DEPOCEN
Working Paper Series No. 2008/01

Determinants and Impacts of Migration in Vietnam

Nguyen Thu Phuong*
Tran Ngo Thi Minh Tam*
Nguyen Thi Nguyet **
Remco Oostendorp***

* Centre for Analysis and Forecasting, Vietnam Academy of Social Sciences
** Central Institute for Economic Management (CIEM), Vietnam
*** Free University, Amsterdam

ABSTRACT

This paper uses the recent Vietnam Household Living Standard Survey 2004 to analyze the determinants and impacts of migration in Vietnam. Most of the previous studies on the determinants and impacts of migration have focused on destination rather than origin areas of migration. This limits our understanding of the determinants of migration and also does not provide evidence on important impacts of migration such as on household inequality in origin areas.

In terms of determinants of migration, the study shows that migration is a highly selective process and strongly affected by household and commune characteristics, although differently across type of migration and across urban and rural areas. We do find evidence for the existence of a 'migration hump' for economic long-term migration, with an inverted U-shape in the probability of migration with respect to per capita expenditures. The presence of non-farm employment opportunities does reduce short-term migration but not long-term out-migration for economic reasons.

In terms of impacts the study analyzes the impact of migration on household expenditures and household inequality. Migration is found to have a strong positive impact on household expenditures but increases the Gini coefficient of per capita household expenditures from 0.38 to 0.42 in origin areas compared to the no-migration case.

Determinants and Impacts of Migration in Vietnam[1]

Nguyen Thu Phuong, Tran Ngo Thi Minh Tam,
Nguyen Thi Nguyet, Remco Oostendorp

1. Introduction

Migration issues have been given great attention in Vietnam. Several studies have been carried out to analyze migration patterns along with other aspects of socio-economic development in Vietnam (Guest 1998, Djamba *et al.* 1999, Goldstein *et al.* 2001, GSO and UNFPA 2005, and Dang 2005). Other studies examine the determinants of migration (Trinh 1998, Dang and Le 2001, Dang *et al.* 1997, 2006, and Nguyen, T. L. 2001), its consequences (Do and Nguyen 1998, Le, V.T. 1998, and Nguyen, D.V. 2001) and other related issues such as fertility (White *et al.* 2000), social capital (Dang 1998), gender gap (Dang and Le 2001), livelihoods (Dang *et al.* 2004), and environment (WWF 1999).

Studies on migration in Vietnam have been based on nationwide statistics (census and administrative data), large-scale survey data and small-scale survey data (including case studies). The census data studies are based on the Population and Housing Census in 1989 (Dang *et al.* 1997) and 1999 (GSO and UNDP 2001). They provide characteristics of permanent migrants[2] but exclude short-term, unofficial, and seasonal migrants. Also because census data are collected only once every 10 years, they often cannot provide up-to-date information. Apart from census data some studies have also used administrative data on migration from the Department for Resettlement and New Economic Zones (Do, V.H. 1998). According to these nationwide statistics, 1.6 people million moved from rural to other rural areas, 1.13 million people moved between urban centers, and 1.18 million people moved from rural settlements to urban centers, while over 400,000 moved in the opposite direction, from urban centers to rural areas between 1994 and 1999 (Dang *et al.* 2003).

Migration studies using large-scale surveys have been based on the Viet Nam Demographic and Health Survey in 1997 (VNDHS 1997), the Viet Nam Migration and Health Survey in 1997 (VNMHS 1997), the Vietnam Migration Survey in 2004 (VMS 2004), and the Vietnam Living Standard Survey 1998 (VLSS 1998). The earlier large-scale surveys, such as the Vietnam Living Standard Survey in 1993 and the surveys on population changes, fertility and family planning VNICDS (Viet Nam Inter-Censal

[1] This paper is a chapter in the forthcoming book under ASEM II Project, Centre for Analysis and Forecasting, Vietnamese Academy of Social Sciences.
[2] Defined as residing in a different province at the time of survey compared to 5 years ago.

Demographic Survey) in 1994, and VNMHS in 1996) did not ask about migration. The VNDHS 1997 was the first large-scale survey which allowed researchers to define migrants versus non-migrants but it was only conducted for married women.[3] The VNMHS 1997 and VMS 2004 included migrants and non-migrants aged 15 and above and many studies have been based on these data sources (White *et al.* 2000, Dang and Le, 2001, Goldstein *et al.*, 2001, Nguyen, D.V., 2001, and Nguyen and White 2002, Dang and Nguyen 2006). These surveys provide detailed pictures of both in- and out-migration flows in terms of socio-economic characteristics of the (non-)migrants, reasons for moving and not-moving, history of occupational and residential mobility, the process of migration, employment, income, urban integration, and health-related characteristics.

However, both the VNMHS 1997 and VMS 2004 are not fully representative for Vietnam as they are limited to a small number of provinces that are known to have high rates of in- and/or out-migration. The VNMHS 1997 surveyed 2502 individuals in two rural origin areas (Ha Nam and Thai Binh) and in four destination areas (Hanoi, Da Nang, Dak Lak, and Binh Duong). The VMS 2004 contained a much larger sample of 10.000 individuals but was only conducted in five destination areas, namely a number of large cities and economic zones.

The most representative large-scale survey that has been used in migration studies so far is the Vietnam Living Standard Survey 1998 (VLSS 1998). The Vietnam Living Standard Surveys are considered to be the most representative surveys for the whole population of the country containing very comprehensive information on household and commune background characteristics. However the Vietnam Living Standard Surveys of 1993 and 2002 have no information on migration status of the respondents and therefore current migration studies have been based on the VLSS 1998 only. Also it has been noted that even the Vietnam Living Standard Surveys cannot be regarded as fully representative, because of under-sampling of newly-formed households, and not properly incorporating migrants without residency permits in Hanoi and Ho Chi Minh City (UNDP and GSO 2001, Gallup 2002, ADB 2005, and Dang *et al.* 2005). Nevertheless, because of the availability of valuable information on individual and household characteristics like employment, income, expenditure, or assets, the VLSS 1998 has been an important source of information for migration studies in Vietnam (GSO 2000, Le, X.B. 2001, and Nguyen, T. 2002).

Apart from the studies based on nationwide statistics and large-scale surveys, several migration studies have been based on small-scale surveys and case studies (Truong *et al.* 1996, Doan *et al.* 1998, Do and Nguyen 1998, Guest 1998, Dang *et al.* 2005, Nguyen 2005). These studies provide important and often in-depth information on migration characteristics and its impacts on origin and destination areas. Moreover, a number of studies have analyzed migration in relation to other aspects such as transport planning (WB and MOT 2006), labor market segmentation (ADB 2005), and wage income (Hanoi Trade Union and ActionAid 2004, Oostendorp 2004)

In this study we will use the most recent Vietnam Household and Living Standard Survey of 2004 (VHLSS 2004) to study the determinants and impacts of migration. The VHLSS 2004 is an interesting source to study migration for a number of reasons. First, the VHLSS 2004 is representative for the whole of Vietnam, unlike the recent Vietnam Migration

[3] Also the survey was limited to six provinces where large migration flows were observed.

Survey 2004, and has not been used to study migration before. The representativeness of the survey is a big advantage as it allows us to study the determinants of migration by comparing the characteristics of migrants and non-migrants in the sending rather than destination areas. As will be discussed later in the chapter, earlier studies on the determinants of migration in Vietnam have typically compared migrants with non-migrants in destination areas and this is potentially quite misleading given that the non-migrants in sending and receiving areas may be quite different.

Second, because the VHLSS 2004 forms a panel data set with the VHLSS 2002, it is possible to study how migration status is related to household characteristics *before* the change in migration status. Therefore our analysis will suffer less from potential endogeneity problems unlike the previous studies in Vietnam that were based on cross-sectional analyses. Third, as noted before, the VHLSS 2004 is extremely comprehensive in terms of individual, household and community-level information, and therefore our analysis will be able to control for a great number of factors in our analysis of the determinants and impacts of migration.

However, the VHLSS 2004 has also a number of disadvantages when studying migration issues. First, the sampling frame is based on official residence records. Therefore selected households are mainly those households which were already granted official permanent residence registration in the province (99.3%). One or two single migrants moving into the area for a temporary purpose or even a long-term residence are therefore typically not included. The household's official permanent residence status stamped by the local authority has many requirements which are very difficult for migrants to fulfill, especially in big cities. For example, a household moving into Hanoi for at least 5 years could be considered to get the KT1 – an official permanent residence status – only by the time of 2004. Second, because the VHLSS 2004 was not designed specifically for the purpose of studying migration, the information on migration is more limited than what can be found in the migration surveys VNMHS 1997 and VMS 2004. Nevertheless, and in spite of these limitations, we believe that the VHLSS 2004 remains an extremely useful source of data to improve our understanding of the migration process in Vietnam.

The remainder of this chapter is structured as follows. In section 2 we first discuss the different approaches to measuring migration flows in the literature. Next we discuss the migration patterns in Vietnam, both in terms of existing evidence from previous studies as well as new evidence from the VHLSS 2004.

In section 3 we analyze the determinants of migration in Vietnam. After a discussion of different theoretical models of migration we turn to the empirical analysis of actual determinants of short-term and long-term migration in Vietnam. Special attention will be given to the possible existence of a 'migration hump' in the sense that the probability of migration has an inverted U-shape with respect to the income status of the household.

In section 4 we turn to the analysis of the impacts of migration. Most studies of migration have looked at the impacts of migration on the migrants and/or the receiving areas. Very few studies have looked at the impacts of migration on the sending areas. In this study we will analyze the impact of migration of household members on their household, in terms of remittances, household expenditures, and inter-household inequality. Earlier studies have pointed out the important role of remittances for the economic welfare of remaining household members, but there is no previous study that has provided a systematic study of

the impact of migration on household expenditures and inter-household inequality. Finally, section 5 summarizes the results.

2. Migration patterns in Vietnam

The definition and measurement of migration

It is important to note that there is no uniformity in definitions and measures of migrations used in the literature. The main reasons for this are twofold. First, migration is difficult to define because it involves both a time and spatial dimension which need to be defined carefully in turn. Second, migration studies often use different definitions because they rely on different data sources.

Let us first turn to the difficulties in defining migration itself. Bilsborrow (1996) has provided a very careful discussion of these issues and here we summarize his main points. Migration involves both the time and spatial dimension, because it is, most generally, viewed as a movement in space during a certain period of time. However, both 'movement in space' and 'period of time' need to be further specified because not all movements are automatically regarded as migration. One conventional definition of migration considers any movement a migration if (1) it involves the crossing of a political or administrative boundary, and (2) a change in "usual residence". This definition was particularly developed because it allows for the measurement of migration flows from typical population census data.

It is not hard to see the limitations of this conventional definition. First, although trivial moves such as moving next door clearly should not be counted as migration, political and administrative boundaries are arbitrary, changeable and not necessarily stable over time. Therefore any move may be counted as 'migration' within one institutional context but not in another context.[4] Second, the requirement that migration involves a change in 'usual residence' excludes less permanent types of migration that are increasingly recognized to be important as well. Many people are involved in 'temporary' or 'seasonal' migration without changing their usual place of residence. Also some people are involved in 'circular' migration which has been defined in some studies as 'sleeping a series of consecutive nights away from home, and is repeated on a more-or-less regular basis in consecutive months, but without changing one's perceived place of usual residence" (Bilsborrow 1996, p.5).

Apart from the difficulty of defining migration, the second reason why migration studies have been using different definitions for migration is simply that they have used different sources of data. For instance Dang *et al.* (1997) defined a migrant as someone of five years or older who 'moved into a different district/province' in the previous five years as this was the information available in the population census data. Other data sources often lend themselves to different measures of mobility. One study using the VNMHS 1997 identified a 'rural to urban migrant' as someone who 'left the rural communes for the urban places between 1987 and 1997 who were at least 15 years old when moved' but excluding 'those migrants who reported marriage as the reason for move' (Dang 2001). Or another study using the VMS 2004 defined a migrant as 'a person aged 15-59 years who had moved to

[4] For instance because of the sheer size of provinces in China, any long-distance within-province movement in China would not be counted as 'migration' while a similar long-distance move in a country with smaller provinces will probably be counted as 'migration'.

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' except for a person 'who had moved from one quarter to another within Hanoi or HCM City' (GSO 2005).

Given the diversity in migration definitions, as well as the constraints imposed by any data source, it is important to define explicitly our definition(s) of migration before turning to our empirical analysis of the determinants and impacts of migration in Vietnam. Before doing this, however, we first discuss the existing evidence on migration patterns in Vietnam.

