18.4	8.5	2.7	.9	5.2	24.4
Statistics only for migrants						
Urban origin (%)		21.7	20.2	41.8	23.9	6.0
Unemployed in origin (%)		2.6	1.6	2.0	3.8	.5
Distance (km)		563.2	771.4	226.4	419.1	874.4
Income change before vs. after migration (%)						
Better		84.7	87.9	81.0	89.2	74.1
Worse		3.5	1.4	1.3	1.9	9.7

Sources: The statistics of migrants and non-migrants are computed from the VMS 2004 and the VHLSS 2004 respectively.

Notes: [1]See the text for the definition of "State", "Foreign", "Private" and "Agriculture" categories. [2]The unemployed category is defined as "those who are not working but sought employment." [3] Monthly incomes between non-migrants and migrants are not comparable due to the differences in definition and in sample coverage. Whereas the monthly incomes for non-migrants are based on wage employments in the VHLSS 2004, non-monetary compensation for migrants is converted with equivalent monthly values in the VMS 2004.

Table 2 Economic and Demographic Indicators by Urban/Rural and By Regions 2004

		Hanoi	Red River Delta*[1]	Northeast	Northwest	North Central Coast	South Central Coast	Central Highlands	HCMC	Southeast*[2]	Mekong River Delta	Total Vietnam
Expenditure*[3]	Rural	387	323	281	213	253	298	277	569	410	350	**317**
(1,000 dong)	Urban	915	586	543	509	443	556	476	946	571	511	**662**
	Total	**710**	**359**	**330**	**252**	**279**	**371**	**332**	**898**	**458**	**382**	405
Land holding*[4]	Rural	.041	.069	.195	.316	.120	.134	.258	.042	.213	.176	**.152**
(hectare)	Urban	.008	.020	.040	.046	.022	.020	.138	.004	.063	.065	**.036**
	Total	**.021**	**.062**	**.166**	**.280**	**.107**	**.102**	**.225**	**.009**	**.169**	**.154**	**.122**
Minority*[5]	Rural	.0	1.0	46.7	89.2	11.9	7.0	40.6	1.5	8.1	6.5	**15.8**
(%)	Urban	.0	.6	14.5	23.3	.6	.5	9.7	.6	.7	3.6	**3.1**
	Total	**.0**	**.9**	**40.8**	**80.5**	**10.4**	**5.2**	**32.0**	**.7**	**5.9**	**5.9**	12.5
Education*[6]	Rural	8.3	7.8	7.0	4.9	7.5	6.4	5.5	7.2	6.2	5.3	**6.6**
(years)	Urban	10.7	9.4	9.9	8.9	9.5	8.6	8.3	8.7	7.9	6.9	**8.7**
	Total	**9.8**	**8.1**	**7.5**	**5.5**	**7.8**	**7.1**	**6.4**	**8.5**	**6.7**	**5.6**	7.2
State employment[7]	Rural	18.7	6.5	6.1	3.9	5.0	6.9	5.4	11.6	7.4	4.3	**6.0**
(%)	Urban	41.9	24.9	33.4	38.6	32.0	22.7	14.0	18.1	17.0	16.5	**23.2**
	Total	**32.7**	**8.8**	**10.7**	**7.9**	**8.2**	**11.2**	**7.6**	**17.2**	**10.2**	**6.6**	10.1
Foreign employment[8]	Rural	2.9	.5	.1	.0	.1	.4	.2	10.7	11.1	.3	**1.3**
(%)	Urban	3.1	2.9	1.9	.9	.2	2.5	.6	11.5	11.6	.4	**4.9**
	Total	**3.0**	**.8**	**.4**	**.1**	**.1**	**1.0**	**.3**	**11.4**	**11.3**	**.4**	2.2

Sources: Author's calculation using the VHLSS 2004 and the *Enterprise Survey* data 2004.

