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Hui Xu

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THÈSE DE DOCTORAT

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ESSAYS ON THE INTERACTION BETWEEN MIGRATION AND SENDING COMMUNITIES: EVIDENCE FROM CHINA AND VIETNAM

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Contents

I GENERAL INTRODUCTION	1
1.1 WHY ARE PEOPLE MIGRATING?	2
1.2 REMITTANCES - A TIE AND THEREFORE AN IMPACT?.....	4
1.2.1 <i>The mechanism of remittances</i>	4
1.2.2 <i>The impact of remittances</i>	6
1.3 WHAT IS THE OPTIMAL DURATION?	8
1.3.1 <i>An optimal duration model</i>	9
1.3.2 <i>Human capital investment, financial capital constraint, and family reasons</i>	11
1.4 RETURN TO RETURN MIGRATION.....	13
1.4.1 <i>Who are the return migrants?</i>	13
1.4.2 <i>Economic performance after return</i>	14
1.5 MIGRATION PATTERNS AND REMITTANCES IN VIETNAM.....	16
1.5.1 <i>Rural-urban internal migration</i>	16
1.5.2 <i>International migration and remittances</i>	18
1.6 INTERNAL MIGRATION AND RETURN MIGRATION IN CHINA	20
1.6.1 <i>Rural-urban internal migration patterns</i>	20
1.6.2 <i>Return migration</i>	22
1.7 STRUCTURE OF THE DISSERTATION	24
II TRUST AND TRUSTWORTHINESS IN VIETNAM	29
2.1 INTRODUCTION.....	29
2.2 BACKGROUND INFORMATION ON LOCATION OF THE EXPERIMENT AND SAMPLE.....	36
2.3 EXPERIMENTAL DESIGN AND IMPLEMENTATION	40
2.3.1 <i>Game design</i>	40
2.3.2 <i>Game procedure</i>	45
2.4 RESULTS	45
2.4.1 <i>Summary statistics</i>	45
2.4.2 <i>Estimation results</i>	48
2.5 CONCLUSION.....	57
APPENDIX 2.1 FIELD EXPERIMENT	59
APPENDIX 2.2 POST-EXPERIMENT QUESTIONNAIRE	71
APPENDIX 2.3 DESCRIPTIVE STATISTICS OF TRUST GAME BY REGION.....	73
APPENDIX 2.4 QUANTITIES AND PERCENTAGES CONDITIONAL ON THE AMOUNT SENT IN THE TRUST GAME	74

APPENDIX 2.5 SWITCHING POINT (QUESTION) IN SERIES 1 AND 2, AND THE RANGES OF Σ (PARAMETER FOR THE CURVATURE OF POWER VALUE FUNCTION)	75
APPENDIX 2.6 SWITCHING POINT (QUESTION) IN SERIES 1 AND 2, AND THE RANGES OF Λ (PROBABILITY SENSITIVITY PARAMETER IN PRELEC'S WEIGHTING FUNCTION)	76
III LEFT-BEHIND CHILDREN AND RETURN DECISIONS OF RURAL MIGRANTS IN CHINA	77
3.1 INTRODUCTION.....	77
3.2 STUDY AREA.....	82
3.2.1 Migration in Wuwei County.....	82
3.2.2 Data description	84
3.3 A SIMPLE MODEL OF RETURN DECISION WITH LEFT-BEHIND CHILDREN	86
3.4 MIGRANT'S LENGTH OF STAY IN CITIES: A DURATION ANALYSIS	90
3.4.1 Framework for duration analysis.....	90
3.4.2 Estimation results	93
3.5 INTENDED RETURN OF ON-GOING MIGRANTS	98
3.6 CONCLUSION	102
APPENDIX 3.1 DISCRETE TIME PROPORTIONAL HAZARD ESTIMATES (CONTROLLING FOR UNOBSERVED HETEROGENEITY)	104
APPENDIX 3.2 QUESTIONNAIRE FOR RURAL HOUSEHOLD SURVEY (2008).....	105
APPENDIX 3.3 QUESTIONNAIRE FOR VILLAGE SURVEY (2008).....	124
IV RETURN MIGRANTS: THE RISE OF NEW ENTREPRENEURS IN RURAL CHINA	128
4.1 INTRODUCTION.....	128
4.2 RETURN MIGRATION AND ENTREPRENEURSHIP: THEORETICAL CONSIDERATIONS.....	134
4.3 DATA AND DESCRIPTIVE STATISTICS ON SELF-EMPLOYMENT	137
4.3.1 Household survey in Wuwei.....	137
4.3.2 Data description.....	139
4.4 RETURN MIGRATION AND SELF-EMPLOYMENT: A COMPARISON WITH NON-MIGRANTS	141
4.4.1 Empirical approach.....	143
4.4.2 Estimation results	145
4.5 MIGRATION EXPERIENCE AND SELF-EMPLOYMENT DECISION UPON RETURN.....	149
4.5.1 Empirical strategy	152
4.5.2 Estimation results	154
4.6 CONCLUSION	157
V GENERAL CONCLUSION	160
BIBLIOGRAPHY	166

List of Tables

TABLE 2.1 DESCRIPTIVE STATISTICS BY REGION (2010)	37
TABLE 2.2 DESCRIPTIVE STATISTICS BY INCOME AND REMITTANCES (2002).....	38
TABLE 2.3 TOBIT ESTIMATES OF TRUST	50
TABLE 2.4 OLS ESTIMATES OF TRUSTWORTHINESS.....	51
TABLE 3.1 MIGRATION SPELLS STATISTICS	84
TABLE 3.2 DESCRIPTIVE STATISTICS.....	85
TABLE 3.3 DISCRETE TIME PROPORTIONAL HAZARD ESTIMATES	96
TABLE 3.4 PROBIT ESTIMATES OF OUT-MIGRANTS' RETURN INTENTION (MARGINAL EFFECT).....	100
TABLE 4.1 DESCRIPTIVE STATISTICS BY MIGRATION STATUS	140
TABLE 4.2 DESCRIPTIVE STATISTICS BY MIGRATION STATUS AND BY OCCUPATION	142
TABLE 4.3 PROBIT ESTIMATES OF RURAL SELF-EMPLOYMENT CHOICE.....	146
TABLE 4.4 RECURSIVE BIVARIATE PROBIT ESTIMATES OF BEING A RETURN MIGRANT AND SELF-EMPLOYMENT CHOICE	148
TABLE 4.5 TRANSITION MATRIX FOR PRE-MIGRATION AND POST-RETURN OCCUPATION OF RETURNEES	150
TABLE 4.6 RETURN MIGRANTS' MIGRATION EXPERIENCE BY OCCUPATIONAL CHOICE UPON RETURN.....	151
TABLE 4.7 MARGINAL EFFECTS FOR THE PROBABILITY OF RETURN MIGRANTS TO BE SELF-EMPLOYED	156

List of Figures

FIGURE 2.1 AMOUNT SENT BY PLAYER 1 TO PLAYER 2 BY REGION AND BY SEX.....	46
FIGURE 2. 2 AMOUNT SENT BACK FROM PLAYER 2 TO PLAYER 1 CONDITIONAL ON EACH SPECIFIC AMOUNT SENT FROM PLAYER 1 BY REGION AND BY SEX	47
FIGURE 2.3 EXPECTATIONS IN GENERAL FROM PLAYER 2 BY SEX.....	48
FIGURE 2.4 EXPECTATIONS FROM PLAYER 2 BY REGION AND BY THE AMOUNT SENT.....	48
FIGURE 3.1 KAPAN-MEIER SURVIVAL ESTIMATE.....	92
FIGURE 3 2 SMOOTHED HAZARD ESTIMATE	92
FIGURE 3.3 SMOOTHED MEAN HAZARD RATE PREDICTION	97

I General Introduction

The world has never been as dynamic as today with its population crossing borders of countries and regions in every corner of the earth. According to the Migration and Remittances Factbook 2011 (World Bank, 2011a), more than 215 million people (3.2% of the world population) lived outside their countries of birth in 2010. While the United States is the top receiving country with 20% of the world's immigrants, Mexico is the top sending country with 11.9 million of outflow in 2010. In Qatar, 86.5% of the population was composed of immigrants from other countries; whereas in West Bank and Gaza, 68% of the country's population had emigrated.

While significant population movement is observed internationally, internal migration is also reaching unprecedented scale in some developing countries that are currently experiencing dramatic economic transformations. In India, the 2001 census showed that the number of internal migrants had doubled since 1971, reaching 309 million, i.e. nearly 30% of the total population (Bhagat, 2009). In China, 261.4 million people (20% of the population) were living and working outside their original place of residence in 2010 (National Bureau of Statistics of China, 2011b).

Large-scale population movements raise a number of important socio-economic questions: Why do people go miles away? After leaving, what connects a migrant with her family left behind? What drives a migrant back? What is the impact of returning?

In this introduction, we propose a short survey of answers that have been given to these questions in the migration literature. The selected migration literature focuses on two facets of the link between migrants and the sending communities: remittances and return migration. Before presenting these two points, a brief overview of the mechanisms of migration is provided. Two developing countries, Vietnam and China, the focus of later chapters, are then presented in terms of their general economic and migration situations. In a final section, we describe the specific research questions

studied in the three remaining chapters of the dissertation.

1.1 Why are people migrating?

The classical work of Lewis (1954) on *Economic Development with Unlimited Supplies of Labor* is considered the seminal work of the modern migration literature. Based on a dual economy assumption, the basic mechanism of geographical movement of labor is considered to be driven by the demand of a “capitalist” sector (industrial sector/urban economy), which offers higher wages than the “subsistence” sector (agricultural sector/rural economy). The key assumption of the model is the unlimited supply of labor in the “subsistence” sector with a zero marginal product of labor. Therefore any tendency of wage rise in this sector is offset by the increasing labor provision. Ranis and Fei’s (1961) perfect-market neoclassical specification extended the Lewis model by arguing that once the redundant labor supply disappears, wages will converge between the two sectors as the result of labor migration and the dual economy will finally converge to a unified one¹.

Observing a continuing migration despite chronic problems of urban unemployment, Todaro (1969) proposes an expected-income model to explain rural-urban migration in a developing country context. In this model, the migration decision making is based on the consideration of discounted future streams of urban-rural expected income and the migration costs. The key point which makes Todaro’s (1969) model a milestone work is the inclusion of the potential unemployment possibility in urban regions into an individual migrant’s mobility decision. The model is therefore able to explain the continuing rural-urban migration phenomenon despite high and increasing urban unemployment in developing countries.

These models have been influential in explaining the basic mechanism of rural-urban internal migration as well as international migration between developing countries and developed countries. Nevertheless, they assume the homogeneity of migrants and therefore fail to answer a fundamental question of migration: why do some individuals

¹ (Taylor & Martin, 2001).

migrate while others do not? (Taylor & Martin, 2001). Mincer (1974) and Becker (1975) provide a microeconomic ground on which to test the determinants of migration by integrating previous migration theories into human capital framework. Their human capital migration theory opens the door for many testable hypotheses (Taylor & Martin, 2001), such as a negative association between distances and costs, a positive relationship between higher return of specific human capital and an inflow of such human capital into the region, etc.

From the 1980s until today, two theoretical streams with different settings have dominated understanding of the mechanisms of migration. The first stream, known as life-cycle utility theory, is based on an individual's decision-making framework, while the second, the New Economics of Labor Migration (NELM), is rooted in the family unit as the decision making agent.

The life-cycle utility (Djajic & Milbourne, 1988; Dustmann, 1995; Mesnard, 2004) considers that the migrant is a rational individual with a goal of pursuing life-cycle utility maximization with given budget and liquidity constraints. As such, migration is a decision that belongs to this life plan. The theory is pioneering in integrating individual migration into an inter-temporal framework, and also in modifying the traditional understanding of permanent migration to include temporary migration as well. While previous theories focus on an individual level of analysis, NELM (Stark & Bloom, 1985; Stark and Taylor, 1989; Katz and Stark, 1986) has made a fundamental contribution in shifting the focus of migration theory from individual independence (optimization against nature) to mutual interdependence (optimization against one another) (Stark & Bloom, 1985). In the NELM framework, migration decisions are considered to be taken by a family unit as a whole rather than by an isolated individual. This joint-household model is more appropriate to understand the migration determinants since the continuing interaction between migrants and their families left behind are observed (Taylor & Martin, 2001). This theory opens an even broader vision to understanding the determinants of labor migration. In particular, it provides the fundamental basis to understanding a central outcome of human migration - that is, remittances -- as an intra-family link across space and over time after the emigration of family members. The integration of migrants' and household's remittance behavior with migration decision-making is therefore considered to be the most distinguishing

contribution of NELM (Massey *et al.*, 1993).

More recently, Dustmann *et al.* (2011) propose a new model of migration decision-making, in which migration is considered as an individual's rational choice of working location regarding human capital acquisition and return. The idea is that migrations are decisions that respond to where human capital can be acquired more efficiently, and where the return to human capital is the highest. As such, a person may move to a country where her skills grow fast and then apply these skills in a different country where these skills have a high price.

1.2 Remittances - a tie and therefore an impact?

The geographical mobility of human beings is accompanied by an astonishing magnitude of counter-flow of money transferred back to the sending communities. Though migrants are physically absent, remittances become a key tie linking them with their places of origin. According to the Migration and Remittances Factbook 2011 (World Bank, 2011a), worldwide remittance flows are estimated to have exceeded \$440 billion in 2010, with 74% flowing into developing countries. However, the true size of these flows, including unrecorded flows through formal and informal channels, is believed to be significantly larger.

Why do people remit? What does the money mean for receivers left behind? And what are the social and economic consequences for remittance receivers as well as their communities?

1.2.1 The mechanism of remittances

Various theoretical models have been developed to explain the motives of remittances. A comprehensive literature review on the microeconomics of remittances can be found in Rapoport & Docquier (2005) with the following motives being listed: altruism, exchange, strategic reason, insurance, investment, and inheritance. Basically, all these motives suggest an interaction between migrants (remitters) and the family left behind

(receivers). Sending remittances may be a purely altruistic decision for the purpose to increase the welfare of left-behind family members by partly sacrificing one's own standard of living: the utility of the relevant others is included in one's own utility function. This altruistic motive is considered to be the most common motive for remitting (Rapoport & Docquier, 2005). The theory predicts that an altruistic motive for remitting will respond to a proportional increase of transfer to the left-behind family as migrant's own income increases, and the transfer cannot increase with the income of his or her family of origin. In a case study of Botswana, Stark & Lucas (1988) find some consistency with a purely altruistic theory. Migrants are found to have a strong desire to alleviate special hardships imposed on their family; explaining why a higher amount of remittances is sent during a disaster such as a drought (Stark & Lucas, 1988).

As mentioned above, NELM considers migration as an intra-family arrangement. Remittances are therefore considered as the core element of the delicate informal mutual contractual agreement between the parties (Stark & Lucas, 1988). Remitting money to the family could be considered as a repayment for both the investments in migrant's human capital before migration and for the family support covering migration cost. On the other hand, a coinsurance relationship may exist between the migrant and the origin household. This underlines a mutual support in coping with various risks that may happen on either side during moments of hardship, as migrants may encounter a risk to income in the destination area, and the left-behind family may also incur unanticipated economic shocks. An advantage to a coinsurance relationship is that it is self-enforcing between close family members (Lucas & Stark, 1985). In this context, the migrant is not only driven by altruism as a motive, but also by his or her own well being, especially in the case of an anticipated return. This rather complex motivation is called "*tempered altruism or enlightened self-interest*" in Lucas & Stark's seminal work (1985). Inheritance is also considered as an element of the implicit contractual relationship between the migrant and the family. Sending remittances may be a strategy for migrants to secure family inheritance, including land (de la Briere *et al.*, 2002; Hoddinott, 1994).

Many empirical studies have tested these theories. Evidence for the coinsurance, education repayment and inheritance aspects is found in the case of Botswana (Lucas &

Stark, 1985). In the case of Mexico, Amuedo-Dorantes & Pozo (2006) find that migrants remit more when facing greater income risk, which suggests that migrants are likely to be risk-averse economic agents and remittances purchase “family-provided insurance”. In the case of Western Kenya, Hoddinott (1994) finds evidence for the assertion that migrants remit in anticipation of future inheritance.

The theoretical models introduced above clarified some critical mechanisms of remittance behavior although, in reality, the decision to remit may be a mixture of the above motives. As Rapoport & Docquier (2005, p.35) note, “*it is not only that different individuals may be heterogeneous in their motivations to remit, but also that different motivations to remit may coexist within the same individual*” .

1.2.2 The impact of remittances

Whatever the motives for sending remittances are, the world of receivers is substantially influenced by remittances. As more and more people are implicated in the movement of population across the globe, the role of remittances in international development has attracted a significant attention among academic researchers in the past. It is also worth mentioning that in the literature, the definition of remittances can be broader than the usage intended here: remittances not only include the interpersonal transfer between migrants and the family left behind as a result of migration, they may also include savings accumulated by the migrant during migration and repatriated upon return. Empirical studies are the main focus of the research stream on this aspect, and can be grouped into several categories.

Impact on consumption or investment at the household level

Members of households who receive remittances are directly impacted agents. Research interests focus on how remittances are used at the household level. The main findings suggest two key channels for the use of remittances: consumption and investment.

Using a large household survey from Guatemala, Adam & Cuecuecha (2010) studies the impact of internal and international remittances on the marginal spending behavior

of households on both consumption and investment goods. He finds that households receiving either internal or international remittances increase their investment in education and housing, whereas receiving international remittances decreases the marginal consumption on food. In an earlier paper, Adam (1991) studies the uses of international remittances in Egypt by comparing 74 migrant households with 74 non-migrant households in terms of expenditure behavior, and finds that remittances play an important role in housing spending and investment rather than personal consumption. Regarding consumption, Quisumbing *et al.* (2008) find in the case of the Philippines that remittances have a significant impact on housing, consumer durables, consumption on clothing, and alcohol and tobacco, as well as education.

Though the above findings highlight a positive impact of remittances on the left-behind households, some studies have expressed concerns about the role of remittances. For example, Chami *et al.* (2003) argue that because remittance transfers usually take place under conditions of asymmetric information and economic uncertainty, there exists a significant moral hazard problem. Gubert (2000) also finds “moral hazard” evidence from the Kayes area in Western Mali, such that the more insurance is provided by the migrants, the less incentive their families have to work, and therefore, migrants’ families are found to be no better off than non-migrants’ families in terms of agricultural technology adoption.

Impact on inequality at the community level

The growth effects of remittances cannot be dissociated from their distributive effects (Rapoport & Docquier, 2005). An important strand of literature has focused on the impact of remittances on inequality at origin, as the transfer of money and goods by migrants to their communities of origin can have an important impact on the distribution of household income (Barham & Boucher, 1998).

In the literature, the impact of remittances on inequality is highly debated, and there is little consensus on whether it is positive or negative. Some studies support that remittances have a negative impact on inequality. For example, Lipton’s (1980) study on internal remittances in rural India and Adam’s (1989) study on international remittances in Egypt both find that remittances worsen inequality. Some other studies hold a positive view towards the distributive impact of remittances (Stark *et al.*, 1986;

Taylor, 1999). For example, Taylor (1999) shows that remittances have an equalizing effect on income distribution in Mexico. In addition, some studies find that the distributive impact varies across time. For example, based on 1988 household survey data collected in Mexico, Jones (1998) finds that interfamilial inequalities first decrease and then increase as a place's migration experience deepens. This is consistent with the argument of Stark *et al.* (1986) that the impact of migrant remittances on rural income distribution by size appears to depend critically on a village's migration history. In the same paper, their empirical tests on both international remittances resulting from migration to the United States and internal remittances in Mexico support their ideas.

Nevertheless, it is also worth mentioning that the findings on this topic are closely linked to whether remittances are treated as an exogenous inflow or as a substitute for home earnings. For example, income inequality was found to be smaller using the second method of potential substitute in the case study of the Philippines by Rodriguez (1998). Barham & Boucher (1998) have clearly explained how these methodological differences can result in different findings. Briefly, when treated as an exogenous transfer, the economic question is how remittances, in total or on the margin, affect the observed income distribution in the receiving community. When treated as a potential substitute for home earnings, the economic question becomes how the observed income distribution compares to a counterfactual scenario without migration and remittances but including an imputation for home earnings of erstwhile migrants. According to Barham & Boucher (1998), the latter treatment is a more interesting economic question, since it compares income distributions in the community with and without migration and remittances.

1.3 What is the optimal duration?

Migration also generates return migration. As Lidgard & Gilson (2002, p. 100) note, “*an attachment to one's birthplace seems to be a universal sense in human experience*”. To cite a few examples, a large scale student emigration occurred in Taiwan since the 1950s; it is estimated that 20% of them have finally returned (IOM, 2005). In 1988, 7% of the labor force in Egypt consisted of return migrants from overseas (McCormic & Wahha, 2001). In UK, of the foreign-born population that entered in the 1990s, and

stayed for at least one year, about 40% males and 32% females had left the UK after another 5 years (Dustmann & Weiss, 2007). Nevertheless, relative to the migration phenomenon, much less attention has been paid to this counter-stream of return migration, which “*remains the great unwritten chapter in the history of migration. This may in part be due to the fact that, in the past, many returns occurred spontaneously and were therefore undocumented, and did not get as much attention as cases involving resettlement and integration.*”(International Organization for Migration)²

Some key questions naturally arise from the issue of return migration: when and why do people return? In answering these questions, we refer to life-cycle theory again, which has laid out the fundamental understanding on the optimal timing of human migration.

1.3.1 An optimal duration model

As discussed above, under the life-cycle framework, each individual is assumed to achieve a maximization of lifetime utility with a given budget constraint, and migration is part of this life plan (Djajic & Milbourne, 1988; Galor & Stark, 1990; Stark *et al.*, 1997; Dustmann, 1995, 2003a; Mesnard, 2004). That said, the decisions on whether to migrate or not as well as on the optimal point of return are considered individual decisions with the goal of achieving a life-time utility maximization.

Assuming that migrants have a consumption preference in their source regions³, Djajic & Milbourne (1988) predict that the optimal migration duration increases with migration cost, and decreases with wages in the home country, while the effect of host country wages remains ambiguous. Based on the framework of Djajic & Milbourne (1988), Dustmann (1995) and Stark *et al.* (1997) then propose to incorporate the price difference factor between the two countries on the optimal migration duration. The general idea can be expressed in the following simple but illustrative model proposed

² <http://www.iom.int/jahia/Jahia/about-migration/managing-migration/managing-migration-return-migration/cache/offonce/>.

³ This could be due to positive externalities arising from location fixed factors, like home region's climate, friends, language and culture, or to negative externalities from destination regions, like discrimination and foreign language.

by Dustmann (2003a).

In the model, a life-cycle utility function of a migrant worker is defined as follows:

$$U = tu^I(\xi^I, c^I) + (1-t)u^E(\xi^E, c^E) \quad (1)$$

where $t=1$ refers to an individual migrant's lifetime horizon, t represents the time she stays in the host country and $1-t$ the time she stays in the home country. c^I and c^E refer to the optimal flows of consumption in the host country and at home. u^I and u^E are the sub-utility functions in the host country and at home. ξ^I and ξ^E are consumption preferences in the host country and at home, and migrants are assumed to have a preference for consumption in the home country ($\xi^E > \xi^I$).

The inter-temporal budget constraint can be expressed as:

$$tw^I + (1-t)w^E - tc^I - (1-t)pc^E = 0 \quad (2)$$

where w^I and w^E are wages abroad and wages at home. A higher purchasing power for the host currency at home ($p < 1$) is assumed. Finally, there is no discounting in the model. Maximizing utility (1) under the budget constraint (2) gives the optimal return point t . An interior solution suggests that an increase in the home country wage has a direct wage effect and an indirect income effect. The wage effect leads to reducing the optimal migration duration because the wage differential between the two countries decreases. The income effect also leads to the reduction of optimal duration. However, an increase in the host country wage has an ambiguous effect: though the wage differential will be enlarged, the income effect is negative because the value of staying abroad decreases as the total lifetime income increases.

The model suggests various predictions for empirical studies. One important consideration is the role of economic situation in home regions. As Dustmann (2003a) argues, migrants from poorer countries may be willing to stay longer in the host country than migrants from wealthier emigration regions. Schroll's (2009) study on the case of Denmark confirms this prediction: immigrants from less developed countries have a tendency to stay longer in Denmark than those from more developed countries. However, Lindstrom (1996) argues that migrants from poorer condition communities

are more likely to return earlier, while migrants from better condition communities are more likely to stay longer in the destination area. He explains that in poor areas, fixed capital assets have low liquidity and very few local options are available for converting current migrant earnings into a reliable source of future income. Hence, migrants will tend to be motivated by the desire to satisfy short-term income needs. This gives little incentive to migrants to remain in the destination countries for long since the expected level of future dependency on migration earnings is not altered. On the contrary, in communities in better condition, migrants are more likely to be motivated by the desire to accumulate savings for productive investments in their original areas in the future because of the sound local economic condition. This group of migrants is willing to stay longer in order to reach a particular long-term savings target. Lindstrom's (1996) empirical test on a sample from 13 Mexican communities with migration experience in the US supports that a favorable source region's economic context has a positive impact on the length of migration in the destination area. Looking at the German case, Kirdar (2010) also finds that immigrants from poorer source countries have shorter migration duration than immigrants from wealthier source countries.

1.3.2 Human capital investment, financial capital constraint, and family reasons

The above framework is the basis of the migration duration model. The following section presents various extensions of the model by taking into consideration human capital investment (Dustmann, 1999), financial constraints (Mesnard, 2004), and family-related factors.

Dustmann (1999) suggests integrating the human capital investment factor into the optimal migration duration model, assuming that the rates of return on human capital acquired in the host country are higher in the home country labor market. Empirical evidence from Germany supports the human capital investment theory⁴: language fluency, a host country specific human capital, is positively affected by the migrant's

⁴ The sample focuses on male migrants who came to Germany between 1955 and 1973.

intended length of stay. Though the paper focuses on the impact of migration duration intention on the human capital investment decision, the potential endogeneity discussed in the paper also suggests that the optimal migration duration decision may take into consideration specific human capital investment and its return. Also relating to human capital, Dustmann *et al.* (2011) propose a model where an individual's decision to return is related to a comparison of costs and benefits of a delayed return regarding the efficiency of human capital acquisition and its return between host country and home country. For example, a delay in host country becomes more costly when experience accumulated in the host country raises the human capital applicable to the home country at a faster rate than it raises the human capital applicable to the host country.

Mesnard (2004) proposes integrating the financial constraint factor into the optimal duration model. She argued that in a situation where the capital market is imperfect in source regions, migration is considered to be an individual strategy to accumulate financial capital for entrepreneurship activities after return. Therefore the optimal migration duration is closely related to the extent of savings accumulation for those who would like to become entrepreneurs after the return home.

While the above studies focus on a “pure” individual consideration, Dustmann (2003b) proposes a model that integrates the welfare of migrants' offspring into the migrants' life-cycle utility. In such setting, the optimal time of return may be determined by purely altruistic motives of parents towards their offspring, which is confirmed by German data. In another recent paper, Dustmann (2008) further documents a strong association between fathers' permanent migration and sons' education investment (again using German data).

Besides the above important findings, various studies also provide evidence for the role of other determinants on migration duration. Carrion-Flores's (2006) empirical study on Mexican immigrants to the US shows that physical distance, which is used as a proxy of migration costs, has a positive impact on migration duration with longer distances decreasing the hazard of return to their state of origin. Magris & Russo (2003) argue that the decision about migration duration is not independent of the immigration policy, but instead, it is quite sensitive to policy changes. They predict that the closure of frontiers increases migrants' time spent abroad. Carrion-Flores (2006) also finds that tighter US migration policies have an ambiguous effect on optimal migration duration.

1.4 Return to return migration

1.4.1 Who are the return migrants?

“Failure” or “success”

Whether return migration is a result of a “success” or a “failure” in destination areas is a highly debated issue in the literature. There are basically two opposing views. On the one hand, neoclassical economics considers that return migration is an unsuccessful result of work experience in destination areas. The logic is that migration is considered as a response to a higher (expected) wage in receiving regions (Lewis, 1956; Todaro, 1969). Therefore return migration only occurs when migrants fail to gain the expected benefits, either because of under- or unemployment, or because the psychic costs of moving are higher than anticipated (Constant & Massey, 2002).

On the other hand, NELM holds a positive view of return migration. Under this framework, migration is seen as an intentional, well-organized family plan consisting of two parts. First, remittances sent by migrants help diversify family income and solve liquidity constraint problems in the absence of efficient markets in home regions. Second, return migration is the result of fulfillment of goals, and the return of the individual to the family.

Selection

A complementary issue of the “success” or “failure” story of return migration lies in the selection question (Borjas, 1987; Borjas, 1989; Borjas & Bratsberg, 1996). Borjas & Bratsberg’s (1996) seminal work suggests that the pool of migrants, as well as return migrants, is not random. According to them, a return migrant experiences a double selection: while migration is a process of self-election in the first place, return migration is a second self-selection, reinforcing the selection at the first stage. The basic idea has two variations: when the migrant workers are the most highly qualified (best) workers as compared to the average level in the source country, then return migrant workers are the worst of the best. In this scenario, those who remain in the

foreign country are the best of the best. In the second scenario, migrants are the lowest qualified workers (worst), implying that return migrant workers are the best out of the group of worst workers, with migrants remaining in the host country being the worst of the group of worst workers. Therefore, the skill composition of the return migrant flow depends on the type of selection that generated the immigrant flow in the first place.

The empirical study of Ramos (1992) confirms the predictive power of the theoretical work of Borjas (1987, 1989) and Borjas & Bratsberg (1996). Ramos (1992) compares the education levels of three groups of persons: Puerto Rican-born non-migrants, Puerto Rican-born permanent immigrants in the United States, and Puerto Rican-born return migrants from the United States. The results show that immigrants in the United States are less educated than the non-migrants in Puerto Rico, and the return migrants from the United States are relatively more qualified than the migrants remaining in the United States.

1.4.2 Economic performance after return

While the selection theory highlights the origin sorting in terms of human capital, it ignores the dynamic changes involved during the whole process of migration. That said, the migration process may change the original composition of skill. Migrants may upgrade their skills by learning on the job and subsequently import the newly acquired human capital to their source country (Iara, 2006). Dustmann *et al.* (2011) even argue that migration is a strategy to acquire skills where they can be acquired more efficiently, and to sell these skills where their return is the highest. As such, while evaluating the role of return migrants on home communities, it is necessary and important to incorporate the changes they may have experienced during migration as well as the repatriated changes that they bring back.

A growing literature explores this issue and tends to support the hypothesis of a higher economic performance of return migrants after return, in terms of occupational choice and economic earnings. As some studies argue, return migrants bring back not only financial capital but also human capital accumulated during migration in a more developed area (Gmelch, 1980; Miracle & Berry, 1970; Murphy, 2002). For example, a

higher propensity of returnees becomes self-employed upon return in many countries (Ilahi, 1999; McCormick & Wahba, 2001; Mesnard, 2004; Piracha & Vadean, 2010). Regarding earnings, Reinhold and Thom (2009) find that migration experience in the US is positively related to an individual's wages upon return to Mexico, and return to migration experience is significantly higher than return to domestic working experience. Iara (2006) has investigated earnings differences between young males from Central and Eastern Europe with and without Western European work-related experience and found increased earnings capability for those with Western European work experience and a premium of around one-third of stayers' earnings. Another interesting finding is from the Hungarian case, for which Co *et al.* (2000) find positive returns to women's foreign work experience from member countries of the Organization for Economic Cooperation and Development (OECD) but no such gains for women who returned from non-OECD countries.

From an individual point of view, these studies suggest that migration is a process of enhancement of the individual human and physical capital, and therefore return migrants tend to get higher return in source regions as a result of their upgraded skills. From a development point of view, return migration is also a potential "brain gain" for home regions. As Dustmann *et al.* (2011, p. 66) argue, "*there is always a potential gain for the developing countries if their citizens can apply their skills where they receive the highest rewards*". Mayr & Peri (2008) notice that in the United States, 20% to 30% of highly educated immigrants return home when they are still productive, especially to source countries like Eastern Europe and Asia, and they become very important contributors to their home economies. Taiwan is a good example of an economy that has derived great benefits from attracting back highly skilled overseas Taiwanese (IOM, 2005). Another classical example is India, once a country suffering the most from "brain drain", but now benefitting from return experts, especially in the software sector, previously "lost" to the United States (Hunger, 2004).

1.5 Migration patterns and remittances in Vietnam

1.5.1 Rural-urban internal migration

In Vietnam, the “renovation policy” (*Doi Moi*) officially introduced in 1986 has marked a shift from a centrally-planned economy to a market-oriented economy. Since then, Vietnam has been experiencing an extraordinary development with an average annual GDP growth around 7% from 1990 to 2010. Along with this rapid economic growth, a significant shift in economic structure towards industrialization has also been documented. The agricultural sector has dramatically decreased its contribution to the nation’s GDP from 42% in 1989 to 21% in 2009, whereas industry has become the primary sector of production, shifting from 23% in 1989 to 40% in 2009 (World Bank, 2011b).

Accompanying these economic changes, an increasing and large-scale rural labor exodus has been observed in the past years. According to a report by the United Nations (UN) in 2010, the urban population is now growing by 3.4% each year but only 0.4% in rural areas. Internal migration contributes to this continually increasing rate of urban population. The most recent estimation based on the 2009 census shows that 6.6 million people⁵ (7.7% of population) migrated internally over 2004-2009 with the majority flowing into urban and industrial areas, representing an increase of 47% since 1999 (UN, 2010).

The mechanism of internal migration in Vietnam shares common features with other developing countries such as China, in that economic opportunities and higher wages in destination areas are the main driving forces. Nevertheless, the climate and the environment in Vietnam are also considered to be influential factors pushing people to migrate as a way of livelihood diversification in coping with risks from natural disasters (UN, 2010). It is also worth mentioning that a large proportion of migrants are actually part of a “planned” migration, and relocated by government programs for

⁵ According to the UN (2010), the unofficial figure is much greater, as the census numbers are likely to exclude many seasonal, temporary and return migrants, as well as the population mobility that took place 5 years prior to census enumeration.

different purposes.⁶ For example, during the period 1994-1999, nearly half of the recorded internal migrants were “planned” migrants; nevertheless, the number of “spontaneous” migrants outside of any government planning is also increasing (UN, 2010).

According to the 2004 Vietnam Migration Survey (General Statistics Office, 2005), the migrant population is composed of young individuals, and women are more likely to migrate than men. Despite the fact that migrants earn more than if they had stayed in their home regions, their social and economic situation is found to be disadvantaged when compared to local residents in destination areas. The 2004 Vietnam Migration Survey also reveals that the mean monthly income of migrants was considerably lower than those of non-migrants (VND 957,000 vs. VND 1,212,000). They are vulnerable, paid much less, with a concentration in high physical and lower skill economic activities, less protected⁷ as well as likely to be discriminated against and excluded from many public services⁸ (UN, 2010).

Accompanying the large-scale internal migration, a considerable amount of money has been transferred from migrants to their left-behind family members in source regions. According to the 2004 Vietnam Migration Survey (General Statistics Office, 2005), more than half of migrants sent money back home in the 12 months prior to the survey. Women seem to remit a higher percentage of earnings more than men: while remittances account for 17% of female migrants’ total income, they account for only 10% of male migrants’ income (UNFPA, 2007).