Previous evidence on migration patterns in Vietnam

Although there are differences in the definition of migration, studies on internal migration in Vietnam consistently point towards increasing rates of migration. The next table presents the net migration flows for the period 2002-2004 for the five most important provinces of destination and origin of migration in Vietnam. The information on migration in the table is based on the Census of 1999 and the annual GSO survey of the demographic changes. Migration has been defined as the movement of people out of the province for any living purpose. The five most important destination areas were Ho Chi Minh, Hanoi, Binh Duong, Quang Ninh and Da Nang, while the most important origin areas were Thanh Hoa, Nam Dinh, Thai Binh, Ha Tay and Quang Nam. However among the five most important destination areas, the migration inflow was highly concentrated and mostly directed at Ho Chi Minh, Hanoi, and Binh Duong. The net migration outflow was more equally spread among the five most important origin areas. This suggests that Ho Chi Minh, Hanoi and Binh Duong are the dominant magnets for internal migration for a large range of provinces. Table 1 also shows that migrants tend to move from provinces with low GDP per capita levels, low Human Development Index (HDI) and high underemployment rates to provinces with high GDP per capita levels, high HDI and low underemployment rates.

Table 1 presents migration flows from respectively to the most important origin and destination areas, but not the total aggregate migration flow in Vietnam. The aggregate flow can only be measured with nationwide statistics or representative large-scale surveys. With respect to the former, census data for 1999 reveal that 6.5 percent of the 69 million persons over five years of age in 1999 lived in a different province in 1994. The corresponding percentage from the 1989 census for the period 1984-89 was 2 percent, showing that the inter-province migration flow increased significantly since the eighties. If one adds intra-province movement (between rural communes or urban wards), then the percentage of people over five years of age who lived in a different place in 1999 compared to five years before was 6.5%. (Dang *et al.* 2003). This amounts to a total of 4.35 million people who moved between 1994-99, of which 1.6 million people moved from rural to other rural areas, 1.13 million people moved between urban centers, and 1.18 million people moved from rural settlements to urban centers, while over 400,000 moved in the opposite direction, from urban centers to rural areas between 1994 and 1999 (Dang *et al.* 2003).

With respect to representative large-scale surveys, the Vietnam Living Standards Survey of 1998 shows that 6.89% of people of 16 years and older moved within the past 5 years. The percentage was higher for people in urban areas compared to rural areas (7.92% versus 6.45%), reflecting a predominance of rural-urban migration flows (Nguyen 2002).

Cumulatively, about one-half of urban residents were born in the countryside, against 90% of the rural population (Le *et al.* 2001). So far no studies have used the most recent Vietnam Household Living Standards Survey 2004 to measure aggregate migration flows in Vietnam and this will be done in the next section.

Previous migration studies have also shown that migration is selective in Vietnam. Migrants are often quoted as those who are relatively young, less likely to be married, and disproportionately female.[5] However, little difference in educational levels completed has been found between migrants and non-migrants in destination areas (GSO and UNFPA 2005).[6] This observed selectivity holds for both temporary and permanent migration, although the dominance of young females in migration streams is mostly observed in the long-term migration flow from rural to urban and industrial zones. As for short-term migration, males are more likely to migrate as females tend to be responsible for household work (VASS 2006).

Although table 1 suggests that economic reasons are clearly linked to migration flows, migrants move for economic *and* non-economic reasons. Based on the VLSS 1998, it has been found that among migrants who moved between 1993 and 1998 economic reasons are not the strongest ones leading to either rural-to-rural or rural-to-urban migration (22%). The main reasons are related to war (10.6%), family relations (59%) and others (8.5%) (Le *et al.* 2001). In the next section we will use the VHLSS 2004 to analyze whether the same pattern holds for the most recent migration flows.

[Table 1 about here]

Evidence on migration from the VHLSS 2004

In this study we will use the VHLSS 2004 which allows for a number of different measures of migration. First, we can define a *long-term migrant since 2002* as someone of age 15 or above who was a household member in 2002, but who is no longer a household member in 2004 (but still alive).[7] In the VHLSS 2004 a household member is defined as someone who shares lodging, income, and expenditures for at least 6 months in the past 12 months. Hence, someone can become a long-term migrant if he/she either moves away, splits from the household, or stays in the household less than 6 months in the past 12 months.

Second, the VHLSS 2004 allows us to define a *short-term out-migrant in 2004* as someone of age 15 or above who is a member of the household but who has been absent for at least one month.[8]

Third, we can also define an *in-migrant since 2002* as someone of age 15 or above who is a household member in 2004 but who was not a household member in 2002.[9]

---

[5] Comparison of the 1989 and the 1999 censuses, suggests that the emergence of the female migrant is a recent phenomenon (Dang *et al.*, 2003, p.6)

[6] In the next section we will see that evidence from the VHLSS 2004 shows that migrants tend to be better educated than non-migrants in the area of *origin*.

[7] This implies that the migrant was of age 13 years or older in 2002.

[8] But for not more than six months because otherwise this person would no longer be counted as a household member and become a long-term out-migrant instead.

[9] The VHLSS 2004 also includes a question on how long a household member has been living in the current province/city, but only 278 out of 39,696 respondents did reply to this question, and none of these respondents were new household members since 2002. Hence, this information is of no value for measuring (in-)migration.

Fourth, we also note that some studies have used the presence of (domestic and/or international) *remittances* as a proxy for out-migration. Rodriguez (1998), in his study of the impact of international remittances on income and income distribution, uses this proxy because he has no information on the actual migrants in a household. The advantage of this measure is that it also includes migration that may have occurred before the survey period (unlike the usual measures such as those above), but its disadvantage is that it is only a proxy for remitting migrants and misses households with non-remitting migrants. The VMS 2004 suggests that only approximately one-half of the (domestic) Vietnamese migrants remitted money back home during the past 12 months, and therefore this proxy severely underestimates the actual rate of migration. Also the information on remittances in the VHLSS does not only include receipts from former household members but also from other relatives and friends, and hence the receipts of remittances is not always linked to migration. We therefore we limit ourselves in this analysis to the above measures of long-term migrant since 2002, short-term migrant in 2004, and in-migrant.

Before discussing the estimated number and the characteristics of the migrants based on the above definitions, we need to discuss two additional issues. First, it should be noted that all of these definitions only relate to *individual* rather than household migration. The primary sampling unit of the VHLSS 2004 is the household and there is no record of what happened to the VHLSS households that have moved away.[10] This is an important limitation, as we also know from the recent VMS 2004 that approximately 37.7% of the migrants have moved with family (GSO 2005, Table 3.10). Therefore our analysis looks only at the determinants and impacts of *individual* migration in Vietnam.

Second, the above definitions of migration do not include an explicit geographical boundary. This implies that within and between-province movements are both counted as migration.[11] In many studies migration is defined relative to a geographical boundary, such as province borders. Unfortunately, the VHLSS 2004 does not provide information on the location to which a household member has moved. This may be problematic in so far as the determinants and impacts of migration may vary with distance.

Therefore the question arises whether the lack of information on destination area is a serious problem for our analysis. First we note that unlike the VHLSS 2004, the VLSS 98 not only provides information on whether a household member has left the household ('long-term migration'), but also whether this member has moved to another province (or even country). It is found that this is the case for 46% of the household members who moved out between 1993 and 1998. If we are willing to assume that this pattern is not dramatically altered between 2002 and 2004, then we can state that our measure of migration has a strong (but imperfect) correlation with between-province movement.

Second, the probability that a move out of the household also involved a between-province move depends on the characteristics of the household member and the reason for movement. For instance, using the VLSS 98, we find that males are more likely to move to another province than females (50 versus 43%). Also the young (less than 30 years, 48%) and the old household members (more than 50 years, 51%) are more likely to move to

[10] This is unfortunate because in principle it should have been possible to record the reason why households that were interviewed in 2002 were no longer interviewed in 2004. This was done in the VLSS 1998 for the 1993 households, but not in the VHLSS 2004 for the 2002 households.

[11] And in some cases trivial moves within the same commune or ward will be included as well.

another province than the middle-aged (between 30 and 50 years, 38%). The reason for movement also matters - namely 82% of the move involved a between-province move if the reason was schooling, 70% if employment, 66% if other reasons, 45% if follow family, and 36% if marriage or household split. Therefore, in order to control for the possibility that the determinants and/or impacts of migration may vary across within-province migration and between-province migration, it is useful to test whether the determinants and impacts vary significantly across different types of migrants. If the biggest impact is found for, say, young migrants that move for reasons of employment, then this impact is most likely linked to migration across province borders. If on the other hand, the impact is largest for females between 30 and 40 years old who move because of marriage or household split, then this impact is most likely linked to within-province movement.

Table 2 reports the estimated number of migrants and households with migrants. On average 2.5% of the individuals of age 15 or above was absent for at least one but at most six months in 2004 (short-term migration). In total 10.7% of the individuals of age 15 or above left the household between 2002 and 2004 (long-term migration). And 4.7% of the individuals of age 15 or above moved into an existing household (in-migration). If we look at the percentage of households with migrants, we see that 7.3% of the households had at least one short-term migrant, 26.1% had at least one long-term migrant, and 12.6% has at least one in-migrant.

[Table 2 about here]

It was already noted that the VHLSS 2004 does not allow us to distinguish between within- and between-province moves. However, based on the evidence from the VLSS 1998, we can assume that moves for reasons of schooling, employment and other are most likely between-province moves, while moves for family, marriage or household split reasons are most likely within-province moves. Table 2 also reports the percentage of long-term out-migrants by reason for movement (no information on reason for movement is given for short-term and in-migration). Most long-term migrants move out of the household because of household split (3.1%) or marriage (3.0%) and presumably many of these moves are within-province.[12] However, also many long-term migrants move out because of work (2.8%), and these are presumably mostly between-province moves.[13]

The next table reports the socio-economic characteristics of migrant and non-migrants. For long-term migrants we distinguish between migration because of work ('economic' reasons) and because of other reasons ('non-economic' reasons).[14] The table shows the following. First, economic long-term migrants tend to be relatively young compared to the other migrants and non-migrants. Second, while most of the short-term and economic long-term migrants are male (61.7 respectively 59.2%), most of the non-economic long-term migrants are female (59.8%). Third, economic long-term migrants are far less likely to be married (12.8%) compared to the other migrants and non-migrants. Fourth, migrants tend to have more education than non-migrants, especially short-term and economic long-term migrants. This apparently contradicts the earlier finding that there is little difference in

[12] But presumably also many of these moves are between-province as we found that for 1998 that 36% of the moves because of marriage or household split was between provinces.
[13] For 1998 we found that 70% of the work-related moves were between provinces.
[14] It should be noted that migration for 'economic' reasons may also have non-economic motives and migration for 'non-economic' reasons may also include economic reasons. Hence, if preferred, one may also speak of migration for 'work' and 'non-work' reasons.

educational levels completed between migrants and non-migrants (GSO and UNFPA 2005). However, this earlier finding was based on a comparison between migrants and non-migrants in destination areas. Here we compare migrants and non-migrants in the areas of origin, and we find that there is positive selection according to education. The breakdown by level of education completed shows that migrants are much more likely to have obtained an upper-secondary school or even a tertiary diploma. Fifth, economic long-term migrants are most likely to originate from rural areas, confirming the earlier findings of a predominance of rural migration. However for short-term migration we do find little difference between urban and rural areas. Finally, economic long-term migrants originate from households with per capita expenditures of 4,815,000 VND, while short-term migrants live in households with per capita expenditures of 5,418,000 VND. This suggests that long-term migrants are more likely to originate in poor households than short-term migrants, although other factors may also play a role.[15] We therefore now turn to an analysis of the determinants of migration.

[Table 3 about here]

3. Determinants of migration in Vietnam

Economic models of the determinants of migration

The economic literature on the determinants of migration assumes that individuals or households rationally consider various locations and choose the location that maximizes the expected gains from migration. The expected gains of migration potentially depend on a large number of factors and different models have been developed to account for different factors.

In the classical Todaro migration model (1969), the expected gains are measured by (a) the difference in real incomes between job opportunities across locations, and (b) the probability of getting a job in each location. Todaro applied this model to rural-urban migration flows, and showed that urban unemployment can coexist with rural-urban migration flows as long as the expected wage in urban areas is higher than the rural wage. Harris and Todaro also showed that under certain conditions urban job creation programs may actually cause the level and rate of urban unemployment to rise because of increased rural-urban migration (Harris and Todaro 1970).