Notes: *[1]The region excludes Hanoi; *[2]the region excludes HCMC; *[3]the per capita average household monthly expenditure; *[4]land holding is defined as the average per capita area owned by the household members including farming, forestry land and water surface area for aquaculture, residence land and garden, and pond next to housing land; *[5] the minority is defined to represent all ethnic groups other than the Kinh majority and Hoa (Chinese); *[6]the average education years attained by those who are 15 and over; *[7] the proportion of workers employed by state sector relative to total workers; [8]the proportion of workers employed by foreign sector relative to total workers.

Table 3 Logit Regression Results for the Determinants of Migration Decision

	(1)	(2)	(3)
Total education years	1.09***		1.09***
	(6.18)		(5.81)
Education as stages[*1]			
No primary		.40***	
		(-6.29)	
Primary		.53***	
		(-7.27)	
Lower secondary		.73***	
		(-5.28)	
College		1.18	
		(1.04)	
Age	.95***	.95***	.95***
	(-12.50)	(-12.89)	(-13.31)
Female	1.31***	1.30***	1.32***
	(6.25)	(6.16)	(6.17)
Minority	.73	.72	.79
	(-1.32)	(-1.41)	(-.96)
Unemployed in origin	1.64**	1.62**	1.65**
	(2.20)	(2.13)	(2.26)
Per capita HH expenditure	.49	.52	
	(-1.56)	(-1.46)	
Expenditure by four levels[*2]			
The lowest quartile			.83
			(-.58)
Lower-middle quartile			1.13
			(.46)
Highest quartile			.70
			(-1.29)
Land holding in origin	.12*	.13*	.16*
	(-1.88)	(-1.81)	(-1.71)
Foreign job opportunity in origin	1.60	1.54	2.05
	(.89)	(.83)	(1.29)
State job opportunity in origin	.86	.83	1.11
	(-.18)	(-.23)	(.12)
Number of Observations	21354	21354	21354
Pseudo R2	.083	.084	.085

Notes: The dependent variable takes the value one if the person is migrant, zero otherwise. The coefficients are reported as odd ratios. The standard errors are based on heteroskedasticity-consistent estimates of the variance-covariance matrix and corrected for within province and urban/rural correlation (clustering). The t-statistics are reported between parentheses. [*1]The upper secondary education is the omitted category. [*2]The upper-middle quartile is the omitted category. *, **, *** indicate that the coefficients are significant at the 10, 5, and 1 percent level respectively.

Table 4 Multinomial Logit Regression Results for the Determinants of Migration Decision

	Foreign	State	Private	Agriculture
Education as Stages[1]				
No primary	.13***	.043***	.38***	1.35
	(-7.27)	(-7.06)	(-5.88)	(1.18)
Primary	.32***	.080***	.63***	1.64***
	(-8.46)	(-11.84)	(-3.61)	(2.67)
Lower secondary	.67***	.27***	.83**	1.43**
	(-3.70)	(-8.94)	(-2.49)	(2.06)
College	.49***	2.81***	.68***	.95
	(-2.73)	(7.58)	(-2.64)	(-.19)
Age	.88***	.94***	.95***	.99***
	(-19.27)	(-8.15)	(-12.15)	(-4.94)
Female	3.25***	1.17*	1.04	1.06
	(13.08)	(1.64)	(.64)	(.89)
Minority status	.28***	.11***	.10***	1.88**
	(-4.16)	(-4.56)	(-6.17)	(2.34)
Unemployed in origin	.64	.87	2.13***	.75
	(-1.26)	(-.37)	(2.87)	(-.62)
Per capita HH expenditure	.73	.24*	.34**	1.37
	(-.47)	(-1.64)	(-2.52)	(.26)
Land holding	.11*	.029**	.0013***	12.39
	(-1.88)	(-2.29)	(-5.97)	(1.48)
Foreign job opportunity in origin	4.48***	1.83	2.12	.20
	(3.35)	(.50)	(.70)	(-1.11)
State job opportunity in origin	.23	13.34**	.46	.010**
	(-.90)	(2.22)	(-.72)	(-2.11)
Number of Obs.	21354			
Pseudo R2	.14			

Notes: The dependent variable takes discrete values one through five according to the person's choices. Being non-migrant is the base category. The coefficients are reported as relative risk ratios. [1]The upper secondary education is the omitted category. The results for 48 individuals who were unemployed in destination areas are not reported. *, **, *** indicate that the coefficients are significant at the 10, 5, and 1 percent level respectively. The standard errors in parentheses are based on heteroskedasticity-consistent estimates of the variance-covariance matrix and corrected for within province and urban/rural correlation (clustering). The *t*-statistics are reported between parentheses.