⁶ For example, in order to cope with critical flood disasters in Mekong Delta, since 1996, the government has launched a “living with floods” policy of household resettlement.

⁷ The lack of formal labor contracts is found to be quite widespread among migrants. UN (2010) has mentioned that, in a small-scale survey in 2003 conducted in Hanoi, HCM City and Danang, only 36% of temporary or unregistered migrants had a labor contract.

⁸ Access to many social services and other administrative procedures are tied to registration status, which is a particular system of household registration in Vietnam called “*Hộ Khẩu*”. It was formally introduced in urban areas in 1955 and expanded in 1960. The origin of the policy was to control internal population movement and ration procedures under central planning. Since its establishment, the system has experienced many reforms. Prior to 2007, four categories existed with KT1 for permanent residents and KT2, KT3, KT4 for non-permanent residents of different classifications. Since 2007, only two types of *Hộ Khẩu* exist: permanent and temporary. People with permanent title in the place they reside can enjoy full benefits from government, whereas in the latter case, they have to pay or are excluded. Different from the *Hukou* system in China, the *Hộ Khẩu* in Vietnam today is not tightly related to a distinction between “rural” and “urban” or between “agricultural” and “non-agricultural”. Nevertheless, both systems do endow different social and public rights on those with different residential identifications.

The internal remittance receiving population is large, but the share in household income and expenditure is small. According to Cuong (2008), who use the Vietnam Living Standard Surveys 2004 (VNLSS2004), the proportion of households receiving internal remittances was 86.3 % in 2004. However, the ratio of the average internal remittances over household income and consumption expenditures was 11.6% and 15.1%, respectively.

Households receiving internal remittances are also found to be relatively poorer than households who do not receive internal remittances. For example, the VNLSS2002 and the VNLSS2004 show that the per capita income for internal remittance receivers is 4,667.7 KVND and 5,847.9 KVND, whereas for non-receivers, the figures are 5,243.5 KVND and 6,429.0 KVND respectively (Cuong, 2008). Finally, the 2004 Vietnam Migration Survey shows that expenditures for daily living expenses is the major use of remittances for migrants' families (concerning 2/3 of migrants' families). The second most common use of remittances is payment for healthcare services, and then education expenditures (General Statistics Office, 2005).

1.5.2 International migration and remittances

While internal migration is widespread across all of Vietnam, international migration is also commonplace in modern day Vietnam. According to the Migration and Remittances Factbook 2011 (World Bank, 2011a), the number of international migrants from Vietnam in 2010 are 2.2 millions, which account for 2.4 % of the total population in Vietnam⁹.

The major destinations for Vietnam emigrants are North America and Europe. The Vietnam–US migration corridor is particularly emphasized by the Migration and Remittances Factbook 2011 (World Bank, 2011a). Barbieri *et al.* (1996) calculate that between 1975 and 1993, 74.2% of Vietnamese emigrants went to North America, 11.9% to Europe, 12% to Australia, and 1.8% to other destinations.

⁹ In July 2011, the total population in Vietnam is 90,549,390.
<https://www.cia.gov/library/publications/the-world-factbook/geos/vm.html>.

The international migration history in Vietnam is closely related to its historical and political context. Several historical events have had a great impact on population movements. After a century of colonization by France, and its later involvement in World War II, in 1956 Vietnam was officially separated into two independent states: the Democratic Republic of Vietnam (DRV) in the north and the Republic of Vietnam (RV) in the south. In the south, the RV capitalist system was protected by the United States, while in the north; the Communist DRV was supported by China and the Soviet Union. After 20 years of separation, the north finally conquered the capital city Saigon in 1975; reunification of the two states under a socialist system took place in 1976.

The massive Vietnamese international migration occurred after 1975. Resistance to the Communist government and the fear of persecution drove many southerners to flee the country¹⁰. Barbieri *et al.* (1996) have identified that, among the total of 1.2 million who left Vietnam during 1975-1993, 60% were illegal refugees and 40% were part of the Orderly Departure Program¹¹ set up by the Vietnamese government.

International remittances have become a substantial source of income for Vietnam. According to the Migration and Remittances Factbook 2011 (World Bank, 2011a), 7.2 billion US dollars in remittances were sent to Vietnam in 2010, amounting to about 7% of Vietnam's GDP. Based on the 1997/98 VHLSS, North America was the main source of remittance inflow, accounting for 63.8% of total international remittances, followed by Europe (15.6%), Australia (8.6%), Asia (5.6%) and other regions (6.5%) (Pfau & Long, 2008b). The proportion of households who receive international remittances continuously increases. The fraction of households receiving international remittances was 5.6% in both the 1992/1993 and 1997/1998 VHLSS (Pfau & Long, 2008a), increasing to 5.9% and 7.1 % in 2002 and 2004 VHLSS (Cuong, 2008).

As compared to internal remittances, international remittances in Vietnam cover only a small proportion of the population, but their relative share in income and expenditure is much more important. According to Cuong (2008), the ratio of remittances to

10 For example, after the reunification, in order to escape the government program of "reeducation camps" aimed at former political officials and leaders in the south, and with the purpose of forcing them to "learn about the ways of new government", many South Vietnamese men chose to flee on boats.

¹¹ The Orderly Departure Program (ODP) was a government program established in 1979 under the United Nations High Commissioner for Refugees with the purpose of allowing people to leave Vietnam legally for family reunions and for humanitarian reasons.

household income and consumption expenditures was 38.1% and 52.8% respectively in 2004. Contrary to internal remittances, international remittance receivers are much richer than non-receivers. Again referring to the statistics calculated by Cuong (2008), in both 2002 and 2004, the per capita income of those international receivers was about twice that of non-recipients (8,679.3 KVND vs. 4,553.6 KVND; 11,088.9 KVND vs. 5,531.5 KVND).

1.6 Internal migration and return migration in China

1.6.1 Rural-urban internal migration patterns

Since 1978, when the “reform and opening” policy initiated by Deng Xiaoping was introduced, China has been experiencing unprecedented economic growth accompanied by a dramatic transition from a centrally-planned economy to a more open market-oriented economy. From 1978 to 2010, the annual GDP growth rate reached about 10%. In 2011, China’s economy became the second largest after the United States¹². Following the open-door policy, the rapid growth in international trade and the inflow of huge amounts of foreign direct investment are considered to be the main engines of China’s spectacular economic performances (Démurger, 2001).

The tremendous economic development in China has also been marked by a rapid industrialization and urbanization. In the past three decades, profound changes have occurred regarding the economic structure, including a sharp decline in the agricultural share of value added and an increase of output for both the industry and service sectors in terms of GDP. In 2010, the share of the industry and service sector reached 46.8% and 43.0% value added respectively, while the agricultural sector only accounted for 10.2% (National Bureau Statistics of China, 2011a). The size of the urban population has also increased rapidly. In 1982, only 20.6% of the population was living in urban areas; over two decades, the total population of cities and towns increased by 141%, amounting to 49.7% in 2010 (National Bureau Statistics of China, 2011b; National

¹² <http://www.nytimes.com/2010/08/16/business/global/16yuan.html>.

Bureau Statistics of China, 1982).

In this dynamic process of industrialization and urbanization, a large-scale internal population movement has been taking place in China, in particular from rural to urban areas. According to rough estimates, the number of rural-urban migrant workers was less than 2 million in the late 1970s (Li, 2008). The latest statistics from the 2010 National Population Census shows that in 2010 the total number of rural-urban migrants reached 261.4 million, accounting for 20% of the population (National Bureau of Statistics of China, 2011b).

China's internal migration is featured as a unidirectional flow. Benefiting from the boom of town and village enterprises (TVEs) and of private enterprises, as well as from the reception of large amounts of foreign investment, the eastern coastal areas have attracted most of the rural labor surplus from the rest of China. For example, in 2000, 75% of the total migration population was concentrated in coastal regions (Cai & Wang, 2008).

Like other developing countries, the astonishing population mobility in China is a response to various economic causes. From a macro point of view, the basic mechanism of regional labor mobility in China is consistent with the Lewis' two-sector model (1956): the increasing demand for labor in rapidly expanding urban industrial economy is the core attraction for labor surplus from the traditional agricultural sector. Similarly, Wang & Cai (2009) argued that the increasing labor mobility in China also reflects the growing regional inequalities. From a micro point of view, migration is a rational choice for household livelihood diversification (Ellis, 1998; Ellis, 2004; Barrett *et al.*, 2001; Démurger *et al.*, 2010).

Beyond the common economic causes, the history of internal population mobility in China is also highly associated with institutional changes. Prior to 1978, labor mobility was strictly controlled under the regime of the household registration system (*Hukou*) formally established in 1958. The *hukou* is like a domestic passport identifying an individual's identity by referring to a dual classification: according to the place of residence ("rural or urban") and the occupational designation ("agricultural or non-agricultural"). With this system, population mobility was strictly controlled for almost two decades. As economic reforms have been progressing, the *hukou* system has

also experienced various reforms to facilitate population mobility within the country. Moreover, a series of policies were introduced simultaneously which indirectly contributed to the freedom of labor mobility. One important policy is the household responsibility system initiated in 1981. Thanks to this system, rural households have been given individual contracts to farm agricultural land. The system stimulated an increase in farm productivity and released surplus laborers from agriculture Wang & Cai (2009). As such, migration as a livelihood diversification strategy to seek other economic activities beyond agriculture became attractive and possible. The fact that labor mobility started to become a visible phenomenon in China during the early 1980s, now reaching unprecedented scale, is largely due to these institutional changes resulting from the breakdown of the barriers that used to control population movement in pre-reform China. Wang & Cai (2009) has summarized these government policy changes towards the population movement as having three stages: permitting rural labor mobility in the 1980s, guiding rural labor mobility in the 1990s, and encouraging rural mobility since 2000.

1.6.2 Return migration

Though the number of rural-urban migrants continues to increase, a noticeable counter-flow of population movement from urban to rural has also increasingly occurred in recent years. A 1999 study conducted by Bai and He (2002) of 62 counties of Sichuan and Anhui provinces shows that the proportion of return migrants was 28.5 percent among all migrants, including those who had migrated and those who were ongoing migrants. Murphy (2002) also estimates that, since 1995, almost one third of the “floating migrant population” from China’s interior provinces had returned and resettled in their home town. Therefore, a large portion of rural migrants in China are temporary migrants.

While many factors may contribute to this temporary feature of internal rural-urban migration, it is commonly recognized that two institutional constraints, the *hukou* system and the rural land allocation system, play a specific role. Despite noticeable reforms and changes in recent years, the *hukou* system remains a constraint that is closely related to the lack of welfare and social assistance with respect to housing

security programs and public school services for migrants in urban destinations (Tao, 2009). The land allocation system is another important factor shaping the temporary nature of Chinese internal migration. As discussed by de la Rupelle *et al.* (2008), one channel is that the collective ownership of agricultural land imposes insecurity on the land use rights of Chinese farmers. Accordingly, this insecurity constrains rural people's movement, as they fear that migration might jeopardize their land use rights. All in all, *"the hukou institution acts as a back-pushing force on rural-urban migrants, while collective ownership of land and the correlative insecurity of individual land use rights act as a back-pulling force on these migrants."*(de la Rupelle *et al.*, 2008, p.35).

The large-scale rural-urban migration has also resulted in a considerable number of "left-behind" children in the sending communities with either one or both parents being migrants. The All China Women's Federation estimates that there were a total of 58 million left-behind children in rural China in 2009, 40 million of whom were below the age of 14¹³. These children are usually cared for by their grandparents or other relatives with only rarely visits by their migrant parents. Left-behind children lack direct parental care and migrants suffer from family separation. Left-behind children therefore have become a severe social concern in the country.

Despite the potentially heavy social consequences of rural-urban migration, the economic contribution to China's development is widely recognized. As Cai & Wang (2008) point out, migration is an important contributing factor to China's structural transformation and urbanization. Migration is also considered to have played an important role in alleviating rural poverty (Wang & Cai, 2009). It is commonly recognized that migration positively impacts rural development through the remittances that migrants send back to their communities of origin (Murphy, 2009). Another channel of migrants' contribution to rural development is through repatriating human and physical capital via return migration. This channel is less explored, but is increasingly recognized as having importance as more and more migrants return back to their home communities. Observations show that return migrants exhibit high economic performance after their return. For example, a specific survey on return migrants' occupational participation and entrepreneurial activities conducted by the Development

¹³ http://www.gov.cn/jrzq/2009-05/27/content_1325494.htm (in Chinese).

Research Centre of the State Council, covering 101 counties in 28 provinces in China in 2007, reported that 16 percent of return migrants become entrepreneurs after their return (Han, 2009). Murphy (2002) highlights the contribution of migration working experience to returnees' business establishment in two counties in Jiangxi province. She finds that longer urban sojourns enable migrants not only to accumulate funds and gain management experience, but also to forge business contacts in the cities.

1.7 Structure of the dissertation

The experiences of both Vietnam and China concerning internal and international migration raise a series of important questions related to the interaction between migration and sending communities. The overall goal of the dissertation is to empirically investigate some dimensions of the interaction by collecting evidence from both countries. More precisely, it studies the link between migration and the sending source regions with a particular focus on the mechanisms of return migration and its link with sending communities as well as on the social and economic impact of remittances and return migration on sending communities.

If life is better in the hometown, then a rational person will not choose to migrate. In other words, people choose to migrate to have a better life. And in many cases, migration is a strategy not only for the migrant's best interest, but also for the sake of the whole family. Once landed in a new place, a migrant is physically separated from her family left behind. In reality, the fact that remittances occur everywhere reflects that migrants actually keep close communication with their families during the migration. Remittances are therefore a key tie for interaction between migrants and sending regions. This interaction can include the whole process of migration, from the very beginning until the moment of leaving for temporary migrants, and the whole rest of life for those who become permanent migrants. Once at the destination, each migrant has to face a question of when return: sooner, later or never? The decision about return may involve consideration of factors related to source regions, and therefore involves another interaction between migrants and their sending source regions. Returning home ends the spatial distance, but raises a confrontation issue of past and present. For return migrants, it means a process of repatriating the past migration experience to the place

of origin. Such direct interaction may result in significant changes for return migrants in their home land.

Based on these considerations, this dissertation tests three key hypotheses related to three types of interaction between migrants and their source regions. First, remittances are closely related to receivers' trust in source communities; second, left-behind children influence return migration decisions; third, return migrants contribute to their home community through entrepreneurial activities.

The first hypothesis is tested in the first chapter of the dissertation by using evidence from Vietnam, and the last two hypotheses are examined in the second and third chapters of the dissertation respectively, using evidence from China. The analysis draws on an innovative methodological combination of field experiment in Vietnam and household survey in China, both conducted by the author. The field experiment was conducted in both South and North Vietnam in 2010. The household survey was conducted in 2008 in Wuwei County (Anhui province), a labor-exporting source region in China.

By studying these questions, this dissertation intends to enlarge and deepen the existing understanding of the mechanisms of return migration as well as of the social and economic impact of remittances and return migration on the sending communities. Though these three questions are studied separately, it is worth mentioning some logical links. First, the three questions studied in the dissertation cover the whole post-migration process and connect to each other in chronological order, with each question representing one stage of migration. The study on remittances concerns the stage of migration; the question about left-behind children examines the moment of returning; and, finally, the question on entrepreneurial activities studies the post-return period. Second, the three questions each represent one dimension of the link between migrants and sending communities. With these two features, the dissertation gives additional perspective on how the relationship between migrants and sending regions varies over time in the post-migration stage.

The first chapter, entitled "*Trust and trustworthiness in Vietnam*," examines whether remittances are related to receivers' trust and trustworthiness in Vietnam. The existing literature shows that trust is one important determinant of development, and is found to

be more pronounced in more developed societies. Using a combination of a field experiment conducted in 2010 and the “2002 Vietnam Household Living Standards Survey (VHLSS2002)”, the chapter examines whether receiving international and internal remittances in real life increase an individual’s trust. To the best of our knowledge, this study is the first to directly evaluate the linkage between remittances and trust. Thanks to the field experiment, both roles, trusting and reciprocating, are clearly identified. On the other hand, the VHLSS2002 data have successfully recorded each household’s remittance-receiving history. Therefore, we are able to identify for each participant the level of trust and the amount of remittances received in 2002. This chapter also investigates two related interesting questions: i) whether trust varies within a country according to regional differences as a result of different social systems; and ii) how an individual’s risk aversion and time preference relate to trust. The chapter highlights that both international and internal remittances are highly related to the receiver’s trust behavior. While internal remittances have no significant relationship to trusting behavior, international remittances demonstrate a significantly positive connection. On the other hand, international remittances are negatively related to trustworthiness, while internal remittances are positively associated. We interpret that the positive effect of international remittances on trusting behavior is a result of a learning effect from receiving international remittances, and the negative effect of international remittances on reciprocating is a reflection of participants’ “pure” receiving role for material gifts in the process of interpersonal or inter-familial interaction with the senders who live abroad. These findings have important implications for development. Where previous literature focused on the positive impact of remittances in helping to alleviate poverty and therefore improve the economic development of receivers, this study gives a new, broader vision on how remittances influence development through trust and trustworthiness in an entire society. We also find that the degree of the impact of remittances depends on the region. Internal remittance receivers in the south are more likely to be reciprocal as compared to the rest of the population, suggesting that the positive impact of receiving remittances is greatly strengthened in the south, where we also find a significant higher level of trustworthiness as compared to the north. We suggest that this difference between the south and the north may be due to the historical influence of 20 years of a capitalist regime in the south (1954-1975). Finally, consistent with some other studies, trust is not tightly connected to a person’s risk attitude; more patient people are more likely to be

reciprocal, reflecting the role of patience in investing a long-term interest rather than an immediate one-shot benefit.

The second chapter, entitled “*Left-behind children and return decisions of rural migrants in China*,” explores the role of children as a motive for return migration in China. A simple illustrative model, based on Dustmann (2003b), is proposed to account for left-behind children through parents’ altruistic behavior and the potential differentiated impact of children’s gender on return decisions. In the empirical part, two complementary empirical tests are proposed to estimate the role of children on return migration by age and by gender based on a rural household survey conducted in Wuwei County (Anhui province) in 2008. First, a discrete time proportional hazard model is used to estimate the determinants of migration duration for both on-going migrants, whose length of duration is indeterminate, and return migration, whose length of stay has been completed with incomplete length of duration, and return migrants with complete length of duration. Second, a binary Probit model is applied to study the return intentions of on-going migrants. Both models find consistent results regarding the role of left-behind children as a significant motive for return. More precisely, the duration analysis shows that both the number of pre-school children and the number of children under sixteen at the moment of migration, as well as an increase in the number of children (for each age-group) during migration, have a negative impact on an individual migrant’s length of stay in destination areas. Compared to all children under sixteen, pre-school children have an even stronger impact on migrants’ return decision. Moreover, compared to daughters, the presence of sons is more influential in shortening a migrant’s length of stay. The study of on-going migrants’ return intention confirms these results regarding the role of left-behind children as a significant motive for return, and a relatively stronger impact of pre-school children on pulling their parents back home. Due to the restricted access to urban public school services for rural migrants’ children, the separation between migrants who work in destination areas and their children who are left behind is a common phenomenon in China. Therefore, such separation tends to be a strong motivation for migrants to come back earlier. The relative importance of sons in migrants’ return decision-making highlights the traditional “son preference” concept in rural migrants’ values.

The last chapter, entitled “*Return migrants, the rise of entrepreneurs in rural China*,”

examines the impact of the migration experience on individuals' choice of being self-employed upon their return to their home villages, using the "Wuwei 2008 survey". To do so, we consider two levels of analysis. We start with a comparison between non-migrants and return migrants and address the following question: compared to their rural counterparts, are return migrants more likely to opt for self-employment upon return? We then turn to the analysis of the benefits that returnees themselves gain from their own migration history, and examine how past migration experience affects return migrants' choice of self-employment upon return. A recursive Probit model is used in order to capture unobservable heterogeneity between return migrants and non-migrants. Meanwhile, we adopt an IV strategy to control for potential endogeneity problem. The chapter finds that return migrants are more likely to be self-employed than non-migrants, and that both return savings and the frequency of job changes during migration increase the likelihood for return migrants to become self-employed. These findings suggest that (a) return migration can help revitalize rural economies and alleviate poverty in less developed areas in China, and (b) repatriated capital is a key stimulating factor in promoting rural entrepreneurial activities.

II Trust and trustworthiness in Vietnam¹⁴

2.1 Introduction

How does trust matter? A growing literature shows that trust contributes to economic development and economic sustainability, political success, social and human well being (Algan and Cahuc, 2010, Zak and Knack, 2001, Neace, 2004). The advantage of trust is also greatly praised by Fukuyama (1995) who believes that trust can dramatically reduce transaction costs and makes possible certain efficient forms of economic organization. Lack of trust, to the contrary, may significantly and durably reduce the per capita income, as discussed by Algan & Cahuc (2007, p.16) based on a comparison of about 30 countries from the beginning of 1950 until today. In his study, Neace (2004) finds that low levels of trustworthiness in Latin America hinder development of social capital necessary for human and economic development. What is more, trust is necessary for democratization. Without trust, the citizens lack incentives to face the adversities of democratic politics and can easily exit from public politics when things go against them (Tilly, 2005, p.136).

In summary, trust matters in development. Meanwhile, trust may not be truly exogenous (LaPorta *et al.*, 1997). Uslaner (2008, p.739) says that “*where you live shapes your level of trust*”. Trust seems to be determined by the level of economic development and institutional settings. For example, trust is found to be higher in richer countries (LaPorta *et al.*, 1997). Similarly, the probability of distrusting others rises when the respondent is living in a transition country rather than an OECD country (Aghion *et al.*, 2010). Fehr (2009) argues that trust is endogenous to a region’s institutions. Comparing trust levels between four non-western immigrant groups in Denmark to those in the respective countries of origin, Nannestad and Svendsen (2005)

¹⁴ Part of the research carried out for this chapter is co-authored with Quang Nguyen (Nanyang Technological University, Singapore) and Marie-Claire Villeval (GATE Lyon Saint-Etienne).

find that “good”, even-handed institutions matter for institutional trust which impacts generalized trust. Uslander (2008) argues that communism has negative impacts on trust. For example, he believes that formerly communist countries, such as Russia or the states in Central and Eastern Europe, have low trust.

While trust seems to be correlated with economic and political factors, from an individual’s point of view it may also be highly connected with one’s past experiences (Goold, 2002). Hardin (2002, p.11) said “*I have bald expectations that the sun will rise tomorrow, and I might not be able to give any account of why I think that, other than induction from the past*”. Juliusson, Karlsson, and Garling (2005) indicated that people take past events into account in their future decisions. Therefore, past experiences have influence on decision-making.

Sending and receiving remittances is now a worldwide phenomenon as a result of increased international migration from developing countries to developed countries, and internal rural urban migration within developing countries. Can this life experience of receiving remittances be related to the receiver’s level of trust and trustworthiness? In this chapter, we are going to test this question. More precisely, by utilizing a field experimental design integrating both household and individual surveys, we are going to see how the fact of receiving remittances in a household in 2002 can be related to its family member’s trust decisions in a trust game played in 2010.

Our interest relies upon the fact that considerable research has been conducted in the past few years on the economic impacts of remittances (e.g. Adam & Page, 2005; Rozelle *et al*, 1999. For example, look at money transferred from destination areas back to sending areas on the development of sending communities). Nevertheless, attention has rarely been paid to the “non-economic” role of remittances in the dynamic process of interpersonal or inter-familial interactions. Remittances are not just “money”; any remittance involves the reaffirmation of the emotional value of the family and culture (Lindley, 2009). The widening spread of the world’s population from developing countries and a growing importance of remittances in those people’s lives demand new knowledge and evaluation of the role played by remittances beyond “pure” economics. In particular, as discussed before, trust is acknowledged as an important determinant of development. Therefore, understanding the relation between remittances and trust is a matter of great relevance to understand development.

A related question is how to measure trust. Traditional attitudinal surveys like the General Social Survey (GSS) /World Value Survey (WVS) are frequently utilized to obtain interesting data regarding trust. The question concerning trust is usually stated as follows in these surveys: « *Generally speaking, would you say that people can be trusted or that you can't be too careful?* ». While the survey method is widely used, many critiques have been raised concerning the validity of the information obtained from such surveys. “*They are vague, abstract, and hard to interpret*”, suggest Glaeser *et al.* (2000, p.812). One important disadvantage is that the information obtained from the survey question is unable to distinguish two important compositions of trust: trust and trustworthiness. Nevertheless, the two notions are different. Following Cox (2004), trust is considered to be inherently a matter of the beliefs that one agent has about the behavior of another. An action that is trusting of another is one that creates the possibility of mutual benefit if the other person is cooperative, and the risk of loss to oneself if the other person defects. Trustworthiness, or reciprocity, on the other hand, is a positive response for the other person’s trustfulness. Trustworthiness is measured by the amount returned by the second mover. The second-mover return may be motivated by positive reciprocity, a motivation to repay generous or helpful actions of another by adopting actions that are generous or helpful to the other person or returns resulting from unconditional other-regarding preferences (Cox, 2004). The interpretation of both concepts can be also found in Hardin (2000, pp. 4-5): “*I trust you because I think it is in your interest to attend my interests in the relevant matter... You can more confidently trust me (I am trustworthy) if you know that my own interest will induce me to live up to your expectations...*”. Hence, the two are different. It is therefore necessary to distinguish between them. The trust game (investment game) (Berg *et al.*, 1995) allows us to identify the both roles.

Relating remittances to the trust game is an inspiration from the New Economics of Labor Migration (NELM). Stark and Lucas (1988) have explicitly explained the motivation of remittances as a strategy stemming from an implicit contractual agreement between the household and the migrant. Sending remittances back home may be purely altruistic toward family members; it may also be a reciprocal behavior toward the supportive efforts obtained from the family. The relation of remitters and receivers in a migration framework is similar to the setting in the trust game. For example, receiving remittances is similar to the situation when the second mover in the

trust game receives a proportion of initial endowment money from the first mover. As such, a past experience of having received remittances is a perfect real life indicator that may have a corresponding reflection on the trust game.

We expect to observe a higher trust in the game in those participants who have received remittances in real life. The reasoning is that remitting money, either because of pure altruistic action towards family members or a reciprocal return, strengthens the attitudes of trust of receivers towards the remitters. In reality, it is difficult to capture this increased trust on the part of receivers due to remittance-receiving experiences. The trust game, by replicating a similar situation of sending and receiving, may therefore prove such effect if our hypothesis is correct.

It is worth noting that the impact of remittances on trust may be different regarding whether remittances are international or internal. We may need to distinguish the groups of population concerned with these two types of remittances as well as to take into consideration the sending and receiving roles of both types of remittances. Finally, the economic impact of receiving remittances may also need to be considered. If remittances substantially increase the wealth of the family, then an increase in trust may also be through the wealth effect because income has been identified as the most important predictor of giving behavior; for example, higher income households donate more (e.g. Yen, 2002). Also, individuals with many resources (including income) can better afford the potential loss from a betrayal of their trust and should generally be in better position for redress and restitution if cheated (Nannestad & Svendsen, 2005).

Besides remittances, this study also investigates two other interesting aspects of trust. First, we ask whether trust varies within a country. We find in the literature much discussion of the cross-country comparisons in terms of trust (e.g., Yamagishi *et al.*, 1998; Aghion *et al.*, 2010).¹⁵ However, fewer studies have been conducted on regarding regional comparisons within a single country. One seminal work from Putman (1993) examines Italy: he finds a higher level of trust in northern as compared to southern Italy. Trust is discouraged in the more hierarchical religious society in

¹⁵ Yamagishi *et al.* (1998) demonstrate that the level of general trust is much higher in American society than in Japanese society. Aghion *et al.* (2010) find that compared to the English colonies, lower levels of trust have been found in French colonies. They highlight the role of government regulations in determining such differences with French case being more heavily regulated of invasive in this sense.

southern Italy, whereas in northern Italy, trust is efficiently based on horizontal ties between people. Vietnam, the country that we study, is also characterized by a distinctive difference between the North and South. One important difference is historical, with North Vietnam having a much longer socialist history than South Vietnam, dating back to the last century. After one hundred years of French colonization, North Vietnam began a socialism system in the 1940s, after the Second World War, while the South continued first French colonization, and later U.S domination. Vietnam was officially reunited in 1975 after a two decade division caused by war. That said, North Vietnam has been under a Communist regime longer, while South Vietnam has had 20 years (1954-1975) of a capitalist system. Different political regimes can impact social norms, trust and political values, and such impact may be long lasting. A few years after the German reunification, Ockenfels and Weimann (1999), using controlled laboratory experiments, find that West Germans show a significantly higher solidarity and cooperation when compared to East Germans. Even today, a recent paper of Brosig *et al.* (2011) finds that East Germans show consistently less solidarity than West Germans. We may also refer to the work of Uslaner (2008) again who believes that communism has negative impacts on trust. Alberto & Fuchs-Schündeln (2007) show that, after German reunification, East Germans' preferences (political values) for redistribution and state intervention converged towards those of West Germans, however, East Germans were still more in favor of redistribution and state intervention. According to Brosig *et al.* (2011), social behaviors change even more slowly than the political values estimated by Alberto & Fuchs-Schündeln (2007). Relating to our study, the above findings suggest that though the separation between South and North Vietnam ended 35 years ago, we may still expect differences in terms of trust between them.

Second, we ask how an individual's risk aversion and time preference relate to trust. The above definition of trust implicates the potential risk involved for the trustor in case the trustee defects, especially when the motivation of trusting is of self-regarding preferences rather than other-regarding preferences. As said by Tilly (2005, p. 37), "*the higher the stakes and the more intimate the relations, the higher the level of trust involved-that is, the larger the knowing exposure of valued endeavors to the malfesance, mistakes, or failures of others*". "*To act on trust is to take a risk*" (Hardin, p.12). Therefore, an individual's trusting decisions may be hard to separate from his/her

risk-loving characteristics. Some scholars (Fehr, 2009; Karlan, 2005; Kosfeld *et al.*, 2005) argue that in the trust game, an individual's decision may be confounded by his risk attitudes. Houser *et al.* (2010), by combining measures of individual risk attitudes with individual decisions in investment games comprised of two "trust" treatments and two "risk" treatments, do not find a predictive relationship between risk attitudes and decisions in trusting decisions, based on their lab experiment. This chapter aims to add new evidences from a field experiment on the relationship between risk attitudes elicited from risk games and trusting as well as reciprocating decisions. So far as we know, studies on the relationships between an individual's time preference and trust are scarce. Nevertheless, there may exist an intimate link between the two human basic preferences. The time preference parameters are elicited from a series of inter-temporal choices (between a smaller reward received sooner or a larger reward later). A more patient person would prefer to wait for a larger benefit instead of a short-term smaller benefit. In this logic, we expect to see a more patient person also being more cooperative in the investment game.

To address all these issues, we conducted a field experiment in Vietnam covering both the North and South. We invited equivalent numbers of participants from villages and conduct the experiment of each session in participants' proper villages. The participants are from households for whom we have information from the 2002 Viet Nam Household Living Standard Surveys (VHLSS2002), conducted by the General Statistics Office (GSO) of Viet Nam with technical support from the World Bank (WB). Our experiment consists of a risk game to elicit each individual's degree of risk aversion, a time discounting game to examine an individual's time preference, and a trust game to capture one's trust decisions. In addition, a post-game questionnaire survey recorded participants' basic demographic, social and economic characteristics. Finally, we resort to VHLSS2002 data to provide household economic condition as well as remittances information.

Our study is part of recent trend in experimental economics to move beyond the student population in order to explore the robustness of findings. It is unique in the sense that we are able to link the field experiment results with household survey data, as the participants of the experiment are the villagers surveyed in the 2002 VHLSS in Vietnam. To the best of our knowledge, this study provides the first direct evaluation of

the impact of having received remittances on trustful and reciprocal behavior. This may contribute to understanding both migration and experimental economics. More specifically, in terms of the migration literature, this study explores an important question on how remittances connect to the remittance receiver's trust behavior, which is difficult to capture with common migration survey data. More importantly, we are able to test the potential different impacts of international and internal remittances on trust. In terms of behavior economics, as the identity of a participant being a gift receiver in real life is explicit, the study is able to capture its corresponding reflection in the experiment trust games where both role of trusting and reciprocating are clearly defined.

Another important feature of the study is that we incorporate risk attitudes, time preference and trust into a single framework of estimation. Most studies have typically focused on each preference individually, despite these three kinds of preferences being interwoven in the decision-making process. One of the main objectives of this chapter is to fill this gap in the literature. Also, we are able to test whether risk attitudes link closely to trust decisions, and whether time preference has any relation with trust and trustworthiness. We consider more general forms of both utility and time discounting functions than the standard approach. Specifically, we consider the agents' utility function under prospect theory and their time preferences under the quasi-hyperbolic discount function, allowing present bias to be an element. These more general forms of risk and time preferences are increasingly agreed upon to be more useful in describing humans' preferences than the standard expected utility and exponential time discounting functions. Finally, due to the specific historical differences between South and North Vietnam, the study is also unique in the context of regional differences within a developing country. It adds new evidence to the few existing discussions of whether and how trust varies within the same country.

Our results highlight that remittances do have a strong relationship to trust and trustworthiness. International remittance receivers are more likely to be trustful, but less likely to be trustworthy than non international remittance receivers. Internal remittance receivers are more likely to be trustworthy than non internal remittance receivers. Internal remittance receivers in the South have the highest level of trustworthiness as compared to the rest of the population. We also find that people in

South Vietnam are significantly more reciprocal than people in North Vietnam. Consistent with Houser *et al.* (2010), trust is not tightly connected to a person's risk attitude. Finally, as expected, more patient people are more likely to be reciprocal.

The remainder of this chapter is organized as follows: Section 2 presents the background information on location of the experiment and sample; Section 3 describes the experimental design and procedures; Section 4 presents the results of the study; and Section 5 is the conclusion.

2.2 Background information on location of the experiment and sample

Our field experiment was conducted in July-August 2010 with participants being members of households who were previously interviewed during VHLSS2002. In the 2002 survey, 25 households were interviewed in each of 142 and 137 rural villages in Mekong Delta (in the South) and the Red River Delta (in the North) (Tanaka *et al.*, 2010). From these, we chose eight villages (sessions), four villages of two provinces in the north and four villages of two provinces in the south.¹⁶

Table 2.1 gives some descriptive statistics by region. The average age of all the participants is 50 years old, with the participants from the north slightly older than those from the south. Concerning the gender of participants, the share of female participants is higher in the north (0.57) than in the south (0.32)¹⁷. Our participants have on average 8 years of schoolings. The participants in the north are on average one year more educated in general than the southern participants. 41% of our participants have a second job. This proportion is fairly balanced in both North (44%) and South (38%). As for the first job, 66% of participants remain in agricultural activities. Compared to South, the proportion of participants engaging in agricultural activities as the first job is slightly higher in North.

¹⁶ In the north, four villages are Yen Lac Truong and Yen Lac Lienchau in Vinh Phuc province and Thai Hoa and Diem Dien in Thai Binh province. In the south, four villages are Thot Not and Co Do Trung in Can Tho province and Tra Vinh Thanh and Phuoc Hao in Tra Vinh province.

¹⁷ In one village in the South, all the participants are males.