Subsequent economic models of migration have extended the Todaro framework to address a number of shortcomings in the model and to explain why migration sometimes fails to occur even when substantial expected earnings differentials exist or, conversely, why migration sometimes occurs even when earnings differentials are absent. The basic model assumes that individuals or households have perfect information about job opportunities and earnings differentials across locations. In reality, migrants often rely on networks to acquire information which creates "tied" or "chain" migration (Stark 1991, Lalonde and Topel 1997, Knight and Song 1997). The model assumes that individuals or households maximize expected income instead of expected utility, ignoring such "non-economic" costs and benefits as family ties, cultural differences, and social status (Thadani and Todaro 1984, Stark and Taylor 1989, Stark 1991, Lalonde and Topel 1997). Also income differentials may be less relevant than considerations of security in situations of civil unrest, armed conflicts, political persecution and natural disasters. Uncertainty may

[15] Including the fact that per-capita expenditures will be affected by migration as well.

also affect migration, as a risk-averse person may choose not to migrate even if the expected earnings differential is positive (Katz and Stark 1986, Lakshmansamy 1990). With imperfect credit markets, migration may generate cash income and alleviate the credit constraint and therefore migration may occur even if the expected income differential is negative (Stark 1980, Collier and Lal 1984). Similarly, the decision to migrate should be viewed as a joint household rather than an individual decision and therefore may depend not only on individual characteristics and preferences but also on the characteristics and preferences of the other household members (Stark 1991). Apart from differences in real incomes between job opportunities across locations, also the availability of government transfers across locations may affect migration (Enchautegui 1997).

Numerous studies have used the (extended) Todaro framework to estimate the determinants of migration. However, the number of studies estimating the determinants of migration is limited in Vietnam and they have been based on the 1989 census (Dang *et al.* 1997), VNMHS97 (Dang and Le 2001, Nguyen, T. L. 2001), VMS 2004 (Dang *et al.* 2006), and a survey on spontaneous migrants in Hanoi (1997), Ho Chi Minh and Vung Tau (1996,1997) (Trinh 1998). Most of these studies are micro studies but compare the characteristics of migrants and non-migrants in *destination* areas. This is potentially very misleading, as non-migrants in origin and destination areas are presumably quite different, and therefore the proper comparison is between the characteristics of migrants and non-migrants in *origin* areas. The study using the 1989 census does not suffer from this weakness but it looks at the determinants of aggregate (provincial) migration flows without controlling for household and migrant characteristics. In the next section we will therefore use the VHLSS 2004 to estimate the determinants of migration in Vietnam. The VHLSS 2004 offers two important advantages compared to the data sources used in previous studies on the determinants of migration in Vietnam. First, it is a representative large-scale survey, allowing us to compare migrants and non-migrants in *origin* areas. Second, the VHLSS 2004 is part of a panel with the VHLSS 2002, and we can therefore use the characteristics of the households and migrants *prior* to the migration decision to study the determinants of migration. The previous studies were all based on cross-section data and therefore prone to simultaneity bias.

Estimating the determinants of migration in Vietnam using the VHLSS 2004

We analyze the determinants of migration at the household level and not at the individual level. Migration is typically a joint household decision, and the decision to migrate depends on household characteristics rather than individual characteristics.[16] Apart from household characteristics (X), we also include commune characteristics (Z) among the determinants as migration depends not only on household characteristics but also on the characteristics of the origin and destination areas.

The probability that a household has a short-term or long-term migrant is modeled by two probit models:[17]

$$Pr[\text{household has short-term migrant in 2004}] = \Phi(X_i\beta^{ST} + Z_i\gamma^{ST})$$

[16] But the household characteristics should reflect the heterogeneity of the household, such as educational and age composition. For instance, a household with four members of age 30 is expected to exhibit very different migration behavior from a household of equal mean age but with, say, two household members of age 10 and two household members of age 50.

[17] For reasons of simplicity, we have estimated two separate probit models rather than one bivariate probit model. In econometric terms, this leads to a possible loss in efficiency (but not consistency) as we have ignored the possible correlation in unobserved factors explaining short-term and long-term migration.

$$Pr[\text{household has long-term migrant in 2002-04}] = \Phi(X_i\beta^{LT} + Z_i\gamma^{LT})$$

where i is the household, Φ is the standard normal distribution, and β, γ are parameters to be estimated

Among the household characteristics we include household size (measured as number of household members) as we expect that larger households are more likely to have migrants because of surplus labor. Per capita household expenditure (measured in logarithm) is included as a proxy for the household's living standard and because poorer households have a bigger incentive to migrate. However, we also include a square term for per capita household expenditure to test whether the relationship between migration and economic well-being is non-linear. Some studies have suggested the existence of a 'migration hump', in the sense that the poorest of the households are too poor to migrate while the richest have no incentive (Lucas 2005).[18] Households with more agricultural land per capita (in hectare) are less likely to have migrants because of a lower labor surplus. Also these households may be better able to access credit and therefore have a lower incentive to use migration to generate liquidity. We also include age composition shares as we expect that households with many young adults are more likely to have migrants. Educational shares are also included as the expected income gain from migration tends to be larger for higher levels of education and therefore households with better educated members are more likely to have migrants. Also better educated households may have better access to information about destination areas. The gender and marital status of the household head are included because we expect that households with married heads are less likely to have (long-term) migrants, while the expected income gain from migration may depend on gender because of different labor market opportunities.[19] Finally the share of household members working in wage employment and in the private sector[20] is included. We expect that households already involved in wage employment or the private sector are more likely to consider migration as a possible livelihood strategy unlike purely agricultural households or households involved in state employment.

Apart from the household characteristics we also include commune characteristics as the migration decision depends also on the characteristics of the area of origin. First a number of proxies are included for the general level of development of the areas of origin. The poverty status of the commune (a dummy variable for whether the commune is classified as poor in the province) is included as more people may want to migrate if the commune is poorly developed. A dummy variable indicating whether the commune has enterprises, factory or trading village within 10 km is included as people will be less likely to migrate if they have more non-farm job opportunities. Also a dummy variable indicating whether the commune has a job creation program is included. Although one may be skeptical about the efficacy of these programs, we include this indicator to formally test whether it reduces migration pressures. A dummy variable indicating whether the commune has a good climate for agriculture is included (measured as whether natural disasters/drought/flood are among the three main problems faced by farmers) as we expect that communes with low agricultural productivity to face strong pressures for out-migration. The distance to the nearest road accessible for cars (in km) is included to measure the accessibility of the

[18] There is prima facie evidence for the existence of a migration hump as the percentages of short-term and long-term migrants show an inverted U-shape with respect to the per capita household expenditure quintiles.

[19] For instance because of the increasing demand for female labor in export-oriented industries (Wood 1991).

[20] Domestic or foreign.

commune. On the one hand poor access will limit the opportunities for market integration and increase migration pressures, while on the other hand it will increase the cost of (especially short-term) migration. A dummy indicating the presence of electricity is included as communes without electricity will face stronger pressures to migrate. Finally a dummy variable indicating whether malaria, leprosy, goiter or tuberculosis are among the three main illnesses in the commune is included as we expect higher out-migration rates in those communes.

Apart from the above household and commune characteristics, a dummy variable for urban area and regional dummies are included to control for other geographical differences affecting the incentive to migrate, such as climate and local opportunities for migration.

It should be noted that all of the above household and commune characteristics have been constructed from the VHLSS 2002 and are therefore defined prior to the migration status as recorded in the VHLSS 2004. This will significantly reduce the problem of simultaneity that has plagued the earlier cross-section studies on migration in Vietnam. At the same time this implies that we will only use the 4008 households that are included in both the VHLSS 2002 and VHLSS 2004.

Because the commune characteristics are only available for rural communes, we will estimate three versions of the models for short- and long-run migration:

(1)For both rural and urban with only household characteristics (4008 households).
(2)For rural areas with only household characteristics (3100 households)
(3)For rural areas with household and commune characteristics (3100 households)

The comparison of (1) versus (2) will tell us whether the determinants of migration vary across rural and urban areas. The comparison of (2) versus (3) will tell us whether commune characteristics have independent explanatory power apart from the household characteristics.

Table 4 presents the descriptive statistics of the model variables, for both urban and rural areas and for rural areas alone. On average 8% of the households have short-term migrants and 26% have long-term migrants. These figures are quite similar to those reported in table 2, even if the figures in Table 4 are unweighted and only for the panel households.

[Table 4 about here]

In Table 5 the marginal effects of the Probit regression results are presented. First, we find that there are no significant differences in migration flows between urban and rural areas after we control for the other factors. Second, the Red River Delta is most dynamic in terms of short- and long-term migration (respectively 3.7 and 9.6% higher than the reference region Central Highlands). Also long-term migration from North Central Coast is significantly higher at 11.3%. Third, larger households tend to have more migrants and this is especially the case for long-term migrants. Fourth, we do not find any significant relationship between household income status (proxied by per capita household expenditure) and land holdings and migration. Fifth, age has a large impact on migration behavior, as households with members of age between 15 and 25 years are much more likely to have out-migrants (5.7-7.9% higher probability of having a short-term migrant and 22.6-24.7% higher probability of having a long-term migrant). Sixth, education

increases the probability of out-migration significantly. A household where all members have upper secondary education has a 12.3-12.7% higher probability to have short-term migrants, and a 16.5-17.9% higher probability to have long-term migrants compared to a household where all members have no education. Households involved in wage employment and the private sector show significant higher probability of migration. Finally, the final two regressions in Table 5 show the impact of commune characteristics on out-migration in rural areas. We find that communes with enterprises, factories, or trading village within 10 km have significantly less out-migration. This suggests that local economic development of non-farm opportunities is important to reduce migration pressures. At the same time the presence of a job-creation program does not appear to have been successful in reducing this pressure. Puzzlingly, we also find that communes without a good climate for agriculture face lower rates of long-term out-migration. Maybe after a natural disaster/drought/flood people are less likely to migrate because of reconstruction efforts. In summary, we can conclude that migration is a highly selective process and that migration pressures will remain high as long as the population is young, increasingly educated, and non-farm economic opportunities are lacking.

[Table 5 about here]

It may be argued that the determinants of migration are different for different types of migration. For instance, one may distinguish between within- and between-province migration. Or between migration for economic and non-economic reasons. We have already discussed that the VHLSS 2004 does not provide information on where the short- or long-term migrant has moved, and hence we cannot study the determinants of within- versus between-province migration. However, we know the reason for long-term migration, and evidence from the VLSS 1998 suggests that most of the migrants (70%) who move because of work ('economic' reason) tend to move to another province, while most of the migrants (61%) who move because of non-work reasons ('non-economic' reasons) tend to move within the province. We therefore also estimate the determinants of long-term migration for economic and non-economic reasons separately (Table 6). The determinants for economic long-term migration are strikingly different in some respects from those for non-economic long-term migration. First, long-term migration for economic reasons is more likely a rural than urban phenomenon. Second, economic long-term migration is more likely from Red River Delta, North East, North Central Coast and Mekong River Delta. Third, although household size increases the probability of long-term out-migration, the impact is the largest for out-migration for non-economic reasons. Fourth, we now find a clear inverted U-shape ('migration hump') for long-term out-migration for economic reasons with respect to economic well-being in rural areas.[21] This suggests that the poorest are less likely to migrate for economic reasons, presumably because of the costs and uncertain benefits involved. Fifth, while also the age group 15-25 years is more likely to migrate for economic reasons, we now also find a significant larger probability of economic long-term out-migration for people of age 45 to 55 years in rural areas. This suggests that economic pressures are also strong on the older people in rural areas and that they choose to migrate for economic reasons after the children have grown older. Finally, with respect to the commune characteristics, we find that communes with enterprises, factories or trading villages within 10 km do experience less non-economic out-migration but not less economic out-migration. This together with the fact that

[21] The probability of economic long-term out-migration is increasing in per capita expenditure levels below 4,674,000 or 3,878,000 in the regressions without and with commune characteristics respectively, and decreasing afterwards.

communes with job creation programs do not face less migration pressure, suggests that economic out-migration is mostly driven by the economic opportunities in destination areas rather than origin areas.