Table 5 Conditional Logit Regression Results for the Determinants of Destination Choice

	Full Sample	By Gender		By Educational Attainment					Subset of Minority
		Male	Female	College	Upper Secondary	Lower Secondary	Primary	No Primary	
Number of Migrants	4,476	1,989	2,487	327	1,147	1,643	993	366	422
Number of Choices	79567	35329	44238	5729	20386	29308	17660	6484	7464
A. Foreign Job									
Foreign job	1.32***	.96***	1.58***	-1.46***	1.71***	1.57***	1.47***	-.34	-.98**
	(.081)	(.13)	(.10)	(.51)	(.15)	(.13)	(.17)	(.39)	(.41)
Pseudo R2	.0090	.0044	.014	.0054	.016	.013	.012	.0004	.0027
B. Plus State Job									
Foreign job	1.80***	1.43***	2.06***	.86	2.90***	2.05***	1.41***	-.75**	-1.35***
	(.084)	(.13)	(.11)	(.56)	(.16)	(.13)	(.17)	(.38)	(.40)
State job	2.64***	2.60***	2.68***	8.21***	5.36***	2.71***	-.48*	-5.81***	-9.49***
	(.12)	(.18)	(.16)	(.46)	(.24)	(.20)	(.28)	(.60)	(.70)
Pseudo R2	.027	.023	.032	.20	.094	.032	.012	.057	.12
C. Plus Expected Income									
Foreign job	1.01***	.54***	1.33***	.42	2.06***	1.28***	.55***	-1.36***	-1.52***
	(.096)	(.16)	(.12)	(.62)	(.18)	(.15)	(.20)	(.43)	(.42)
State job	1.87***	2.04***	1.63***	7.81***	4.68***	1.96***	-1.61***	-6.90***	-10.55***
	(.13)	(.19)	(.18)	(.50)	(.25)	(.21)	(.32)	(.69)	(.80)
Expected income	1.74***	1.51***	2.11***	.51**	2.04***	1.81***	2.12***	1.62***	.82***
	(.066)	(.090)	(.099)	(.24)	(.14)	(.12)	(.14)	(.30)	(.20)
Pseudo R2	.050	.043	.060	.20	.12	.055	.044	.068	.12
D. Plus Land Availability									
Foreign job	1.12***	.52***	1.53***	1.36*	3.65***	1.61***	.48**	-.78***	-.21
	(.10)	(.16)	(.13)	(.83)	(.25)	(.17)	(.19)	(.38)	(.35)
State job	1.47***	2.13***	.98***	5.19***	2.84***	.93***	-.94**	-3.86***	-5.42***
	(.16)	(.24)	(.21)	(.60)	(.28)	(.25)	(.38)	(.82)	(.93)
Expected income	1.56***	1.55***	1.74***	-.10	.89***	1.33***	2.36***	2.48***	1.52***
	(.076)	(.10)	(.11)	(.23)	(.15)	(.13)	(.17)	(.33)	(.22)
Land availability	-.99***	.23***	-1.84***	-9.82***	-7.71***	-2.78***	1.30***	4.46***	6.51***
	(.23)	(.33)	(.31)	(1.42)	(.61)	(.38)	(.42)	(.66)	(.63)
Pseudo R2	.051	.044	.062	.24	.15	.061	.046	.089	.17
E. Plus Distance									
Foreign job	1.37***	.66***	1.91***	2.10***	3.92***	1.88***	.60***	-.69*	-.34
	(.099)	(.16)	(.13)	(.78)	(.26)	(.17)	(.19)	(.38)	(.35)
State job	.29**	1.06***	-.34	3.37***	1.00***	-.27	-1.40***	-3.83***	-5.22***
	(.16)	(.25)	(.22)	(.66)	(.32)	(.27)	(.39)	(.82)	(.93)
Expected income	2.36***	2.33***	2.59***	.83***	2.12***	2.15***	2.88***	2.52***	1.53***
	(.084)	(.12)	(.12)	(.27)	(.19)	(.14)	(.18)	(.34)	(.22)
Land availability	.11	1.47***	-.88***	-7.43***	-6.32***	-1.63***	1.92***	4.34***	6.81***
	(.23)	(.34)	(.31)	(1.47)	(.64)	(.39)	(.43)	(.65)	(.64)
Distance	-.93***	-.91***	-.96***	-1.60***	-1.03***	-.84***	-.78***	-.39***	.25**
	(.028)	(.043)	(.038)	(.16)	(.065)	(.047)	(.060)	(.094)	(.10)
Pseudo R2	.10	.092	.12	.32	.20	.10	.079	.098	.17