Table 2.1 Descriptive statistics by region (2010)
(Mean value)

	North		South		Total	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Age	53	11.77	47	9.94	50	11.30
Female (=1)	0.57	0.50	0.32	0.47	0.45	0.50
Years of education	8.47	4.59	7.15	3.62	7.8	4.19
First job in agricultural activity (=1)	0.70	0.46	0.62	0.49	0.66	0.47
Having second job (=1)	0.44	0.50	0.38	0.49	0.41	0.49
Number of subjects	87		79		166	

Notes: The data in the table are from the post-experiment questionnaire in 2010(see Appendix 2.2).

Table 2.2 is a summary statistics by income and remittances. The average yearly household income of our participants in 2002 is 38,732 KVND¹⁸. This differs across regions with the North having a higher average yearly household income than the South (42,373KVND vs. 34,950KVND), whereas the income distribution is less equal in North than in South (Standard deviations: 51,616KVND vs. 28,171KVND).

Both international and internal remittances are quite common in Vietnam. International remittances are dominated by emigrants to North America, followed by Europe, Australia, and Asia (Pfau & Long, 2008b). Regarding international remittance receivers, Pfau & Long (2008b) state that female-headed households receive more remittances. Concerning the senders, children provided the most remittances to female-headed households (41.4 percent) followed by siblings and nieces or nephews (35.9 percent), and 4.8 percent of the total international remittances (by value) arriving to female-headed households came from spouses. Concerning internal remittance senders, a report by the United Nations Population Fund (UNFPA)¹⁹ in 2007 estimates that roughly half of migrants sent money back home, and female migrants tend to send more than male migrants (17% vs. 10%). In terms of receivers in home communities, based on the VNLSS 1997/1998, Pfau & Long (2008a) describe that children/children-in-law receive the biggest amounts (45.3 percent) followed by siblings and nieces or nephews (18.9 percent), and finally parents (17.7 percent). Pfau

¹⁸ VND refers to Vietnamese Dong; K represents thousand.

¹⁹ The report is entitled “*Internal migration: Opportunities and challenges for socio-economic development in Viet Nam*” (<http://www.vn.one.un.org>).

& Long (2008a) also find that men have a tendency to send remittances to other men, while women tend to send more to other women.

Table 2.2 Descriptive statistics by income and remittances (2002)

	Mean (KVND)	Share in average income	Share of households with that source	Mean among households with income from that source (KVND)	Mean income of the category (KVND)	Share in income of households with income from that source	Mean income without all remittances of the category (KVND)
Income	38,732	-	-	-	-	-	36,387
Internal remittances	905	2%	73%	1,214	32,473	3.7%	30,342
International remittances	1,439	4%	7.3%	20,807	53,360	39%	31,417
Income in South	34,950	-	-	-	-	-	31,151
Internal remittances in South	865	2%	71%	1,227	31,164	4%	28,060
International remittances in South	2,934	7.6%	14%	20,807	53,360	39%	31,417
Income in North	42,373	-	-	-	-	-	41,429
Internal remittances in North	944	2.4%	75%	1,254	33,654	3.7%	32,400

- Notes: 1. Source: VHLSS2002.
2. Income and remittances are of whole household annually.
3. North has no international remittances.

From Table 2.2, we have several notable observations relating to both international and internal remittances.²⁰ First, while domestic remittances are notable (73% households) and equally distributed between South and North in terms of the amount of remittance and the proportion of receivers, we find only a small proportion of households (7%) having received international remittances in 2002, with all of them being from the South (14% among the southern participants). We observe also that the average amount of international remittance is significantly larger, 17 times more than the average amount of internal remittance (20,807 KVND vs. 1,214 KVND). The average internal

²⁰ Both internal and international remittances include not only money received, but also an equivalent value of in-kind presents. The detailed question asked in VHLSS2002 is: the amount of remittance and value of in-kind presents from overseas and the amount of domestic remittance and value of in-kind presents for the household.

remittance among those who have received internal remittances is of quite small amount relative to the total household income: 3.7%; however, the average international remittance among those who have received international remittances is quite large relative to the total household income: 39%.

Internal remittances and international remittances have different impacts upon the economic condition of rural households. Focusing on income including all remittances, we notice that the average income of households having internal remittances is lower than the average income of the total population (32,473 KVND vs. 38,732 KVND), while the average income of households having international remittances is higher than the average income of the total population (53,360 KVND vs. 38,732 KVND). This indicates that those households with internal remittances are poorer than households without internal remittances; on the contrary, households with international remittances are richer than households without international remittances. These results for economic disparity between households with or without remittances are consistent with Cuong (2008) who uses both VHLSS 2002 and VHLSS 2004.

It is worth mentioning the difference of income distribution when including or excluding the item of remittances for the total population. Before adding all remittances into the total income, the average incomes of both households with international remittances and households with internal remittances are lower than the average income (also excluding remittances) for all households. However, when the remittances are included as part of income, the average income for households with international remittances is much higher than both the average income (also including remittances) of all households and households with internal remittances. This suggests that international remittances are an extremely important income source that contributes to the disparity of income. We notice a similar pattern when restricting to the south only. The average income (excluding all remittances) of households with international remittances is close to the average income level (excluding all remittances) of all households in the south, and the average income (excluding all remittances) of households with internal remittances are lower than the average income level (excluding all remittances) of all households in the south. When including all remittances, the average income of households with international remittances are much higher than the average income (including all remittances), however, the average

income of households with internal remittances are still lower than the average income (including all remittances). In the north, the situation is different. We observe no international remittances in the north. The average income for households with internal remittances is lower than the average income of all households in the north whether including or excluding remittances in total income.

2.3 Experimental design and implementation

2.3.1 Game design

This experiment was conducted in Vietnam in July-August 2010. Each session was comprised of three different decision-making tasks, performed in sequence (see *Field experiment* in the Appendix 2.1): a risk game, a time preference game, and a trust game. The general design of the experiment is close to the study of Tanaka *et al.* (2010)²¹. Since our study focuses on trust, in the following part, we introduce, first the trust game, followed by the risk game, and then the time preference game.

Trust game

The trust game is based on Berg *et al.* (1995). Each player is initially given 20KVND. In the first stage, all players acted as senders (player 1). Conditional on an initial endowment of 20KVND, player 1 has to decide how much to send (x) among the following choices: 0, 5, 10, 15 and 20 KVND to a second mover (player 2). Any amount sent is multiplied by three before it reaches player 2. The first mover also needs to expect how much return he/she could get from the second mover conditional on the amount he/she has sent to player 2. In the second stage, all players are receivers (player 2). They need to decide how much they are willing to return to player 1 for each possible amount (0, 5, 10, 15 and 20 KVND) sent, without knowing how much the first mover actually sent.

²¹ One difference is that their field experiment was begun by the trust game first, followed by the risk game, and then the time preference game, whereas in ours, the trust game was played at the end, after the risk game (first) and the time preference game (second). The main consideration of the order change is that the trust experiment is the most difficult one to play. The first two games can provide participants some initiation into and knowledge about games, making it easier for them to understand the trust game.

Hence, each participant plays the two roles of the sender and receiver simultaneously in the trust game. In between decisions, there is no feedback given with respect to the behavior of other subjects.

Before the game started, we gave each participant a nametag colored either red or white. After the end of the game, we randomly tossed a coin. If heads, those with red name tags are considered to be player 1 and those with white name tags are considered as player 2. The final payoff of the player 1 is $(20-x+y)$ and the payoff of the player 2 is $(20+3*x-y)$.

In order to help facilitate any calculation for the total payoff for both and the payoff for each role, either player 1 or player 2, we provided in the answer sheet three tables of information on the payoffs with each representing the case of sending to player 5KVND, 10KVND and 20KVND as conditions (see Appendix 2.1).

Risk game

To elicit the three prospect theory parameters, we designed three series of paired lotteries totaling 33 questions. Series 1 has 12 questions, series 2 has 14 questions, and series 3 has 7 questions. Each question is a choice between a binary lottery, A or B. Our risk attitude information for each individual comes from a series of decisions made by choosing a combination of a certain reward (or/and a certain loss) with a certain number of balls, with each ball marked by a unique number from 1 to 10. In the first series, plan A is fixed. In plan A, the payoff is always 40KVND if the number chosen is 1, 2 or 3 (the probability is 0.3). The payoff is always 10KVND if the number chosen is one of the following numbers: 4, 5, 6, 7, 8, 9 or 10 (the probability is 0.7). Plan B is half fixed and half changing. The payoff is always 5KVND if the number chosen is one of the other numbers except one (that is, between 2 and 10). Nevertheless, as one moves down the rows, the payoff increases from 68 KVND to 600 KVND if the number chosen is one.

Series 2 is similar, but with different payoffs and probabilities. Plan A is always fixed: the payoff is always 40KVND with the following chosen numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9. And the payoff is always 30KVND if the number chosen is 10. Plan B is mixed: the payoff is always 5KVND if the number chosen is 8, or 9 or 10. Moving down the rows,

the payoff increases from 54KVND to 130KVND if one of the other numbers is chosen. In series 1 and series 2, most individuals choose plan A in the first row, and as the high potential payoff increases in plan B down the rows, switching to preferring B to A. A very risk-averse person should thus switch to plan B earlier.

To address loss aversion, series 3 involves both gains and losses in both plan A and plan B. In either plan the probabilities of gains and losses are the same: 0.5. The gains occur in case of the first 5 numbers chosen and the losses occur in case of the 5 remaining numbers chosen. The differences between plan A and plan B lie in two points: first, in plan B, the gains and losses are all much larger than in plan A. Second, in plan B, the amount of gains is always 30 KVND, while the amount that can be lost decreases from 21 to 11 KVND move down the rows. In plan A, the amount of gains decreases and the amount of losses increases across rows, with the gains varying from 5 KVND to 1 KVND and the losses varying from 4 KVND to 8 KVND. The later they switch from A to B, the more averse they are to losses.

In all three series, we enforced monotonic switching by asking subjects at which question they would “switch” from plan A to plan B. They can switch to plan B starting with the first question, but they do not have to switch to plan B at all. After they completed three series of questions with a total of 33 choices, a participant was selected either by other participants or by his own wish, to draw a numbered ball from a bingo cage with 33 numbered balls, to determine which row of choice would be played for real money. Once the row was determined, we put 10 balls in the cage. Another participant chosen the same way as before then drew one ball randomly to determine which selected number would be played as lottery.

We use cumulative prospect theory (Tversky and Kahneman, 1992) and the one-parameter form of Prelec’s axiomatically-derived weighting function (1998) as follows:

$$U(x, p; y, q) = w^+(p + q)v(x) + w^+(q)(v(y) - v(x)). 0 < x < y \tag{1}$$

$$U(x, p; y, q) = w^-(p + q)v(x) + w^-(q)(v(y) - v(x)). y < x < 0 \tag{2}$$

$$U(x, p; y, q) = w^-(p)v(x) + w^+(q)v(y). x < 0 < y \tag{3}$$

$$\text{Where } v(x) = x^\sigma \quad \text{for } x > 0 \quad (4)$$

$$v(x) = -\lambda(-x)^\sigma \quad \text{for } x < 0 \quad (5)$$

$$\text{And } w(p) = \exp\left[-(\ln p)^\alpha\right] \quad (6)$$

$U(x, p; y, q)$ is the expected prospect value over binary prospects consisting of outcomes x with the probability p and the outcomes y with the probability q . $v(x)$ denotes a power value function. σ represents concavity of the value function, and λ represents the degree of loss aversion. The weighting function is linear if $\alpha = 1$, as it is in EU. If $\alpha < 1$, the weighting function is inverted S-shaped, i.e. individuals overweight small probabilities and underweight large probabilities. If $\alpha > 1$, then the weighting function is S-shaped, i.e. individuals underweight small probabilities and overweight large probabilities. We use Prelec's weighting function, because it is flexible enough to accommodate the cases where individuals have either inverted-S or S-shaped weighting functions, and has fit previous data reasonably well.

Appendix 2.5 and Appendix 2.6 present the predictions of σ (parameter for the curvature of power value function) and α (probability sensitivity parameter in Prelec's weighting function) for all possible combinations of choices given. "Never" indicates the cases in which a subject does not switch to plan B. σ and α are jointly determined by the switching points in Series 1 and 2. For example, suppose a subject switched from plan A to B at the second question in Series 1 and third question (corresponding to the 15th question in the game) in Series 2. The lower and higher bound for σ is (1.16, 1.29), and the lower and upper bound for α is (0.56, 0.64). By calculate the mean values of lower and upper bound, we obtain the final values of (σ, α) for this subject is (1.2, 0.6).

Time preference game

In this game, participants were asked to choose to receive money either today or some time in the future. There are 75 questions. Each question is offered two plans, A and B, with A receiving smaller rewards today and B receiving larger rewards some time in the future as follows: plan A: Receive x KVND today; or plan B: Receive y KVND in t

days. We use 15 combinations of y and t (or 15 types of plan B). For each (y, t) combination, x increases as rows move on, equaling to $1/6$, $1/3$, $1/2$, $2/3$, and $5/6$ of the value of y . In other words, in each type of plan B, plan A changes with an increasing payoff across five choices. The reward x and y vary between 5KVND to 250 KVND and between 30 KVND and 300 KVND respectively, and the time delay t varies from three days to three months. The earlier switchers from B to A are the less patient.

Subjects gave a switching point from preferring B to A in each series of five questions. After subjects completed all 75 questions, we put 75 balls in a bingo cage and drew one ball to determine which question would be played for real money. We then asked them to have a discussion about to whom the money should be entrusted until they pick it up. The selected trusted persons were usually village heads, commune officers, the president of women's associations etc. In all 8 villages, the selected persons were also game participants. For each participant, we put the money they gained in an envelope and wrote down their names, the amount of money they should receive, and the dates they should pick it up from the person. The entrusted person would keep all the envelopes until the pick-up date.

These pairwise choices permit estimation of a three-factor model developed by Benhabib *et al.* (2010). The model values a reward of y at time t according to $yD(y,t)$ where

$$yD(y,t)=y \quad \text{if } t=0 \quad (7)$$

$$yD(y,t)=\beta(1-(1-\theta)rt)^{\frac{1}{1-\theta}} y \quad \text{if } t>0 \quad (8)$$

The three factors r , β and θ separate conventional time discounting (r), present-bias (β) and hyperbolicity (θ) of the discount function. In this study, θ is assumed equal to 1 and β is to be estimated, which is reduced to quasi-hyperbolic discounting.

Post-experimental questionnaire

At the end of each session, we administered a questionnaire (see Appendix 2.2) to record individual demographic characteristics, social network, and occupations.

2.3.2 Game procedure

The field experiment has been coordinated by the Vietnam Institute of Economics (in Hanoi). Research coordinators helped contact local government officials in each research site, and asked them to invite one person from each of the 25 previously surveyed households to participate in the experiments. In each village, the chairman or headman was charged with the duty of ensuring the participants arrived at the session. On average, we have 21 participants in each village. We gathered data from 166 participants in total, with 87 participants in the north and 79 participants in the south. The number of participants varies across villages: between 19 and 25 in North and the number of participants varies between 18 and 24 in South.

Experiments started at 8 a.m. and lasted about three hours including instructions, payment and the post-experiment survey. Subjects were given instructions and separate record sheets in Vietnamese containing three components: a detailed description of each game, a set of examples, and a series of questions to be answered for each game. Illiterate subjects (3%) were given oral instruction by research assistants who are all Vietnamese. Subjects who had difficulty completing record sheets by themselves were also helped by research assistants. The average experimental earnings for three games was 120KVND (about 6 dollars), roughly 3-4 days' wages for casual unskilled labor.

2.4 Results

2.4.1 Summary statistics

The amount that the first mover passed to her counterpart measures trust, while the amount returned to the sender from the second mover measures trustworthiness (Glaeser *et al.*, 2000). Figures 2.1-2.4 present the distributions of amount sent by player 1 and amount returned by player 2 as well as the amount expected by player 1 from player 2 respectively. A corresponding descriptive statistics of these main variables are presented in Appendix 2.3 and Appendix 2.4.

Figure 2.1 shows the distribution of amount sent by player 1 by region and by sex. The

mean level of the amount sent to player 2 from player 1 is about 10KVND, or half of the initial endowment of 20KVND. Women in the north send the lowest average amount among all. This contributes to the slightly higher sending amount by participants in the south.

Figure 2.1 Amount sent by player 1 to player 2 by region and by sex

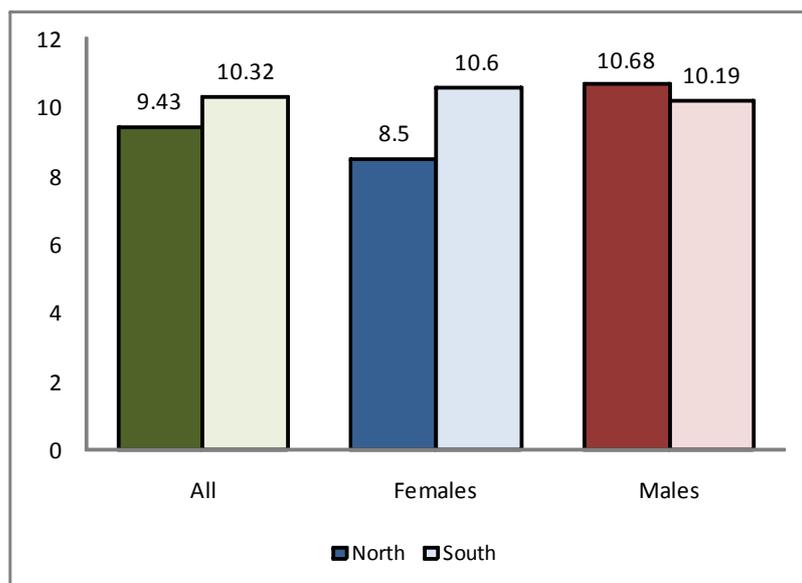
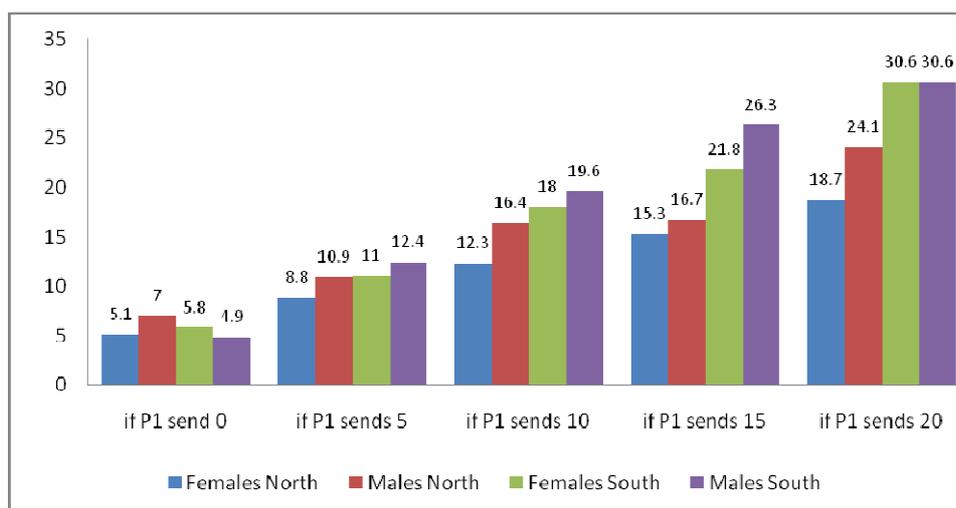


Figure 2.2 is a detailed picture showing the distribution of the amount returned conditional on each specific sending amount, by region and by gender. We find several interesting observations from this figure. First, in both regions, the absolute amount returned increases as the conditional amount received increases from 0 to 20. Second, in general, participants in the south return much more than participants in the north for each specific sending amount (except when the conditional sending from player 1 is 0), and the difference in terms of amount sent between the south and the north becomes increasingly large and significant when the amount sent increases from 5 to 20, suggesting that people in the south seem more reciprocal as compared to people in the north. Third, women in the north return the lowest among all population groups across each conditional amount received (except for when the amount sent is 0). This seems consistent with the sending story that we discussed before that women in the north send the least. According to the figure, men in the south are the most generous population

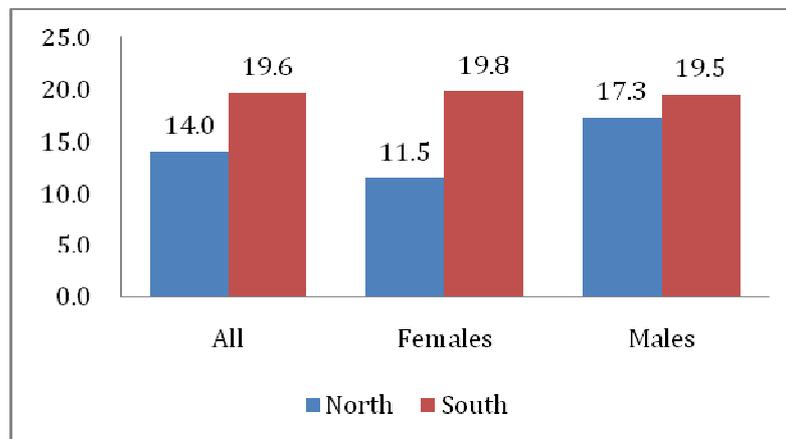
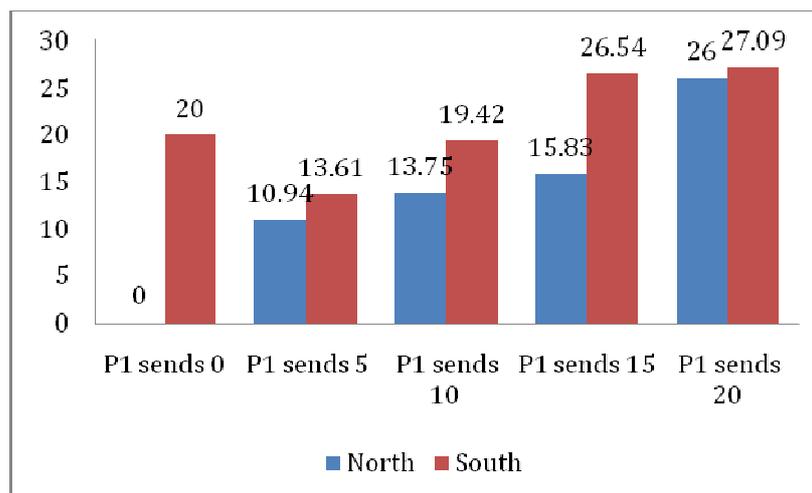
group since their amount returned is always the highest as compared to all the others for each amount received (except for when the amount sent is 0).

Figure 2.2 Amount sent back from player 2 to player 1 conditional on each specific amount sent from player 1 by region and by sex



In addition, Appendix 2.3 shows that the average return fraction is 50%. This indicates an equal mutual benefit orientation among the general population. The South shows a significantly higher return rate as compared to the North, with the average return fraction being 58% in the South and 40% in the North..

Figure 2.3 and 2.4 exhibit the distribution of average expectation from B by sex, by region and by the amount sent. In general, female in the north has the lowest expectation among all. Conditional on the same amount sent, people in the south have on average a much higher expectation as compared to people in the north. For example, in the case that player 1 sends 15KVND to player 2, the additional benefit for both is $45-15=30$ KVND due to player 1's sending behavior. The average expectation from player 2 is 16 KVND for people in the North (50% of the total benefit) and 26 KVND for people in the South (87% of the total benefit).

Figure 2.3 Expectations in general from player 2 by sex**Figure 2.4 Expectations from player 2 by region and by the amount sent**

2.4.2 Estimation results

We ran a Tobit model for estimating trustfulness. The dependent variable for the regression is the amount sent when all participants are player 1. The variable is censored between 0 and 20. This occurs because not all players 1 send money during the first stage. The dependent variable for the regression on trustworthiness is the proportion of total return out of the total amount received (three times of the amount

sent by player 1) when all participants are player 2. No participant in our sample returns 0; we therefore choose to use a simple Ordinary Least Square (OLS)²² regression to estimate the trustworthiness determinant.

We used the same set of independent variables for both regressions²³. Tables 2.3 and 2.4 show the estimation results respectively²⁴. In each table, Model 1 is the basic model using the amount of remittance (both internal and international) received by the participant's household in 2002 as the independent variable. Model 2 uses the dummies regarding whether the participant's household has ever received internal or international remittances in 2002. Model 3 adds an interaction term between the amount of internal remittance received in 2002 and the regional dummy based on Model 1. Model 4 includes an interaction term between the dummy whether internal remittances were received in 2002 or not, with the regional dummy variable based on Model 2.

²² Two participants in our sample have the return proportion greater than 1, suggesting that they have returned more than the tripled amount received from player 1. Excluding the two extreme cases and using GLS (General Least Square) method of estimation do not change the principle results. The results are therefore robust.

²³ The only difference is that in the trustfulness regression, we have an additional variable "expectation of return from player 2"; while in the trustworthiness regression, we did not put this variable as an independent variable.

²⁴ The fact that only 156 observations are documented for the regression of trustfulness instead of the expected 166 is due to a lack of information regarding income and remittances for some households in the 2002 household survey data. The fact that an even smaller number of observations (133) is provided in the trustworthy regression is due to lack of information in one village about the amount returned when receiving 15KVND. We have tried to use the same number of observations (133 instead of 156) for the trustful regression, and we find the same result as the current regression with more observations.

Table 2.3 Tobit estimates of trust

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Probability weighting function (α)	-0.152 (0.936)	0.392 (0.846)	-0.153 (0.936)	0.206 (0.923)
Risk aversion (σ)	-1.218 (0.460)	-1.238 (0.432)	-1.218 (0.460)	-1.069 (0.507)
Discount rate (r)	40.74 (0.167)	30.12 (0.329)	40.69 (0.167)	29.15 (0.348)
Present bias (β)	-0.562 (0.875)	-0.450 (0.900)	-0.562 (0.875)	-0.515 (0.885)
South(=1)	-1.409 (0.209)	-1.076 (0.362)	-1.417 (0.248)	-2.080 (0.320)
Number of acquaintances	0.0546 (0.510)	0.0306 (0.713)	0.0546 (0.507)	0.0208 (0.817)
Age	-0.0400 (0.254)	-0.0373 (0.286)	-0.0401 (0.268)	-0.0353 (0.304)
Female(=1)	-0.844 (0.321)	-0.652 (0.464)	-0.841 (0.329)	-0.525 (0.564)
Years of education	-0.181** (0.031)	-0.147* (0.093)	-0.181** (0.032)	-0.151* (0.080)
First job being agricultural (=1)	-1.539* (0.091)	-1.735* (0.068)	-1.535* (0.100)	-1.733* (0.069)
Having a second job (=1)	2.430*** (0.006)	2.500*** (0.005)	2.431*** (0.006)	2.524*** (0.004)
Total income	0.0000228** (0.042)	0.0000274** (0.018)	0.0000228** (0.042)	0.0000263** (0.020)
The amount of international remittance(2002)	0.000173** (0.044)		0.000172** (0.045)	
The amount of internal remittance(2002)	-0.000247 (0.177)		-0.000252 (0.268)	
Expectation from player B	0.269*** (0.000)	0.259*** (0.000)	0.269*** (0.000)	0.260*** (0.000)
Interaction(Internal remittances *the south=1)			0.0000101 (0.979)	
International remittances receivers(=1)		2.045 (0.299)		2.319 (0.240)
Internal remittances receivers(=1)		1.020 (0.340)		0.367 (0.799)
Interaction(dummy of internal remittances receivers(=1) *the south=1)				1.306 (0.547)
Constant	9.298** (0.027)	7.987* (0.068)	9.303** (0.029)	8.627* (0.064)
Sigma				
Constant	4.871*** (0.000)	4.958*** (0.000)	4.871*** (0.000)	4.951*** (0.000)
# of observations	156	156	156	156
Log pseudo-likelihood	-425.2	-428.0	-425.2	-427.8

Notes: p -values in parentheses* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 2.4 OLS estimates of trustworthiness

	Model 1	Model 2	Model 3	Model 4
Probability weighting function (α)	-0.0752 (0.330)	-0.0638 (0.434)	-0.0787 (0.296)	-0.0818 (0.305)
Risk aversion (σ)	0.140* (0.054)	0.134* (0.061)	0.140* (0.052)	0.147** (0.034)
Discount rate (r)	-1.531 (0.387)	-1.624 (0.388)	-1.764 (0.313)	-1.767 (0.342)
Present bias (β)	0.360** (0.015)	0.387*** (0.008)	0.369** (0.012)	0.375*** (0.009)
South(=1)	0.170*** (0.000)	0.177*** (0.000)	0.146*** (0.000)	0.0638 (0.379)
Number of acquaintances	0.00192 (0.465)	0.00211 (0.416)	0.00194 (0.457)	0.000930 (0.721)
Age	0.00115 (0.342)	0.00102 (0.410)	0.000778 (0.514)	0.00116 (0.332)
Female(=1)	-0.0890*** (0.005)	-0.0759** (0.022)	-0.0790** (0.012)	-0.0643** (0.039)
Years of education	-0.00731** (0.023)	-0.00789** (0.014)	-0.00716** (0.025)	-0.00872*** (0.007)
First job being agricultural (=1)	-0.0331 (0.405)	-0.0411 (0.301)	-0.0239 (0.547)	-0.0373 (0.334)
Having a second job (=1)	0.0153 (0.672)	0.0145 (0.685)	0.0204 (0.572)	0.0194 (0.591)
Total income	0.000000792** (0.038)	0.000000825** (0.030)	0.000000769** (0.040)	0.000000702* (0.053)
The amount of international remittance	-0.00000372*** (0.009)		-0.00000375*** (0.007)	
The amount of internal remittance	0.0000173* (0.057)		-0.00000222 (0.864)	
International remittances receivers(=1)		-0.0797 (0.260)		-0.0517 (0.450)
Internal remittances receivers(=1)		0.0384 (0.352)		-0.0460 (0.378)
Interaction(Internal remittances *the south=1)			0.0000303* (0.072)	
Interaction(dummy of internal remittances receivers(=1) *the south=1)				0.142* (0.056)
Constant	0.157 (0.307)	0.127 (0.431)	0.176 (0.244)	0.222 (0.171)
# of observations	133	133	133	133
R squared	0.34	0.18	0.35	0.35

Notes: p-values in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The role of remittances

In the trustful regression (Table 2.3), the coefficient of the variable for the amount of international remittance in 2002 is significant and positive; suggesting that the amount of international remittance received is positively related to the trusting behavior (Model

1). If a subject received international remittances in the amount of 10,000 KVND (close to 1/2 of the average international remittance in 2002 among international remittances receivers, see Table 2.2), his amount sent in the trust game would then increase by 1.7 KVND (among the total endowment of 20 KVND). Since we controlled for the total family wealth, as represented by the total income including both internal and international remittances in 2002²⁵, the result therefore indicates the pure influence of receiving a certain amount of international remittance. In Model 2, the coefficients of both dummy variables regarding receipt of international and internal remittances in 2002 are not significant, suggesting that the fact of receiving remittances alone is not enough to develop a trust relationship. Turning to trustworthiness (Table 2.4), Model 1 in Table 2.4 shows that the coefficient of the variable for the amount of internal remittance is significant and positive, and the coefficient of the variable for the amount of international remittance is significant and negative. This indicates that internal remittances are positively related to the receiver's reciprocity, whereas international remittances are negatively related to the receiver's reciprocity. After calculating the elasticity²⁶ at the means of the independent variables, we find that one percent of internal remittances increase the rate of reciprocity by 0.03 percent, and one percent of international remittances decrease the proportion of reciprocity by 0.01 percent.

We may need to consider the different mechanism of sending and receiving for international versus internal remittances. Returning back to Table 2.1, we have noticed that the average international remittance is much larger when compared to internal remittances, and we have also noticed that receiving international remittances greatly improve a household's economic situation. This implies that international remittance senders are in a relatively better economic situation than receivers, and further, that the senders of international remittances may not require a return while sending. Therefore, in the real world, the international remittances are more likely to be a "free gift" and the receivers more likely to be "pure" receivers having no need to return an equivalent material gift back to the senders abroad. Our finding, that when they are in the position of player 1 in the trust game, they tend to send more than others, may therefore suggest a strong learning effect from their remitters abroad when they face a similar situation of

²⁵ We have also tried income before remittances; the estimated results are the same.

²⁶ The elasticity is calculated in the form of $d(\ln y)/d(\ln x)$ with STATA program.

giving. The reasoning is that international remittance receivers are richer than others (in parallel with the relation between their remitters abroad and themselves); therefore they can give others more without asking for a return. The significant and negative correlation between international remittances and expectation from player 2 (correlation: -0.17 at 5% level of significance) supports our explanation that, when making decisions of sending in the trust game, international remittance receivers are more likely to take an altruistic action without expecting a return afterwards. On the other hand, the lower trustworthiness among international remittance receivers may reflect their “pure receivers” role in reality, which may lead to a lack of reciprocation when sent a gift. Nevertheless, it is worth explaining that these comments about the “free gift” and “pure” receivers relate to material gifts. “Non-material” reciprocity may also exist, for example, when family members at home take care of the parents of the same international migrants. It may also be the case that “free gifting” of material supports from international remitters is a compensation for the absence of direct caring and sharing with family members left-behind in home countries.

On the contrary, the relative smaller amount of internal remittance may suggest a relatively equivalent economic situation between the senders and the receivers. Internal remittance receivers are probably also gift senders²⁷ in reality in order to maintain the mutual relationship. Using the Vietnam Migration Survey 2004, Niimit *et al.* (2008) highlight the insurance motive of sending remittances as a payment to insure against labor market uncertainty at the destination. They emphasize that the motivation of altruism is unlikely to provide a sufficient explanation for remitting, whereas internal remittances in Vietnam perform a role in terms of risk-coping and mutual support within the family and among neighbors. Their findings point out the co-insurance/co-help role of remittances as a link between the senders and receivers in Vietnam. The observation that internal remittance receivers tend to reciprocate more in the trust game may therefore reflect a learned experience of mutual help and benefit in real life.

In models 3 and 4 of Table 2.4, we find that both of the categories “the amount of internal remittance in the south” and “being internal remittance receivers in the south”

²⁷ In our data, we do not have the information on households’ expenditure on gift sending, which is a limitation of this study.

are quite positively significant. These results suggest that in the south, internal remittance receivers are more likely to be trustworthy and the degree of reciprocity increases as the amount of internal remittance received increases when compared to the rest of the population. Actually, in Model 1, we can also find that the regional dummy variable in the south is significantly positive, suggesting that participants in the south are generally more reciprocal than participants in the north. The fact that the interaction terms capturing a combined character of both region and the experience of receiving internal remittances suggests that the impact of the experience of receiving internal remittances on reciprocity is more pronounced when it happens in a specific region of the south. All these results suggest to us that in the south, the social norms (or informal social conventions) of reciprocity are probably much stronger as compared to the north, and this, in turn, enforces the original positive impact of receiving internal remittances, which therefore turns out to be that internal remittances receivers in the south are more reciprocal than all other populations in Vietnam.