[Table 6 about here]

4. Migration, remittances and income inequality

The impact of migration on origin areas

One can distinguish among three different types of impacts of migration on the origin or sending areas, namely departure, diaspora and return impacts (Lucas 2005). *Departure* impacts refer to the impacts of out-migration on labor market, fiscal costs, and externalities in the area of origin. However, the impact generally depends on the composition of the migration flow. Out-migration reduces the overall supply of labor in the area of origin, and particularly in the labor market segments where the migrants were involved, and this tends to raise wages and reduce unemployment levels. But if and to what extent this will happen depends much on barriers to wage flexibility in the market, integration in goods and capital markets, the ease of labor reallocation and the capacity of the remaining labor to obtain the skills of departing migrants, and the time horizon involved. Besides the impacts on the labor market, there are fiscal costs of migration because of a reduction in the tax base. Finally, migration may have an impact on the sending areas through externalities, for instance if a loss of high-skilled migrants deteriorates the quality of management, social climate, educational and health services in the community ("brain drain" effects).

The most important *diaspora* impact of migration is remittances flows as migration typically leads to significant financial flows from the migrants back to the origin areas. Remittances may affect labor force participation, local demand through a multiplier effect, but also investment in education, land and housing, risk alleviation, inflation, poverty, and intra-family inequality. Remittances will affect the income distribution (income inequality) of an origin area depending on the income classes from which the migrants originate, the pattern of remittances by income classes, and the indirect impacts of migrants on non-migrants (Lucas 2005). Besides remittances, other diaspora effects of migration can be noted as well. For instance, origin communities can benefit from high-skilled migrants, as they become the source of information on various business opportunities and available technologies outside the community, helping to improve regional trade, capital flows and technology transfer.

Migration may also have an impact on origin areas through *return* migration. Returning migrants normally have high saving rates that help them to smooth their retirement period or prolong job search. They might also use their savings for investment in various business fields depending on their experiences, the legal frameworks, credit access and other incentives provided by the area of origin.

In this chapter we will focus primarily on the diaspora impact of migration, particularly remittances and income distribution in origin areas. So far there are virtually no studies on the impact of migration on origin areas in Vietnam. Guest (1998), based on the results of five previous studies on internal migration in Vietnam during 1996-1997, notes that there is little evidence to suggest that rural-tot-rural migration improved opportunities in origin areas. Other studies on the consequences of migration have typically looked at the impact of migration on the migrants themselves or on the destination areas (Do and Nguyen 1998,

Le, V.T. 1998, and Nguyen, D.V. 2001). The main reason is that these studies are based on data covering migrants and non-migrants in destination rather than origin areas. For instance, the study of Nguyen (2001) does analyze the probability and amount of remittances sent by migrants, but it is not known how these remittances affect the origin areas.

A number of studies in the international literature have looked at the impact of migration on remittances and income inequality. Recent empirical work suggests that migration and remittances tend to increase household income inequality especially at the initial stage of migration. Stark (1986) and Stark *et al.* (1988) analyzes the role of remittances in village income inequalities using 1982 household data from two Mexican villages with large out-migration rates. They found that international out-migration had a profound unequalizing impact in the village with few international migrants, but an equalizing effect in the other village with a long history of sending migrants abroad. Taylor (1992), using Mexican data from two household surveys in 1983 and 1989, also finds that initially migration may have a large unequalizing effect before access to migrant labor markets become diffused across households. Adams (1989) measures the impact of international remittances on poverty and income distribution using a 1986/87 household survey in 3 villages in Egypt. He finds that international remittances play a small role in poverty alleviation (percent of households below the poverty line falls from 26.8 to 24.4%) but the income distribution tends to worsen in the presence of migration. Rodriguez (1998) determines the impacts of international migration on the household income distribution in origin areas in The Philippines. Based on the Family Income and Expenditure Survey in 1991, he finds an increase in income inequality, with a 1 percentage increase in remittances raising income inequality by 0.032 percent. Barham and Boucher (1998), using data from Nicaragua in 1991, find that migration and remittances increase income inequality compared to the no-migration counterfactual. Rivera (2005) in a study of remittances and income inequality in Mexico in 2003, finds a negative impact of remittances on household income inequality after decomposing household net income by income source.

In the remainder of this chapter we will analyze the impact of migration on remittances and income inequality in Vietnam using the VHLSS 2002 and 2004. In the next section we provide a descriptive analysis of remittances in Vietnam. Next we estimate the impact of migration on income inequality.

Descriptive analysis of remittances

The VHLSS 2002 and 2004 ask households whether anyone in the household received money or goods from people overseas ('international remittances') or people in Vietnam ('domestic remittances') who are not household members. If this was the case, the household was also asked about the total (cash and in-kind) value of the remittances. Although this information can be regarded as 'remittances', two caveats should be noted. First, any receipts from non-household members that have never been household members in the past are included as well. Second, any receipts from migrants who have been away for some part of the year and who are counted as household members are not included. In other words, the link between these 'remittances' and migration is imperfect, as they include receipts from non-migrants and exclude receipts from migrants who are regarded as household members. Unfortunately there is no way in the VHLSS 2002 and 2004 to distinguish between migrant and non-migrant remittances.

Table 7 reports the average remittances and ratio over expenditure for domestic and international remittances in urban and rural areas in 2002 and 2004. Average remittances are larger in urban than in rural areas, but remittances as a ratio of expenditures are typically higher in rural areas.[22] Domestic remittances dominate international remittances, and total remittances form 12.6-14.9% of total expenditures. Overall we can say that remittances form an important source of household income, both in urban and rural areas.

[Table 7 about here]

Tables 8 and 9 report the average remittances and remittances as a ratio of expenditures by income group. Average remittances by income group are very pro-rich (Table 8). While the poorest quintile received only 693,000 VND per household, the richest quintile received 7,239,000 VND per household in 2004. However remittances as a ratio of total expenditures show a very different pattern (Table 9). Domestic remittances are clearly pro-poor while international remittances are pro-rich. This confirms the findings of Stark (1986) and Stark *et al.* (1988) and Taylor (1992) that migration becomes more equalizing with greater access across households. Access to domestic migration has become relatively easy for all households, but access to international migration is still limited and unaffordable for the poorest households because of the necessary employment contract deposit. Total remittances as a ratio of expenditures are both pro-poor and pro-rich – the poorest households benefit disproportionately from domestic remittances and the richest from international remittances.

[Table 8 about here]

[Table 9 about here]

The next table reports the characteristics of households by percentage of remittances received in 2004. Most households (61.5%) received remittances between 0 and 10% of total expenditures. Households that received the largest share of their expenditures from remittances are more likely to be rural households. They also tend to have fewer household members, presumably because of migration. Households receiving higher percentages of remittances rely less on wage employment, agricultural activities and, especially, non-agricultural activities. This suggests that non-agricultural activities are economically 'inferior' activities and quickly abandoned with additional income transfers. Households relying most heavily on remittances are more likely to have older, female, unmarried, and less educated household heads. This suggests that widows and divorced women tend to rely more heavily on remittances, and also suggests that remittances may reduce income inequality. In the next section we will formally analyze how migration and remittances affect household inequality in Vietnam.

[Table 10 about here]

Migration, remittances and expenditures

In our analysis of the impact of migration and remittances on household income inequality we follow the framework as developed by Taylor *et al.* (2003). Let the logarithm of total household expenditures be a function of migration (M), remittances from migration (R), and household and community characteristics (Z):

[22] Expenditure is viewed as the best proxy for the living standards based from evidence of VHLSS. Expenditure and remittance here are all calculated in real January 2004 prices.

(1) $\log Y_i = \gamma_0 + \gamma_1 M_i + \gamma_2 R_i + \gamma_3 Z_i + \varepsilon_i^Y$

where *i* indicates the household. Total household expenditures depend on migration and remittances for two reasons. First, remittances are a source of income and therefore have a positive impact on expenditures (direct effect). Second, if labor and/or credit markets are imperfect, then the presence of migration and remittances may affect the other production activities of the household (indirect effect). For instance Stark (1991) suggests that the remittances generated by migration may relax credit and risk constraints allowing the household to make a transition from household to commercial production. At the same time if the household faces labor constraints, migration will affect the allocation of labor to the productive activities of the households.

At the same time, remittances are themselves a function of household and community characteristics:

(2) $R_i = \alpha_0 + \alpha_1 M_i + \alpha_3 Z_i + \varepsilon_i^R$

Substituting equation (2) into equation (1) gives an equation for the logarithm of total household expenditures as a function of *M* and *Z*:

(3) $\log Y_i = \beta_0 + \beta_1 M_i + \beta_2 Z_i + \varepsilon_i$

We will estimate the reduced form equation (3) rather than the structural equations (1)-(2), because we lack a good measure of *R*. Our measure of remittances includes receipts from non-migrants and excludes receipts from migrants who are regarded as household members, while the variable *R* in equations (1)-(2) relates to remittances *from migration*. Therefore we estimate the reduced form equation (3) although this implies that we are unable to disentangle the direct and indirect impacts of migration.

The dependent variable of our model (*Y*) is defined as the logarithm of total household expenditure (in '000 VND) in 2004. As household and commune characteristics (*Z*) we include the age and age squared (in years), gender (dummy variable for male), highest educational degree obtained (0=no degree, 1=primary school, 2=lower secondary school, 3=upper secondary school, 4=technical worker, 5=professional secondary school, 6=junior college diploma, bachelor's, masters, candidate/doctor) and marital status (dummy for married) of the household head. The age, gender and educational level are included because we expect the human capital of the household head to affect the income and therefore expenditure level of the household. The marital status is included as previous research suggests that married people are more productive.[23] Furthermore we also include household size (number of household members), age composition shares (proportion of household members with age falling into the intervals [0,15], (15,25], (25,35], (35,45], (45,55], (55,∞)), education composition shares (proportion of household members which has not finished 1st grade or never went to school, between 1st and 5th grade, between 6th and 9th grade, and between 10th and 12th grade)[24], and the household's total agricultural, syvilcultural and aquacultural land area (ha). We expect households with more resources in terms of people, education or land to be more productive and therefore to have

[Table 11 about here]

[23] This may either reflect the productivity of marriage or a selection effect, as more productive people may be more successful in the marriage market.

[24] It is noted that all members that have higher level of education, say bachelor or master or doctoral degree, also record as 12th grade.

higher expenditures. With respect to the age composition of the household we expect an inverted U-shape – households with many very young or old people (dependents) tend to be less productive and therefore to have lower expenditures. Finally, we include regional dummies among the variables in Z to control for regional differences in income and income-generating opportunities.

For the variable M in equation (3) we include the number of short-term as well as long-term migrants. In some of the regression specifications we also distinguish among economic (for work reasons) and non-economic (for non-work reasons) long-term migrants.

Table 11 presents the descriptive statistics of the model variables. The only thing we like to note is that the average number of short-term and long-term migrants is respectively 0.09 and 0.44 persons. The average number of economic and non-economic long-term migrants is 0.08 and 0.29 persons.[25] Table 12 presents the estimation results.[26] In column (1) equation (3) is estimated with OLS and the number of short- and long-term migrants. Household expenditures are higher in households with married heads, with higher education, and with fewer dependents. Surprisingly, female-headed households tend to have higher expenditures than male-headed households. The explanation for this is that female-headed households benefit more from out-migration than male-headed households. If we include interaction terms for the number of migrants and the gender of the household, we find negative coefficients for these interaction terms and the gender dummy becomes smaller and insignificant (not reported in the table).

In terms of migration, we find that households with long-term migrants tend to have slightly higher expenditures but no statistically significant impact is found for short-term migrants. In column (2) the same equation is estimated but with the breakdown between economic and non-economic long-term migrants. This does barely affect the coefficients but we now find the non-intuitive result that non-economic long-term migrants tend to increase household expenditures but economic long-term migrants do not.

The OLS regressions may suffer from endogeneity bias however, as we have seen that migration is a highly selective process. Especially if households that face a negative income shock are more likely to have migrants, we expect that the coefficients on the migrant variables are underestimated.[27] We therefore reestimate equations (1) and (2) with instrumental variables. As instruments we compare the age, gender, marital status and educational level of the household head with the average age, gender, marital status and educational level of the different types of migrants in the region. Intuitively, we assume that households that are similar to migrants in terms of these characteristics are also more likely to migrate. For instance, if many females in one region are migrating because of the demand for female labor in a neighboring region, then we expect that households with relatively more females are also more likely to send away household members. Technically, we define as instruments: $x_i^H / (\frac{1}{N_T^{R(i)}} \sum_{j \in S_T^{R(i)}} x_j^M)$ for each type of migrant T (short-term migrants, long-term migrants, economic long-term migrants, non-economic

[25] This is less than 0.44 (the average number of total long-term migrants) because we do not know the reason for movement of all long-term migrants.

[26] The regressions also include regional dummies.