Notes: The dependent variable takes the value one if the location is a migrant's actual choice, zero otherwise; *, **, *** indicate that the coefficients are significant at the 10, 5, and 1 percent level, respectively; the standard errors are between parentheses.

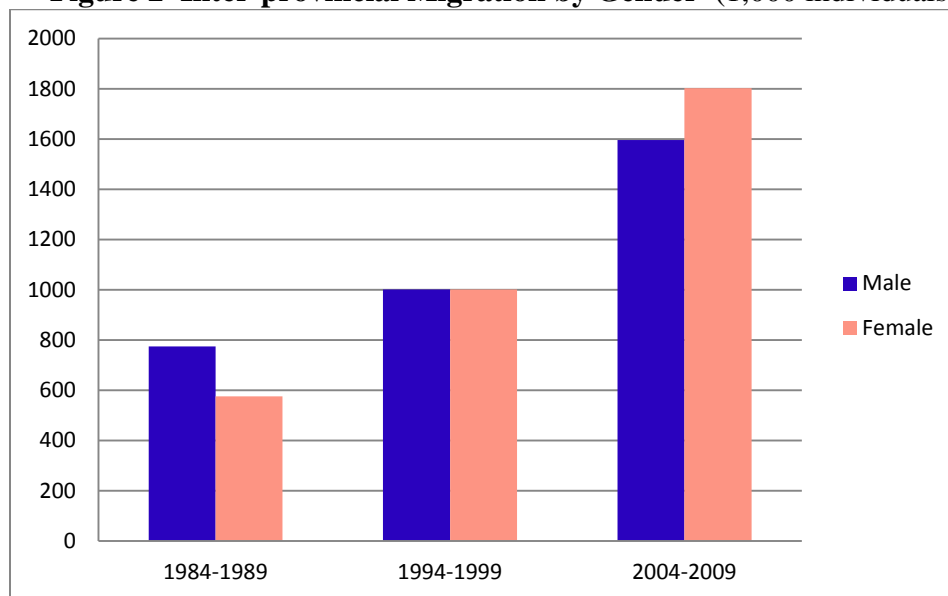**Figure 1 Net