South vs. North

In the trustful regression, the coefficient for the regional dummy variable is not significant, suggesting that participants in the south and in the north have no difference in terms of trusting decisions. Regarding trustworthiness, as mentioned before, we find that southerners are more reciprocal than northerners. One possible reason that people in the south are significantly more likely to be reciprocal is due to the different historical institutional settings. North Vietnam has a much longer communist history than South Vietnam, since its first establishment in 1945, while South Vietnam was under the French then the US regime between 1945 and 1975. The two states were merged in 1976 as the socialist republic of Vietnam. According to Ockenfels and Weimann (1999), in a socialist system, any individual effort to expand production was not rewarded; as a result, this could lead to solidarity and cooperation in small non-anonymous groups such as families or near friends, but to egoism in large anonymous groups. Another explanation is that in a socialist regime, people depend more on the government and may be less advanced in market orientation thinking. The existing studies of Uslaner (2008), Brosig *et al.* (2011), and Ockenfels and Weimann (1999) all suggest that a communist regime has negative impact on social characteristics, such as trust, cooperation and solidarity. An important reason that we

suggest this possible explanation in our case is due to the fact that most of our participants were born before 1976 and have experienced a period of institutional separation in their youth. Though the reunification happened 35 years ago, the former institutional impacts could be long lasting. Furthermore, the economic renovation starting in 1986 has opened the economy to a market orientation. This opening has renewed the capitalist value among people in the South while added new value to the northern population's preferences. The study of Alberto & Fuchs-Schündeln (2007) finds that, as compared to West Germans, former East Germans place a significant higher political value on socialist systems, including a preference for redistribution and state intervention. They estimate that it will take 20 to 40 years after reunification for these different political values to converge. A recent study by Brosig *et al.* (2011) demonstrates that there has been no convergence between East and West Germans regarding solidarity in the 20 years after the reunification, arguing that social behaviors change even more slowly than political values.

Do risk and patience matter?

As discussed previously, trusting decisions may involve risk in the sense that the first mover may have to endure losses if the second mover defects. Our result (Table 2.3) shows that risk attitudes seem to have no connection with the trusting decision, since neither risk related parameters are significant. This result is consistent with the finding of Houser *et al.* (2010). This suggests that those who are more trustful do not seem to be necessarily risk-lovers in the risk game. As the risk parameters that we computed are from a series of lottery choices, the result may also suggest another explanation: that trusting is probably a process of decision-making without the real involvement of risk consideration, or an individual's risk evaluation towards the lottery may be different from the risk attitude towards human beings in the trust game.

In the trustworthiness regression, nevertheless, it is noted that the risk aversion parameter σ is positively significant, indicating that a high risk-averse individual is more likely to be reciprocal. Since reciprocal action is a decision about whether you would like to return and how much you would like to return, conditional on the received, we should expect it to be a no risk decision. One possible reason for this positive relationship between risk aversion and reciprocity could be that the risk-adverse participants are more afraid of being discovered by the others if they do

not reciprocate. The consequence would be a risk of feeling shame or even “losing face”.

Also, Table 2.4 suggests a positive correlation between present bias and reciprocity: people who have more patience are more likely to be reciprocal. A reciprocal action is necessary in order to maintain a long-term mutually-beneficial relationship. It is somehow a kind of long-term investment in an interpersonal relationship. It may reduce an immediate benefit; nevertheless, it leaves open the possibility of an even larger interest in the long run. The characteristic of patience corresponds well to the attitudes of reciprocity, as patience helps people willingly accept waiting for potentially larger benefits in the future from a today’s investment by giving a relatively higher return to the first mover instead of taking profits right away but returning less.

Other factors

The variable total income is very significant and positive in both regressions, suggesting that participants from wealthier family are more likely to be trustful and reciprocal. Education matters in both trust and trustworthiness. More educated individuals have lower trust and trustworthiness than less educated individuals. This may be because higher educated people understand better the game and therefore use a strategy for higher payoffs. Occupation matters in trust, while gender matters in reciprocity. Participants whose first occupation is in the non-agricultural sector are more trustful than those who are in agriculture. In addition, having a second job greatly increases one’s trust level. Women are significantly less reciprocal when compared to men. Finally, trust is also highly related with expectation. Those who send a higher amount of money to the second mover (the trustee) also have high expectations of the second mover (trustee), suggesting that trusting is likely to be motivated by self-regarding preferences instead of other-regarding preferences (characterized by altruism or inequality aversion that is not conditional on the behavior of others (Cox, 2004)).

2.5 Conclusion

This study has tried to answer the question of how remittance is related to a receiver's trust and trustworthiness in a developing country context by combining a field experiment data collected in the summer of 2010 with the 2002 Viet Nam Household Living Standard Surveys (VHLSS2002). Our field experiment includes a total of 166 participants from 8 villages (8 sessions) in 2 provinces in North Vietnam and 2 provinces in South Vietnam.

This study shows that both international remittances and internal remittances are highly related to the receivers' trust behavior. While internal remittances have no significant relationship with trusting behavior, international remittances do demonstrate a significantly positive connection. On the other hand, international remittances are negatively related to trustworthiness, while internal remittances are positively associated.

We interpret that the positive effects of international remittances on trusting behavior is a result of a learning effect from receiving international remittances, and the negative effects of international remittances on reciprocating is a reflection of participants' "pure" receiving role in the process of interpersonal or inter-familial interaction with the senders who live abroad. The following evidence supports our explanation. First, the international remittances have an important impact on the economic situation of receivers, as the receivers are much richer (thanks to receiving remittances) than non-receivers of international remittances. Second, the fact that international remittances are of a high amount from abroad suggest a possible large economic disparity between senders and receivers, so the receivers are likely to be "pure" gift receivers without a need to send an equivalent material gift back. Third, international remittances have a significantly negative correlation with expectation of return from the second mover. All of these results suggest that the sending action in the trust game of those participants whose family has received international remittances in 2002 is more likely to be altruistic behavior without expecting of return from the receivers, as they are relatively richer than others. It is therefore similar to the experience of their senders abroad. In the meantime, the "pure" receiving role may also kill the sense of participation in a reciprocal relationship. Internal remittances tell a different story. The

amount received is usually much smaller than international remittances, so they do not significantly impact the receivers' economic situation. As such, we tend to believe that internal remittance senders and receivers may have relatively equivalent economic situations. Internal remittances are more likely to play a role as an exchange gift, linking the senders and receivers in a mutually beneficial relationship. Therefore, internal remittance receivers may have a high sense of the need to reciprocate when sent gifts.

In this regard, remittances, the fruit of human migration, play an important role in trust within a society. These findings have an important implication for development. Where previous literature focused on the positive impact of remittances in helping to alleviate poverty and therefore improve the economic development of receivers, this study gives a new, broader vision on how remittances influence development through trust and trustworthiness in an entire society.

We also find that internal remittance receivers in the south are more likely to be reciprocal when compared to the rest of the population, suggesting that the positive impact of receiving remittances is greatly strengthened in the south where we also find a significant higher level of trustworthiness when compared to the north. This indicates that the degree of the impact of remittances depends on the region. A society, where reciprocity as a social norm is stronger, tends to teach people to return more when being sent gifts from others. Inspired by existing findings on the potential institutional impacts on trust, we suggest that this difference between the south and the north may be due to the historical influence of 20 years of a capitalist regime in the south (1954-1975), since the majority of our participants experienced institutional separation during that time between the south and the north. Those southerners who have experienced the capitalist system may have already developed a more advanced market orientation thinking with a sense of equal exchanges and cooperation.

Appendix 2.1 Field experiment

Informed consent form

The purpose of this study is to help social scientists better understand decision-making by observing your decisions. Information that could identify you will remain confidential. We will not give information from this study to local officials or the Vietnamese government.

If you chose to participate, you will be asked to make decisions for which you will be paid in a series of games. At the beginning of each game you will receive detailed instructions describing how payments will depend on decisions made by you and other participants. The rules and the payments may vary across games and may differ between participants. If you choose to withdraw after listening to the instructions, you are entitled to a show up payment of 10,000VND and are under no further obligation to us. If you choose to stay for the decision making portion of the session, you are entitled to the show-up payment of 10,000VND plus whatever money you have earned during the course of the session. Payment is made following the session in cash. Payment is made in private and you will be asked to sign a payment receipt. The receipt is for accounting purposes only and will not be linked to your responses.

Participants do not waive any legal rights through their participation. Your participation is voluntary. If you decide to participate, you are free to withdraw your consent and discontinue participation at any time without penalty.

Instruction

Introductory Comments

Thank you all for taking the time to come today. Today's session will take as much as 4 hours, so if you think you will not be able to stay that long let us know now. Before we begin I want to make some general comments about what we are doing here today and explain the rules that we must follow. We will be playing some games with money. Whatever money you win in the games will be yours to keep and take home.

We will be playing 3 games. We are about to begin the first game. It is important that you listen as carefully as possible

If you have any questions, please raise your hand and we will answer your questions in private. Please do not ask questions to your friends or talk about the game with them. This is very important. Please be sure that you obey this rule.

Game 1(risk game)

In this game, your earnings will depend partly on your decisions and partly on chance. There are 32 questions. In each question, we will offer you two plans: Plan A and Plan B. We would like you to choose either Plan A or Plan B for each question. After you complete the record sheet, we put 32 balls in a bingo cage and draw one numbered ball to select 1 question out of 32 questions. We will play the selected question for real money. For example, if the number 21 ball is drawn, we will play Question 21 for real

money. Once the question is determined, we will put 10 balls in the cage and play the selected question.

Let's practice with the following examples. Please choose either Plan A or Plan B.

Example

There are two Plans, A and B. There are 10 balls numbered ①, ②, ③, ④, ⑤, ⑥, ⑦, ⑧, ⑨, and ⑩ in a bingo cage. You should choose either A or B.

Plan A	Plan B	A	B
You will receive 100,000VND if ①②	You will receive 50,000VND if ①②③④		
You will receive 10,000 VND if ③④⑤⑥⑦⑧⑨⑩	You will receive 20,000 VND ⑤⑥⑦⑧⑨⑩		

We will draw one numbered ball out of the cage.

If Number 1 ball comes out, those who chose Plan A will receive 100,000 VND and those who chose Plan B will receive 50,000 VND.

If Number 3 ball comes out, those who chose Plan A will receive 10,000 VND and those who chose Plan B will receive 50,000 VND.

If Number 6 ball comes out, those who chose Plan A will receive 10,000 VND and those who chose Plan B will receive 20,000 VND.

Example

This example is the same as Question 27. Please refer to the record sheet.

There are two Plans, A and B. There are 10 balls numbered ①, ②, ③, ④, ⑤, ⑥, ⑦, ⑧, ⑨, and ⑩ in a bingo cage. You should choose either A or B.

	Plan A	Plan B	A	B
27	You will receive 2,000VND if ①②③④⑤	You will receive 11,000VND if ①②③④⑤		
	You will lose 4,000 VND if ⑥⑦⑧⑨⑩	You will lose 20,000 VND if ⑥⑦⑧⑨⑩		

If Number 1, 2, 3, 4 or 5 ball comes out, those who chose Plan A will receive 2,000 VND and those who chose Plan B will receive 11,000 VND.

If Number 6, 7, 8, 9 or 10 ball comes out, those who chose Plan A will lose 4,000 VND and those who chose Plan B will lose 20,000 VND. We will subtract money from your earnings from Game 1.

Record Sheet – Game 1

Series 1-Please indicate your choice by ticking (v) either column A or Column B.

	Plan A	Plan B	A	B
1	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 68,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
2	You will receive 40,000VND if ①②③ You will receive 10,000 VND ④⑤⑥⑦⑧⑨⑩	You will receive 75,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
3	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 83,000VND If ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
4	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 93,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
5	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 106,500VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
6	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 125,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
7	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 150,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
8	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 185,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
9	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 220,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
10	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 300,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
11	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 400,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		
12	You will receive 40,000VND if ①②③ You will receive 10,000 VND if ④⑤⑥⑦⑧⑨⑩	You will receive 600,000VND if ① You will receive 5,000 VND if ②③④⑤⑥⑦⑧⑨⑩		

Series 2- Please indicate your choice by ticking (v) either column A or Column B.

	Plan A	Plan B	A	B
13	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 54,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
14	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 56,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
15	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 58,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
16	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 60,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
17	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 62,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
18	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 65,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
19	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 68,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
20	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 72,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
21	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 77,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
22	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 83,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
23	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 90,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
24	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 100,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
25	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 110,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		

26	You will receive 40,000VND if ①②③④⑤⑥⑦⑧⑨ You will receive 30,000 VND if ⑩	You will receive 130,000VND if ①②③④⑤⑥⑦ You will receive 5,000 VND if ⑧⑨⑩		
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Series 3- Please indicate your choice by ticking (v) either column A or Column B.

	Plan A	Plan B	A	B
27	You will receive 5,000VND if ①②③④⑤ You will lose 4,000 VND if ⑥⑦⑧⑨⑩	You will receive 30,000VND if ①②③④⑤ You will lose 21,000 VND if ⑥⑦⑧⑨⑩		
28	You will receive 5,000VND if ①②③④⑤ You will lose 4,000 VND if ⑥⑦⑧⑨⑩	You will receive 30,000VND if ①②③④⑤ You will lose 21,000 VND if ⑥⑦⑧⑨⑩		
29	You will receive 1,000VND if ①②③④⑤ You will lose 4,000 VND if ⑥⑦⑧⑨⑩	You will receive 30,000VND if ①②③④⑤ You will lose 21,000 VND if ⑥⑦⑧⑨⑩		
30	You will receive 1,000VND if ①②③④⑤ You will lose 4,000 VND if ⑥⑦⑧⑨⑩	You will receive 30,000VND if ①②③④⑤ You will lose 16,000 VND if ⑥⑦⑧⑨⑩		
31	You will receive 1,000VND if ①②③④⑤ You will lose 8,000 VND if ⑥⑦⑧⑨⑩	You will receive 30,000VND if ①②③④⑤ You will lose 16,000 VND if ⑥⑦⑧⑨⑩		
32	You will receive 1,000VND if ①②③④⑤ You will lose 8,000 VND if ⑥⑦⑧⑨⑩	You will receive 30,000VND if ①②③④⑤ You will lose 14,000 VND if ⑥⑦⑧⑨⑩		
33	You will receive 1,000VND if ①②③④⑤ You will lose 8,000 VND if ⑥⑦⑧⑨⑩	You will receive 30,000VND if ①②③④⑤ You will lose 11,000 VND if ⑥⑦⑧⑨⑩		

Game 2(Time preference game)

In this game, you will receive money either today or sometime in the future, depending on the choices you make. There are 75 questions. In each question, we will offer you two plans: Plan A and Plan B. We would like you to choose either Plan A or Plan B for each question.

Example

This example is the same as Question 1. Please refer to the record sheet.

There are 2 plans, A and B, offered to you.

If you choose Plan A, you will receive 20,000 VND today.

If you choose Plan B, you will receive 120,000 VND in 1 week.

If you want to choose A, please tick (v) the column A as follows.

	Plan A	Plan B	A	B
1	A: receive 20,000 VND today	B: receive 120,000 VND in 1 week	v	

Please choose either Plan A or Plan B for each of the 75 questions. You will be paid based on one of your choices.

We will put 75 balls in a bingo cage and draw one ball to determine which question will be played for real money. For example, if the number 21 ball is drawn, we will do Question 21 for real money.

Suppose Question 21 is selected, and you choose Plan A in Question 21, you will be paid 100,000 VND today. If you chose Plan B in Question 21, you will receive 600,000 VND in 1 month.

At the end of the experiment, we will discuss whom the money should be entrusted to until you pick up the money. It could be the commune office, the president of women's associations, or someone whom you all trust. For each of you, we will put the money in an envelope and write down your name, the amount of money you should receive, and the date you should pick it up from the person. The entrusted person will keep all the envelopes until the pick-up date. We will sign the letter of agreement among the researchers, the entrusted person, and all of you.

Record Sheet -Game 2

Please indicate your choice by ticking (v) either column A or Column B.

	Plan A	Plan B	A	B
1	A: receive 20,000 VND today	B: receive 120,000 VND in 1 week		
2	A: receive 40,000 VND today	B: receive 120,000 VND in 1 week		
3	A: receive 60,000 VND today	B: receive 120,000 VND in 1 week		
4	A: receive 80,000 VND today	B: receive 120,000 VND in 1 week		
5	A: receive 100,000 VND today	B: receive 120,000 VND in 1 week		

6	A: receive 20,000 VND today	B: receive 120,000 VND in 1 month		
7	A: receive 40,000 VND today	B: receive 120,000 VND in 1 month		
8	A: receive 60,000 VND today	B: receive 120,000 VND in 1 month		
9	A: receive 80,000 VND today	B: receive 120,000 VND in 1 month		
10	A: receive 100,000 VND today	B: receive 120,000 VND in 1 month		

11	A: receive 20,000 VND today	B: receive 120,000 VND in 3 months		
12	A: receive 40,000 VND today	B: receive 120,000 VND in 3 months		
13	A: receive 60,000 VND today	B: receive 120,000 VND in 3 months		
14	A: receive 80,000 VND today	B: receive 120,000 VND in 3 months		
15	A: receive 100,000 VND today	B: receive 120,000 VND in 3 months		

Please indicate your choice by ticking (v) either column A or Column B.

	Plan A	Plan B	A	B
16	A: receive 50,000 VND today	B: receive 300,000 VND in 1 week		
17	A: receive 100,000 VND today	B: receive 300,000 VND in 1 week		
18	A: receive 150,000 VND today	B: receive 300,000 VND in 1 week		
19	A: receive 200,000 VND today	B: receive 300,000 VND in 1 week		
20	A: receive 250,000 VND today	B: receive 300,000 VND in 1 week		

21	A: receive 50,000 VND today	B: receive 300,000 VND in 1 month		
22	A: receive 100,000 VND today	B: receive 300,000 VND in 1 month		
23	A: receive 150,000 VND today	B: receive 300,000 VND in 1 month		
24	A: receive 200,000 VND today	B: receive 300,000 VND in 1 month		
25	A: receive 250,000 VND today	B: receive 300,000 VND in 1 month		

26	A: receive 50,000 VND today	B: receive 300,000 VND in 3 months		
27	A: receive 100,000 VND today	B: receive 300,000 VND in 3 months		
28	A: receive 150,000 VND today	B: receive 300,000 VND in 3 months		
29	A: receive 200,000 VND today	B: receive 300,000 VND in 3 months		
30	A: receive 250,000 VND today	B: receive 300,000 VND in 3 months		

Please indicate your choice by ticking (v) either column A or Column B.

	Plan A	Plan B	A	B
31	A: receive 5,000 VND today	B: receive 30,000 VND in 1 week		
32	A: receive 10,000 VND today	B: receive 30,000 VND in 1 week		
33	A: receive 15,000 VND today	B: receive 30,000 VND in 1 week		
34	A: receive 20,000 VND today	B: receive 30,000 VND in 1 week		
35	A: receive 25,000 VND today	B: receive 30,000 VND in 1 week		

36	A: receive 5,000 VND today	B: receive 30,000 VND in 1 month		
37	A: receive 10,000 VND today	B: receive 30,000 VND in 1 month		

38	A: receive 15,000 VND today	B: receive 30,000 VND in 1 month		
39	A: receive 20,000 VND today	B: receive 30,000 VND in 1 month		
40	A: receive 25,000 VND today	B: receive 30,000 VND in 1 month		

41	A: receive 5,000 VND today	B: receive 30,000 VND in 3 months		
42	A: receive 10,000 VND today	B: receive 30,000 VND in 3 months		
43	A: receive 15,000 VND today	B: receive 30,000 VND in 3 months		
44	A: receive 20,000 VND today	B: receive 30,000 VND in 3 months		
45	A: receive 25,000 VND today	B: receive 30,000 VND in 3 months		

Please indicate your choice by ticking (v) either column A or Column B.

	Plan A	Plan B	A	B
46	A: receive 40,000 VND today	B: receive 240,000 VND in 3 days		
47	A: receive 80,000 VND today	B: receive 240,000 VND in 3 days		
48	A: receive 120,000 VND today	B: receive 240,000 VND in 3 days		
49	A: receive 160,000 VND today	B: receive 240,000 VND in 3 days		
50	A: receive 200,000 VND today	B: receive 240,000 VND in 3 days		

51	A: receive 40,000 VND today	B: receive 240,000 VND in 2 weeks		
52	A: receive 80,000 VND today	B: receive 240,000 VND in 2 weeks		
53	A: receive 120,000 VND today	B: receive 240,000 VND in 2 weeks		
54	A: receive 160,000 VND today	B: receive 240,000 VND in 2 weeks		
55	A: receive 200,000 VND today	B: receive 240,000 VND in 2 weeks		

56	A: receive 40,000 VND today	B: receive 240,000 VND in 2 months		
57	A: receive 80,000 VND today	B: receive 240,000 VND in 2 months		
58	A: receive 120,000 VND today	B: receive 240,000 VND in 2 months		
59	A: receive 160,000 VND today	B: receive 240,000 VND in 2 months		
60	A: receive 200,000 VND today	B: receive 240,000 VND in 2 months		

Please indicate your choice by ticking (v) either column A or Column B.

	Plan A	Plan B	A	B
61	A: receive 10,000 VND today	B: receive 60,000 VND in 3 days		
62	A: receive 20,000 VND today	B: receive 60,000 VND in 3 days		
63	A: receive 30,000 VND today	B: receive 60,000 VND in 3 days		
64	A: receive 40,000 VND today	B: receive 60,000 VND in 3 days		
65	A: receive 50,000 VND today	B: receive 60,000 VND in 3 days		

66	A: receive 10,000 VND today	B: receive 60,000 VND in 2 weeks		
67	A: receive 20,000 VND today	B: receive 60,000 VND in 2 weeks		
68	A: receive 30,000 VND today	B: receive 60,000 VND in 2 weeks		
69	A: receive 40,000 VND today	B: receive 60,000 VND in 2 weeks		
70	A: receive 50,000 VND today	B: receive 60,000 VND in 2 weeks		

71	A: receive 10,000 VND today	B: receive 60,000 VND in 2 months		
72	A: receive 20,000 VND today	B: receive 60,000 VND in 2 months		
73	A: receive 30,000 VND today	B: receive 60,000 VND in 2 months		
74	A: receive 40,000 VND today	B: receive 60,000 VND in 2 months		
75	A: receive 50,000 VND today	B: receive 60,000 VND in 2 months		

Game 3 (Trust game)

Instruction

This game is played by pairs of individuals. Each pair is made up of a Player 1 and a Player 2. Each of you will play this game with some other participant. However, none of you will know who you are playing with.

Each of you have a name tag in either red or while color. At the end of this experiment we will randomly toss a coin. If it is the head then anyone with red name tag will be Player 1 and anyone with white name tag will be Player 2. If it is tail then anyone with red name tag will be Player 2 and anyone with white name tag will be Player 1.

This is how the game is played:

We will give each of you 20,000VND. You then will make decision based on whether you are Player 1 or Player 2. Please notice that you won't know what kind of Player you are until all of you have made decision, thus, pay attention to the decision you make for both the role of Player 1 and Player 2 you play:

You play the role of Player 1:

You have the chance to give a portion of 20,000VND to Player 2. You could give 5000VND, 10,000VND, 15,000VND, 20,000VND, or nothing. Whatever amount you decide to give to Player 2 will be tripled before it is passed on to Player 2. Player 2 then has the option of returning any amount of money they have to Player 1. Player 2 does not have to return any money if he/she does not want to.

You play the role of Player 2:

You are given 20,000VND. In addition to 20,000VND, you will receive some money from Player 1. You must decide how much money you want to send back to Player 1. You may want to refer to Tables 1-3 to make your decisions. However, you can send back any amount of money you want. It does not have to be the same as the ones in the Tables 1-3. Or you may send nothing.

How the game is conducted?

Each of you will be given a record sheet. You then make decisions for two different scenarios. In the first scenario you will be Player 1. In the second scenario you will be Player 2. Please note that you don't know whether you will be Player 1 or Player 2 at this moment. If you happen to be Player 1, your pay off will depend on the decision you make for Scenario 1; if you happen to be Player 2, the pay off will depend on your decision for Scenario 2. Thus, make careful decision for both scenarios.

After we collect the record sheets from all participants, we will toss a coin to determine your role of Player 1 or Player 2. If you are Player 1, we will randomly match you with someone who is Player 2. Your payoff will depend on the decision you make for Scenario 1 in which you play the role of Player 1 as well as decision of Player 2 on Scenario 2 in which she or he plays the role of Player 2. If you are Player 2, we will randomly match you with someone who is Player 1. Your payoff will depend on the decision you make for Scenario 2 in which you play the role of Player 2 as well as decision of Player 1 on Scenario 1 in which she or he plays the role of Player 1.

Now, we will go over some examples. We prepared Tables 1-3 to help you understand the game.

Example 1

Please look at Table 1. Imagine that Player 1 gives 5,000VND to Player 2. We will triple this amount, so Player 2 gets 15,000 VND (3 times 5,000 equals 15,000) in addition to their initial 20,000VND. At this point, Player 1 has 15,000VND (20,000 minus 5,000) and Player 2 has 35,000VND (20,000 plus 15,000).

Now Player 2 has to decide whether they wish to give anything back to Player 1, and if so, how much.

If Player 2 returns nothing to Player 1, then Player 1 will make 15,000 VND, and Player 2 will make 35,000 VND in this game.

Suppose Player 2 decides to return 10,000 VND to Player 1. Then, Player 1 will make 25,000 VND (15,000 plus 10,000), and Player 2 will make 25,000 VND (35,000 minus 10,000).

In the real game, Player 1 could give only 5,000 VND, 10,000VND, 20,000VND, or nothing. They cannot choose any other amount. Player 2 can send back any amount of money they want or nothing. It does not have to be the same as the ones shown in Tables 1-3. Tables 1-3 are given just as references for Player 2.

Please complete the following exercises by filling the parentheses ().

You may want to use Tables 1-3 to help you solve them. If you have questions or do not understand the game, please let us know. We are very happy to help you. When you finish all 4 exercises, please raise your hand.

Exercise 1.

Imagine Player 1 gives 10,000VND to Player 2.

We will triple this amount, so Player 2 gets () VND in addition to their initial 20,000VND.

At this point, Player 1 has () VND
and Player 2 has () VND.

Suppose Player 2 decides to return 10,000VND to Player 1.

Player 1 will earn () VND and Player 2 will earn () VND.

Exercise 2.

Imagine Player 1 gives 15,000VND to Player 2.

We will triple this amount, so Player 2 gets () VND in addition to their initial 20,000VND.

At this point, Player 1 has () VND
and Player 2 has () VND.

Suppose Player 2 decides to return 25,000VND to Player 1.

Player 1 will earn () VND and Player 2 will earn () VND.

Exercise 3.

Imagine Player 1 gives 5,000VND to Player 2.

We will triple this amount, so Player 2 gets () VND in addition to their initial 20,000VND.

At this point, Player 1 has () VND
and Player 2 has () VND.

Suppose Player 2 decides to return 5,000VND to Player 1.

Player 1 will earn () VND and Player 2 will earn () VND.

Exercise 4.

Imagine Player 1 gives 20,000VND to Player 2.

Your decisions will remain confidential.

Trust game-Table 1

Suppose you send 5,000VND to Player 2.

Then, Player 2 will receive 15,000VND.

	You earn	Player 2 earns	Total
If Player 2 returns nothing,	15,000	35,000	50,000
If Player 2 returns 5,000VND,	20,000	30,000	50,000
If Player 2 returns 10,000VND,	25,000	25,000	50,000
If Player 2 returns 15,000VND,	30,000	20,000	50,000

Trust game-Table 2

Suppose you send 10,000VND to Player 2.

Then, Player 2 will receive 30,000VND.

	You earn	Player 2 earns	Total
If Player 2 returns nothing,	10,000	50,000	60,000
If Player 2 returns 5,000VND,	15,000	45,000	60,000
If Player 2 returns 10,000VND,	20,000	40,000	60,000
If Player 2 returns 15,000VND,	25,000	35,000	60,000
If Player 2 returns 20,000VND,	30,000	30,000	60,000
If Player 2 returns 25,000VND,	35,000	25,000	60,000
If Player 2 returns 30,000VND,	40,000	20,000	60,000

Trust game-Table 3

Suppose you send 20,000VND to Player 2.

Then, Player 2 will receive 60,000VND.

	You earn	Player 2 earns	Total
If Player 2 returns nothing,	0	80,000	80,000
If Player 2 returns 10,000VND,	10,000	70,000	80,000
If Player 2 returns 20,000VND,	20,000	60,000	80,000
If Player 2 returns 30,000VND,	30,000	50,000	80,000
If Player 2 returns 40,000VND,	40,000	40,000	80,000
If Player 2 returns 50,000VND,	50,000	30,000	80,000
If Player 2 returns 60,000VND,	60,000	20,000	80,000

Appendix 2.2 Post-experiment questionnaire

1. How old are you? () years old
2. What is your gender? ()
3. What is your ethnicity? ()
4. How many years of schooling have you completed? () years
5. Where do you live? Village ()
Commune ()
6. How long have you lived in this commune? () years
7. Prior to living here, where did you stay? Village ()
Commune ()
How many years () years
8. There are ____ people participating in this session. How many of them do you know by their names? () people
9. Please double-circle (⊙) your main job, and circle (○) your secondary job below.
 - a. Not working (taking care of children/retired/studying) (Self-Employed)
 - b. Agriculture
 - c. Livestock
 - d. Aquaculture
 - e. Trade/sales on street
 - f. Non-agricultural Family business (Hired)
 - g. Working for Public Organizations (such as local government, policy, school)
 - h. Working for private enterprises
 - i. Working for other households / casual work
10. Generally speaking, would you say that people in your village can be trusted or that you can't be too careful? (Please circle one)
 - a. Can trust
 - b. Cannot trust
 - c. Depends
11. Would you say that most of the time people in your village try to be helpful, or that they are mostly just looking out for themselves? (Please circle one)
 - a. Helpful
 - b. Lookout for self
 - c. Depends
12. Do you think people in your village would try to take advantage of you if they got a chance, or would they try to be fair? (Please circle one)
 - a. Take advantage
 - b. Fair
 - c. Depends
13. How do you save money? (Please circle all relevant categories)
 - a. In Cash
 - b. Gold
 - c. Land
 - d. Bank Account
 - e. ROSCA
 - f. Livestock
 - g. I don't save
 - h. Other (Specify)
14. Have you been provided with loan in the last 12 months?
 - a. Yes (please circle all the applicable categories)
 - Bank for the poor
 - Bank for agriculture and rural development
 - Other banks
 - National employment fund
 - Mass credit associations
 - Socio-political organizations

- Private moneylenders
 - Relative, friends
- b. No

Appendix 2.3 Descriptive statistics of trust game by region

	All	North	South	Mean test
	Mean value			
Amount sent to Player 2				
All	9.8	9.4	10.3	NS
Male	10.4	10.7	10.2	NS
Female	9.2	8.5	10.6	*
Expectation from Player 2				
All	16.7	14.0	19.6	***
Male	18.6	17.3	19.5	NS
Female	14.4	11.6	19.8	***
Amount returned if Player 1 send 0				
All	5.6	5.9	5.2	NS
Male	5.8	7.0	4.9	**
Female	5.3	5.1	5.8	NS
Amount returned if Player 1 send 5				
All	10.8	9.7	11.9	**
Male	11.8	10.9	12.4	NS
Female	9.5	8.8	11.0	*
Amount returned if Player 1 send 10				
All	16.6	14	19	***
Male	18.3	16.4	19.6	*
Female	14.2	12.3	18.0	***
Amount returned if Player 1 send 15				
All	20.8	16	25	***
Male	23.3	16.7	26.3	***
Female	17.8	15.3	21.8	***
Amount returned if Player 1 send 20				
All	25.5	20.9	30.6	***
Male	27.9	24.1	30.6	**
Female	22.7	18.7	30.6	***
Average amount returned as % of amount sent *3				
All	0.50	0.40	0.58	***
Male	0.55	0.45	0.59	***
Female	0.43	0.36	0.54	***
Having returned more than having received from A *3 (=1)				
All	0.03	0	0.05	*

Appendix 2.4 Quantities and percentages conditional on the amount sent in the trust game

Amount sent	Amount received	Average returned	Return as proportion of amount sent *3 (%)	Amount returned more than amount being sent*3(=1) (mean value)
0	0	5.6	-	0.73
5	15	10.8	72%	0.33
10	30	16.5	55%	0.09
15	45	20.8	46%	0.03
20	60	25.5	43%	0.02

Appendix 2.5 Switching point (question) in Series 1 and 2, and the ranges of σ (parameter for the curvature of power value function)

Series 2	Switching question in Series 1												
	1	2		3		4		5		6		7	
	Lower bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound
1	1.4	1.33		1.27		1.21		1.15		1.05		0.97	
2	1.3	1.23	1.39	1.17	1.3	1.12	1.22	1.06	1.15	0.99	1.09	0.91	1.03
3	1.22	1.16	1.29	1.1	1.21	1.05	1.14	0.99	1.07	0.92	1	0.85	0.94
4	1.16	1.11	1.21	1.05	1.13	1	1.06	0.93	1	0.86	0.94	0.79	0.88
5	1.12	1.05	1.13	0.99	1.05	0.93	1	0.87	0.94	0.8	0.89	0.75	0.83
6	1.04	0.97	1.07	0.91	1.01	0.86	0.96	0.8	0.91	0.74	0.85	0.69	0.8
7	0.96	0.9	1	0.85	0.95	0.8	0.89	0.75	0.84	0.7	0.79	0.65	0.74
8	0.89	0.84	0.95	0.79	0.9	0.74	0.84	0.69	0.79	0.64	0.74	0.6	0.68
9	0.82	0.77	0.88	0.73	0.82	0.68	0.77	0.63	0.73	0.59	0.68	0.54	0.62
10	0.76	0.71	0.81	0.67	0.75	0.62	0.71	0.58	0.66	0.53	0.62	0.49	0.56
11	0.7	0.66	0.74	0.62	0.69	0.57	0.64	0.53	0.6	0.48	0.56	0.44	0.51
12	0.68	0.59	0.67	0.55	0.62	0.51	0.58	0.47	0.54	0.43	0.5	0.38	0.46
13	0.6	0.55	0.6	0.51	0.55	0.47	0.52	0.43	0.48	0.39	0.45	0.35	0.4
14	0.51	0.47	0.55	0.43	0.51	0.39	0.47	0.35	0.43	0.31	0.39	0.28	0.35
Never	0.41		0.47		0.43		0.4		0.37		0.34		0.3

(continue)

Series 2	9		10		11		12		13		14		Never
	Lower bound	Upper bound	Upper bound										
1	0.86		0.79		0.74		0.88		0.6		0.62		0.62
2	0.8	0.9	0.72	0.85	0.66	0.77	0.61	0.71	0.56	0.64	0.5	0.57	0.52
3	0.75	0.83	0.67	0.77	0.62	0.72	0.56	0.66	0.51	0.59	0.46	0.52	0.47
4	0.7	0.77	0.62	0.72	0.57	0.66	0.52	0.61	0.47	0.55	0.42	0.48	0.43
5	0.65	0.73	0.6	0.68	0.55	0.62	0.5	0.57	0.44	0.51	0.39	0.44	0.39
6	0.59	0.67	0.54	0.64	0.49	0.57	0.45	0.53	0.4	0.47	0.35	0.4	0.36
7	0.55	0.62	0.51	0.59	0.46	0.52	0.41	0.48	0.36	0.43	0.32	0.37	0.32
8	0.5	0.57	0.46	0.54	0.41	0.48	0.37	0.44	0.32	0.39	0.28	0.33	0.29
9	0.45	0.52	0.41	0.49	0.36	0.43	0.32	0.4	0.27	0.35	0.23	0.3	0.26
10	0.4	0.47	0.36	0.45	0.32	0.39	0.27	0.36	0.23	0.31	0.19	0.26	0.23
11	0.36	0.42	0.32	0.4	0.28	0.35	0.23	0.32	0.19	0.27	0.16	0.23	0.19
12	0.31	0.37	0.26	0.36	0.24	0.31	0.2	0.27	0.16	0.23	0.13	0.19	0.15
13	0.27	0.33	0.23	0.3	0.2	0.26	0.16	0.22	0.13	0.18	0.1	0.14	0.1
14	0.22	0.28	0.18	0.27	0.16	0.22	0.13	0.19	0.09	0.15	0.05	0.11	0.08
Never		0.24		0.2		0.16		0.13		0.09		0.06	0.04