[27] In other words, there is a negative correlation between the migrant variables and ε_i.

long-term migrants), where x_i^H and x_j^M are the age, gender, marital status or education of the household head in household *i* and migrant in household *j* respectively, $S_T^{R(i)}$ is the set of migrants of type *T* in region *R* where household *i* is located (Red River Delta, Northeast, Northwest, North Central Coast, South Central Coast, Central Highlands, Southeast, Mekong Delta), and $N_T^{R(i)}$ are the number of migrants of type *T* in region *R* where household *i* is located. Columns (3) and (4) in Table 12 present the estimation results with instrumental variables. Interestingly, although the other coefficients are little affected, we now find strong and significantly positive impacts of migration on household expenditures. Short-term out-migration is estimated to increase household expenditures by 67.7% and long-term out-migration by 38.1%.[28] Column (4) suggests that the impact from long-term migration is particularly high if migrants leave for work (economic reasons) and much less so if they leave for other reasons.

[Table 12 about here]

Does migration increase inequality?

Table 9 suggests that domestic remittances are pro-poor, international remittances are pro-rich, and total remittances are both pro-poor and pro-rich (but anti-middle class). However, it would be too quick to conclude that migration increases the relative incomes of the poor and the rich as this depends on what would have happened in the absence of migration. As a first step we could assume that the *counterfactual* household expenditures in the absence of migration would be given by household expenditures minus remittances received. In Table 13 we report the pre- and post-remittance expenditure shares of the different quintiles based on this *counterfactual* income. We distinguish among three different counterfactuals, namely (1) no domestic migration (domestic remittances), (2) no international migration (international remittances), and (3) no migration (total remittances). Because each of these counterfactuals leads to different per capita household expenditure rankings, they generate different quintile orderings. The table shows that the expenditure shares of the first quintile increases by 19.6, 44.1 and 82.6% respectively with domestic, international and total remittances. The expenditure shares of the other quintiles fall with remittances. As a consequence, the Gini coefficients of the per capita household expenditure distribution falls after remittances are included in the household expenditures. This finding is in line with Rodriguez (1998, table 4).

Hence, we may conclude that migration reduces income (expenditure) inequality in Vietnam. However, there are two problems with this conclusion. First, as discussed before, our available measure of remittances is only partly linked with migration, as it includes receipts from non-migrants and excludes receipts from migrants who are regarded as household members. Second, and more fundamentally, it is implausible to assume that (a) migrants would not have contributed anything to household expenditures in case they would have stayed in the household and (b) that the absence of migrants does not affect household expenditures except through remittances. Both assumptions are unlikely to hold. First, in case migrants would remain in the household, they would be available for on- and off-farm income-generating activities and therefore the loss of remittances would be (partly) compensated. Second, in case migrants are absent from the household, household expenditures will not only be affected directly by the availability of remittances (as assumed), but also indirectly in case there are market imperfections. For instance with

[28] Exp(0.517)-1=0.677 and exp(0.323)-1=0.381.

labor market imperfections, the absence of a migrant worker may decrease farm productivity in case family and hired labor are imperfect substitutes, or with credit market imperfections the availability of remittances may increase off-farm income through investment.

[Table 13 about here]

Therefore as a second step we compare the distribution of expenditures in 2004 with the distribution of *counterfactual* expenditures in 2004 if no migration had occurred based on our estimated household expenditures model. We first simulate the actual expenditures level for each household:

(4) $\hat{Y}_i = e^{\hat{\beta}_0 + \hat{\beta}_1 M_i + \hat{\beta}_2 Z_i + \hat{\varepsilon}_i^s}$

where $\hat{\varepsilon}_i^s$ is an independent and random draw for each household from the empirical distribution of the estimated error terms, $\widehat{F}(\varepsilon)$. Next we simulate the *counterfactual* level of household expenditures if there would not have been any recent migration. More specifically, we set *M* equal to zero and adjust *Z* for the fact that the migrant is still present in the household:[29]

(5) $\hat{Y}_i^C = e^{\hat{\beta}_0 + \hat{\beta}_2 Z_i^C + \hat{\varepsilon}_i^s}$

where Z_i^C are the household characteristics in case the migrant(s) would still be present in the household, and $\hat{\varepsilon}_i^s$ is the same random draw for each household as in (4). The impact of recent migration (including remittances) on the inequality of *per* capita expenditures can then be found by comparing the simulated distributions of $(\hat{Y}_i / H_i)$ and $(\hat{Y}_i^C / H_i^C)$, where H_i and H_i^C is the number of household members in the actual and counterfactual situation respectively. However, the simulated distributions of $(\hat{Y}_i / H_i)$ and $(\hat{Y}_i^C / H_i^C)$ depend on the series of random draws $\{\hat{\varepsilon}_i^s\}_{i=1}^N$, and therefore we repeat the above simulations 10 times and report the mean outcome (Barham and Boucher 1998).[30]

With the estimated coefficients and predicted value of dependent variable, we calculate the total household and per capita expenditure for the counterfactual-model, with no migrants. All household's characteristics are adjusted so that they include the characteristics of the household members who are migrants otherwise. The model chosen is the one with migration variable being the household's number of migrants (column (1) in Table 12).

The total household expenditure in the actual migration model is 20.6% higher than in the counterfactual (no migration) model. In terms of per capita household expenditures the difference is even 29.8%. This suggests that migration does increase economic welfare considerably.

[Table 14 about here]

When we compare the distributions of $(\hat{Y}_i / H_i)$ and $(\hat{Y}_i^C / H_i^C)$, we find that the Gini coefficient is 0.04 point *larger* in the actual (migration) model compared to the counterfactual (no migration) model. Hence, unlike in the first step where we compared the

[29] For instance the variables for household size, age and education composition will be affected.
[30] A larger number of simulations does not affect the results.

pre- and post-remittance household expenditure distributions, we find that migration *increases* the inequality of household expenditures. This finding is exactly similar to that found for the Philippines by Rodriguez (1998), confirming the importance of constructing an adequate counterfactual income level to evaluate the impact of migration on inequality.

[Figure 1 about here]

5. Discussion and conclusions

This chapter has used the recent Vietnam Household Living Standard Survey 2004 to analyze the determinants and impacts of migration in Vietnam. Migration is found to be a highly selective process and strongly affected by household and commune characteristics, although differently across types of migration and across urban and rural areas. The evidence suggests that migration pressures will remain strong in the near future as long as the population is young, increasingly educated, and non-farm economic opportunities are lacking. Also the existence of a 'migration hump' for economic long-term migration suggests that migration pressures for long-term migration may be actually increasing with economic development, as more and more of the poor will be able to 'afford' the cost and uncertainty of long-term migration. The presence of non-farm employment opportunities appears to reduce short-term migration but not long-term out-migration for economic reasons, and job-creation programs have been ineffective in reducing migration pressures.

Unlike previous studies on migration in Vietnam, the chapter has also analyzed the impact of migration on household expenditures and inequality in origin areas. Prima facie evidence suggests that migration reduces the inequality in per capita household expenditures in origin areas, as the expenditure shares of the poorest in terms of pre-remittance expenditures increase the most with remittances. However, after constructing a more appropriate counterfactual expenditure level it is actually found that migration increases the Gini coefficient of per capita household expenditures considerably, from 0.38 to 042, in origin areas. This finding is in line with most international studies that also find that migration tends to increase income inequality. However, it should be noted that international evidence also suggests that the unequalizing impact of migration is reduced over time as access to migrant labor markets become diffused across households. Currently, as the pro-richness of international remittances and the evidence for the existence of a migration hump suggest, access to migration labor markets is still limited for the poorest, and this is especially the case for the lucrative international migrant labor markets. Hence, policies improving the access of the poorest to migrant labor markets should be pro-poor.

In terms of impacts the study analyzes the impact of migration on household expenditures and household inequality. Migration is found to have a strong positive impact on household expenditures but increases the Gini coefficient of per capita household expenditures from 0.38 to 0.42 in origin areas compared to the no-migration case.

References

Adams R. 1989. "Worker Remittances and Inequality in Rural Egypt." *Economic Development and Cultural Change* 38(1): 45-71.

ADB. 2005. "Labor Market Segmentation and Poverty." A report for ADB Making Markets Work for the Poor Project. Hanoi.

Barham, B., and S. Boucher. 1998. "Migration, remittances and inequality: estimating the net effects of migration on income distribution." *Journal of Development Economics* 55: 307-31.

Bilsborrow, R. 1996. *Migration, Urbanization, and Development: New Directions and Issues*. United Nations Population Fund and Kluwer Academic Publishers.

Collier, P., and D. Lal. 1984. "Why poor people get rich: Kenya 1960-79." *World Development* 12(10): 1007-18.

Dang, N. A. 1998. “Vai trò của mạng lưới xã hội trong quá trình di cư.” [“The Role of Social Networks in the Process of Migration.”] In Do Van Hoa, *Chính sách Di dân ở Châu Á* [*Migration policy in Asia*]. Agricultural Publishing House.

Dang, N. A. 2001. “Rural Labor Out-migration in Vietnam: a Multi-level Analysis.” In *Migration in Vietnam-Theoretical Approaches and Evidence From a Survey*. Transport Communication Publishing House.

Dang, N.A. 2005. *Internal Migration: Opportunities and Challenges for the Renovations and Development in Vietnam*. Hanoi: The Gioi Publisher.

Dang, N. A., S. Goldstein, and J. Mc Nally. 1997. “Internal migration and development in Vietnam.” *International Migration Review* 31(2): 312-337.

Dang, N. A. and Le B. D. 2001. “Women's Migration and Urban Integration in the Context of Doi Moi Economic Renovations.” In *Migration in Vietnam-Theoretical Approaches and Evidence From a Survey*. Transport Communication Publishing House.

Dang, N. A., Le, B. D., and Nguyen, H. V. 2005. “Youth Employment in Vietnam: Characteristics, Determinants and Policy responses.” Employment Strategy Papers 2005/09. International Labour Organization, Employment Policies Unit, Geneva.

Dang, N. A., and Nguyen, T. L. 2006. “Vietnam Migration Survey 2004 Internal Migration and Related Life Course Events”. Mimeo. Hanoi: VASS.

Dang, N. A., C. Tacoli, and Hoang, X.T. 2003. “Migration in Vietnam: A review of information on current trends and patterns, and their policy implications.” Paper presented at the Regional Conference on Migration, Development and Pro-Poor Policy Choices in Asia, Dhaka, June.

Dang, N. A., C. Tacoli, and Hoang, X.T. 2004. *Stay on the Farm, Weave in the Village, Leave the Home - Livelihood Diversification and Rural-Urban Linkages in the Red River Delta and their Policy Implications*. Hanoi: The Gioi Publisher.

Demery, L. 2002. “Benefit Incidence Analysis.” In *Tool Kit: Techniques and Tools for Evaluating the Poverty Impact of Economic Policies*, chapter 2. World Bank.

Djamba, Y., S. Goldstein, and A. Goldstein. 1999. “Permanent and Temporary Migration in Vietnam during a Period of Economic Change.” *Asia-Pacific Migration Journal* 14 (3): 25-28.

Doan M. D., N. Henaff, Trinh K. P. 1998. “Di dân nông thôn – đô thị ở Việt Nam: Bản chất, mối quan hệ và chính sách quản lý.” [“Patterns of Rural-Urban Migration in Vietnam: Nature, relationship and management policy.”]. In Do Van Hoa, *Chính sách di dân ở Châu Á* [*Migration policy in Asia*]. Agricultural Publishing House.

Do, M. C., and Nguyen Q. H. 1998. “Rural-rural spontaneous migration: problems and solutions”. Paper presented at the International Seminar on Internal Migration: Implications for Migration Policy in Vietnam, UNDP.

Do, V. H. 1998. “Resettlement in Vietnam: Its Effects on Population and Production”. Paper presented in the International Seminar on Internal Migration: Implications for Migration Policy in Vietnam, UNDP.

Enchautegui, M. 1997. “Welfare Payments and Other Economic Determinants of Female Migration.” *Journal of Labor Economics* 15(3): 529-54.

GSO. 2006. *Human Development Index Profile, Data for National Development Report 2006*.

GSO. 2000. *Vietnam Living Standard Survey 1997-1998*. Hanoi: Statistical Publishing House.

GSO and UNDP. 2001. *1999 Population and Housing census: Census Monograph on Internal Migration and Urbanization in Vietnam*. Hanoi: Statistical Publishing House.

GSO and UNFPA [United Nation Population Fund]. 2005. *Vietnam Migration Survey 2004: Major Findings*. Hanoi: Statistical Publishing House.

Goldstein, S., Y. Djamba, and A. Goldstein. 2001. “Migration and Occupation Change during Periods of Economic Transition.” *Asia-Pacific Migration Journal* 9(1): 65-92.