Inter-provincial Migration by Regions/Major Cities** (1,000 individuals)
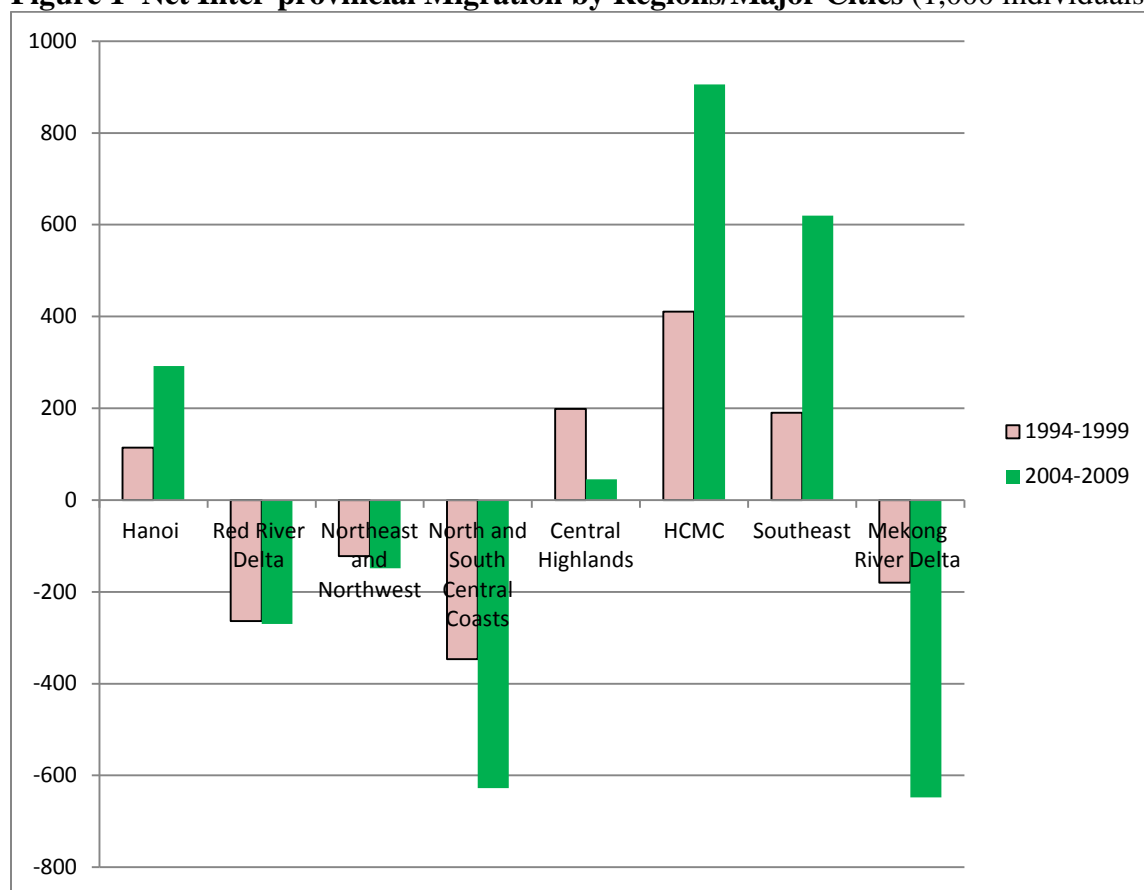
Sources: GSO, Table A-2.12, 2011 for the period 2004-2009; GSO/UNDP, 2001 for the period 1994-1999.
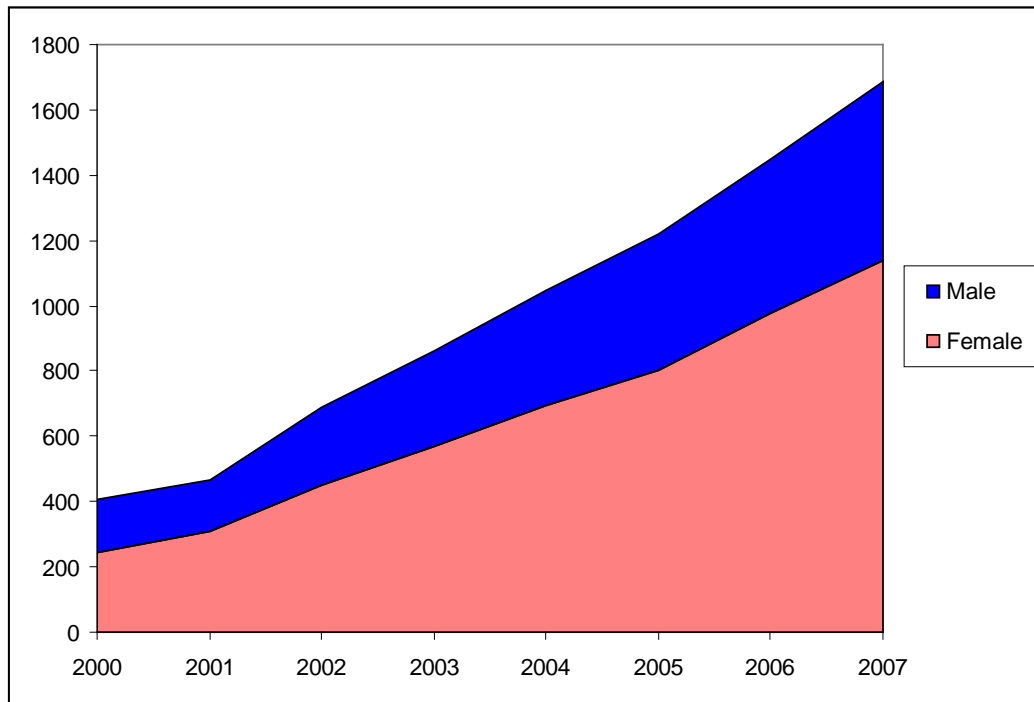Notes: The Red River Delta excludes Hanoi.
The Southeast region excludes HCMC.