Appendix 2.6 Switching point (question) in Series 1 and 2, and the ranges of α (probability sensitivity parameter in Prelec's weighting function)

	Switching question in Series 1											7	
	1		2		3		4		5		6		
Series 2	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound	Lower bound	Upper bound
1	0.7	0.65	0.72		0.77		0.83		0.89		0.95		
2	0.64	0.6	0.7	0.67	0.76	0.72	0.8	0.77	0.87	0.83	0.93	0.89	0.98
3	0.59	0.56	0.64	0.61	0.71	0.68	0.76	0.74	0.81	0.79	0.87	0.83	0.94
4	0.54	0.51	0.61	0.58	0.65	0.64	0.7	0.69	0.76	0.74	0.83	0.79	0.88
5	0.51	0.48	0.56	0.55	0.61	0.61	0.67	0.66	0.73	0.7	0.79	0.75	0.83
6	0.47	0.45	0.52	0.5	0.58	0.54	0.63	0.59	0.69	0.65	0.75	0.71	0.8
7	0.42	0.4	0.49	0.45	0.54	0.51	0.59	0.56	0.64	0.61	0.69	0.67	0.74
8	0.39	0.36	0.45	0.42	0.5	0.47	0.55	0.52	0.6	0.57	0.65	0.63	0.7
9	0.34	0.32	0.39	0.38	0.44	0.43	0.49	0.48	0.54	0.53	0.59	0.58	0.65
10	0.29	0.26	0.35	0.31	0.39	0.37	0.44	0.43	0.48	0.48	0.54	0.54	0.59
11	0.26	0.22	0.31	0.27	0.36	0.32	0.4	0.37	0.44	0.43	0.49	0.49	0.54
12	0.21	0.19	0.26	0.24	0.32	0.28	0.36	0.31	0.4	0.37	0.44	0.43	0.49
13	0.15	0.15	0.2	0.2	0.25	0.23	0.31	0.27	0.35	0.34	0.4	0.4	0.43
14	0.11	0.07	0.16	0.13	0.21	0.19	0.27	0.23	0.3	0.26	0.35	0.32	0.4
Never	0.07		0.12		0.15		0.19		0.25		0.3		0.33

(continue)

Series 2	9		10		11		12		13		14		Never
	Lower bound	Upper bound	Lower bound										
1	1.06		1.1		1.18		1.23		1.28		1.35		1.41
2	1.01	1.09	1.05	1.14	1.12	1.19	1.16	1.26	1.21	1.32	1.29	1.37	1.35
3	0.97	1.03	1	1.08	1.06	1.13	1.11	1.21	1.16	1.26	1.22	1.31	1.28
4	0.92	0.97	0.95	1.03	1.02	1.08	1.07	1.15	1.15	1.21	1.17	1.26	1.22
5	0.88	0.93	0.91	0.98	0.98	1.02	1.03	1.09	1.09	1.16	1.15	1.21	1.2
6	0.83	0.9	0.86	0.95	0.93	0.97	0.97	1.05	1.03	1.1	1.09	1.14	1.14
7	0.78	0.84	0.81	0.89	0.87	0.94	0.91	1	0.97	1.05	1.03	1.1	1.07
8	0.73	0.8	0.76	0.86	0.82	0.91	0.86	0.96	0.92	1.02	0.97	1.06	1.03
9	0.68	0.75	0.7	0.81	0.76	0.85	0.81	0.9	0.87	0.96	0.93	0.99	0.99
10	0.63	0.7	0.65	0.76	0.71	0.79	0.77	0.84	0.83	0.88	0.89	0.93	0.91
11	0.58	0.65	0.61	0.7	0.67	0.73	0.73	0.77	0.77	0.83	0.81	0.89	0.85
12	0.53	0.59	0.55	0.64	0.62	0.67	0.67	0.73	0.7	0.79	0.74	0.83	0.81
13	0.47	0.54	0.52	0.58	0.58	0.62	0.6	0.68	0.65	0.74	0.72	0.75	0.75
14	0.42	0.48	0.45	0.52	0.52	0.59	0.54	0.63	0.59	0.66	0.65	0.72	0.67
Never		0.42		0.45		0.52		0.56		0.59		0.65	0.6

III Left-behind children and return decisions of rural migrants in China²⁸

3.1 Introduction

Economic development is often combined with the transfer of a large proportion of workers from the rural-based traditional agricultural sector to the urban industrial sector. China has been witnessing such a massive internal transfer since the mid-80s (Li, 2010). The latest official figures from the Sixth National Population Census released in April 2011 estimate the total number of rural migrant workers at 261.4 million in 2010²⁹. Such large-scale internal migration results from a series of institutional and structural changes along with rapid industrialization. Before the reforms started in 1978, labor mobility was strictly controlled. Since then, the government policy has been loosened up, moving from permitting rural labor mobility, to guiding rural labor mobility and then to encouraging rural labor mobility (Wang and Cai, 2009). Thanks to the relaxation of various regulations, people are now free to move to places they want (Zhang, 2010), and to decide on the length of their stay.

Yet, while labor mobility in China has dramatically increased over time, temporary migration dominates population movements that are shaped by the strong institutional constraint imposed by the household registration system (*Hukou*). Formally established in 1958, this system requires every Chinese citizen to be registered according to her place of permanent residence and occupation (agricultural *versus* non-agricultural)³⁰. As argued by Knight and Song (2005, p. 17), it functions as a “de facto internal passport

²⁸ This chapter is co-authored with Sylvie Démurger (GATE Lyon Saint-Etienne).

²⁹ In Chinese statistics, rural migrants are persons working and living outside the town of their household registration for a period over six months. Out of the total figure, 40 million were working within their municipality or prefecture-level city and 221.4 million further away from home. Compared to the 2000 Fifth National Population Census, the population in the second category rose by 81 percent over the 10-year period.

http://www.stats.gov.cn/english/newsandcomingevents/t20110428_402722244.htm.

³⁰ See Chan and Buckingham (2008) for a detailed description of the household registration system, both historically and in light of the recent waves of reform.

system” that confers different legal rights to residents. In villages, residents are given rights to land for farming and housing while in cities, residents are given access to urban jobs and rights to a package of welfare and social benefits. Though the system has been reformed in terms of labor mobility, access to public services remains deeply tied to the household registration place, to the disadvantage of migrants. This is notably the case for children education. As the education budget for the nine-year compulsory education in China is allocated through local governments and is not transferable, urban schools with a limited education budget are reluctant to accept rural migrant children, unless their parents compensate for the additional cost. Hence, though rural migrant children are not officially denied access to the urban public school system, parents are requested to pay “education endorsement fees” (*jiaoyu zanzhu fei*) for children attending school in places other than their place of household registration, and the amount of such fees can be prohibitive for poor migrant families (Lai and Chen, 2010). At the non-compulsory senior high school level, additional registration place-based constraints also apply since the education policy requires students to take the university/college entrance examination in their *hukou* registration area³¹. A direct consequence of such administrative and financial barriers is that migrant children are often left behind in rural home regions as long as they are enrolled in the education system, and looked after either by one parent or by their grandparents or relatives (including family, neighbors or friends).

As more and more people are involved in internal migration, the number of “left-behind” children (*liushou ertong*) is also increasing dramatically. According to the All China Women’s Federation, there were a total of 58 million left-behind children in rural China in 2009, of which more than 40 million were below the age of 14³². Together with another 19 million living with their migrant parents in cities, the two groups account for about one quarter of all children in China (Chan, 2009). As compared to 2006, the number of left-behind children in 2009 is almost triple³³. Data

³¹ The examination system is not uniform across China, and its implementation varies greatly at a provincial level. In 1987, Shanghai municipality pioneered in designing its own university entrance examination. Since then, more and more provinces have participated into this independent decision system. Up to 2005, 14 provinces and municipalities had independently decided the content of their university entrance examination.

(http://www.china.com.cn/education/zhuanti/hfgk30/2007-05/29/content_8316780.htm) (in Chinese).

³² http://www.gov.cn/jrzq/2009-05/27/content_1325494.htm. (in Chinese).

³³ <http://english.peopledaily.com.cn/90001/90782/6818318.html>.

gathered as part of the Rural–Urban Migration in China and Indonesia (RUMiCI) project confirm that many migrant children grow up apart from their parents: in 2007, about 60% of the migrant children aged 16 and below were left behind in the rural hometown (Gong *et al.*, 2008).

As pointed out by Rossi (2008), leaving children behind is a source of potentially high “social cost of migration” although migration may also bring benefits to the left-behind family through remittance transfers that relax budget constraint and thereby increase health and education opportunities (Cox Edwards and Ureta, 2003; Rapoport and Docquier, 2005). Migration can affect children in various dimensions. Children who grow up either with a single parent or with grand-parents or other relatives may suffer from a lack of parental care that adversely affects their educational outcomes (Frisancho Robles and Oropesa, 2011; McKenzie and Rapoport, 2010). Moreover, the break-up of the family unit can create material and psychological insecurity that affects the well-being of children left behind. As for China, there is small body of literature that examines left-behind children well-being by focusing on different facets of living arrangements’ outcomes such as school performance and health condition³⁴. Mixed results have been found regarding the effect of migration on children school performance. Using data from the 2006 China Health and Nutrition Survey (CHNS), Lee (2011) shows that migrant children are worse off in terms of school enrollment and years of schooling as compared to children whose parents do not migrate. Using the 2007 RUMiCI data, Gong *et al.* (2008) compare school performance of migrant children who live in cities with those left-behind and find that the latter perform better. On the other hand, using survey data from 36 primary schools in Shaanxi province in 2006, Chen *et al.* (2009) do not find any significant negative effect of migration on school performance. With respect to health outcomes, Gao *et al.* (2010) find that parental migration is a risk factor for unhealthy behaviors amongst adolescent school children in rural China. Gong *et al.* (2008) report better conditions for migrant children living with their parents in cities as compared to children left behind. Finally, Kong and Meng (2010) find that children of migrants (either left-behind or in cities) are less likely to have good education and health outcomes as compared to rural non-migrant

³⁴ The Chinese-language literature is more voluminous on these issues than the English-language literature. For additional references in Chinese, see Chen *et al.* (2009) and Gao *et al.* (2010).

children and urban children.

As family ties in the Chinese society remain very strong, there are good reasons to expect that concerns about the welfare of the left-behind family may affect migration (and return) decisions. Accounting for the social cost motive of leaving behind children in the determination of the length of rural-urban migration in China is of importance, not only from an academic point of view but also in terms of policy implication. As an example, the recent growing tension about “migrant labor shortage” in China’s coastal cities, where booming small and private enterprises have absorbed a large quantity of migrants from western China has put forward the importance of family factors in explaining the labor shortage. Hence, anecdotal evidence from interviews conducted by the *Guangzhou Daily* in February 2011³⁵ indicates that left-behind children are a major reason for migrants not to go back to cities after the Lunar New Year holiday. Moreover, as mentioned above, the *hukou* system is considered as an important reason for the transient nature of migration. Evaluating the role of children on individual’s decision on migration duration can thus help bringing up a better understanding of the multidimensional impact of the *hukou* system on migration.

The overall goal of this chapter is to explore the role of children as a motive for return migration in China. To meet this goal, we first present a simple illustrative model of migration duration (or intentions to return) based on Dustmann (2003b), which accounts for left-behind children through parents’ altruistic behavior. The discussion also points to the potential differentiated impact of children on return decisions depending on their age and their gender. Then, using a unique data set collected in 2008, we provide an empirical test based on two complementary approaches. We first use a duration model to estimate the determinants of the length of migration for both on-going migrants with incomplete migration spells and return migrants with complete migration spells. Second, we apply a binary Probit model to study the return intentions of on-going migrants. Both models find consistent results regarding the role of left-behind children as a significant motive for return.

This chapter contributes to the existing literature at least in two ways. First, although

³⁵ <http://media.workercn.cn/c/2011/04/06/110406103941721910878.html> (in Chinese).

children may be important stakeholders in the migration phenomenon, little attention has been given to children in the analysis of migration decisions. A few exceptions are Djajic (2008) and Dustmann (2003b). To our knowledge, this study is the first to explore the process that links the decision on migration duration and return intentions to concerns about left-behind children in China. By examining the determinants of the length of migration, this chapter also contributes to fulfilling the lack of research on migration duration in China. Although the length of migration is an important indicator of the flow and the scale of migration as well as of the economic effects on both receiving and sending regions, it has received limited attention in the migration literature³⁶. As pointed out by Dustmann (2003a), “we know little about the determinants of migrant’s duration abroad”. As far as China is concerned, the issue has a strong political importance because there is a fear that, if cities cannot adequately absorb those migrants, it may eventually lead to social unrest. Yet, up to now, no research has specifically addressed this question for China.

Second, the dearth of data is an important limit to the study of the interaction between left-behind children and migration duration. The dataset used in this chapter offers recent and rich information including complete and incomplete length of migration duration, return intentions of on-going migrants as well as detailed individual and household characteristics. This enables us to offer a richer analysis on how left-behind children influence return migration in China.

The chapter proceeds as follows. Section 2 describes the study area and provides descriptive statistics on migration duration and intentions to return. Section 3 presents a simple illustrative model. Section 4 examines the determinants of migration duration with a duration model. Section 5 investigates the determinants of return intentions with a Probit model. Section 6 concludes.

³⁶ One may yet refer to Carrión-Flores (2006), Djajic (2008), Dustmann and Kirchkamp (2002), Dustmann (2003a; 2003b), Kirdar (2010), Lindstrom (1996), Schroll (2009) and Stark *et al.* (1997).

3.2 Study area

3.2.1 Migration in Wuwei County

The data used in this chapter come from a series of rural households' interviews conducted in Wuwei County, Anhui province, from September to November 2008. Wuwei County was selected because of its relatively long labor force export history, the county being famous for sending out domestic service female workers since the beginning of the 1980s. According to local official statistics, at the end of 2006, individuals working outside the county accounted for 43 percent of the entire rural labor force in Wuwei County (Wuwei County Government, 2007). Together with a large-scale migration, Wuwei County is also characterized by a sizable number of left-behind children. A recent survey indicates a total number of about 120,000 left-behind children for a total of 400,000 migrants in the county (Mei, 2009). A detailed investigation conducted by the County Women's Federation in Hedian town (one of the 23 towns of the county) shows that 64.7% of the students at school in the town are left-behind children. Among them, 76.7% have both parents away. In 42.8% of the cases, grand-parents are taking care of the left-behind child, and in the other 56.6%, relatives or friends are taking care of the left-behind child (with 0.6% reported to be left alone with no guardian). The frequency of the parents' visits are once a year for 58.2% of the cases, once every two years for 27.1% and less than once every two years for 14.7% (Mei, 2009).

Four towns were chosen for the survey: Gaogou, Liudu, Dougou and Tanggou. Three administrative villages in each town and twenty households on average in each village were randomly selected. A total of 239 households were interviewed, providing information on 969 individuals. The data were collected in a form of a questionnaire, consisting of a series of questions about both family and individual members. Individual information includes personal characteristics (e.g., age, sex, education, etc.), actual working position and incomes. For those having a migration and/or return migration history, their working experience during and after migration was also recorded. A separate administrative village survey was also conducted in each village to collect information about the general economic, geographic as well as demographic conditions in the locality.

The sample used here is composed of 284 individuals having a migration and/or return migration history, with 124 return migrants³⁷ and 160 on-going migrants. This primary data set is unique in the sense that it contains detailed information both on the complete length of migration for each return migrant and the incomplete length of migration for on-going migrants. For return migrants, the length of migration duration is defined from the year of an individual's first time migration up to the year of her last return. For on-going migrants, the length of migration duration is calculated from the year of an individual's first time migration until the year of the survey.

Moreover, for on-going migrants, the survey provides information about return intentions. Indeed, households were asked whether on-going individual migrants wish to remain permanently in the destination area or whether they wish to return home at some point in the future. If on-going migrants were absent from home at the time of the survey, answers were given by family members (e.g. household head or spouse) who also answered other questions in the questionnaire. Out of the 160 on-going migrants, we obtained clear information on their return intentions for 117 individuals and we construct a dummy variable that equals one for those who declared intending to return soon or in the future, and 0 for those declaring to have no intention to return³⁸.

Information gathered during the survey gives some hints on the importance of the left-behind children phenomenon in the area as well as on its possible relation with return decision. Most school-age children (76.4%) are found to be living in the local town or village, and only 2.5% are living with their migrant parents in cities. A small part of children (16%) are living alone in other places outside the county: this is mostly the case for students of above high school level who pursue studies in other regions. Though our data did not directly record the situation for pre-school children (under the age of 6), pre-school children are facing a similar situation of separation from their parents. The survey also collected information on the reasons for return migration, with multiple answers allowed. Out of all the reasons provided, 25% were related to children,

³⁷ Return migrants are individuals who are currently residing and working in the county, with at least 6 months migration working experience outside the county.

³⁸ The 43 out-migrants for whom we do not have clear intention to return or to settle in cities are kept in the sample used in the migration duration analysis, but excluded from the sample used in the return intention analysis.

either to “look after children” or “for children’s education”³⁹.

3.2.2 Data description

As shown in Table 3.1, the mean length of migration for the overall sample is 6.81 years, and 32% of migrants have experienced more than 8 years of migration⁴⁰. The mean lengths of stay for both on-going migrants and return migrants are fairly close, though a bit longer for the former (6.87 years vs. 6.74 years). The pairwise correlation of the length of migration with the year of migration is negative and significant for both return migrants and on-going migrants: earlier migrants are more likely to have longer migration duration than more recent migrants⁴¹.

Table 3.1 Migration spells statistics

	Average migration Spell	0-1 year	1-3 years	3-5 years Percentage	5-8 years	≥8 years
On-going migrants	6.87 (5.57)	13%	19%	19%	18%	30%
Return migrants	6.74 (5.51)	15%	25%	15%	12%	33%
All	6.81 (5.54)	14%	22%	18%	15%	32%
Observations	284	39	62	50	43	90

Source: Wuwei 2008 Survey

Notes: Standard deviation in parenthesis.

Table 3.2 presents descriptive statistics for the overall sample as well as for return migrants and for out-migrants who intend to return. For the overall sample of migrants, the average age is 34 years, the average education level is 6.8 years, and 72% are married. In terms of household characteristics, the average size of the migrant household is 4.7; 53.9% of migrants have children under the age of 16, 28.2% have

³⁹ In some instances, parents even reported returning “for the sake of children’s education because of the *hukou*”.

⁴⁰ This average duration of migration is consistent with larger urban-based migrant surveys findings, including the 2007 RUMiCI survey, which reports an average duration of 7 to 8 years for on-going migrants. See Gong *et al.* (2008) for a comparison of all survey data available for China.

⁴¹ The correlation coefficients are -0.65 for the whole population, -0.95 for out-migrants, and -0.52 for return migrants. All the correlations are statistically significant at 1 percent.

children under the age of 6, 36.3% have sons (under the age of 16), and 29.2% have daughters (under the age of 16). The average number of children under the age of 16 per migrant is 0.75, with 0.41 sons and 0.35 daughters. Interestingly, when it comes to children under the age of 6 (0.32 per migrant), the gender composition is more equal, with 0.16 sons and 0.17 daughters.

Table 3.2 Descriptive statistics

Mean value or %	Full sample	Return migrants	Out-migrants with intention to return
Age (years)	34.23	40.02	34.29
Female (=1)	0.415	0.411	0.353
Married (=1)	0.722	0.887	0.824
Education (years)	6.750	5.903	6.382
Household size	4.673	4.250	5.147
Having at least one child less than 16 (=1)	0.539	0.565	0.676
Having at least a son less than 16 (=1)	0.363	0.347	0.529
Having at least a daughter less than 16 (=1)	0.292	0.298	0.353
Having at least one child less than 6 (=1)	0.282	0.234	0.412
Having at least a son less than 6 (=1)	0.130	0.105	0.118
Having at least a daughter less than 6 (=1)	0.151	0.129	0.294
# children less than 16	0.754	0.710	1.088
# sons less than 16	0.405	0.371	0.559
# daughters less than 16	0.349	0.339	0.529
# children less than 6	0.324	0.266	0.441
# sons less than 6	0.158	0.129	0.118
# daughters less than 6	0.165	0.137	0.324
Having return migrants and/or migrants in the household (=1)	0.630	0.556	0.647
# other out-migrants in the household	0.975	0.782	1.294
# return migrants and migrants in the household	1.447	1.315	1.706
# return migrants and migrants in the village	28.30	27.94	26.41
Age at first migration (years)	24.11	26.31	23.88
Length of stay (years)	6.815	6.742	9.711
Occupation before return (wage worker=1)	0.782	0.685	0.765
Average rural per capita annual net income (2004-2008) (Yuan)	3628.7	3775.9	3727.2
Observations	284	124	34

Source: Wuwei 2008 Survey

Notes: Some averages are calculated over a smaller number of observations because of missing values. We only report the total number of observations for reference.

Regarding the sub-sample of return migrants, they are significantly much older and

more likely to be married than the out-migrant population⁴². Family characteristics indicate that return migrants have a household size significantly smaller than out-migrants, with significantly fewer young children (under the age of 6). No significant difference is found for children under the age of 16, or for the gender composition of children, whatever their age.

Regarding the sub-sample of out-migrants who intend to return, an interesting finding is that while their individual characteristics do not significantly differ from the sample population⁴³, there are a number of significant differences on family composition. The household size is significantly higher. They have more children of both sex, more pre-school children (<6), and more daughters under the age of 6 than both the sample population and other out-migrants. Interestingly, 67.6% of out-migrants who intend to return have at least one child (as compared to the sample mean of 53.9%), and 52.9% have at least one son, against 36.3% for the whole sample. Differences are even more pronounced for pre-school children since 41.2% of out-migrants who intend to return have a pre-school child (against 28.2% for the whole sample), but the gender difference now falls on girls (29.4% have a pre-school daughter against 15.1% for the whole sample).

3.3 A simple model of return decision with left-behind children

Return migration can be considered as part of a lifetime utility maximization plan with given budget (and liquidity) constraints (Borjas and Bratsberg, 1996). In the existing literature, the return motives notably include location preferences with a higher marginal utility of consumption in the area of origin (Djajic and Milbourne, 1988), a higher purchasing power of the destination area currency at home (Djajic, 1989; Stark *et al.*, 1997) and higher returns to human capital accumulated in the destination area at home (Dustmann, 2001; Dustmann *et al.*, 2011). However, as highlighted by Dustmann (2003b) and Djajic (2008), the decision to return and the optimal time of return can also

⁴² The comparison between return migrants and out-migrants (whatever their intentions in terms of return) is based on mean tests not reported here.

⁴³ However, when only compared to other out-migrants, those who intend to return are older, more likely to be married and less educated.

be influenced by altruistic motives of parents towards their offspring in the household. Hence, the migration behavior, and the decision to return, may be driven not only by individual life-cycle consideration, but also by dynastic motives such as offspring's welfare in the future⁴⁴. Emphasizing the family unit rather than the individual migrant makes sense in rural China where family ties are strong and may be important components in explaining individual decisions. Moreover, with migration patterns shaped by the household registration system (*hukou*) that does not entitle rural migrants to urban benefits and leaves most children behind, such approach seems the most relevant.

The simple model presented below is meant to be illustrative of the conjectured influence of left-behind children on return migration. It builds on Dustmann (2003b) and includes a number of alterations to account for Chinese specific features. First, we assume that the parent migrates alone and leaves behind her child. Second, since we are interested in school-age or pre-school children in the home village, we also assume that the child does not work in the second period. Given these two assumptions, the proposed model captures the situation of a family unit composed of a worker engaged in migration (the parent migrant) and a left-behind child.

We consider two periods. In period 1, the parent works and lives in a city, while her child lives in the countryside and is subsidized by the parent. In period 2, the parent may decide to return or stay in city. The parent decides about her own consumption in periods 1 and 2, as well as the child's consumption in periods 1 and 2. Since the child is not assumed to work in period 2, the altruism of the parent takes place through income transfer to the child in period 1, and through daily care (in case of return) or income transfer (in case of settlement in city) in period 2. As in Dustmann (2003b), the return decision is taken by simply comparing lifetime welfare in the two locations.

The utility functions of the parent are supposed to take the usual logarithmic form. Period 1 utility function U^1 is given by:

⁴⁴ Considering the household, rather than the individual, as the most appropriate decision-making unit in return migration falls in the line of the "New Economics of Labor Migration" (NELM) literature that explicitly integrates migration decision into a household strategy (Taylor, 1999).

$$U^1(c^1, k^1) = \ln(c^1) + \gamma \ln(k^1), \quad (1)$$

where c^1 is the consumption of the migrant parent, k^1 is the consumption of the left-behind child and the parameter γ (assumed positive) is the altruism weight.

Period 2 utility function U^{2j} depends on the location choice of the migrant: settled in city ($j=M$) or returned home ($j=R$), and is given by:

$$U^{2j}(c^{2j}, k^{2j}) = \ln(c^{2j} a^j) + \gamma \ln(k^{2j} b^j), \quad (2)$$

where a^j and b^j are preference parameters. In particular, $a^R > a^M$ and $b^R > b^M$ reflect a location preference of the migrant for her home village in terms of both her own consumption (a) and her offspring's consumption (b).

Under the simplifying assumption of no discounting, the total utility function U of the parent can be simply expressed as follows:

$$U = \ln(c^1) + \gamma \ln(k^1) + (1-h)[\ln(c^{2M} a^M) + \gamma \ln(k^{2M} b^M)] + h[\ln(c^{2R} a^R) + \gamma \ln(k^{2R} b^R)], \quad (3)$$

where the parameter h stands for the return decision. At $h=1$, the migrant decides to return; at $h=0$, she settles in city.

The budget constraint of the parent is supposed to be of the following form:

$$c^1 + (1-h)c^{2M} + hc^{2R} + k^1 + (1-h)k^{2M} + hk^{2R} = y^1 + (1-h)y^{2M} + hy^{2R}, \quad (4)$$

where y^1 , y^{2M} and y^{2R} are income of the parent in period 1, in period 2 in city and in period 2 at home, respectively.

The return decision of the migrant rests on the maximization of her utility U with respect to her own consumption in periods 1 and 2, as well as to her left-behind child in periods 1 and 2, under the budget constraint expressed above for two scenarios: settling in city ($h=0$) or returning to the countryside ($h=1$). The intertemporal utility maximization leads to the following results. The migrant parent will choose to return if:

$$2(1+\gamma) \ln\left(\frac{y^1 + y^{2R}}{y^1 + y^{2M}}\right) + \ln\left(\frac{a^R}{a^M}\right) + \gamma \ln\left(\frac{b^R}{b^M}\right) > 0. \quad (5)$$

As in Dustmann (2003b), the first term illustrates the income impact of return on total utility: as earnings can be assumed to be lower at home ($y^{2R} < y^{2M}$), the decision to return will entail a loss in utility. The loss in utility is higher for altruistic parents ($\gamma > 0$) because their reduced earnings also affect the child outcomes. This may be the case for instance if the reduced earnings contribute to reduce opportunities for education or health care. This first term captures the “educational prospect” dimension as described below. What is more, if the migrant has no location preference ($a^R = a^M$ and $b^R = b^M$), her altruistic behavior would reinforce the standard income effect towards a decision not to return.

The second term shows the influence of the relative location preference of the migrant in terms of her own consumption. If $a^R > a^M$, her relative preference for her home village may partly compensate the income effect and logically reduce migration duration.

The third term reflects the parent’s perception of the well-being of the left-behind child. If the child is perceived as suffering from parental absence in her daily life, then $b^R > b^M$ will give incentive to the parent to return. In the vein of Dustmann (2003b), this model illustrates the trade-off that migrant parents face when deciding to stay or to return: the consumption of the child is multidimensional in that it incorporates daily care and educational prospects that may be somehow conflicting in terms of the decision to return. Assuming no migrant parent location preference in her own consumption ($a^R = a^M$), the decision to return for an altruistic parent simply reduces to a comparison of the loss in utility due to lower income (and then possibly a reduction in education opportunities) with the gain in utility thanks to a better-off child (through better daily care for instance).

The two dimensions, daily care *versus* educational prospects, are quite intuitively related to the age of the child: one may expect that daily care will be more valued for young children, while educational prospect will be more important if the child is of school-age. Moreover, in a society with a strong tradition of sons’ preference⁴⁵, one may further expect that the return-decision outcome is also going to be linked to the

⁴⁵ See Lee (2008) for a review of the long history of pro-son bias in China.

gender of the child, although the total children effect may remain ambiguous.

3.4 Migrant's length of stay in cities: a duration analysis

3.4.1 Framework for duration analysis

Migration duration data are right-censored by definition since the date of transition out the state (i.e. returning home) is unknown for on-going migrants. As highlighted by Jenkins (2004), survival (or duration) analysis offers a number of advantages compared to OLS or binary choice models for such kind of data. In particular, it is well suited to account for the timing of the migration events, including return migration, for the censoring in the data as well as for incorporating time-varying variables into estimation.

As answers from the respondents were given in months, discrete time periods for migration duration are defined in months⁴⁶. As a consequence, we use a discrete-time (grouped data) version of the commonly used proportional hazard (PH) model⁴⁷, developed by Prentice and Gloeckler (1978). When the data set is discrete, the duration time can be divided into k intervals, $\{[0,), [,) \dots [, \infty)\}$. The discrete-time hazard rate can then be defined as follows:

$$P_{it} = \Pr[T_i = t / T_i \geq t, X_{it}] \quad (6)$$

where T_i is the discrete random variable representing the uncensored time at which the end of migration occurs. This measures the conditional probability of individual i 's migration ending at time t , given that it has not ended yet. Prentice and Gloeckler (1978) show that the complementary log-log model is a discrete-time analogue to the continuous-time Cox proportional hazard model, where the hazard function can be

⁴⁶ When the duration time is discrete, the estimation function is a bit different. A detailed description can be found in Jenkins (2004).

⁴⁷ The general idea of a proportional hazard model is that the effect of an independent variable is seen as having a constant proportional effect on the baseline hazard. The adoption of such model is usually grounded on two important specifications: the distributional assumptions regarding the baseline hazard and the assumption of unobserved heterogeneity (Bhat, 1996).

given by:

$$\lambda_i(t, X) = 1 - \exp[-\exp(\beta' X_i(t) + \theta(t))] \quad (7)$$

where $\lambda(t)$ is the instantaneous probability (hazard rate) of returning at a duration t months, given that the individual i stayed in city for at least t months. $\theta(t)$, which depends on t alone, is a transformation of the baseline hazard common to all individuals. $\exp(\beta' X_i(t))$ is a person-specific non-negative function of covariates X , which scales the baseline hazard function common to all persons.

Regarding the specification of the baseline hazard function θ , we consider a duration dependence pattern analogous to that in the continuous-time Weibull model⁴⁸ by entering as a covariate the log of t . Finally, failure to control for unobserved heterogeneity that arises when unobserved factors influence duration can lead to severe bias in the estimates of the covariate effects (Lancaster, 1985). Consequently, one could get an under-estimate of the true proportionate response of the hazard if the unobserved heterogeneity is not captured due to potential omitted variables or measurement errors (Jenkins, 2004).

Figure 3.1 displays the Kaplan-Meier survival curve, which clearly highlights negative duration dependence: the probability that migration ends shortly increases as the length of migration increases. The median survival rate (i.e. stay in cities) is at about 132 to 144 months (11-12 years). When the migration spell reaches more than 252 months (that is about 21 years), the overall survival rate finally stabilizes at a low level around 12%⁴⁹, indicating that 12% of the migrants' population tend to settle permanently outside. The smoothed hazard estimate displayed in Figure 3.2 confirms that the hazard rate of return increases with migration duration. For example, at 60 months (5 years), the overall hazard rate is only 3% (with a 95% confidence interval from 2% to 3%), whereas at 192 months (16 years), it reaches 14% (with a 95% confidence interval from 13% to 15%).

⁴⁸ The most commonly used form in continuous-time duration studies is a parametric hazard (Bhar, 1996) with an assumed Weibull form baseline (Meyer, 1990).

⁴⁹ One should note though that for this long duration, the 95% confidence interval gives a range between 5% and 23%. This might be related to the fact that we do not have many individuals with such long migration history.

Figure 3.1 Kaplan-Meier survival estimate

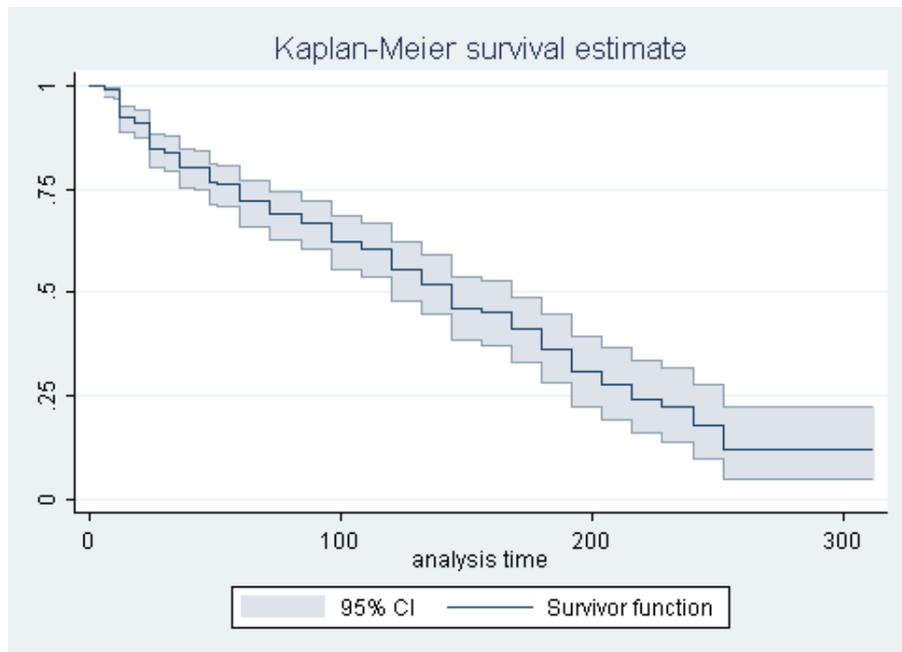
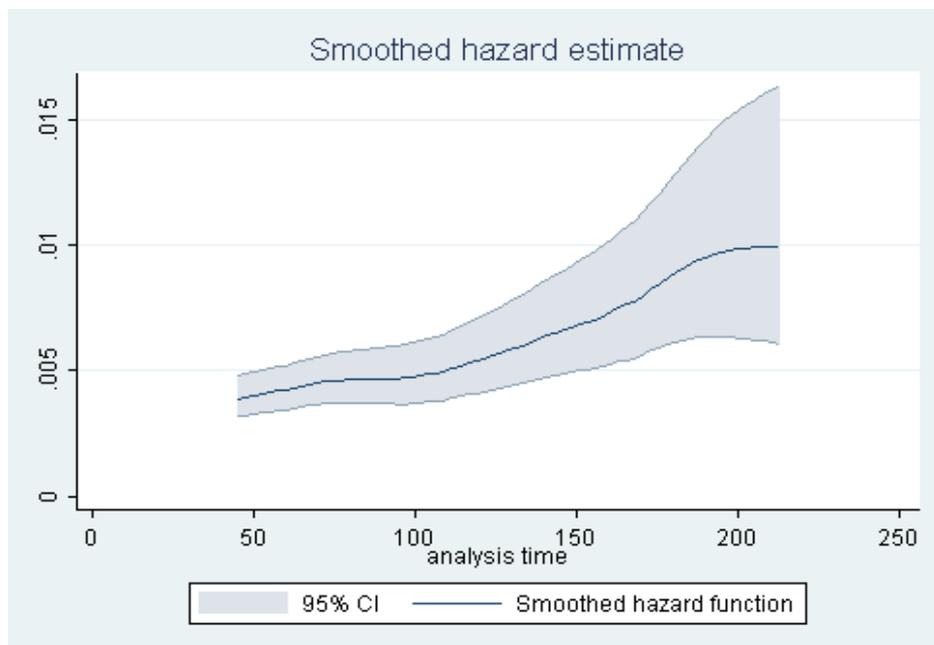


Figure 3 2 Smoothed hazard estimate



3.4.2 Estimation results

In order to assess how the presence of children by age and by gender affects the length of stay, we use a set of children-related variables for each individual at the time of migration. We distinguish children at different age levels (children below the age of 16 and children below the age of 6) and by gender (for each age-group). Since the number of children may vary throughout the whole period of migration, and since these changes may influence the decision on the returning date, we also introduce indicator variables that equal one if there is an increase (or no change) in the number of children (by age-group and by gender) during migration and zero otherwise. We believe that introducing such variables in the model may also help alleviating time-varying problems.