Gallup, J. L. 2002. "The Wage Labor Market and Inequality in Vietnam in the 1990s." Policy Research Working Paper 2896. World Bank.

Guest, P. 1998. "The Dynamics of Internal Migration in Vietnam." UNDP Discussion Paper 1. Hanoi, Vietnam.

Hanoi Trade Union and ActionAid Vietnam. 2004. *Impacts of Economic Integration on Labor of Female Migrants from Red River Delta Rural Areas to Footwear and Textile Companies*. Hanoi.

Harris, J. and M. Todaro. 1970. "Migration, unemployment and development: a two-sector analysis." *American Economic Review*, 60(1): 126-42.

Ha P. T., and Ha Q. N. 2000. "Free Rural-Urban Migration Among Female Labour." Hanoi: Women Publisher.

Katz, E., and O. Stark. 1986. "Labor Migration and Risk Aversion in Less Developed Countries." *Journal of Labor Economics* 4(1): 134-49.

Knight, J., and L. Song. 1997. "Chinese Peasant Choices: Farming, Rural Industry or Migration." No.188. Applied Economics Discussion Paper Series. University of Oxford: Institute of Economics and Statistics.

Lakshmansamy, T. 1990. "Family Survival Strategy and Migration: An Analysis of Returns to Migration." *The Indian Journal of Social Work* 51(3): 473-85.

Lalonde, R., and R. Topel. 1997. "Economic Impact of International Migration and the Economic Performance of Migrants." In Mark Rosenzweig and Oded Stark, eds., *Handbook of Population and Family Economics* 1B, 799-850, Amsterdam, New York and Oxford: Elsevier Science, North-Holland.

Le, V. T. 1998. "Dân nhập cư với vấn đề phát triển một đô thị lớn như thành phố Hồ Chí Minh." ["Migrants and Development in a Large City like Ho Chi Minh City"] In Do Van Hoa, *Chính sách di dân ở Châu Á* [*Migration policy in Asia*]. Agricultural Publishing House.

Le, X. B., Cu C. L., Nguyen T. K. D., and Nguyen V. T. 2001. "The Labor Market in Vietnam: Growth, Poverty Reduction and Adjustment to Crisis." Paper presented at the Labour Markets in Transitional Economies in Southeast Asia and Thailand, Phnom Penh, March.

Lucas, R. 2005. *International Migration Regimes and Economic Development*. Manuscript.

MOLISA. 1997. *Report on Spontaneous migration survey in Hanoi, Project VIE/95/004*. MOLISA: Center for Population and Human Resources Studies. Hanoi.

National Institute for Urban and Rural Planning. 1996. *Population and Urban Living Environment in Hanoi City*. Ministry of Construction, Project VIE/93/P02. National Political Publishing House.

Nguyen, D. V. 2001. "Urban Savings and Remittances in Vietnam." In *Migration in Vietnam - Theoretical Approaches and Evidence from a Survey*. Transport Communication Publishing House.

Nguyen, Giang Huong. 2005. "Analysis of Migrants Situation in Hanoi and Ho Chi Minh City." MA thesis. Vietnam-Netherlands Project in Development Economics, Hanoi.

Nguyen, T. 2002. "A Note on Goods and Labour Mobility in Vietnam." available at http://www.crefa.ecn.ulaval.ca/develop/thang.pdf. Assessed on April 2002.

Nguyen, T. L. 2001. "Intentions of Temporary Migrants to Stay in Urban Areas. In *Migration in Vietnam-Theoretical Approaches and Evidence From a Survey*. Transport Communication Publishing House.

Nguyen, T. L. and M. J. White. 2002. "Health status, Urbanward Migration, and Government Policy in Urban Areas in Vietnam." Paper presented at the IUSSP Conference: Southeast Asia's Population in a Changing Asian Context, Siam City Hotel, Bangkok, Thailand, June.

Rivera, J.J.M. 2005. "The impact of migration and remittances on distribution on distribution and sources income: the Mexican rural case". Paper UN/POP/MIG/2005/06 presented at the

United Nations Expert Group Meeting on International Migration and Development. Population Division, Department of Economics and Social Affairs, United Nations Secretariat. New York.

Rodriguez, E. 1998. "International Migration and Income Distribution in the Philippines." *Economic Development and Cultural Change* 329-50.

Stark, O. 1980. "On the Role of Urban-Rural Remittances in Rural Development." *Journal of Development Studies* 16(3): 369-74.

Stark, O. 1986. "Remittances and Inequality." *The Economic Journal* 96: 722-40.

Stark, O. 1986. "Migration, Remittances and Inequality." *Journal of Development Economics* 28: 309-22.

Stark, O. (1991): *The Migration of Labour*. Cambridge, Mass.: Harvard University Press.

Stark, O., E. Taylor, and S. Yitzhaki (1988): "Migration, Remittances and Inequality. A Sensitivity Analysis Using the Extended Gini Index", *Journal of Development Economics* 28: 309-22.

Stark, O., and J. Taylor. 1991. "Migration incentives, migration types: The role of relative deprivation." *The Economic Journal* 101: 1163-78.

Taylor, J. 1992. "Remittances and Inequality Reconsidered: Direct, Indirect, and Intertemporal Effects." *Journal of Policy Modeling* 14(2): 187-2008.

Taylor, J., S. Rozelle, and A. de Brauw. 2003. "Migration and Incomes in Source Economies: A New Economics of Migration: Perspective from China." *Economic Development and Cultural Change* 52: 75-101.

Thadani, V., and M. Todaro. 1984. "Female Migration: A Conceptual Framework." In J. Fawcett et al., eds., *Women in the Cities of Asia. Migration and Urban Adaptation*, Boulder: Westview Press.

Todaro, M. 1969. "A model of labor migration and urban unemployment in less developed countries." *American Economic Review* 59(1): 138-48.

Trinh, K. P. 1998. "Characteristics of Rural-Urban Migration in Vietnam and Policies to Control It." Paper presented at the International Seminar on Internal Migration: Implications for Migration Policy in Vietnam, UNDP.

Truong, S. A., P. Gubry, Vu T. H., and J. Huguet. 1996. "Migration and employment in Ho Chi Minh City." *Asia-Pacific Population Journal* 11(2): 3-22.

UNDP and GSO. 2001. *Living Standards during an Economic Boom Vietnam 1993-1998*, Hanoi: Statistical Publishing House.

VASS. 2006. "Q-Squared (Q^2): Combining Qualitative and Quantitative Approaches in Poverty Analysis in Vietnam." Mimeo.

Vu, T. H., and L. Monteiro. 2001. "The Health of Migrants in the Reforming Vietnamese Economy." In *Migration in Vietnam-Theoretical Approaches and Evidence from a Survey*. Transport Communication Publishing House.

White, M. J., Djamba, Y. K., and Dang, N. A. 2000. "Implications of Economic Reform and Spatial Mobility on Fertility in Vietnam." Working Paper 2000-01. Population studies and Training Center.

Winkels, A., and W. Adger. 2002. "Sustainable Livelihoods and Migration in Vietnam: The Importance of Social Capital as Access to Resources". Paper presented at the International Symposium Sustaining Food Security and Managing Natural Resources in Southeast Asia - Challenges for the 21st Century, Chiang Mai, Thailand, January.

Wood, A. 1991. "North-South trade and female labour in manufacturing: an asymmetry." *The Journal of Development Studies* 27(2): 168-89.

WB and MOT [Ministry of Transport]. 2006. "Social Assessment Report." Mekong Transport Infrastructure Development Project (MTIDP). Hanoi.

WWF [World Wild Fund]. 1999. “Human Migration and Resource Utilization.” Research Project of Population Dynamics and Resource Utilization in Buffer Zone of Yokdon National Park and the Surrounding Region Daklak Province.

Figure 1. The Lorenz curves of actual and counterfactual per capita expenditures

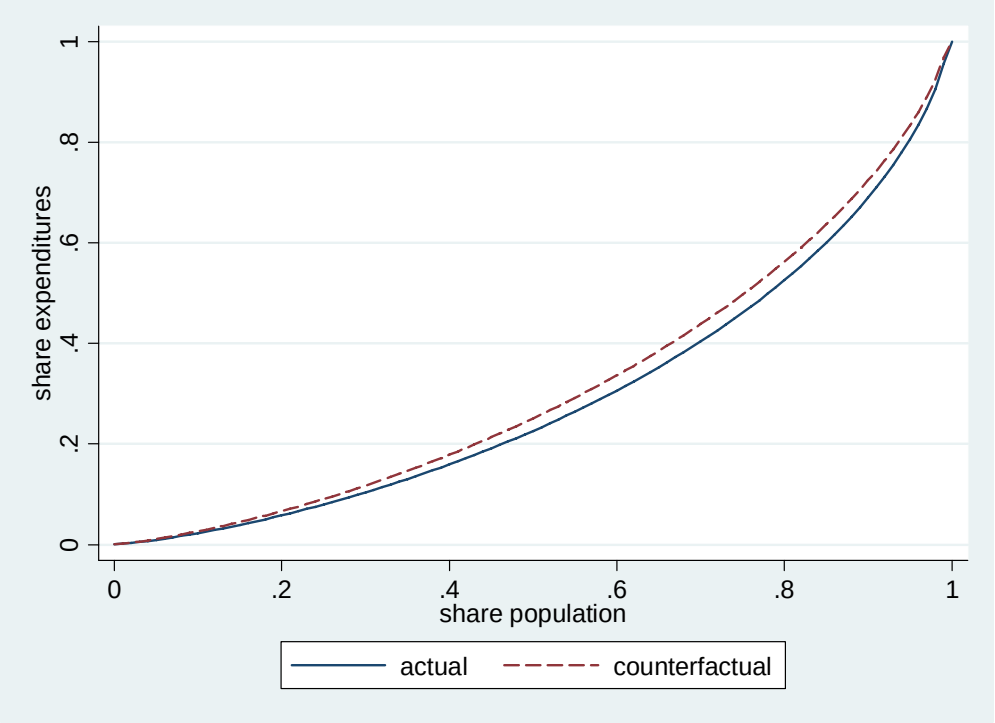

Table 1. Net migration flows from respectively to the most important origin and destination areas, 2002-2004

Province	Net migration (persons) 2002-2004	Migration rank 2002-2004	Migration rate (%)*	GDP per capita** ('000 VND/head) 2002	Rank of GDP per capita 2002	Rank of HDI 2002	Under-employment rate (%) 2002	Rank of under-employment 2002
5 most destinations								
Ho Chi Minh	210,237	1	3.84	11620.70	2	3	6.48	61
Hanoi	148,063	2	5.05	8410.18	3	2	22.63	50
Binh Duong	40,761	3	5.18	6642.85	4	6	17.55	57
Quang Ninh	5,248	4	0.50	4897.46	10	10	17.64	56
Da Nang	3,941	5	0.54	5915.89	6	4	15.77	58
5 most origins								
Thanh Hoa	-37,848	64	-1.07	2579.20	41	35	79.62	5
Nam Dinh	-27,482	63	-1.42	2653.42	38	17	73.06	12
Thai Binh	-23,350	62	-1.28	2809.06	32	12	79.89	4
Ha Tay	-19,723	61	-0.80	2771.49	33	24	31.03	43
Quang Nam	-17,455	60	-1.23	2524.89	42	25	71.53	17

Source: GSO (2006).
Note: * Percentage of population in 2002; ** At constant price.

Table 2. Number of migrants and households with migrants with reasons for migration (%)

	Short-term out-migrant	Long-term out-migrant	In-migrant
Individuals (%)*			
Migrant	2.5	10.7	4.7
by reason			
household split		3.1	
Marriage		3.0	
Work		2.8	
go with family		0.5	
Study		0.3	
Other		1.0	
Households (%)			
household with migrant	7.3	26.1	12.6
With			
1 migrant	6.0	17.1	9.5
2 migrants	1.0	6.7	2.4
3 migrants	0.2	1.7	0.5
>3 migrants	0.0	0.6	0.2

Note: Numbers are weighted with sampling weights. *Percent of individuals of age 15 or above.