Figure 2 Inter-provincial Migration by Gender (1,000 individuals)
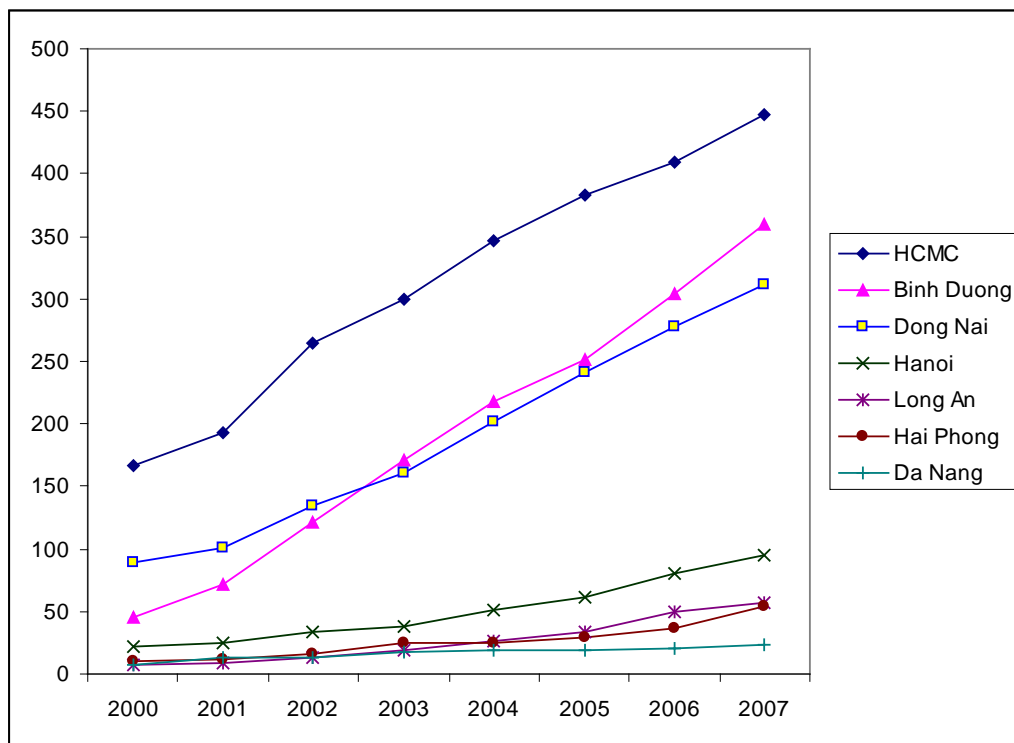

Source: GSO, p.21, 2011.

**Figure 3 The Evolution of Employment
by Foreign Enterprises, 2000-2007** (1,000 individuals)

Source: Author's calculation based on the *Enterprise Survey* data 2000-2007 (GSO).

**Figure 4 The Number of Workers Employed by Foreign Enterprises:
Seven Leading Provinces, 2000-2007**   (1,000 individuals)

Source: Author's calculation based on the *Enterprise Survey* data 2000-2007 (GSO).