Control variables for migration duration include individual characteristics such as age⁵⁰, gender, education and marriage, individual migration experience measured by an occupational dummy variable that equals one if wage-worker and zero if self-employed during the last job in city (current job for on-going migrants), and hometown characteristics measured by the logarithm of the town average rural per capita annual net income between 2004 and 2008. We also control for household characteristics that may influence the decision to return through the household size.

Estimation results on the determinants of the hazard rate of returning to source regions with and without unobserved heterogeneity are displayed in Table 3.3 and in Appendix 3.1, respectively⁵¹. The findings are very similar, which indicates that the unobserved heterogeneity is rather small and can be ignored. Our interpretations are therefore mainly based on Table 3.3⁵². While other things are the same, Model 1 and Model 2 use a set of control variables related to children under the age of 16 while Model 3 and Model 4 focus on pre-school children. Under the age of 16, the children population comprises both pre-school children and students at school essentially from primary

⁵⁰ The age variable is recomputed in order to reflect the age at the moment of migration.

⁵¹ The estimation results presented in Table 3.3 and in Appendix 3.1 exclude five observations whose length of migration is longer than 20 years. Our results are robust to the inclusion or exclusion of these five observations.

⁵² We choose to concentrate on results displayed in Table 3.3 because we encountered some convergence problem in the estimation of Model 4 when controlling for unobserved heterogeneity.

school to senior middle school. Model 1 shows that the estimated coefficients for both the number of children under 16 at the time of migration and the change in this number during migration are positive and highly significant. One more child in the household at the time of migration is significantly associated with a 68% higher hazard rate⁵³. The coefficient estimates also indicate that individuals whose number of children during migration has increased (or remained unchanged) have a 162% higher hazard rate than others. Model 2 estimates the separate impact of daughters and sons under 16. Both the number of sons and the number of daughters as well as their respective change during migration are positive and significant. Nevertheless, two noteworthy differences can be highlighted. First, the sons-related covariates are significant at 1%, while the daughters-related covariates are significant only at 5%-10% level. Second, the coefficient estimates for sons-related covariates are much larger than those for daughters. In fact, having an additional son at the time of migration and an increase in the number of sons during migration are associated with respectively 147% and 256% higher hazard rates, while the corresponding estimates for daughters are associated with 56% and 125% higher hazard rates. These results indicate that although both sons and daughters play an important role in shortening the length of migration, sons have an even higher weight in the return decision.

Model 3 and Model 4 present results with a set of variables related to pre-school children (under the age of 6). As shown in Model 3, the number of pre-school children and the change in this number during migration are both associated with positive and significant coefficients. Hence, individuals who have more pre-school children at the moment of migration return earlier, and migrants for whom the number of pre-school children has increased (or remained constant) during migration also have higher hazard rates *ceteris paribus*. These results are fully consistent with the above findings for children below 16 years old, and the estimated impacts appear to be substantially higher for pre-school children. Regarding the gender of pre-school children, Model 4 shows positive and significant coefficient estimates for the number of pre-school sons, but no significant estimates for the number of pre-school daughters. In addition, an increase in the number of both sons and daughters during migration is also associated

⁵³ This is calculated from the exponentiated coefficient, not reported here, which gives the hazard ratios as in a continuous time model.

with shorter migration duration, although the level of significance and the degree of the measured impact differ. These results confirm the importance of pre-school sons in return decision among rural migrants.

To sum up, the main results regarding the impact of left-behind children on migration duration can be summarized as follows: *i)* individual migration duration is driven by family motives, with left-behind children being important determinants of return, whatever their age and gender; *ii)* pre-school children are a stronger focus for those willing to return, which indicates that daily care may be an important driving motivation for individuals; *iii)* the gender of left-behind children matters on the magnitude of the impact on migration spell, with sons pulling parents back even stronger as compared to daughters. These results suggest that altruistic parents care about children, whatever their age and gender, and they care even more about younger children, with a general gender bias in favor of sons.

In addition to children-related variables, we find consistent and interesting results regarding other explanatory variables in all the four models. Unsurprisingly, the baseline hazard increases with elapsed survival time, which means that return probabilities depend positively on the length of migration spell to date. The increasing baseline can be interpreted as an illustration of the temporary nature of the migration phenomenon in China. To further illustrate this point, Figure 3.3 displays the smoothed mean predicted hazard rate based on the estimation of Model 1⁵⁴. It shows that the predicted hazard rate is increasing all along migration duration, at a decreasing speed up to the 200th month and an increasing afterwards.

⁵⁴ The mean predicted hazard rate is calculated based on the mean level of the predicted hazard rate for each person given the values of his or her covariates and the spell month value (Jenkins, 2004).

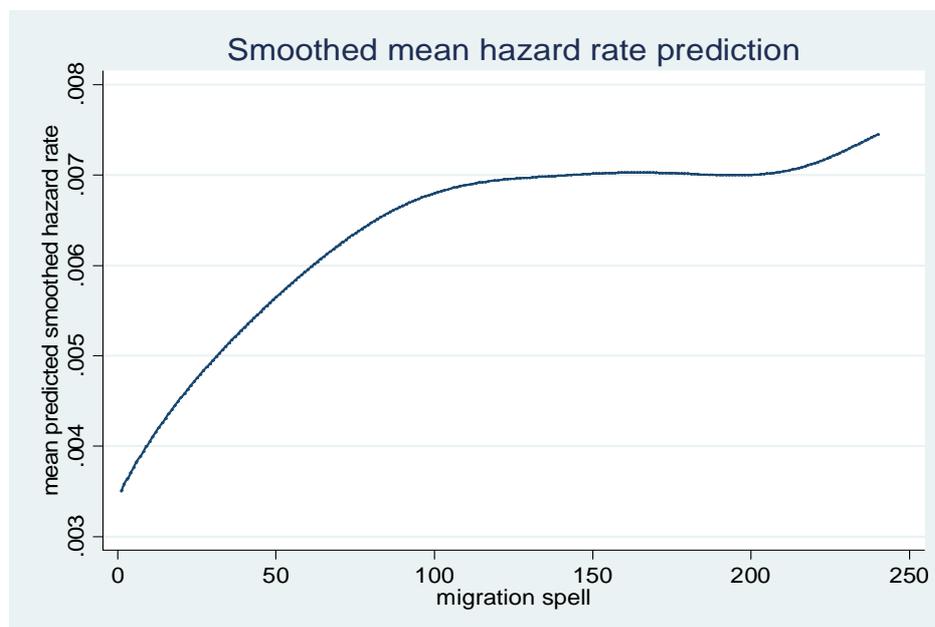
**Table 3.3 Discrete time proportional hazard estimates
(without controlling for unobserved heterogeneity)**

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Baseline hazard (log spell month identifier)	0.389*** (0.000)	0.429*** (0.000)	0.371*** (0.000)	0.433*** (0.000)
Age at migration	0.0452*** (0.000)	0.0472*** (0.000)	0.0327*** (0.003)	0.0395*** (0.001)
Married (=1)	0.239 (0.412)	0.208 (0.482)	0.458 (0.113)	0.316 (0.281)
Female (=1)	0.655*** (0.001)	0.578*** (0.005)	0.664*** (0.001)	0.605*** (0.002)
Years of education	0.0378 (0.271)	0.0516 (0.147)	0.0320 (0.329)	0.0390 (0.244)
Occupation before return (wage worker=1)	0.261 (0.215)	0.346 (0.115)	-0.168 (0.482)	-0.113 (0.619)
Log average rural per capita annual net income (2004-2008)	1.070** (0.024)	0.889* (0.062)	1.284*** (0.007)	0.820* (0.096)
Household size	-0.328*** (0.000)	-0.324*** (0.000)	-0.371*** (0.000)	-0.297*** (0.000)
# children (<16) at migration	0.521*** (0.002)			
Increased number of children (<16) during migration (=1)	0.964*** (0.001)			
# sons (<16)		0.902*** (0.000)		
Increased number of sons (<16) during migration (=1)		1.270*** (0.000)		
# daughters (<16)		0.447* (0.062)		
Increased number of daughters (<16) during migration (=1)		0.813** (0.022)		
# of children (<6) at migration			0.992*** (0.000)	
Increased number of children (<6) during migration (=1)			1.494*** (0.000)	
# sons (<6)				1.835*** (0.000)
Increased number of sons (<6) during migration (=1)				1.842*** (0.000)
# daughters (<6)				0.435 (0.294)
Increased number of daughters (<6) during migration (=1)				1.118** (0.040)
Constant	-17.03*** (0.000)	-16.99*** (0.000)	-18.50*** (0.000)	-16.81*** (0.000)
Number of person-month observations	21869	21869	21869	21869
Log likelihood	-734.7	-730.7	-735.1	-728.9

Source: Wuwei 2008 Survey

Notes: p-values in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. The coefficients are estimated using the complementary log-log model, where the coefficient on the duration dependence variable is the log of time.

Figure 3.3 Smoothed mean hazard rate prediction



The source region economic conditions are found to have a positive and significant impact on the hazard rate: the elasticity of the hazard rate with respect to the town average rural per capita annual net income between 2004 and 2008 ranges from 0.82 to 1.28. This finding indicates that favorable economic conditions contribute to attracting migrants back home, which is consistent with the theoretical prediction that an increase of wage in home country leads to a reduction in the optimal international migration duration (Dustmann, 2003a). Therefore migrants from poorer regions may be willing to stay longer in the host region than migrants from wealthier emigration regions. The result is also consistent with the empirical findings of Schroll (2009) on the case of Denmark.

Regarding individual characteristics, we find a positive impact of age on the hazard of return. People who migrated at an older age are more likely to have higher hazard rates of return. Gender also influences the length of migration, with female migrants being significantly more likely to have shorter length of stay than male migrants. In terms of household characteristics, a migrant from a larger family is more likely to stay longer at destination, which is consistent with the hypothesis that increasing returns to scale in household chores for households with a larger size and more labor availability make it

easier to let some members engage in migration.

3.5 Intended return of on-going migrants

To complement the analysis of migration duration, this section tests the impact of left-behind children on the intended return of on-going migrants. As described above, our survey provides information on out-migrants' intentions to return or to settle in cities. This enables us to empirically examine the determinants of return intentions and to provide a different approach to the evaluation of children-related motives to return. As in the migration duration section, we test the impact of children by age and by gender.

The dependent variable is a binary one: it equals one if out-migrants declared their intention to return and zero if they declared their intention to stay in cities. The intention to return is postulated to reflect the underlying individual's utility from this choice (y_i^*):

$$y_i^* = \beta_0 + X_i\beta + \varepsilon_i \quad (8)$$

where ε_i is assumed to be independent from X_i and to have a standard normal distribution. The intention to return is given by the following:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{if } y_i^* \leq 0 \end{cases} \quad (9)$$

In the above Probit model, the vector X_i includes a series of variables representing children-related factors, individual characteristics, household characteristics, current occupation in destination and source region characteristics. Since we exclude answers to the question on return intentions that were not strictly 'yes' or 'no', we are left with 117 individuals currently working outside of Wuwei County.

Table 3.4 reports the estimates of marginal effects for the probability of intended return. The first column shows the results using a baseline specification with the number of

children below the age of 16. The next two columns focus on testing the impact of children by age, and the last four columns introduce differences by gender. Model 1 to Model 3 all suggest a positive impact of children of different age level on migrants' intention towards return. More precisely, each additional child under the age of 16 in the household increases the return propensity by 16 percentage points. Distinguishing age groups reveals that pre-school children have a strong impact on the intention to return: the presence of pre-school children in the household is associated with an increase in the probability to return by 38 percentage points, and an additional pre-school child increases the return propensity by 32 percentage points. Moreover, Model 2 and Model 3 both indicate that the presence and the number of school-age children (between 6 and 12) in the household are also associated with a higher probability to return, although the impact seems smaller as compared to pre-school children. These results are consistent with the predictions of the duration model, demonstrating the positive role of children, whatever their age, in pulling migrants back, and the even stronger force of younger children (under 6) in attracting on-going migrants back to the rural hometown.

In the last four columns of Table 3.4, we introduce a further distinction by gender. The estimates show that the gender-bias may be different depending on the age of the child. On the one hand, for school-age children, the presence of a son has a significant and positive impact on the intention to return, while the presence of a daughter does not seem to have any significant influence. On the other hand, the presence of pre-school daughters seems to be more influential than pre-school sons in influencing the return decision.

Table 3.4 Probit estimates of out-migrants' return intention (Marginal effect)

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>	<i>Model 6</i>	<i>Model 7</i>
Age at migration	-0.00804 (0.387)	-0.0117 (0.177)	-0.0106 (0.231)	-0.0104 (0.253)	-0.0105 (0.224)	-0.00997 (0.272)	-0.00929 (0.309)
Age	-0.0347 (0.300)	-0.0333 (0.325)	-0.0410 (0.255)	-0.0398 (0.275)	-0.0356 (0.314)	-0.0378 (0.304)	-0.0416 (0.252)
Age square	0.000549 (0.209)	0.000604 (0.170)	0.000696 (0.145)	0.000682 (0.152)	0.000620 (0.167)	0.000644 (0.172)	0.000688 (0.146)
Married (=1)	0.181 (0.231)	0.0854 (0.583)	0.0582 (0.726)	0.0714 (0.663)	0.0873 (0.586)	0.0761 (0.645)	0.0671 (0.690)
Female (=1)	-0.0567 (0.533)	-0.0313 (0.732)	-0.0582 (0.520)	-0.0490 (0.587)	-0.0422 (0.652)	-0.0581 (0.527)	-0.0631 (0.486)
Years of education	-0.0289* (0.091)	-0.0354** (0.028)	-0.0380** (0.025)	-0.0324* (0.068)	-0.0355** (0.035)	-0.0344* (0.059)	-0.0380** (0.034)
Household size	-0.0979*** (0.006)	-0.111*** (0.005)	-0.137*** (0.000)	-0.132*** (0.002)	-0.108*** (0.008)	-0.126*** (0.004)	-0.132*** (0.001)
Current job (wage worker=1)	-0.362* (0.056)	-0.402** (0.036)	-0.421** (0.024)	-0.417** (0.039)	-0.415** (0.032)	-0.416** (0.039)	-0.424** (0.027)
Log average rural per capita annual net income	0.698** (0.042)	0.839** (0.018)	0.726** (0.029)	0.765** (0.021)	0.763** (0.023)	0.725** (0.027)	0.682** (0.039)
# children (<16)	0.161* (0.072)						
At least one child under 6		0.380** (0.014)		0.429** (0.012)			
At least one child between 6 and 12		0.208 (0.114)			0.231* (0.080)		
# children under 6			0.320** (0.016)				
# children between 6 and 12			0.247** (0.037)				
At least one son between 6 and 12				0.280* (0.100)		0.254 (0.130)	0.286* (0.085)
At least one daughter between 6 and 12				0.181 (0.358)		0.194 (0.330)	0.266 (0.196)
At least one son under 6					0.253 (0.228)	0.347 (0.149)	
At least one daughter under 6					0.479*** (0.008)	0.492*** (0.008)	
# sons under 6							0.249 (0.141)
# daughters under 6							0.341** (0.019)
Sample size	117	117	117	117	117	117	117
Pseudo R ²	0.197	0.226	0.237	0.242	0.238	0.247	0.241

Source: Wuwei 2008 Survey.

Notes: *p*-values in parentheses; * *p* < 0.10, ** *p* < 0.05, *** *p* < 0.01. Marginal effects measure the change in the probability of intended return from a unit change in the explanatory variable. Robust standard errors are adjusted for clustering by households (82 households).

In light of the prediction of our model, the results by age-group and by gender bring along an additional interesting perspective on the trade-off that migrant parents face regarding the education prospect of their offspring. On the one hand, since compulsory education is free for children living in their official place of registration (i.e. in rural areas for migrant children), an altruistic parent may have an incentive to leave her child behind and possibly return if daily parental care is believed to be important. On the other hand, for higher education, an altruistic parent may be willing to stay in city to be able to support the education fees of her child. As we focus here on school-age children aged 6 to 12, our findings may capture the first dimension. Moreover, our results by gender indicate that migrant parents may value differently the importance of daily care for boys and girls. On the one hand, they may worry more of the potentially adverse effect that the lack of parental care produces on education outcome of their son(s) rather than their daughter(s) (either because they put more weight on the educational achievement of a son, or because they consider that sons require higher monitoring in their studies). On the other hand, they may worry more on the impact of parental absenteeism on young (pre-school) daughters⁵⁵.

Besides these findings on the effect of children, the estimates of the Probit models also prove to be consistent with the predictions of the duration model. First, the household size has a negative impact on individual's return intention, suggesting that migrants from larger family are more likely to settle outside rather than return to home villages (where they are less needed). Second, individuals from richer regions are more likely to return, suggesting that a favorable economic environment in sending regions tends to attract out-migrants back. In terms of individual characteristics, the model finds that less educated migrants have a higher probability to express intention to return. This finding implicates a potential "brain drain" of less developed rural labor-exporting regions, the most educated migrants being the ones willing to settle in cities. Finally, regarding the current occupation in cities, wage workers are found to be less likely to return as compared to self-employed.

⁵⁵ For pre-school children, the key issue is health rather than education. As summarized by Lee (2008), empirical studies on gender equality in China found the gender bias to be stronger in health care expenditures and in the intake of nutrients than in education. To reduce the potentially negative impact of her absence on her pre-school daughter's health status, an altruistic parent may have a stronger incentive to return.

3.6 Conclusion

This chapter examined the role of left-behind children as a motive for return migration in China. A simple model based on Dustmann (2003b) is proposed to account for left-behind children through altruistic parents' care about the prospects of their offspring, and to discuss the potential differentiated impact depending on children's age and gender. We then propose two complementary empirical tests based on an original dataset from a rural household survey carried out in Wuwei County (Anhui province, China) in fall 2008. We first use a discrete-time proportional hazard model to estimate the determinants of migration duration for both on-going migrants with incomplete length of duration and return migrants with complete length of duration. We then examine the return intentions of on-going migrants and specifically estimate the impact of children-related factors by considering both age and gender differences.

A key empirical finding is that both the migration duration study and the return intention study show consistent results regarding the role of left-behind children. The duration analysis shows that both the number of pre-school children and the number of children under 16 at the time of migration as well as an increase in the number of children (for each age-group) during migration have a negative impact on an individual migrant's length of stay in city. Compared to all children under 16, pre-school children have an even stronger impact on migrants' return decision, and compared to daughters, the presence of sons is more influential in shortening a migrant's length of stay in city. The study of on-going migrants' return intentions confirms the role of left-behind children, whatever their age, as a significant motive for return, with a relatively stronger impact of pre-school children on pulling their parents back home. As for gender differences, the analysis of return intentions indicates that school-age sons and pre-school daughters have a stronger influence than their counterparts of a same age-group.

The proposed analysis contributes to the understanding of migration dynamics within China, by exploring the determinants of the spell of rural-to-urban migration and of return decision and taking into account the cost of leaving behind children. While

important interregional economic disparities in China drive the massive rural exodus, our analysis suggests that children-related factors contribute to the counter-flow of urban-to-rural return migration. These findings have timely implications regarding the “migrant labor shortage” that coastal regions are currently facing. By emphasizing the importance of family demand factors in return migration, they highlight the multidimensional nature of migration. The simple “success” (NELM) or “failure” (Lewis, 1956; Todaro, 1969) dichotomy and the “double selection” theory (Borjas and Bratsberg, 1996) on return migrants may not properly capture all the dimensions at stake in migration and return migration. In the case of China where particular institutions impose strong constraints on individual or family choice, our findings point to the importance of accounting for both economic and non-economic determinants of migration duration to analyze the dynamics of migration. In that, they contribute to the literature on migration by stressing the importance of using a “family unit” framework in modeling return migration decision mechanisms. As Djajic (2008, p. 483) argues, *“one of the shortcomings of the existing literature is that, in explaining decisions related to return migration, it focuses primarily on the individual migrant, rather than on the family unit”*.

Moreover, as internal migration is the main engine of urbanization in China (Wang and Cai, 2009), understanding the factors that explain variations in migration duration is important for designing optimal migration and urban development policies. As discussed above, one of the key issues regarding migration duration in China lies in the prevailing “involuntary” separation of migrants and their left-behind children, as a social consequence of the restrictions imposed by the *hukou* system and education policies. Children undoubtedly need physical and mental care from their parents. Therefore, a direct implication of our findings is that including migrant children into the local urban education system and allowing them to take higher education entrance exams in the places where they have attended schools, would certainly contribute to freeing choices for migrants to migrate and settle down in cities. This would not necessarily entail a full reform of the *hukou* system but rather the access to public services not being tied anymore to the household registration place.

Appendix 3.1 Discrete time proportional hazard estimates (controlling for unobserved heterogeneity)

	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
Baseline hazard (log spell month identifier)	0.389*** (0.000)	0.429*** (0.000)	0.371*** (0.000)
Age at migration	0.0452*** (0.000)	0.0472*** (0.000)	0.0327*** (0.002)
Married (=1)	0.239 (0.412)	0.208 (0.480)	0.459* (0.093)
Female (=1)	0.655*** (0.002)	0.578*** (0.004)	0.664*** (0.001)
Years of education	0.0378 (0.299)	0.0516 (0.145)	0.0321 (0.319)
Occupation before return (wage worker=1)	0.261 (0.216)	0.346 (0.115)	-0.168 (0.470)
Log average rural per capita annual net income (2004-2008)	1.068 (0.118)	0.889*** (0.010)	1.286*** (0.000)
Household size	-0.328*** (0.000)	-0.324*** (0.000)	-0.371*** (0.000)
# children (<16) at migration	0.521*** (0.002)		
Increased number of children (<16) during migration (=1)	0.964*** (0.001)		
# sons (<16)		0.902*** (0.000)	
Increased number of sons (<16) during migration (=1)		1.271*** (0.000)	
# daughters (<16)		0.447* (0.062)	
Increased number of daughters (<16) during migration (=1)		0.813** (0.021)	
# children (<6) at migration			0.992*** (0.000)
Increased number of children (<6) during migration (=1)			1.494*** (0.000)
Constant	-17.01*** (0.004)	-16.99*** (0.000)	-18.52*** (0.000)
Number of person-month observations	21869	21869	21869
Log likelihood	-734.7	-730.7	-735.1

Source: Wuwei 2008 Survey

Notes: p-values in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. Due to a convergence problem in the estimation for the constant, we do not report here the results of the model that corresponds to Model 4 in Table 3.3.

Appendix 3.2 Questionnaire for rural household survey (2008)

In order to better understand the current situation of rural migration and development, we conduct this survey for academic research concerning the issue of migration, employment and production in rural areas. Please answer the questions faithfully and help the enumerators fill out the questionnaire according to the actual situation of your family and your own opinions. We will keep your data confidential as required by the Statistics laws. Thank you for your cooperation.

Demographic Institute
East China Normal University
21/July/2008

Household code_____

Place of residence_____Province _____County (city) (Xian) _____Town (Zhen)(Township) (Xiang)_____Village (Cun)

Name of the householder_____ Telephone Number_____ Place of visit_____

Commenced in: 2008(year) ___ (month) ___ (day) ___ (hour) ___ (minute). End in: 2008(year) ___ (month) ___ (day) ___ (hour) ___ (minute).

Name of enumerator_____Telephone number_____ Signature (enumerator) _____

Notes for enumerator: If the question has nothing to do with the informant, please fill in “0” in the blank; if the question is directed to the informant who does not have the answer, do fill nothing in the blank and keep it vacant.

PART 1 GENERAL INFORMATION OF THE HOUSEHOLD AND THE MEMBERS IN THE HOUSEHOLD

(Notes: 1.Please keep the code consistent; 2. Inquire all the members, including registered members and other permanent residents)

A. Basic information relating to the household and its members

Notes: 1. Household is defined as a unit of family. The members of a household live in the same residence, maintain a single economic unit and share the same household registration. **2.** In this survey, the rural population is divided into two groups: **migrants** and **non-migrants**. Non-migrants are those who have

never migrated out of the local county. Migrants are those who have the experience of migration, including **out-migrants**, who have left outside of the county for at least six months by accumulation and are still working outside, and **returnees**, who have at least 6 months of working experiences outside of the county and have returned already. People who have fixed jobs out of their counties, but return for family visits or vacations are also considered as out-migrants. Returnees are further divided into two groups: the **temporary returnees** and the **permanent returnees**. In this survey, temporary returnees refer to those returnees who will migrate again with a clear decision within 6 months; otherwise they are considered as permanent returnees

1. Codes of family members	A01	1	2	3	4	5	6	7	8
2. Household size (number of people in the household) in 2007	A02								
3. Relationship to the householder 1). Spouse; 2). Child; 3). Child-in-law; 4). Sibling; 5). Parent; 6). Parent-in-law; 7). Grandparent; 8). Grandchild; 9). Grandchild in law 10). Uncle or aunt; 11). Nephew or niece; 12). Others	A03								
4. Is the subject person present when the interview is carried through? 1) .Yes 2). No	A04								
5. Gender: 1). Male; 2). Female;	A05								
6. Age	A06								
7. Marital status : 1). Married; 2). Single; 3). Divorced; 4). Widowed	A07								
8. Are you an ethnic minority? 1). Yes; 2). No;	A08								
9. Choose one to describe your health condition, compared with your peers 1). Very Healthy; 2). Healthy; 3). So-so; 4). Bad; 5). Very bad	A09								
10. Are you a member of the Communist Party? 1). Yes; 2). No;	A10								
11. Your highest educational level 1). Junior college or above; 2). Professional school; 3). Middle level professional, technical or vocational school; 4). Senior high school; 5). Junior high school; 6). 4 or more years of elementary school; 7). 1-3 years of elementary school; 8). Illiterate	A11								
12. How many years of schooling has each household member received? (not including years spent on repeating a grade or years taken off from school _____Years)	A12								
13.Current type of registered permanent residence 1). Urban residence registered in the resident city; 2). Urban residence registered in the other city (county); 3). Rural residence registered in the resident city (county); 4). Rural residence registered in the other city (or county)	A13								

14. (A13=1, 2) If you have your registered residence changed from agricultural residence to non-agricultural residence, which year did you obtain your non-agricultural residence? (year)	A14								
15. (A13=1, 2) If you have your registered residence changed from agricultural residence to non-agricultural residence, how did you obtain your non-agricultural residence? 1). Enrolling into college or university; 2). Joining the army; 3). Becoming a cadre; 4). Land expropriation; 5). Purchasing a house in the urban area; 6). Other ways (please give clear indication)	A15								
16. Current status of the informant /the subject person 1). Wage worker/family farm labor/domestic cottage industry/self-employed; 2). Unemployed/ looking for a job; 3). Retired; 4). Full-time homemaker; 5). Disabled, injured or had chronic diseases, unable to work; 6). Full-time student (please answer question 17); 7). Dropped out; 8). Pre-school child; 9). Others	A16								
17. (A16=6) Where do you have your schooling at present? 1). The county town in the local place; 2). Town, township or the village in the local place; 3). In other places with my parents; 4). In other places alone; 5). Else (please give clear indication)	A17								
18. Have you been a migrant worker before? 1). Never; 2). Yes, temporary returnee (including seasonal migrants); 3). Yes, permanent returnee; 4). Out-migrant at present (including those who are currently at home for a short visit with fixed job outside the county)	A18								
19. (A18=1) What is the main reason that you have never migrated? 1) old age; 2) illness or disabled; 3) worried to be unable to find a job outside; 4) have to look after the family (old people and young children); 5) in charge of local business; 6) at school; 7) pre-school children; 8). Have satisfied job in the local area; 9). Others (please give clear indication)	A19								
20. (For non-migrant labor) Are you planning to emigrate in the future? 1). Yes; 2). No; 3). Hard to say; 4). It depends	A20								

B. Household assets and liabilities at the end of 2007 (Yuan)

1.Total usable area of your house (square meters)(If it is a shared house, please calculate the area of your household)	B01	
2. How many rooms are there in your house (exclude the kitchen, the bathroom and the toilet)	B02	
3. Which year did you build your house?	B03	

4. How much did it cost? _____ Yuan	B04	
5. Estimated the present market value of privately-owned houses	B05	
6. Where does the drinking water come from: 1). Tap water; 2). Well; 3). River; 4). Spring; 5). Others	B06	
7. Total amount of land possessed by the household in 2007	B07	
8. All farm land used by the household in 2007 of which (1) contracted land	B08 B08-1	
9. All the production materials you owned by the end of 2007	B09	
Of which 1). Reaping machines	B09-1	
2). Tractor	B09-2	
3). Truck	B09-3	
4). Sprayer	B09-4	
5). Water pump	B09-5	
6). Else (please give clear indication)	B09-6	
10. All the number of durable consumables you owned by the end of 2007	B10	
1). Motor cycle	B10-1	
2). Electrical bicycle	B10-2	
3). Bicycle	B10-3	
4). Color television	B10-4	
5). Washing machine	B10-5	
6). Refrigerator	B10-6	
7). Air conditioner	B10-7	
8). Micro-wave oven	B10-8	
9). Automobile	B10-9	
10). Computer	B10-10	
11.Total household debts at the end of 2007	B11	

C. Household income at the end of 2007 (Yuan)

Income types		
1. Income from family agriculture activities	C01	
Of which 1). planting and farming	C01-1	
2). husbandry and fishery	C01-2	
3). other agricultural activities	C01-3	
2. Income from family non-agriculture operation (Note: not include the remittances of the migrant workers and the savings brought back by the returnees)	C02	
1). income from wage employment	C02-1	
2). non agricultural self-employment	C02-2	
3). others(domestic cottage industry, for example: weaver)	C02-3	
3. If there are migrants (including the out-migrants and the returnees) in the household in 2007, the total income from the migrants:	C03	
Of which 1).remittances from the migrant worker	C03-1	
2). savings brought back	C03-2	
4. Other incomes	C04	
Of which 1). farmland subsidies from the government	C04-1	
2). other subsidies from the government (please indicate)	C04-2	
3). Income from renting out the land	C04-3	
4). Gifts income from relatives and friends	C04-4	
5). Income from renting out other assets	C04-5	
6). Income from interest, dividends	C04-6	
7). other important income (please indicate)	C04-7	
5. Gross household income	C05	

D. Household expenditure at the end of 2007 (Yuan)

Expenditure types		
1. Household total expenditure on food (except food produced by the family)	D01	
Of which 1). staple food	D01-1	
2). non-staple food	D01-2	
2. Household total consumption expenditure on clothing	D02	
3. Expenditure on health	D03	
4. Expenditure on transportation	D04	
5. Expenditure on communication	D05	
6. Expenditure on education	D06	
7. Expenditure on housing (purchasing, construction, reparation or decoration)	D07	
8. Expenditure on purchasing durable goods (furniture, electric equipment etc.)	D08	
9. Expenditure on gifts and other donation	D09	
10. Expenditure on weddings, feast for great events, i.e. birthday, funeral, etc.	D10	
11. Other important expenditure (accident etc.)	D11	
12. Household total expenditure on consummation	D12	
13. Expenditure on household productive investment (purchasing farm machine tools, machinery and constructing workshops etc.)	D13	

PART 2 THE MIGRATION EXPERIENCE

Note: The following questions are only for the migrants (out-migrants and returnees). The information of those out-migrants will be given by the head of the household or the other household members in case that the out-migrants are not present at the moment.

E. Work experience of pre-migration

1.I.D. codes of the informant	E01					
2.Occupational category	E02					

3.Economic sector	E03					
4.Ownership of work unit	E04					
5.Location	E05					
6.Since when	E06					
7.The duration of the work	E07					
8.The average monthly income in the last year	E08					
Note: The specific work is:						

F. Basic information during migration

1.I.D. codes of the informant	F01					
2. Which year did you migrate for the first time (year)?	F02					
3. Why did you choose to be a migrant worker? 1). to make and save money for specific wants (to build a new house, get a wife, pay for the kids' education or open a business); 2). to see the world, to learn skills and technologies, and to increase my own human capital; 3). taking care and accompanying family members who have already migrated; 4). else (please give clear indication) <i>Qualitative question1:</i> 3-1 where is your first working place outside? 3-2 why did you choose the place? Did you find any advantages in that place?	F03 F03-1 F03-2					
4. Total years of being a migrant worker (if it is less than a year, please give clear indication of the number of months)	F04					
5. How many times on average did you return home when you were working outside?	F05					
6. Generally, at what times you choose to return home? 1). at spring festival; 2). in the farming seasons; 3). on other holidays and festivals; 4) having no specific time limit (I return home when I want to or when there is need to return)	F06					
7. How long do you stay at home every time you return?	F07					
<i>Questions 8-11 are for the out-migrants</i>						

8. When did you return home last time? _____ Year	F08-1					
_____ Month ____ day	F08-2					
9. Why did you return last time? 1) sickness of my own; 2) sickness of the others in the household; 3) taking care of the children; 4) taking care of the local business and the agricultural production; 5) for the spring festival and visiting the relatives; 6) do not like the urban life or the job at that moment; 7) to get married, to attend a blind date, or to build a new house; 8) fired by the employers and could not find job; 9) end of the contract; 10) others	F09					
10. Do you have the plan to return and work in your hometown? 1) Yes, recently (please answer the question number 11); 2) Not at present, but will come back in the future; 3) No; 4) Not sure	F10					
11. If you want to come back home, what is your reason? 1). Could not find appropriate working opportunities; 2). End of the contract; 3). Do not want to be far away from home and taking care of the family; 4). Old age; 5). Bad health; 6). There are working opportunities in the hometown; 7). Problems of registered permanent residence; 8). Else (please give clear indication)	F11					
12. If you do not have plan to return at present or in the future, then what is the main reason: 1).there is appropriate job in the places where I stay; 2). hope to earn more before return home; 3). Hope to learn more skills and accumulate more experiences; 4). plan to stay there permanently; 5).others(please note)	F12					

G. Work experience during migration

Qualitative question 2:G01. Please recall your major working experience when your are a migrant worker (including time, location and specific work you did)

Note: For returnees with less than three times of job changes during the migration, please tell us your working experiences according to the time order. For returnees having more than three times of job changes during the migration, please tell us your first job during the migration, the relative important job and the last job before your return. For out-migrants with less than three times of job changes during the migration, please tell us your working experiences according to the time order. And for the out-migrants more than three times of job changes during the migration, please tell us your experiences of the first migration job, the relative important job and the current.