Table 3. Socio-economic characteristics of migrants and non-migrants

Information by the time of 2004	Out-migrant			Non-migrant
	Short-term[a]	Long-term[a,b]		
		Economic	Non-Economic	
Age (years)	31	23	28	31
Male (%)	61.7	59.2	40.2	49.6
Married (%)	43.9	12.8	39.0	46.4
Education (years of education)	8.8	9.3	7.8	6.6
Has no diploma (%)	12.8	10.9	20.3	34.4
Has primary education as the highest diploma obtained (%)	27.2	24.6	32.0	28.7
Has lower-secondary education as the highest diploma obtained (%)	32.2	37.1	27.1	23.4
Has upper-secondary education as the highest diploma obtained (%)	24.3	21.3	14.5	10.6
Has tertiary and higher diploma (%)	3.5	6.1	6.1	2.9
Urban (%)	22.0	13.5	25.0	23.3
Household size (persons)	4.2	3.9	4.2	4.4
Per-capita expenditures (‘000 VND)	5418	4815	5796	4922

Note: Numbers are weighted with sampling weights. The migrants in the table refer to long- and short-term out-migrants (not in-migrants). [a] Information on urban, household size and per-capita expenditures are for household from which migrant originates. [b] Information of education and marital status, are at the time of 2002.

Table 4. Descriptive statistics of the model variables.

VARIABLES	BOTH RURAL AND URBAN AREA			ONLY RURAL AREA		
	Mean	Min	Max	Mean	Min	Max
Urban	0.22	0.00	1.00			
Short-term out-migration	0.08	0.00	1.00	0.08	0.00	1.00
Long-term out-migration	0.26	0.00	1.00	0.26	0.00	1.00
Household size (persons)	4.52	1.00	18.00	4.57	1.00	14.00
Log of Per capita household expenditure (‘000 VND)	8.51	6.99	11.28	8.37	6.99	10.28
Log of Per capita household expenditure (‘000 VND) squared	72.75	48.91	127.32	70.29	48.91	105.65
Per capita household agricultural land (hectare)	0.19	0.00	7.13	0.22	0.00	7.13
Age of less than 15 (as over household size)	0.27	0.00	0.80	0.28	0.00	0.80
Age of 15 to 25 (as over household size)	0.20	0.00	1.00	0.20	0.00	1.00
Age of 25 to35 (as over household size)	0.15	0.00	1.00	0.15	0.00	1.00
Age of 35 to 45 (as over household size)	0.15	0.00	1.00	0.14	0.00	1.00
Age of 45 to 55 (as over household size)	0.09	0.00	1.00	0.09	0.00	1.00
Age of above 55 (as over household size)	0.14	0.00	1.00	0.14	0.00	1.00
No education (as over household size)	0.15	0.00	1.00	0.16	0.00	1.00
Primary education (as over household size)	0.33	0.00	1.00	0.36	0.00	1.00
Lower secondary education (as over household size)	0.34	0.00	1.00	0.35	0.00	1.00
Upper secondary education (as over household size)	0.18	0.00	1.00	0.13	0.00	1.00
HH head being a male	0.78	0.00	1.00	0.81	0.00	1.00
HH head being married	0.84	0.00	1.00	0.84	0.00	1.00
Household wage employment composition (as over household size)	0.21	0.00	1.00	0.19	0.00	1.00
Household employment in private sector (as over household size)	0.53	0.00	1.00	0.57	0.00	1.00
Being poor commune in the province or not				0.22	0.00	1.00
Having enterprises, factory, trading village in the circular of 10km				0.65	0.00	1.00
Having job-creation program in the commune				0.37	0.00	1.00
Not good climate for agriculture				0.22	0.00	1.00
Distance to the nearest car road (km)				0.67	0.00	45.00
Having electricity in the commune or not				0.93	0.00	1.00
Having any noteworthy disease in the commune or not				0.45	0.00	1.00
Red River Delta	0.20	0.00	1.00	0.21	0.00	1.00
North East	0.14	0.00	1.00	0.14	0.00	1.00
North West	0.04	0.00	1.00	0.04	0.00	1.00
North Central Coast	0.11	0.00	1.00	0.12	0.00	1.00
South Central Coast	0.10	0.00	1.00	0.09	0.00	1.00
Central Highlands	0.06	0.00	1.00	0.06	0.00	1.00
Southeastern	0.12	0.00	1.00	0.10	0.00	1.00
Mekong River Delta	0.22	0.00	1.00	0.23	0.00	1.00
No of observations	4008			3100		

Table 5. Probit regressions of determinants of short- and long-term out-migration by area, 2004 (marginal effects)

Probability of Out-migration	ONLY HOUSEHOLD CHARACTERISTICS				BOTH HOUSEHOLD AND COMMUNE CHARACTERISTICS	
	BOTH URBAN AND RURAL AREAS		ONLY RURAL AREA			
	Short-term Out-migration	Long-term Out-migration	Short-term Out-migration	Long-term Out-migration	Short-term Out-migration	Long-term Out-migration
Urban	0.0004	-0.019				
	[0.03]	[0.96]				
Red River Delta	0.037	0.096	0.073	0.136	0.078	0.131
	[1.97]**	[2.67]***	[2.92]***	[3.01]***	[3.08]***	[2.90]***
North East	-0.008	0.029	-0.002	0.049	-0.005	0.041
	[0.49]	[0.83]	[0.09]	[1.10]	[0.24]	[0.92]
North West	0.034	0.061	0.026	0.046	0.012	0.019
	[1.33]	[1.28]	[0.87]	[0.84]	[0.39]	[0.34]
North Central Coast	-0.026	0.113	-0.008	0.133	-0.007	0.129
	[1.59]	[2.90]***	[0.36]	[2.79]***	[0.34]	[2.69]***
South Central Coast	-0.004	0.054	0.01	0.1	0.014	0.102
	[0.23]	[1.41]	[0.39]	[2.01]**	[0.59]	[2.05]**
Southeastern	-0.042	-0.008	-0.03	-0.003	-0.025	-0.001
	[2.61]***	[0.21]	[1.44]	[0.06]	[1.21]	[0.02]
Mekong River Delta	-0.031	0.027	-0.022	0.038	-0.015	0.042
	[1.97]**	[0.80]	[1.16]	[0.91]	[0.78]	[0.99]
Household size	0.006	0.091	0.006	0.094	0.006	0.095
	[2.06]**	[17.34]***	[1.98]**	[15.55]***	[2.10]**	[15.44]***
Per capita household expenditure	0.156	0.43	0.037	0.401	0.075	0.452
	[0.98]	[1.63]	[0.15]	[0.90]	[0.29]	[1.00]
Per capita household expenditure squared	-0.01	-0.024	-0.003	-0.023	-0.006	-0.025
	[1.10]	[1.62]	[0.24]	[0.87]	[0.36]	[0.95]
Per capita household agricultural land	-0.003	-0.026	0.005	-0.022	0.004	-0.028
	[0.27]	[1.19]	[0.41]	[1.03]	[0.31]	[1.30]
Age of less than 15	0.025	-0.433	0.049	-0.406	0.05	-0.413
	[0.88]	[8.17]***	[1.38]	[6.39]***	[1.42]	[6.49]***
Age of 15 to 25	0.057	0.226	0.079	0.247	0.074	0.228
	[1.97]**	[4.23]***	[2.42]**	[4.37]***	[2.27]**	[4.01]***
Age of 25 to35	-0.019	0.02	-0.018	0.041	-0.019	0.03
	[0.63]	[0.35]	[0.51]	[0.70]	[0.55]	[0.50]
Age of 35 to 45	-0.014	-0.017	-0.026	0.028	-0.027	0.019
	[0.50]	[0.31]	[0.80]	[0.48]	[0.82]	[0.32]
Age of 45 to 55	-0.015	0.026	-0.015	0.022	-0.012	0.02
	[0.52]	[0.51]	[0.52]	[0.41]	[0.42]	[0.37]
Primary education	0.088	0.062	0.09	0.043	0.09	0.049
	[3.29]***	[1.38]	[3.14]***	[0.88]	[3.20]***	[1.00]
Lower secondary education	0.11	0.115	0.121	0.06	0.122	0.072
	[4.03]***	[2.49]**	[3.99]***	[1.20]	[4.08]***	[1.41]
Upper secondary education	0.127	0.165	0.123	0.167	0.124	0.179

	[4.07]***	[3.06]***	[3.24]***	[2.78]***	[3.33]***	[2.95]***
HH head male	0.007	-0.05	0.0002	-0.045	0.0003	-0.049
	[0.57]	[2.18]**	[0.01]	[1.47]	[0.02]	[1.61]
HH head married	-0.023	-0.045	-0.014	-0.046	-0.014	-0.043
	[1.49]	[1.76]*	[0.81]	[1.40]	[0.84]	[1.33]
Household wage employment composition	0.03	0.066	0.031	0.069	0.036	0.078
	[1.73]*	[2.03]**	[1.52]	[1.85]*	[1.75]*	[2.07]**
Household employment in private sector	0.017	0.063	0.031	0.141	0.028	0.141
	[0.92]	[1.85]*	[1.35]	[3.33]***	[1.26]	[3.32]***
Being poor commune in the province or not					-0.012	-0.001
					[1.05]	[0.06]
Having enterprises, factory, trading village in the circular of 10km					-0.021	-0.044
					[2.07]**	[2.34]**
Having job-creation program in the commune					-0.003	0.019
					[0.33]	[1.10]
Not good climate for agriculture					0.001	-0.038
					[0.08]	[1.98]**
Distance to the nearest car way					-0.002	-0.001
					[1.36]	[0.49]
Electricity					-0.033	-0.039
					[1.46]	[1.02]
Noteworthy disease					0.004	0.024
					[0.41]	[1.49]
Observations	4008	4008	3100	3100	3100	3100

Absolute value of z statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6. Probit regressions of determinants of economic and non-economic long-term out-migration by area, 2004 (marginal effects)

Probability of Out-migration	ONLY HOUSEHOLD CHARACTERISTICS				BOTH HOUSEHOLD AND COMMUNE CHARACTERISTICS	
	BOTH URBAN AND RURAL AREAS		ONLY RURAL AREA			
	Economic Long-term Out-migration	Non-Economic Long-term Out-migration	Economic Long-term Out-migration	Non-Economic Long-term Out-migration	Economic Long-term Out-migration	Non-Economic Long-term Out-migration
Urban	-0.017	-0.01				
	[2.07]**	[0.53]				
Red River Delta	0.07	0.049	0.057	0.094	0.051	0.092
	[2.71]***	[1.55]	[1.95]*	[2.43]**	[1.82]*	[2.36]**
North East	0.042	-0.001	0.045	0.009	0.049	0.0004
	[1.70]*	[0.05]	[1.56]	[0.25]	[1.67]*	[0.01]
North West	0.024	0.036	-0.012	0.032	-0.005	0.003
	[0.83]	[0.87]	[0.38]	[0.70]	[0.16]	[0.07]
North Central Coast	0.15	0.004	0.153	0.004	0.15	-0.001
	[4.36]***	[0.11]	[3.81]***	[0.12]	[3.73]***	[0.01]
South Central Coast	0.029	0.029	0.032	0.07	0.029	0.073
	[1.17]	[0.86]	[1.06]	[1.64]*	[0.98]	[1.71]*
Southeastern	0.042	-0.029	0.04	-0.022	0.038	-0.02
	[1.62]	[0.95]	[1.25]	[0.58]	[1.22]	[0.53]
Mekong River Delta	0.07	-0.015	0.063	-0.001	0.06	0.004
	[2.79]***	[0.52]	[2.20]**	[0.03]	[2.12]**	[0.12]
Household size	0.014	0.077	0.017	0.078	0.017	0.078
	[6.69]***	[16.66]***	[6.88]***	[15.03]***	[6.90]***	[14.93]***
Per capita household expenditure	0.183	0.312	0.507	0.055	0.462	0.13
	[1.49]	[1.33]	[2.38]**	[0.14]	[2.17]**	[0.33]
Per capita household expenditure squared	-0.011	-0.017	-0.03	-0.002	-0.028	-0.006
	[1.58]	[1.27]	[2.43]**	[0.07]	[2.23]**	[0.24]
Per capita household agricultural land	-0.009	-0.018	-0.011	-0.013	-0.01	-0.019
	[0.92]	[0.95]	[1.21]	[0.70]	[1.15]	[0.99]
Age of less than 15	-0.047	-0.393	-0.042	-0.373	-0.041	-0.378
	[1.89]*	[8.22]***	[1.38]	[6.72]***	[1.39]	[6.83]***
Age of 15 to 25	0.068	0.154	0.067	0.163	0.069	0.144
	[2.81]***	[3.21]***	[2.63]***	[3.27]***	[2.72]***	[2.87]***
Age of 25 to35	-0.01	0.039	0.002	0.052	0.002	0.042
	[0.36]	[0.74]	[0.07]	[1.00]	[0.09]	[0.80]
Age of 35 to 45	0.017	-0.034	0.022	0.006	0.023	-0.004
	[0.73]	[0.72]	[0.85]	[0.11]	[0.88]	[0.07]
Age of 45 to 55	0.036	-0.013	0.051	-0.028	0.051	-0.027
	[1.61]	[0.28]	[2.10]**	[0.56]	[2.10]**	[0.55]
Primary education	0.025	0.043	0.029	0.022	0.03	0.027
	[1.15]	[1.08]	[1.18]	[0.52]	[1.21]	[0.64]
Lower secondary education	0.057	0.052	0.07	-0.01	0.068	0.002
	[2.60]***	[1.26]	[2.82]***	[0.22]	[2.76]***	[0.04]
Upper secondary	0.07	0.098	0.097	0.074	0.095	0.085