First migration job

02. I.D. codes of the informant	G02					
03. Occupational category	G03					
04. Economic sector	G04					
05. Ownership of work unit	G05					
06. Location (Note: please choose the code for the type of location and the detailed name of the location)	G06					
07. The characteristic of employment	G07					
08. Time spent on looking for the job (months)	G08					
09. The way of finding the job	G09					
10. Since when	G10					
11. Duration of the work (year)	G11					
12. Average monthly income of the first year (Yuan)	G12					
13. Average monthly income of the last year (Yuan)	G13					
14. Training or not	G14					
15. Training type	G15					
16. Training duration (month)	G16					
<i>Qualitative question 3:</i> 17. What did you get from this job besides material rewards?	G17					
<i>Qualitative question 4:</i> 18. What is the main reason for you to leave this job?	G18					

Second migration job (or relative important job)

19. I.D. codes of the informant	G19					
20. Occupational category	G20					
21. Economic Sector	G21					
22. Ownership of work unit	G22					
23. Location (Note: please choose the code for the type of location and the detailed name of the location)	G23					

24. The characteristic of employment	G24					
25. Time spent on looking for the job (months)	G25					
26. The way of finding the job	G26					
27. Since when	G27					
28. Duration of the work (year)	G28					
29. Average monthly income of the first year (Yuan)	G29					
30. Average monthly income of the last year (Yuan)	G30					
31. Training or not	G31					
32. Training type	G32					
33. Training duration (month)	G33					
Qualitative question 5: 34. What did you get from this job besides material rewards?	G34					
Qualitative question 6: 35. What is the main reason for you to leave this job?	G35					

Third migration job (note: current job for the out-migrants and the last job before return for the returnees)

36. I.D. codes of the informant	G36					
37. Occupational category	G37					
38. Economic Sector	G38					
39. Ownership of work unit	G39					
40. Location (Note: please choose the code for the type of location and the detailed name of the location)	G40					
41. The characteristic of employment	G41					
42. Time spent on looking for the job (months)	G42					
43. The way of finding the job	G43					
44. Since when	G44					
45. Duration of the work (year)	G45					
46. Average monthly income of the first year (Yuan)	G46					
47. Average monthly income of the current (the first half year of 2008, for the out-migrants) or the	G47					

last year (for the returnees)						
47-1 How much do you spend on the life expenditure outside? (%)	G47-1					
47-2 How much do you send home? (%)	G47-2					
48. If you have been working in your local community instead of migration, can you estimate how much you could earn monthly in average?	G48					
49. Training or not	G49					
50. Training type	G50					
51. Training duration(month)	G51					
<i>Qualitative question 7:</i> 52. What did you get from this job besides material rewards?	G52					
<i>Qualitative question 8:</i> 53. What is the main reason for you to leave this job?	G53					
54. On what the remittances are used by the family? (please arrange the relative three main ways) 1). Daily expenditure (food and clothes); 2). Housing (construction, the reparation etc.); 3). Durable goods (TV, air-condition, refrigerator, laundry machine etc.); 4). Education of my children; 5). Supporting my parents; 6). Investment on the agricultural production (purchasing tractors, hiring labors and buying fertilizer, pesticides etc.); 7). Investment on non-agricultural production; 8). Gifts for relatives and friends; 9). Others (please give clear indication)	G54					

H. Return reason (The following questions are for the returnees only)

1. I.D. codes of the informant	H01					
2. How long have you returned home? _____(Months) (note: please indicate the year you returned)	H02					
<i>Qualitative question 9:</i> 3. What was your reason to return home?	H03					
<i>Qualitative question10:</i> 4. When you were working outside for the first time, did you think about when would you return home? During your migration, did the thought of when would you come home ever come to you? When did you begin to make the decision of return? What pushed you back home? Why didn't you choose to work outside for several more years, and why did you choose to return home just at that time? After you have decided to return, did you make any preparations for it, like working harder to accumulate some capital, or contact some local industry etc?	H04					

5. Which of the following factors you have taken into consideration when making the decision of return home? (score them from 1 to 10 to describe the importance they take in influencing your decision)						
Push	H05					
1). No appropriate working opportunities out there (low payment, bad working environment, instability of your job, end of your contract, etc.)	H05-1					
2). A high subsistence cost out there	H05-2					
3). Separation with the family	H05-3					
4). Do not have a registered permanent residence there and being excluded from most of social securities	H05-4					
5). Old age (or health problems)	H05-5					
6). Feel excluded by the local people there	H05-6					
Total push score	H05-7					
Pull						
1. There are good opportunities for working and craving out in my hometown (high income, good working environment, etc.)	H05-8					
2. Lower subsistence costs in my hometown	H05-9					
3. Able to unite with my family	H05-10					
4. There are social connections and resources that I am familiar with	H05-11					
5. The living style of my hometown	H05-12					
6. All kinds of policy supports offered by the local government to attract returnees	H05-13					
Total pull score	H05-14					
<i>Qualitative questions II:6</i> When you were a migrant worker, did you come across different kinds of handicaps because that you did not have registered residence in your working city? For example, the moment you were looking for a job, in your work place, or in your daily life there? What other embarrassments occurred to you for the reason that you did not have a local residence? Did those elements affect your decision to return home? If it is possible to change you and your families	H06					

registered residences into residences registered in your working place (like Shanghai), will you make efforts to stay there instead of return home?						
07. How much accumulated capital did you have when you returned home?	E07					
08. On what did you use the money? (Please identify three items and arrange them quantitatively) 1). Daily expenditures (food and clothing); 2). Constructing, repairing or decorating house; 3). Purchasing durable consumables like TV, refrigerator, air conditioner and washing machine, etc.; 4). Education of children; 5). Supporting parents; 6). Investment on agricultural production, like purchasing machineries, hiring labors and buying fertilizers and pesticide; 7). Investment on non-agricultural production (please give clear indication); 8). Gifts for relatives and friends; 9). Others (please give clear indication)	E08					

Qualitative questions 12: H09 Now you have returned home, did you realize the dreams you had when you became a migrant worker (for example: to improve the economic hardship of the family, to learn skills and technology)? Besides improving the family economy, what other influences did your experience as a migrant worker have on you? More positive influence or more negative influence? What are they?

Positive influences:

Negative influences:

I. Work experience after returning home

Qualitative questions 13:I01 please recall your working experience since you return home (including work time, location and specific job you did)

Note: 1. The following questions are only for the returnees. If the returnees have more than three times of job change experiences after return, in the form for “first job,” please fill in your first job after you returned; in “the third job,” please fill in your present job, in “second job” please fill in what you believe as an important working experience. If the returnees have less than three times of job change experiences, please mention the jobs you did after return according to the time order. 2. Primary job and the secondary job are defined according to the level of incomes from the work.

First job after return

2. I.D. codes of the informant	I02					
3. Occupational category	I03					
4. Economic Sector	I04					
5. Ownership of work unit	I05					

6. Location (Note: please choose the code for the type of location and the detailed name of the location)	I06					
7. The characteristic of employment	I07					
8. Time spent on looking for the job (months)	I08					
9. The way of finding the job	I09					
10. Since when	I10					
11. Duration of the work (year)	I11					
12. Average monthly income of the first year (Yuan)	I12					
13. Average monthly income of the last year (Yuan)	I13					
Qualitative questions 14: 14. What did you get from this job besides material rewards?	I14					
Qualitative questions 15: 15. What was the main reason for you to leave this job?	I15					

Second job after return

16. I.D. codes of the informant	I16					
17. Occupational category	I17					
18. Economic Sector	I18					
19. Ownership of work unit	I19					
20. Location (Note: please choose the code for the type of location and the detailed name of the location)	I20					
21. The characteristic of employment	I21					
22. Time spent on looking for the job (months)	I22					
23. The way of finding the job	I23					
24. Since when	I24					
25. Duration of the work (year)	I25					
26. Average monthly income of the first year (Yuan)	I26					
27. Average monthly income of the last year (Yuan)	I27					
Qualitative questions 16: 28. What did you get from this job besides material rewards?	I28					

<i>Qualitative questions 17:29.</i> What is the main reason for you to leave this job?	I29					
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Current job

I.D. codes of the informant I30	Occupational category I31		Economic Sector I32		Ownership of work unit I33		Location (Note: please choose the code of the type of the location and the detailed name of the location) I34		Monthly income (Yuan) I35		Time spent in looking for the job (days) I36		The way of finding the job I37		Since when I38		On average, how many days do you work per year? I39		On average, how many hours do you work per working day? I40		
	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	
41. Codes of the informant I41																					
42. Do you have plans to be a migrant worker again? 1). Not recently; 2). Yes, recently; 3). Always; 4). No, never; 5). Not sure											I42										
<i>Qualitative questions 18:</i> 43 why?											I43										
44. Are you satisfied with your present work (on aspects like income, working environment, etc.)? 1). very satisfied; 2).satisfied; 3).relatively satisfied; 4). just so so; 5). not satisfied (please note the reason)											I44										

PART3 HOUSEHOLD WORKING AND PRODUCTION CONDITION

J. Working condition of non-migrants

Note: this part is designed for those non-migrants labor force in the household (excluding people with the experience of being a migrant worker)

codes of the informant													
Job categories (Primary or Secondly)		P	S	P	S	P	S	P	S	P	S	P	S
Job title (please note down)													
1. Employment type: 1).self-operator (self-employment, individual enterprise, enterprise owner); 2). Farm labor; 3). wage worker (hired by others); 4).domestic cottage worker(weaver)	J01												
2. Economic Sector:	J02												
3. Ownership of work unit:	J03												
4. Ownership of work unit:	J04												
5. Location:1).local village; 2).local town/township; 3).other villages in the county; 4). county center	J05												
6. Which year did you begin this job?	J06												
7. On average, how many days do you work per year?	J07												
8. On average, how many hours do you work per working day?	J08												
9. Monthly income (Yuan)	J09												
10. (For the family having migrants): did you ever change your occupation since your family members had migrated? 1).Yes 2).No	J10												
Qualitative question 19: 11. (ask J10=1) What kind of occupations did you have before and after the migration of your family member?	J11												
12. (ask the family having returnees) did you ever change your occupation since the return of your family member who had been working outside? 1).Yes 2).No	J12												
Qualitative question 20: 13. (ask J12=1)What kind of occupations did you have before and after the return of the migrant workers in your family?	J13												

K. Self-employment

Note: in this survey, self-operator includes agricultural and non-agricultural self-employed, individual business or private enterprises. There are three possibilities: self-employed out-migrants; self-employed non-migrants; self-employed returnees.

Codes of the informants in A01		1	2	3	4	5	6
1. Which year did you begin your self-employment (the present one)? (year)	K01						
2. What kind of enterprise activities do you engage in? 1). Self-employment; 2). Individual enterprise; 3). Private enterprise	K02						
3. What is the specific area of your business? (Please choose and identify the type of business) 1). Agricultural products; 2). Manufacturing; 3). Transportation; 4). Retail; 5). Other kinds of service industry; 6). Other kinds of business	K03						
4. Why did you choose to be self employed (motivation)? 1). to make more money; 2). more freedom; 3). want to be a boss myself; 4). ambitious to achievement; 5) else (please give clear indication)	K04						
Qualitative question 21: 5. Why did you choose your current sector of business?	K05						
6. Total employees in your business?	K06						
7. How many employees do you have besides the family members of your household?	K07						
8. Where is the location of this enterprise activity? 1) rural areas in the county; 2) the township center; 3) the county town 4). migrant working place (please give clear indication)	K08						
9. What is your total initial investment? (yuan)	K09						
10. How much was borrowed in your investment? (yuan)	K10						
of which (1) How much is from Bank or credit union (yuan)	K10-1						
(2) From Rural financial cooperative institution (yuan)	K10-2						
(3) From Private loans (yuan)	K10-3						
(4) Others (yuan)	K10-4						
11. If you got private loans, the main lender was your 1) family member or relative; 2) neighbor; 3) schoolmate; 4) colleague; 5) fellow villager; 6) others	K11						

12. If you got loans from Bank or credit union, or rural financial cooperative institution, did your personal social network help obtaining the loans? 1) Yes; 2) No.	K12						
13. If you are the returnees, then how much of the investment was from the capital accumulation during the migration?(yuan)	K13						
14. What scale are your assets at present?	K14						
14-1. of which the present value of the productive fixed asset(yuan)	K14-1						
15. Your taking in the year of 2007	K15						
16. Your retained profits in 2007	K16						
17. Average monthly salary of a common stuff	K17						
The following questions are for the self-employers among the returnees:							
Qualitative question 22:18. Did you have the thought of returning home and open your own business the moment of your first migration? Did you get the idea during the migration or after your return?	K18						
Qualitative question 23:19. If you have had the thought of returning home to open your own business the moment of your first migration, then is it right to say that the migration is a way for you to prepare your opening of business (including the accumulation of capital, knowledge and connection)? Was your choice of jobs outside related to these considerations? To what degree did your experience of a migrant worker contribute to your present business? If you have never been a migrant worker, would you still choose to open your own business?	K19						
Qualitative question 24:20. What in your hometown attract you to carve out here? Did the “phoenix back to nest” program of the government have any great influence on your decision to return home and make your own business? Specifically, what benefit did you get from this program for you to open your own business?	K20						
Qualitative question 25:21. During the process of opening your own business, what were the thorny problems, for example, short of capital, labor, your own personal capability, the expansion of commercial connections, the relationship with the government, etc.?	K21						

Notes:

1. Occupational category: 1). Farm labor; 2). Ordinary worker (unskilled worker); 3). Skilled worker: carpenter, electrician, lapicide, mechanic, machine operator, plumber's mate, painter, steelworker, plumber, weaver, welder, etc; 4). Professional or technical worker: doctor, nurse, technician, engineer, teacher, other professional workers; 5). Enterprise management stuff: management stuffs in state-owned enterprises, township enterprises, collective enterprises; 6). Cadres or personnel in state organs (village cadre, township cadre, cadre in party and government institutions); 7). Workers in service industry: cooker, driver, dressmaker, hourly paid worker, waiter (in restaurant), and other service workers; 8). Employer (self-employment, individual enterprise, private enterprise); 9). Others

2. Economic sectors: 1). Agriculture (planting/husbandry/fishery); 2).Excavating industry; 3). Manufacturing; 4). Architecture industry; 5). transportation/communication; 6). Commerce/restaurant; 7). Logistics; 8). Service industry for production and life (e.g. finance insurance, real estate, public utility, tourism, consultation, and other technological service industries); 9). Service industry for improving the standard of science and culture as well as the quality of citizens (e.g. education, culture, broadcasting and television, scientific studies, sanitation, physical education and social welfare, etc.); 10). service industry for social public demands (state organs, party and government institutions, social organizations, the army and the police, etc.); 11). Else (please give clear indication)

3. Ownership of work unit: 1). Farming household; 2). Self-employed 3). Individual enterprise 4). Private enterprise; 5). Township or village collective owned enterprise (including ownership changed enterprise); 6). State-owned enterprise or institution; 7). Government offices 8). Collective enterprise 9). Sino-foreign joint venture; 10). Foreign invest enterprise; 11) other kinds of enterprise or institution; 12). Out of work or jobless

4. Location: 1). In the home village 2). In the town within the county 3). Other rural areas within the county; 4). The county town; 5). In the rural areas out of the county, within the province; 6). In the rural areas out of the province; 7). In the urban areas out of the province; 8). Capitals of provinces, municipalities

5. Characteristic of employment: 1). Permanent employment in enterprises or institution (including public servants and government administrators); 2). Long-term contract; 3). Short-term contract or temporary contract; 4). Self-employment or private business; 5). Casual labor; 6).Others (please give clear indication)

6. Ways of finding the job: through 1). Local government departments; 2). Commercial employment services; 3). Want advertisement; 4). Direct apply (including the examination); 5). Friend, relatives, fellows villagers, the acquaintance etc.;

7. Trainings: 1). Yes; 2). No

8. Training type: 1). Directly related to the occupation; 2). Other kinds of trainings (foreign language, the computer, driving etc.)

Appendix 3.3 Questionnaire for village survey (2008)

The date of the survey

Commence at: 2008(year) ____ (month) ____ (day) ____ (hour) ____ (minute)

End in: 2008(year) ____ (month) ____ (day) ____ (hour) ____ (minute)

Town (township) name

Administrative village name _____ Number of natural villages _____

Major natural village names _____

The identity of the informant _____

A Population in 2007

01. Number of households in the village _____

02. Number of households engaging in the agricultural production _____

03. Total population _____

04. Number of the labor force _____

(Note: a labor force refers to people over 16 years old who has a job or is hunting for a job)

04-1 the proportion of non-agricultural labors _____

B Geographical condition

05. The distance with the town (township) government _____ kilometers

06. The distance with the county government _____ kilometers

C Infrastructure in the village in 2007

07. Are there regular buses in the village? 1) Yes 2) no

If yes then: 07-1 how many buses pass the village every day? _____

If no then:

What is the distance of the nearest bus station from the village?

07-2 _____ kilometers

07-3 _____ minutes (by walk)

08. Number of households having the telephone (including the mobile phone): _____ households

09. Are there medical care institutions or clinics in the village? 1) Yes 2) no

10. Are there regular bazaars in the village? 1) Yes 2) no

if yes, then 10-1 _____ times weekly 10-2 dates of the bazaar _____

10-3 location of the bazaar _____

11. Where does the drinking water come from in the village?

D Population movement

12. Number of households who have moved away from the village since 2000: _____

13. Number of people who have moved away from the village since 2000: _____

Note: the "move away" here indicates those (households or individuals) who have left the village for more than one year without intention to return. They should have some features, for

example, they changed their registered residence, sold the house or rented out the house for long terms or bought house in the destination area (including movement for reasons of marriage and schooling).

14. What are the main destinations areas (please range according to the number of people move there) _____

15. The main reason for leaving the village _____

16. Number of people who have moved into the village since 2000 _____

17. The main reason for moving into the village _____

Note: to move into the village means that people who do not have registered residence in the village move into the village and settle down permanently (including movement for the reason of marriage)

E Emigration in 2007

18. Number of persons who have migrated for working outside of the county in 2007 _

19. Where are the main destination areas of the migrant workers? _____

20. Through which way do the migrant workers find their jobs? _____

21. Male migrant 21-1 number of male migrants _____

21-2 average age _____

21-3 main occupation _____

22. Female migrant: 22-1 number of female migrants _____

22-2 average age _____

22-3 main occupation _____

F Refluence of homecoming

Note: In this survey, returnees refer to people who had worked outside the county for more than half a year, who have already returned and have no definite plans to work outside again within half a year (including people who have already started working in the local place or who haven't found a job yet)

23. Number of persons who have returned from migration since 2000

24. Male returnees: 24-1 number of male returnees since 2000 _____

24-2 average age _____

24-3 main occupation _____

25. Female returnees:

25-1 number of female returnees since 2000 _____

25-2 average age _____

25-3 main occupation _____

26. Number of persons who have returned from migration in 2007 _____

27. What are the main reasons for return?

1). to carve out; 2). taking care of the family: children, wife and parents; 3). getting married /attending a blind date / building a new house; 4). old age; 5). else (please give clear indication)

28. Number of people who have opened their own businesses after return since 2000:

28-1 how many females _____

28-2 how many males _____

Note: people who have opened their own businesses refer to people who are self-employed in all kinds of agricultural or non-agricultural operations, or in individual businesses or private enterprises.

29. The major areas people choose to open their own businesses _____

G Economic condition in 2007

30. Per capita income in 2007 _____ yuan

H Agricultural activity in the village in 2007

31. Total cultivated land in the village in 2007 _____ mu

- Of which,
- 31-1. Plain land _____ mu
 - 31-2. Hillside fields _____ mu
 - 31-3. Irrigated land _____ mu

32. Total land in 2007

- 32-1. per household _____ mu
- 32-2. per capita _____ mu

33. Contracted land

- 33-1. number of households who have contracted land till 2007 _____
- 33-2. contracted land per household _____ mu
- 33-3. the major crop is/are _____

I Non-agricultural production in the village

Enterprise code 34	Ownership 35	Sector 36	Year of establishment 37	Number of employees 38	Average wage (yuan) 39

Ownership: 1. private enterprise 2. non-agricultural individual enterprise 3. collective enterprise 4. township enterprise (including ownership changed enterprise) 5. state-owned enterprise 6. sino-foreign joint venture 7. Foreign-invested enterprise

Sector: 1. planting, husbandry, fishing 2. forestry 3. excavating industry 4. manufacturing industry 5. architecture industry 6. transportation & communications 7. commerce & logistics 8. restaurants & catering 9. finance & insurance 10. others

Qualitative questions

Town (Township)

Administrative village _____ Numbers of natural villages _____

Major natural village names _____

Identity of the informant _____

1) Any great changes happened in the village in the past few years? Is there any improvement of the villagers' living standard? Generally speaking, are those families with migrant workers

richer than those without migrant workers?

2) How much does it cost to build a new house in the village?

3) Is the village quiet most of the time, since many villagers have gone out to work? What time in a year is the most joyful? When the migrant workers come back usually?

4) Are there any migrant workers in your village who make great fortunes, or, are there any role models among those migrant workers for the villagers?

5) Have you ever worked outside? Are there any migrant workers in your family?

6) What kind of work do the rich families occupy mostly in this village?

7) When did the rural exodus occur in the village? When did the tide of back home begin?

IV Return migrants: The rise of new entrepreneurs in rural China⁵⁶

4.1 Introduction

China's rapid economic development and government policy changes towards higher inter-regional labor mobility have encouraged a massive rural-urban labor force exodus since the mid-1980s. The National Bureau of Statistics estimated the total number of rural migrants working in cities at about 145 million as of the end of 2009 (National Bureau of Statistics of China, 2010). Estimations also indicate that among the rural labor force, every fifth person is a rural migrant, and that about one-half of the rural population lives in households with one or more migrant workers.

The migration phenomenon in China has several peculiarities that make it specific compared to international experiences. First, it is largely an internal movement, from rural to urban areas, and given the size of the Chinese population, flows of rural migrants to cities are taking place on a massive scale. Second, the migration phenomenon itself has been shaped by strong institutional constraints, including the complex and inter-related systems of household registration (*Hukou*)⁵⁷ and rural land tenure. Most rural migrants working in cities still hold a rural *hukou*, and as a consequence, they are denied access to urban social welfare, including healthcare, schooling for their children, social insurance, etc. However, their rural *hukou* entitles rural migrants the right for arable land in their native villages, and as such plays the role of a safety net by “protecting them from being landless, jobless and homeless”

⁵⁶ This chapter is forthcoming in *World Development* (DOI:10.1016/j.worlddev.2011.04.027, October 2011, 39(10)). It is co-authored with Sylvie Démurger (GATE Lyon Saint-Etienne).

⁵⁷ The household registration system, established in 1958, imposes that every Chinese citizen is registered according to her place of residence (rural *versus* urban) and occupation (agricultural *versus* non-agricultural). It is a “de facto internal passport system” (Knight & Song, 2005) that confers different legal rights to residents. In villages, residents are given rights to land for farming and housing while in cities, residents are given rights to a package of social benefits and access to urban jobs.

(Huang & Zhan, 2005, p. 79). These administrative barriers to permanent settlement in cities tend to make rural migrants more likely to both maintain close ties with their village of origin and return to their home community within several years. A large part of rural migrants in China are therefore temporary migrants.

Temporary migration can take various forms depending on whether or not the migrants settle back permanently upon return. Seasonal or circular migration, with back and forth movements between rural and urban areas⁵⁸, is a somewhat well-documented phenomenon in China, with a number of studies focusing on issues such as the determinants of migration decisions (Hare 1999; Zhao 1999a, 1999b; Zhu 2002) or the impact of migrant remittances on rural development (Giles 2006; Rozelle *et al.* 1999; Taylor *et al.* 2003). As rural-urban migration itself did not occur on a large scale until the mid-1980s, return migration with permanent resettlement in home areas is a much newer phenomenon that still needs to be explored⁵⁹. Although there is no systematic estimation of the actual number of return migrants all over China, various estimations converge towards about one-third of all migrants having returned to their home community by the end of the 1990s (Murphy, 2002; Zhao, 2002). A research project led by the Chinese Ministry of Agriculture from 1997 to 2001 indicates that return migrants represent about 6.3% of the whole rural labor force and 28.5% of the total migrant population (Gao & Jia, 2007). It also highlights an increasing trend to return, especially after the mid-1990s.

As pointed out by Laczko (2005), research on internal migration and its impact on the development of source communities has somewhat been eclipsed by the twin debate on international migration. Nonetheless, following the renewed interest on this issue fostered by the New Economics of Labor Migration (NELM) literature (e.g. Stark & Bloom, 1985), there is a mounting agreement on the channels through which internal migration can actually contribute to rural development. Migration can be viewed as a strategy for rural households to diversify income sources so as to reduce income variability (Ellis, 1998). In this context, remittances sent by migrants to their rural

⁵⁸ The usual return period for rural migrants in China is the Chinese New Year break during which rural migrants return to their hometown for a short stay before leaving again.

⁵⁹ A few papers have studied return migration and its impact on sending communities, mostly with data collected on specific areas at the end of the 1990s. See Hare (1999), Ma (2001; 2002), Murphy (2002), Wang and Fan (2006), and Zhao (2002).

families are expected to help secure income and alleviate poverty in rural areas. As for China, Du *et al.* (2005) find that having a migrant increases a household's income per capita by 8.5-13.1%. However, the overall impact on poverty is found to be modest because the poorest people do not migrate. Moreover, the effect of migration on asset accumulation and on the development of source communities eventually depends on how remittances are used (De Brauw & Rozelle, 2008). For the specific case of China, evidence is mixed. On the one hand, Taylor *et al.* (2003) find mild evidence that households invest remittances in self-employed activities. On the other hand, Huang and Zhan (2005) argue that remittances are used more for consumption than for investment and as a consequence, they can only be expected to have a short-term impact on poverty reduction⁶⁰.

Another channel through which migration can influence rural development is return migration. Recent literature on international migration focusing on migrants' occupational changes upon return has highlighted the propensity of returnees to become self-employed upon return (e.g. Dustmann & Kirchkamp, 2002; Ilahi, 1999; Martin & Radu, 2009; McCormick & Wahba, 2001; Mesnard, 2004; Piracha & Vadean, 2010; Wahba & Zenou, 2009). With a working experience outside their original hometown, return migrants are indeed likely to bring back accumulated human, social and financial capital that can enable them to start their own businesses upon return, and benefit their village of origin. As mentioned above, research on return migration in China remains limited despite a mounting interest on the issue. A few empirical papers have studied the causes and consequences of return migration on individual datasets primarily collected at the end of the 1990s⁶¹. Regarding the impact of return migration, Murphy (2002) highlights the contribution of migration working experience to returnees' business establishments in two counties in the Jiangxi province. She finds that longer

⁶⁰ De Brauw and Rozelle (2008) confirm this result on rural household data collected in 2000. They find no evidence of a relationship between migration (measured by both the number of household members in the migrant work force and the number of return migrants) and productive investment.

⁶¹ As far as the determinants of return migration are concerned, Hare (1999) finds on a sample of 309 households collected in 1995 in a county in Henan province that pull factors related to the household's own-production labor needs are the most important determinants of how long migrant workers stay in cities before returning home. Using data from a rural household survey carried out in six provinces in 1999, Zhao (2002) finds evidence that both push and pull factors affect the return decision. Wang and Fan (2006), who examine the "selectivity" of return migrants with data collected in Sichuan and Anhui provinces in 1999 predict a positive relationship between "success returnees" (who returned for investment reason) and the length of spell in the destination area, indicating that the accumulation of migration experience is positively related to the returnees' investment purpose for return.

urban sojourns enable migrants not only to accumulate funds and gain management experience, but also to forge business contacts in the cities. Zhao (2002) also finds that return migrants invest twice more in productive farm assets as compared to non-migrants but she finds no evidence of returnees being more likely to participate in non-farm work than non-migrants. Closer to our research objective, Ma (2001) uses data collected in 1997 from 13 rural counties in nine provinces and highlights the fundamental role of migration experience in return migrants' occupational changes after return. In particular, he shows that the improvement of skills and abilities through migration facilitates occupational mobility toward non-farm employment upon return. In a second paper, Ma (2002) finds that skilled returnees are more prone to and successful at mobilizing local social capital upon return, thus promoting their entrepreneurial activity.

In the context of a soaring rural-urban income gap, understanding the role of return migrants on their region of origin holds importance for rural development policy in China. As entrepreneurial activity is generally considered a key component in the development process, one way to assess this role is to study occupational mobility upon return. Yet, as mentioned above, not much research has been dedicated to studying the impact of migration on taking entrepreneurial activity in source communities in China. This chapter attempts to fill this gap by analyzing such an impact in the context of Wuwei County (Anhui province), a pioneering county in the process of migration. The county is characterized by both a long history of labor export and the development of numerous entrepreneurial activities by return migrants. The migration pattern there closely follows the main trends of internal migration in the country as a whole (Dou, 2001). Female migrants working as domestic servants at the beginning of the 1980s were the pioneers who paved the way for the subsequent large-scale migration⁶². From 1985 onward, out-migration involved a larger portion of the county's population, with migrants taking up jobs in construction and in the production of pressed salted duck (the so-called *Wuwei banya*). In the 1990s, the labor exodus gained momentum,

⁶² There are particular historical reasons for this. Indeed, the county used to serve as one of the communist army bases during the war with Japan in the 1940s. Labor migration started with old generation of domestic servants who moved to Beijing with the army officials and sponsored the second generation of young female relatives to Beijing. This was so widespread that it became a popular saying that "domestic service workers in Beijing come from Anhui, and domestic service workers from Anhui are from Wuwei".

covering a broader range of sectors, such as textile, driving, repairs, food processing, construction and other service industries, and in a broader range of destinations, including Shanghai, Beijing, Jiangsu and Zhejiang provinces. According to local official statistics, at the end of 2006, about 43% of the entire rural labor force of the county was working outside the county (Wuwei County Government report, 2007). Moreover, the county is not only renowned for sending out rural migrants, but also for actively encouraging migrants to return. In particular, the county-level government launched a policy in 1996 with the explicit purpose of attracting local out-migrants to return and to invest in their hometown⁶³. This policy, which literally translates into “phoenixes return to their nest,” (*feng huan chao*) is reported to have successfully attracted return migrants (Gao, 2001; Zhao, 2002)⁶⁴. By the end of 2008, 16,200 return migrants had set up 1,113 enterprises and 6,199 individual enterprises, which accounted respectively for 38.1% of total enterprises and 33.8% of total individual enterprises in the area (Wuwei County Government report, 2009).

The purpose of this chapter is to examine the impact of migration experience on individuals’ choice of being self-employed in Wuwei County. To do so, we consider two levels of analysis. We start with a comparison between non-migrants and return migrants⁶⁵ and address the following question: when compared to their rural counterparts, are return migrants more likely to opt for self-employment upon return? We then turn to the analysis of the benefits that returnees themselves gain from their own migration history⁶⁶, and examine how past migration experience affects return migrants’ choice of self-employment upon return.

⁶³ Under this policy, return migrants who set up businesses can enjoy a “foreign investment” treatment. They are offered a no-constraint rule on business scale, employment, choice of projects, etc. They are also offered favorable conditions in the usage of land, water or electricity, the payment of tax, or the granting of subsidized loans. The policy has been strongly promoted by the county government, which required local town and village leaders to develop one such enterprise each year, and annually assessed their achievements (<http://news.sohu.com/20070727/n251278604.shtml>).

⁶⁴ Zhao (2002) cites Wuwei County as an example of counties that have actively tried to “attract back migrant entrepreneurs”. Referring to field interviews, she also notes that Wuwei County has invested in “infrastructure in order to make the local investment environment more attractive to returning entrepreneurs” (p. 377).

⁶⁵ This comparative approach has also been used by Zhao (2002), who evaluates the different occupational choices between three groups of population in rural China. On other countries, see also Martin and Radu (2009), Piracha and Vadean (2010), and Wahba and Zenou (2009).

⁶⁶ Examples of this approach can be found in both internal and international migration studies (Arif & Irfan, 1997; Ilahi, 1999; Ma, 2001; Mesnard 2004) that focus on the role of migration experience in the occupational mobility of return migrants.

The chapter contributes to an emergent body of literature focusing on China's urban-rural return migrant flows and their impact on rural development in at least three ways. First, by using data from a recent and original rural household survey conducted in Wuwei County in 2008, we provide an updated and novel assessment of return migrants' choice of self-employment in rural China. As highlighted above, most papers use data from the end of the 1990s. This trait drastically limits the scope of such analyses since return migration has sharply increased over the 2000s. Moreover, the dataset used here covers a region not only temporally but also spatially distinct. Given the size of China, geographically focused and thorough studies can bring informative and useful insights as to how return migration may affect the development of sending communities. As highlighted above, the choice of Wuwei County has been dictated by the emigration history of the county, as well as by its recent attraction of return migration. By specifically focusing on this county, we intend to contribute to a better understanding of migrants' self-employment motivations upon return.

Another contribution of this chapter is that it brings together two strands of the empirical literature on the impact of migration on entrepreneurial activity in source communities. The first one examines the differences in the probability of being self-employed between return migrants and non-migrants. The second approach consists in focusing on return migrants and analyzing the role of their migration experience on their decision to enter entrepreneurship. While both approaches have been separately adopted in migration studies on China, no paper has yet combined these approaches in order to assess the specific role of return migrants and their migration experience in entrepreneurship development in rural China⁶⁷.

Last, our estimations not only corroborate some of the results found in the existing literature but also enrich the understanding of the conditions for stimulating rural development. To briefly summarize the key findings, return migrants are found to be more likely to opt for self-employment than non-migrants, and their assets in the form of savings and migration experience are found to play a prominent role in this choice.

⁶⁷ Yet, a limitation of a cross-section analysis is that it does not enable us to account for institutional changes that may have affected self-employment in China, such as the amendment of the constitution of the People's Republic of China in 1999 or the Law of the People's Republic of China on Promotion of Small and Medium-sized Enterprises passed in 2003.

The remainder of the chapter is structured as follows. Section 2 presents a stylized framework for the empirical part by briefly reviewing the available theory on entrepreneurship and its relationship to return migration. Section 3 describes the data set used in the statistical analysis and provides descriptive statistics on occupational distribution. Section 4 examines the differences in self-employment choice between non-migrants and return migrants. Section 5 investigates the role of migration experience in the participation of return migrants in self-employment. Concluding remarks are given in the final section.

4.2 Return migration and entrepreneurship: theoretical considerations

What are the main factors that drive the decision of an individual to participate in self-employment? How can (return) migration foster entrepreneurship in the communities of origin? This section briefly reviews the theoretical background of entrepreneurship decision, and discusses the relationship between migration and the key determinants of self-employment. This short review will set the conceptual framework for the specification of the empirical models tested thereafter.