education						
	[2.82]***	[2.04]**	[3.55]***	[1.41]	[3.49]***	[1.60]
HH head male	-0.007	-0.051	-0.013	-0.041	-0.013	-0.045
	[0.69]	[2.48]**	[0.96]	[1.53]	[0.98]	[1.67]*
HH head married	-0.008	-0.033	-0.006	-0.034	-0.006	-0.033
	[0.70]	[1.42]	[0.43]	[1.19]	[0.42]	[1.14]
Household wage employment composition	0.028	0.061	0.039	0.053	0.038	0.061
	[2.05]**	[2.09]**	[2.58]***	[1.62]	[2.49]**	[1.87]*
Household employment in private sector	0.023	0.034	0.037	0.096	0.037	0.096
	[1.55]	[1.10]	[2.02]**	[2.62]***	[2.06]**	[2.60]***
Being poor commune in the province or not					0.005	-0.004
					[0.57]	[0.21]
Having enterprises, factory, trading village in the circular of 10km					0.003	-0.047
					[0.41]	[2.78]***
Having job-creation program in the commune					-0.003	0.019
					[0.40]	[1.24]
Not good climate for agriculture					-0.004	-0.031
					[0.56]	[1.83]*
Distance to the nearest car way					-0.001	-0.001
					[0.47]	[0.54]
Electricity					0.019	-0.045
					[1.32]	[1.34]
Noteworthy disease					0.007	0.017
					[1.01]	[1.18]
Observations	4008	4008	3100	3100	3100	3100
Absolute value of z statistics in brackets						
* significant at 10%; ** significant at 5%; *** significant at 1%						

Table 7. Average remittances and ratio over expenditure by type and area, 2002-2004

Type of Remittances	**Domestic Remittances**		**Oversea Remittances**		**Remittances**	
Area	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**
Remittances (thousand VND)						
2002	2,519	1,046	848	640	3,367	1,686
2004	2,636	1,655	1,930	644	4,567	2,299
Ratio over expenditure (%)						
2002	8.5	7.8	2.9	4.8	11.3	12.6
2004	7.7	10.7	5.7	4.2	13.4	14.9

Note: the averages in the table include also all households with zero remittances

Table 8. Average remittances by type and income groups, 2002-200431

Income group	**Average Remittances 2002**			**Average Remittances 2004**		
	Domestic Remittances	**Oversea Remittances**	**Remittances**	**Domestic Remittances**	**Oversea Remittances**	**Remittances**
Poorest	406	71	476	594	99	693
2	691	82	773	1015	273	1288
3	751	320	1071	1307	307	1614
4	1234	1020	2254	2357	734	3091
Richest	2939	1490	4429	4086	3153	7239

Note: income groups are defined with respect to per capita household expenditures

Table 9. Remittances ratio by type of remittances and income groups, 2002-2004

Income group	Domestic Remittance ratio		Oversea Remittances ratio		Remittances ratio	
	2002	2004	2002	2004	2002	2004
Poorest	5.35	6.15	0.93	1.02	6.28	7.17
2	7.16	7.96	0.85	2.14	8.00	10.10
3	6.42	8.18	2.74	1.92	9.16	10.10
4	7.95	11.41	6.57	3.55	14.53	14.96
Richest	9.32	9.93	4.72	7.66	14.05	17.60

Note: income groups are defined with respect to per capita household expenditures

[31] Ranking by per capita household expenditure (as the per capita household expenditure is viewed as the best proxy for household living standard from VHLSS)

Table 10. Characteristics of households receiving remittances in 2004

Percentages of total remittances over total expenditure	0%	0-10%	10-25%	25-50%	50-75%	75-100%
% of all households	13.0	61.5	12.5	8.4	2.6	2.0
Urban (%)	26.1	23.6	23.2	19.5	16.8	13.4
Household size (persons)	4.6	4.6	4.1	3.7	2.9	3.0
Per capita expenditure ('000 VND/person)	4787	4834	4831	5268	6463	5465
Income sources (%)						
Wage / Salary paid employment	13.0	17.0	18.0	14.0	8.0	6.0
Agricultural activities	31.3	31.4	25.8	25.9	21.6	16.6
Non-agricultural activities	34.0	27.0	22.0	20.0	16.0	5.0
Other income	20.9	24.3	33.5	40.2	53.9	72.2
Total	*100*	*100*	*100*	*100*	*100*	*100*
Age of household head (years)	46	48	54	57	60	57
Household head is a male (%)	84.1	78.6	72.9	63.4	51.7	58.8
Household head is married (%)	89.1	85.6	76.9	68.8	57.5	64.0
Education of household head (years of education)	7.6	7.4	6.8	6.5	6.0	6.5
Household head has no diploma (%)	25.4	27.3	33.4	36.9	42.0	41.2
Household head has primary education as the highest diploma obtained (%)	25.9	25.8	24.2	25.2	19.8	20.6
Household head has lower-secondary education as the highest diploma obtained (%)	29.8	30.3	27.7	24.3	27.8	19.3
Household head has upper-secondary education as the highest diploma obtained (%)	12.6	12.1	11.9	9.5	7.5	13.1
Household head has tertiary and higher diploma (%)	6.3	4.5	2.7	4.2	2.9	5.9

Table 11. Descriptive statistics of the model variables.

VARIABLES	Mean	Min	Max
Log of per capita household expenditure ('000 VND)	9.49	6.78	11.83
HH head age	49.41	15.00	98.00
HH head age squared ('0000)	0.26	0.02	0.96
HH head being married	0.83	0.00	1.00
HH head being a male	0.76	0.00	1.00
HH head education level completed	1.62	0.00	6.00
Household size (persons)	4.40	1.00	20.00
Age of less than 15 (as over household size)	0.27	0.00	0.80
Age of 15 to 25 (as over household size)	0.18	0.00	1.00
Age of 25 to35 (as over household size)	0.13	0.00	1.00
Age of 35 to 45 (as over household size)	0.14	0.00	1.00
Age of 45 to 55 (as over household size)	0.12	0.00	1.00
Age of above 55 (as over household size)	0.16	0.00	1.00
No education (as over household size)	0.13	0.00	1.00
Primary education (as over household size)	0.31	0.00	1.00
Lower secondary education (as over household size)	0.35	0.00	1.00
Upper secondary education (as over household size)	0.21	0.00	1.00
Per capita household agricultural land (hectare)	0.64	0.00	37.87
Short-term out-migration (persons)	0.09	0.00	4.00
Long-term out-migration (persons)	0.44	0.00	10.00
Economic long-term out-migration (persons)	0.08	0.00	4.00
Non-economic long-term out-migration (persons)	0.29	0.00	10.00
No of observations	3935		

Table 12. The impact of migration on household expenditures, 2004

	OLS (1)	**OLS (2)**	**IV (3)**	**IV (4)**
HH head age	0.008	0.008*	-0.008	-0.023
	[0.005]	[0.005]	[0.008]	[0.018]
HH head age squared (10^{-4})	0.026	-0.031	1.264*	2.510*
	[0.415]	[0.415]	[0.668]	[1.480]
HH head being married	0.264***	0.266***	0.262***	0.178**
	[0.029]	[0.029]	[0.036]	[0.079]
HH head being a male	-0.152***	-0.152***	-0.166***	-0.141***
	[0.024]	[0.024]	[0.029]	[0.043]
HH head education completed	0.069***	0.069***	0.071***	0.084***
	[0.007]	[0.007]	[0.008]	[0.014]
Household size	0.143***	0.142***	0.137***	0.164***
	[0.006]	[0.006]	[0.010]	[0.022]
Age of less than 15	0.199***	0.203***	0.320***	0.08
	[0.068]	[0.068]	[0.093]	[0.183]
Age of 15 to 25	0.248***	0.247***	0.131	0.339*
	[0.069]	[0.069]	[0.107]	[0.194]
Age of 25 to35	0.634***	0.630***	0.678***	0.776***
	[0.066]	[0.066]	[0.081]	[0.141]
Age of 35 to 45	0.377***	0.380***	0.403***	0.259*
	[0.060]	[0.060]	[0.073]	[0.137]
Age of 45 to 55	0.253***	0.262***	0.121	-0.094
	[0.052]	[0.052]	[0.083]	[0.219]
Primary education	0.343***	0.343***	0.335***	0.336***
	[0.043]	[0.043]	[0.064]	[0.088]
Lower secondary education	0.653***	0.654***	0.663***	0.618***
	[0.045]	[0.045]	[0.066]	[0.091]
Upper secondary education	1.310***	1.314***	1.366***	1.319***
	[0.055]	[0.056]	[0.076]	[0.115]
Per capita household agricultural land	0.011*	0.011*	0.01	-0.003
	[0.006]	[0.006]	[0.008]	[0.016]
Short-term out-migration	0.01	0.01	0.517	0.393
	[0.021]	[0.021]	[0.331]	[0.457]
Long-term out-migration	0.023***		0.323***	
	[0.008]		[0.116]	
Economic reasons		-0.03		1.852
		[0.022]		[1.158]
Non-economic reasons		0.028***		0.056
		[0.009]		[0.200]
Observations	3935	3935	3935	3935
R-squared	0.54	0.54	0.33	0.33
Standard errors in brackets. * significant at 10%; ** significant at 5%; *** significant at 1%				

Table 13. Pre- and Post-Remittance Expenditure Distribution 2002 - 200432

In 2002

Income group	Expenditure Shares Excluding			Expenditure Shares Including			% Increase in Expenditure Shares		
	Domestic remittances	Oversea remittances	Remittances	Domestic remittances	Oversea remittances	Remittances	Domestic remittances	Oversea remittances	Remittances
Poorest	7.3	6.0	5.2	8.8	8.7	9.6	19.6	44.1	82.6
2	11.4	11.7	11.7	11.4	11.4	11.4	-0.1	-2.3	-2.5
3	15.0	15.2	15.5	14.7	14.7	14.7	-2.2	-3.3	-5.3
4	20.7	21.1	21.2	20.4	20.5	20.3	-1.8	-2.6	-4.4
Richest	45.5	46.0	46.3	44.8	44.7	44.1	-1.6	-2.9	-4.9
Gini coefficient	0.37	0.39	0.40	0.37	0.37	0.37	0.0	-5.1	-7.5

In 2004

Income group	Expenditure Shares Excluding			Expenditure Shares Including			% Increase in Expenditure Shares		
	Domestic remittances	Oversea remittances	Remittances	Domestic remittances	Oversea remittances	Remittances	Domestic remittances	Oversea remittances	Remittances
Poorest	6.7	6.4	5.2	8.9	8.5	9.9	32.6	32.3	90.3
2	11.4	11.7	11.7	11.4	11.6	11.6	-0.1	-0.2	-1.4
3	15.1	15.4	15.6	15.0	15.1	15.1	-0.7	-2.2	-3.3
4	21.0	21.4	21.5	20.7	20.6	20.5	-1.4	-3.6	-4.3
Richest	45.8	45.1	46.0	44.0	44.2	43.0	-3.8	-2.1	-6.7
Gini coefficient	0.38	0.38	0.40	0.37	0.37	0.37	-2.6	-2.6	-7.5

[32] Ranking by "preremittance" per capita household expenditure is defined as per capita household expenditure without domestic, oversea or total remittances (i.e. total household expenditure minus remittances per capita). The preremittance expenditure distribution (i.e. individuals are the same in each of the quintiles) is kept constant when domestic, oversea or total remittances are added to calculate the changes in expenditure shares. Gini coefficients are with respect to *per capita* pre- and post-remittances household expenditures.

Table 14. Household expenditures in actual and counterfactual model.

	Actual model (migration)	Counterfactual model (no migration)
Household expenditure (‘000 VND)	18475	15324
Per capita expenditure (‘000 VND)	4243	3269
Gini coefficient	0.42	0.38