The economics of entrepreneurship considers the decision to enter entrepreneurship as an individual occupational choice, which is based on the comparison of expected payoffs between becoming an entrepreneur or a wage-worker (Kihlstrom & Laffont, 1979; Evans & Leighton, 1989; Evans & Jovanovic, 1989; Fonseca *et al.*, 2001). Within this framework, individuals undertake self-employment if their expected utility from self-employment is higher, and wage work otherwise. Individual choices then depend on the factors that affect the utilities in either occupation.

The existing theoretical and empirical literature on participation in self-employment identifies a series of factors that generally includes individual traits such as entrepreneurial abilities, risk-aversion and human capital (Kihlstrom & Laffont, 1979; Lucas, 1978; Schultz, 1990, Evans & Jovanovic, 1989; Rees & Shah, 1986), family (or parental) characteristics (Mohapatra *et al.*, 2007; Wahba & Zenou, 2009), institutional factors such as access to credit and liquidity constraint (Blanchflower & Oswald, 1998;

Evans & Leighton, 1989), and factors related to local labor market conditions (Haile, 2008). All of these approaches lay the foundation for understanding the behavior of entrepreneurs in general.

Regarding the role of migration experience in choosing entrepreneurship, there is a growing, although still small, body of literature that focuses on the occupational choice of migrants upon return and on the determinants of their subsequent entrepreneurial activities (Dustmann & Kirchkamp, 2002; Ilahi, 1999; McCormick & Wahba, 2001; Mesnard, 2004; Piracha & Vadean, 2010; Wahha & Zenou, 2009; Woodruff & Zenteno, 2007). Since return migration primarily takes place in developing countries, the main focus concentrates on thinking of the migration experience as a solution to obstacles to entrepreneurship in countries that often lack the institutional and economic environments conducive to the development of such activities. Concerning the broad categories of factors listed above, migration experience may enhance human and physical capital, and thus enable individuals to set up their own businesses upon return, despite poor initial personal endowments and/or imperfect credit markets.

In the theoretical framework of migration studies, migration is considered part of a lifetime utility maximization plan with given budget and liquidity constraints (Djajic & Milbourne, 1988; Galor & Stark, 1990; Dustmann, 1995). Following Borjas and Bratsberg (1996), return migration is usually viewed as “*part of an optimal residential location place over the life cycle*” (p.165), and as a consequence, migration itself is a short-term phenomenon used as a means of promotion after return. The underlying idea of the approach is that people decide to migrate in order to accumulate a sufficiently large amount of capital of any sort (skills, human capital, experience, savings, etc.) that will enable them to start new higher-level activities after return. Within this framework, the selection process is “positive” because migrants who return have actually decided to (migrate and) return as a lifetime plan, and they take advantage of their migration experience to move to better jobs after return. Furthermore, in models of temporary migration, the optimal migration duration and the occupational choice after return are supposed to be simultaneous: the decision to become self-employed upon return is made at the same time as the decision to migrate and return.

In countries where access to credit is a major obstacle for entrepreneurship, how individuals solve the liquidity constraint is a key issue (Wahba & Zenou, 2009)⁶⁸. One strategy is temporary labor migration to accumulate capital for initiating enterprises upon return, as set in the life cycle assumption theory (Dustmann & Kirchkamp, 2002; Mesnard, 2004). As argued by McCormick and Wahba (2001), “*individuals who have made higher total savings whilst overseas are more likely to become entrepreneurs on return since for them the opportunity costs of capital is less than for those who either must borrow in local capital markets or are liquidity constrained*” (pp. 172-173). Hence, individuals who aim to become self-employed will also decide on the amount of savings to accumulate in order to set up their businesses after return. As a consequence, they can be expected to save more during migration⁶⁹, and a positive relationship between repatriated savings and entrepreneurship activities upon return should be observed. Using Tunisian data, Mesnard (2004) finds evidence that high savings brought back from migration positively influence the choice to become an entrepreneur after return. The positive impact of accumulated savings on the decision to become self-employed is also highlighted in case studies of other countries (Ilahi, 1999; Piracha & Vadean, 2010).

In terms of entrepreneurial ability, migration experience can also be viewed as a tool to accelerate the process of ability enhancement through learning, in the vein of the human capital approach to entrepreneurship pioneered by T. W. Schultz. Schultz (1980) defines entrepreneurship as the ability to deal with disequilibria (by “*making decisions that are neither routine nor repetitive*”, p. 442) rather than the ability to bear risk (since people who are not entrepreneurs also have to deal with uncertainty). In this regard, he argues that “*experience, education and health enhance entrepreneurial ability*” (p. 448). As documented by Ma (2001), such enhancement can be acquired through migration. Indeed, “*the migrant who adopts a labor-force-experience approach has to break routines frequently, when searching for and evaluating opportunities, making and*

⁶⁸ There is some empirical evidence that attests to the existence of such liquidity constraints in developed countries too. Using American data, Evans and Jovanovic (1989) show that liquidity constraint is binding for virtually all the individuals who are likely to start a business. According to their estimation, the liquidity constraint deters 1.3% of the population from entering entrepreneurship.

⁶⁹ In this respect, including the amount of return savings into the occupational choice equation is a way to test the extent to which credit constraint affects self-employment decision. The rationale is that in the absence of credit constraint, the decision to become entrepreneur would not depend on personal wealth.

implementing decisions, changing and adjusting to new positions, learning and perfecting skills, and understanding firm organization and the economic system” (p. 241). Using Chinese data collected in 1997, he validates the assertion that human capital accumulated during migration is fundamental to occupational change.

In a more integrated approach, Wahba and Zenou (2009) develop a search model in which return migrants face a trade-off between human and financial capital accumulation during migration on the one hand, and a simultaneous potential loss of their original social capital due to loosening contacts whilst overseas on the other hand. Using data from the Egyptian labor market, they show that return migrants are more likely to start entrepreneurial activities than non-migrants. They test the various relationships involved and provide strong evidence of the positive impact of both financial capital and human capital accumulation through migration in self-employment choice. They also find that social networks have a significant influence on non-migrants to become entrepreneurs, but no significant impact on return migrants. One explanation is that the accumulation of human and physical capital compensates to some extent for the loss of social networks for return migrants.

This brief review suggests that both theoretical predictions and empirical evidence converge to emphasize the high propensity of return migrants to become entrepreneurs after return, as well as the important role of migration experience through repatriated capital and/or enhanced entrepreneurial abilities in leading return migrants to become entrepreneurs. We propose a test of these two hypotheses in the case of Wuwei County, adopting two complementary empirical approaches that are detailed below.

4.3 Data and descriptive statistics on self-employment

4.3.1 Household survey in Wuwei

The data used here comes from a series of interviews of rural households, conducted in Wuwei County in Anhui province from September to November 2008 (hereafter named

“Wuwei 2008 Survey”)⁷⁰. The county is located in the middle of Anhui province and on the north side of Yangtze River, neighboring the second largest city of the province, Wuhu, 116 kilometers away from the capital city of Hefei. As mentioned above, Wuwei County was selected because of both its relatively long labor force export history, and its active policy to encourage return migration. Four towns were chosen for the survey: Gaogou, Liudu, Dougou and Tanggou. Approximately three administrative villages in each town and 20 households in each village were randomly selected. A total of 239 households were interviewed, providing information on 969 individuals.

The data was collected in the form of a questionnaire, consisting of a series of questions about both family, and individual family members. Individual information includes personal characteristics (e.g., age, sex, education, etc.), working position and income. The work experience during and after migration for those with a migration and/or return history was also recorded. At the household level, the primary information includes the values of productive assets and yearly incomes. A separate administrative village survey was also conducted in each village to collect information about the general economic, geographic as well as demographic conditions.

The sample used in this chapter is composed of 384 working individuals currently living in the villages. Since our focus is on occupational choice for the working population, the sample is limited to individuals aged 17 to 70, who declared working at least part of the year⁷¹. For the purpose of this study, we consider two groups of workers: non-migrants and return migrants. Non-migrants are those who have no working experience or working experience of less than six months outside of Wuwei County. Return migrants are individuals currently settled and working in the county, who have at least six months migration working experience outside the county. Out of

⁷⁰ Although the survey was carried out at the onset of the financial crisis, when massive lay-off started in China (Huang *et al.* in press), there are good reasons to think that the 2008 economic crisis should not contaminate our results in any severe way. First, regarding return decisions, the recorded information of the year of return for return migrants indicates that only 10% of them returned in 2008, and that only one individual had a return duration of less than 2 months at the time of the survey. Second, our survey also records the starting year of current occupation for each return migrant. About 74% of the sample started their current occupation before the year 2008. Among those who started their current occupation in 2008, half of them started before August 2008. These figures suggest that the occupational choice of return migrants in our sample has been made essentially before the start of economic recession in China.

⁷¹ Unpaid workers (e.g. housewife) and individuals currently waiting for a job are excluded from the sample. Current out-migrants are also excluded from the sample since they are working in cities, and not in the villages.

the 384 individuals in the working labor force, 298 (78%) are non-migrants and 86 (22%) return migrants⁷². Self-employed individuals are identified as people who are either own-account workers (with no employees) or individual entrepreneurs (with paid employees)⁷³.

4.3.2 Data description

Table 4.1 presents summary statistics on individual and household characteristics as well as on occupational distribution by migration status. As expected, there is a clear gap in human capital characteristics between non-migrants and return migrants⁷⁴. Non-migrants are more than seven years older than returnees, and they are much less educated⁷⁵: the proportion of non-migrants who have received no formal education is 44% while that of returnees is 27%. With regard to household characteristics, an interesting feature is that the average land endowment per person is significantly lower for return migrants who have only 0.72 *mu*⁷⁶ per person, as compared to 1.07 for non-migrants. Since there is no significant difference in household size between returnees and non-migrants, the smaller per capita land endowment of returnees probably reflects land shortage rather than labor surplus in returnees' households⁷⁷. It can also be interpreted either as a cause or a consequence of a higher propensity of

⁷² A limitation of the study is the relatively small sample size, which drastically limits the degrees of freedom in the quantitative analysis provided below. We acknowledge this limitation and this is an important point of caution in the interpretation of our results.

⁷³ Piracha and Vadean (2010) emphasize the relevance of distinguishing own-account workers and individual entrepreneurs in estimating the role of return migration in occupational mobility. However, our data do not allow us such a distinction because of the small number of observations per category we would be left with. Moreover, a common feature of rural work is that some individuals participate in more than one occupation at the same time. Most multiple activities involve farm labor and one off-farm activity. Among non-migrants as well as return migrants, about 23% declared having two occupations, mostly twined with farm labor. For these individuals, we categorize the off-farm occupation as the primary occupation.

⁷⁴ These findings are consistent with evidence from Zhao (2002) and Wang and Fan (2006). There is a slight difference though with Wang and Fan (2006) who found that women are more likely to return than men, which is not the case in our sample. However, this difference may simply come from the fact that our sample excludes homemakers, who are mainly females.

⁷⁵ As for education, we may also note that the overall education level of the surveyed population is low since less than 10% of them reached a senior high school level or above.

⁷⁶ One *mu* is equal to 0.067 hectare.

⁷⁷ Land endowment measures the total area of land contracted to the household (expressed in per capita terms). Since there has been only one reallocation of land in each village (in 1995) and no other reallocation since then, contracted land can be considered as reasonably exogenous to the migration decision in Wuwei County.

returnees to engage in off-farm activities.

Table 4.1 Descriptive statistics by migration status

	Mean value or %		Mean test
	Return migrants	Non-migrants	
Individual characteristics			
Age	39.6	47.3	***
Male	58%	50%	NS
Married	87%	87%	NS
Years of schooling	5.6	4.5	**
Education level			
Illiterate	27%	44%	***
Primary school	22%	21%	NS
Junior middle school	43%	26%	***
Senior high or more	8%	9%	NS
Relationship to the household head			
Household head	50%	42%	NS
Spouse	33%	40%	NS
Child	13%	12%	NS
Occupational distribution			
Self-employment	44%	22%	***
Farm labor	22%	50%	***
Manual work	14%	15%	NS
Skilled work	20%	13%	NS
Household characteristics			
Household size	4.05	4.23	NS
# children under 6	0.19	0.20	NS
# children in school	0.74	0.59	*
# male working adults	1.44	1.52	NS
# female working adults	1.29	1.42	NS
# old members (over 70)	0.15	0.21	NS
Land per person (<i>mu</i>)	0.72	1.07	***
Household income 2007			
Including income from migration	27,220	26,487	NS
Excluding income from migration	21,842	22,824	NS
Sample size	86	298	

Source: Wuwei 2008 Survey.

Notes: The mean test column indicates the significance level of mean differences between return migrants and non-migrants. NS non significant; * significant at 10%; ** significant at 5%; *** significant at 1%. Some averages are calculated over a smaller number of observations because of missing values. We only report the total number for reference.

Interestingly, Table 4.1 also exhibits important differences in occupational participation between non-migrants and return migrants. For non-migrants, participation in farm labor (50%) is significantly higher than in any other occupation, while for return migrants, self-employment is by far the top occupation with 44% of returnees engaged

in self-employment; the proportion of returnees engaged in farm labor and in skilled work are respectively 22% and 20%⁷⁸. A comparison of occupational distribution across the two groups shows that return migrants are significantly more engaged in self-employment than non-migrants.

More specifically, with regard to self-employment, return migrants and non-migrants exhibit fairly similar patterns in terms of both business scale and business sector. Although not reported here, our data shows that businesses established in Wuwei County are generally of a small family scale: the majority of return migrant self-employment activities involve no non-family employees (72%), and the proportion is even larger for non-migrants (86%). The general observation of small-sized rural businesses is consistent with Zhang *et al.* (2006) who find an average number of workers per self-employed enterprise in rural China of only 2.3⁷⁹. They also show that approximately 60% of the enterprises are operated by only one person. Regarding business sectors, our data indicates that a quarter of self-employed return migrants are engaged in farming-related activities, such as large-scale aquatic production (crabs, fish, and pearls), and greenhouse vegetable cultivation. Retail business such as small village groceries and a variety of individual vendors, and manufacturing activities like brick-making, glue-making, and raincoat production come respectively second and third. Though there are slight differences in proportions, the distribution patterns among non-migrants and among return migrants are fairly close to each other.

4.4 Return migration and self-employment: a comparison with non-migrants

To analyze the impact of return migration on occupational choice, we first try to isolate the specific effect of being a returnee on the decision to become self-employed, as

⁷⁸ Skilled workers are identified as people engaged in professional work, semi-skilled or skilled work, management, government position, or clerk position. Low skilled workers, apprentices, service workers as well as family cottage workers are designated as “manual workers”. Individuals who undertake traditional agricultural work are grouped as “farm laborers”.

⁷⁹ Zhang *et al.* (2006) use a sample of 1,199 households surveyed in 60 villages and six provinces in 2000.

opposed to undertaking farm work or wage work in the village. Table 4.2 provides descriptive statistics by both migration status and occupational group for individuals working in rural areas.

Table 4.2 Descriptive statistics by migration status and by occupation

	Whole sample			Self-employment			Wage or farm work		
	Self-emp.	Wage or farm	Mean test	NM	RM	Mean test	NM	RM	Mean test
Individual characteristics									
Age	43.41	46.33	**	45.80	39.32	***	47.67	39.88	***
Male	0.62	0.48	**	0.60	0.66	NS	0.48	0.52	NS
Married	0.96	0.83	***	0.97	0.95	NS	0.84	0.81	NS
Years of schooling	5.34	4.52	*	4.85	6.18	*	4.37	5.21	NS
Education level									
Illiterate	0.32	0.43	*	0.37	0.24	NS	0.46	0.29	**
Primary school	0.17	0.22	NS	0.18	0.16	NS	0.21	0.27	NS
Junior middle school	0.43	0.25	***	0.40	0.47	NS	0.22	0.40	**
Senior high or more	0.08	0.09	NS	0.05	0.13	NS	0.10	0.04	NS
Relationship to the household head									
Household head	0.58	0.38	***	0.57	0.61	NS	0.38	0.42	NS
Spouse	0.35	0.40	NS	0.38	0.29	NS	0.41	0.35	NS
Child	0.05	0.15	***	0.03	0.08	NS	0.15	0.17	NS
Household characteristics									
Household size	3.96	4.27	*	3.92	4.03	NS	4.32	4.06	NS
# children under 6	0.16	0.21	NS	0.14	0.18	NS	0.21	0.19	NS
# children in school	0.75	0.58	**	0.63	0.95	*	0.58	0.58	NS
# male working adults	1.42	1.54	NS	1.46	1.34	NS	1.54	1.52	NS
# female working adults	1.18	1.46	***	1.22	1.13	NS	1.47	1.42	NS
# old members (over 70)	0.11	0.23	**	0.08	0.16	NS	0.25	0.15	NS
Land per person (<i>mu</i>)	0.67	1.11	***	0.72	0.58	NS	1.16	0.84	**
Household income 2007									
Including income from migration	31,020	25,039	**	31,368	30,426	NS	25,113	24,681	NS
Excluding income from migration	26,801	21,066	**	28,982	23,071	NS	21,106	20,869	NS
Sample size	103	281		65	38		233	48	

Source: Wuwei 2008 Survey.

Notes: See Table 4.1. NM: non-migrants. RM: return migrants.

A comparison by occupation shows that younger, more educated and married male

individuals tend to engage in self-employed activities⁸⁰. As compared to farm work or wage work, self-employment is also clearly undertaken by heads of household, in smaller households (with more children of school-age, less female working adults and less old members), with a smaller endowment in arable land. Moreover, the self-employed are more likely to have a much higher household income (in 2007). Finally, a comparison by migration status shows that self-employed return migrants are on average younger and much more educated than self-employed non-migrants.

4.4.1 Empirical approach

The underlying econometric specification used to estimate the determinants of the decision to engage in self-employment can be briefly described as follows. The latent individual's utility from self-employment (y_i^*) can be expressed as follows:

$$y_i^* = \beta_0 + X_i\beta + R_i\gamma + \varepsilon_i \quad (1)$$

where X_i is a set of explanatory variables, R_i a dummy variable for return migrants, and ε_i a random normally distributed residual (Probit model). The actual decision to be self-employed (y_i) is such that:

$$y_i = \begin{cases} 1 & \text{if } y_i^* > 0 \\ 0 & \text{otherwise} \end{cases} \quad (2)$$

The vector X_i includes various individual, family and village characteristics that aim at capturing some of the theoretical channels presented in Section 2. Personal characteristics include age, gender, marital status, and education. Family labor resources are accounted for through two sets of variables that are introduced separately. First, the size of household is introduced in a baseline regression (Model 1). Second, considering the potential correlation between household size and household composition, we introduce separately the household composition (Model 2) that enables us to distinguish dependent members (children below the age of six and adults

⁸⁰ Zhang *et al.* (2006) also find that self-employed individuals in rural China are more likely to be male.

above the age of 70) from working members (by gender). Household assets are measured by both land endowment per person and the household income for the year 2007. This latter variable is introduced in a separate regression (Model 3) since it slightly reduces the sample size. Three township dummies are also used to control for location differences.

In this simple Probit model, the “returnee” dummy variable R_i is treated as fully exogenous. It enters the right-hand side explanatory variables to account for the fact that migration experience may influence occupational decision upon return, and as discussed above, it is expected to have a positive impact on self-employment participation. However, under the rationale is that return migrants are a self-selected group with regard to unobservable characteristics such as motivation or risk aversion, one may wish to allow return migration to be endogenous to self-employment decision. Indeed, these unobservable characteristics may at least partly explain that return migrants are less risk-averse than non-migrants and therefore also more likely to be self-employed. If unobservable heterogeneity has a direct influence on both decisions, to migrate (and return) as well as to set up businesses, then the return migration variable will be correlated with the error term ε_i , which will make it effectively endogenous in the selected sample. As suggested by Greene (1998, 2008), this unobservable heterogeneity can be captured by using a recursive bivariate Probit model⁸¹.

Estimating a recursive bivariate Probit model requires the estimation of the return migration decision together with the self-employment decision. The decision to migrate and return can be described in a similar way:

$$R_i^* = \alpha_0 + Z_i\alpha + \mu_i \tag{3}$$

where R_i^* is the latent variable associated to the return decision, with $R_i = 1$ if $R_i^* > 0$ and $R_i = 0$ otherwise, Z_i is a set of individual and household characteristics that may

⁸¹ Two recent papers on return migration in Egypt (Wahba & Zenou, 2009) and in Eastern Europe (Martin & Radu, 2009) follow Greene (1998)’s methodology and apply a recursive bivariate Probit model to account for the potential endogeneity of return migration in entrepreneurship decision. They both find evidence of endogeneity and show that controlling for the endogeneity of migration decision may change the estimated impact of return migration on the decision to be self-employed.

influence the decision to return, and μ_i a random normally distributed residual. In a recursive bivariate Probit model, the two decisions, on entrepreneurship and return migration are treated as interdependent, with $\text{cov}(\varepsilon_i, \mu_i) = \rho$.

Although no exclusion restrictions are theoretically needed to achieve identification of the model parameters (Wilde, 2000), Monfardini and Radice (2008) advocate the use of instruments to help in obtaining results more robust to distributional misspecification. As pointed out by Taylor *et al.* (2003), migration networks have been shown to be important drivers for individual migration decision. In communities with a history of migration, information about potential jobs in cities or costs can be shared so that it reduces out-migration related costs or uncertainties (Massey, 1990; Piracha & Vadean, 2010; Wahha & Zenou 2009). In a similar vein, we may assume that networks and home villages' histories in terms of attracting back return migrants can also influence return migration, and that the current return migration flow is a function of past return migration patterns. Following Wahha and Zenou (2009), who use the share of adult male migrants in the total adult male population in an individual's original community as an instrument for the identification of return migration decision, we use the share of migrants or return migrants (dropping the observed individual) in the village as a proxy for a networking effect or a culture of migration. We expect that such networks have an influence on the (return) migration decision and are not correlated with the error term in the individual occupational decision, so that they can be used as an identification variable. The introduction of this network proxy in the occupational choice equation provides a non-significant coefficient, which enables us to use it to identify our model (Coulon and Piracha, 2005)⁸².

4.4.2 Estimation results

Both simple Probit models that do not allow for selection on unobservable characteristics and recursive bivariate Probit models that capture the potential

⁸² The instrument's coefficient is insignificant in all the occupational choice equations reported in Table 4.3. The corresponding p-values for the instrument's coefficient are 0.210, 0.301 and 0.431 respectively for models (1) to (3).

endogeneity of return migration decision in self-employment choice, are estimated and presented respectively in Table 4.3 and Table 4.4. As shown in Table 4.4, we do not find evidence of any strong endogeneity problem for the decision to be self-employed. The Wald statistic indicates that we cannot reject the hypothesis that ρ equals zero⁸³. Following Greene (2008), one may argue that this result is not as counterintuitive as it seems. Indeed, the return migration decision and the self-employment choice are probably correlated, but what the correlation coefficient measures here is “(roughly) the correlation between the outcomes after the influence of the included factors is accounted for” (Greene, 2008, p. 825).

Tables 4.3 and 4.4 all indicate that return migrants are more likely to engage in self-employment than non-migrants. Moreover, for individual as well as family characteristics, the estimated coefficients are consistent with the predictions of the standard human capital model. Consistent with a life-cycle hypothesis, the effect of age is found to be non-linear: the probability of becoming an entrepreneur increases with age up to a threshold level of 40 to 42 years old. Compared to young people, middle-aged people are more likely to have accumulated both financial capital and human capital, such as management skills or the social networks necessary to become an entrepreneur. However, above a certain age, older people are also usually more averse to risk, and this higher risk aversion reduces their probability to set up new businesses, other things being equal. We also find that men are more likely to be self-employed than women. With regard to marital status, our estimations show that married people are more likely to engage in self-employment when the size of household is introduced, but the result does not hold with household composition. Additional specifications (not reported here) also indicate that marriage might bear differently on the employment outcome of men and women since the interaction between marital status and gender alone is significant and positive (but gender becomes insignificant when entered with the interaction term). These findings may indicate that marriage positively influences the involvement of men in self-employment *via*

⁸³ Simple descriptive statistics corroborate the finding that there is no clear evidence of return migrants being a self-selected group of population. Indeed, a comparison of occupational patterns of return migrants before migration with that of non-migrants does not highlight any systematic difference. Conversely, return migrants who were working before migration were actually much more engaged in farm work (69%) than non-migrants (either in their current occupation, 50% or their past occupation, 55%), and much less in self-employment (8% against 22% or 17%).

intra-family work-sharing. Such interpretation is consistent with the findings of Zhang *et al.* (2006) who highlight the high proportion of married entrepreneurs rather than single individuals as a distinctive characteristic of self-employment in rural China.

Table 4.3 Probit estimates of rural self-employment choice

Determinants of P(self-employed)	(1)		(2)		(3)	
	Marginal effect	Robust S. E.	Marginal effect	Robust S. E.	Marginal effect	Robust S. E.
Individual characteristics						
Return migrant (=1)	0.099*	0.191	0.109*	0.193	0.124**	0.196
Age (years)	0.046***	0.060	0.049**	0.068	0.053***	0.071
Age squared	-0.001***	0.001	-0.001***	0.001	-0.001***	0.001
Male (=1)	0.133***	0.150	0.105**	0.155	0.90**	0.160
Married (=1)	0.150*	0.396	0.140	0.408	0.112	0.398
Education (years)	0.001	0.027	0.004	0.027	0.003	0.028
Household characteristics						
Household size	-0.055***	0.073				
# children under 6			-0.080	0.241	-0.097	0.253
# male working adults			0.012	0.156	-0.025	0.168
# female working adults			-0.071**	0.126	-0.094***	0.125
# old members (over 70)			-0.131**	0.210	-0.118**	0.209
Land per person (<i>mu</i>)	-0.111**	0.161	-0.096**	0.157	-0.104**	0.155
Household income 2007					0.004***	0.005
Township characteristics						
Gaogou town (=1)	-0.109*	0.235	-0.105*	0.237	-0.152**	0.245
Dougou town (=1)	-0.112*	0.269	-0.123*	0.267	-0.132**	0.263
Tanggou town (=1)	-0.107	0.283	-0.094	0.297	-0.101	0.289
Sample size	384		384		382	
Predicted Prob (at X bar)	20%		20%		19%	
Observed frequency	27%		27%		27%	
Pseudo R ²	0.21		0.22		0.24	
Log pseudolikelihood	-177.06		-175.12		-169.02	

Source: Wuwei 2008 Survey.

Notes: Household income for the year 2007 includes remittances from on-going migrants and is expressed in 1,000 yuan. Marginal effects measure the change in the probability of being self-employed from a unit change in the explanatory variable. Robust standard errors are adjusted for clustering by households (201 households). *: Significant at 10%. **: significant at 5%. ***: significant at 1%.

Table 4.4 Recursive bivariate probit estimates of being a return migrant and self-employment choice

Variables	(1)		(2)		(3)	
	Coef.	Z-stat.	Coef.	Z-stat.	Coef.	Z-stat.
Probability of being self-employed						
Individual characteristics						
Return migrant (=1)	1.231***	2.65	1.336***	2.78	1.357***	2.84
Age (years)	0.144**	2.43	0.150**	2.20	0.170**	2.46
Age squared	-0.002**	-2.57	-0.002**	-2.23	-0.002**	-2.40
Male (=1)	0.346**	2.04	0.249	1.41	0.205	1.17
Married (=1)	0.505	1.25	0.453	1.08	0.321	0.80
Education (years)	0.008	0.31	0.017	0.66	0.013	0.49
Household characteristics						
Household size	-0.151**	-2.13				
# children under 6			-0.263	-1.17	-0.320	-1.36
# male working adults			0.062	0.40	-0.068	-0.40
# female working adults			-0.221*	-1.94	-0.304***	-2.74
# old members (over 70)			-0.359*	-1.72	-0.329	-1.62
Land per person (<i>mu</i>)	-0.300**	-1.98	-0.258*	-1.79	-0.295**	-2.03
Household income 2007					0.015***	3.41
Township characteristics						
Gaogou town (=1)	-0.323	-1.46	-0.314	-1.44	-0.512**	-2.23
Dougou town (=1)	-0.431*	-1.77	-0.477**	-1.99	-0.530**	-2.23
Tanggou town (=1)	-0.392	-1.51	-0.346	-1.30	-0.387	-1.47
Constant	-3.194***	-2.62	-3.761***	-2.76	-4.217***	-3.05
Probability of being a return migrant						
Individual characteristics						
Age (years)	0.143**	2.50	0.158***	2.62	0.161***	2.71
Age squared	-0.002***	-3.49	-0.002***	-3.51	-0.002***	-3.63
Male(=1)	0.345**	2.12	0.317*	1.83	0.329*	1.92
Married(=1)	0.050	0.11	-0.055	-0.12	-0.047	-0.10
Education (years)	-0.005	-0.20	-0.003	-0.12	-0.002	-0.08
Household characteristics						
Household size	-0.097	-1.33				
# children under 6			0.049	0.23	0.072	0.33
# male working adults			0.006	0.04	0.034	0.22
# female working adults			-0.033	-0.25	-0.018	-0.14
# old members (over 70)			-0.106	-0.52	-0.124	-0.62
Land per person (<i>mu</i>)	-0.278*	-1.68	-0.264	-1.59	-0.264	-1.57
Household income 2007					-0.003	-0.68
Instrument						
Share of return migrants and migrants in the village	4.328**	2.37	4.143**	2.26	3.786**	2.09
Constant	-3.589***	-2.99	-4.138***	-3.52	-4.042***	-3.36
Rho (ρ)	-0.560		-0.609		-0.590	
Wald test of $\rho=0$ (p-value)	0.12		0.12		0.16	
Sample size	384		384		382	
Log pseudolikelihood	-346.29		-345.16		-338.79	

Source: Wuwei 2008 Survey.

Notes: see Table 4.3.

Regarding the impact of household assets and resources, the shortage of land at the family level is found to act as a constraint that pushes people out of agriculture into off-farm activities, and thus increases the individual's probability to become self-employed. Moreover, a comparison of the different specifications reveals some interesting household resource effects on individual self-employment establishment. First, the impact of household size is significantly negative, indicating that self-employment is more likely to occur in smaller households. Regarding household composition, individuals are likely to engage in self-employment when there are fewer female working adults and fewer older family members. Finally, the level of household income in 2007 has a significantly positive impact on individual's choice of self-employment, indicating that self-employed individuals are more likely to come from households with better economic conditions.

Last, two of the three township dummy variables are significant and negative, which implies that compared to the reference township (Liudu) and other things being equal, people living in these two townships are less likely to engage into self-employment. Since Liudu is the poorest township in our sample, entering self-employment in this township may be viewed as a strategy to escape the disadvantages of an unfavorable economic environment and the absence of wage work opportunities.

4.5 Migration experience and self-employment decision upon return

The above Probit estimations support the hypothesis that return migrants are more likely to be self-employed compared to their rural counterparts. There are a number of explanations for the higher propensity of return migrants to be self-employed that deserve further exploration. First, return migrants may be a selected group of individuals who originally participated more in self-employment, meaning that their present occupation would also depend on their pre-migration occupation. However, a quick look at a transition matrix on both pre-migration and post-return occupational composition for return migrants does not reveal any systematic link between present and past occupations of returnees. In particular, Table 4.5 shows that before migration,

51% of individuals were in farm labor and 26% had no job (they were students, homemakers or waiting for a job). After return, we observe a sharp decrease in farm labor participation compensated by a significant increase in self-employment as well as in wage work. Among the self-employed, the vast majority was either farm laborers or unemployed, and only three were already self-employed before migration. Arif and Irfan (1997) found similar patterns in Pakistan, with a high tendency of occupational shifts of return migrants between pre-migration and post-return, particularly toward independent activities.

Table 4.5 Transition matrix for pre-migration and post-return occupation of returnees

Pre-migration occupation	Post-return occupation				
	Farm laborer	Manual worker	Skilled worker	Self-employed	Total
Farm laborer	18 (94.74%)	5 (41.67%)	4 (23.53%)	17 (44.74%)	44 (51.16%)
Manual worker	0 (0.00%)	1 (8.33%)	2 (11.76%)	4 (10.53%)	7 (8.14%)
Skilled worker	0 (0.00%)	3 (25.00%)	4 (23.53%)	1 (2.63%)	8 (9.30%)
Self-employed	0 (0.00%)	0 (0.00%)	2 (11.76%)	3 (7.89%)	5 (5.81%)
Unemployed	1 (5.26%)	3 (25.00%)	5 (29.41%)	13 (34.21%)	22 (25.58%)
Total	19 (22.09%)	12 (13.95%)	17 (19.77%)	38 (44.19%)	86 (100%)

Source: Wuwei 2008 Survey.

Note: Unemployed individuals before migration were students, homemakers or waiting for a job.

Another explanation for the high propensity of self-employment participation as well as other occupational changes after return can be related to migration working experience. Stylized facts on returnees' migration experiences profiled by occupation status upon return corroborate this hypothesis. As depicted in Table 4.6, differences in migration experience between self-employed returnees and non self-employed returnees all suggest a potential relationship between migration experience, measured in terms of length of stay, accumulated working experience or accumulated savings, and occupational choice toward self-employment after return.

Table 4.6 Return migrants' migration experience by occupational choice upon return

	All	Self-employed	Non self-employed	Mean test
Migration experience				
Age at first migration	26.49 (8.56)	24.66 (7.13)	27.94 (9.36)	*
First migration destination choice for a "social network" reason	0.67 (0.47)	0.68 (0.47)	0.67 (0.48)	NS
Migration in or after the year 1996	0.55 (0.50)	0.42 (0.50)	0.65 (0.48)	**
Number of years of migration	6.46 (5.43)	7.55 (5.05)	5.60 (5.63)	*
Occupational distribution during migration				
Manual work	34.52%	21.62%	44.68%	***
Skilled work	39.29%	48.65%	31.91%	*
Self-employment	26.19%	29.73%	23.40%	NS
Number of job changes	1.56 (0.79)	1.84 (0.92)	1.33 (0.60)	***
Worked in a big city during migration	0.59 (0.49)	0.61 (0.50)	0.58 (0.50)	NS
Number of city changes	1.88 (1.81)	2.03 (2.03)	1.77 (1.62)	NS
Repatriated savings (yuan)	11,957 (14,582)	16,263 (17,243)	8,548 (11,118)	**
Post-return experience				
Number of years since return	5.12 (4.71)	5.71 (4.69)	4.64 (4.72)	NS
Number of job changes upon return	1.28 (0.55)	1.42 (0.68)	1.17 (0.38)	**
Age at return	34.49 (9.71)	33.53 (7.98)	35.25 (10.91)	NS
Sample size	86	38	48	

Source: Wuwei 2008 Survey.

Note: Standard deviation in parenthesis. The mean test column indicates the significance level of mean differences between self-employed and non self-employed. NS non significant; * significant at 10%; ** significant at 5%; *** significant at 1%.

First, returnees who became self-employed after return were on average more than three years younger when they left their home village than those who took another job. Consistent with much longer average migration durations for the former group (7.55 years *versus* 5.60 years)⁸⁴, the age gap reduced to less than two years upon return. As a matter of fact, 42% of returnees who became self-employed after return had accumulated more than eight years of migration experience, whereas only 21% of non

⁸⁴ Migration duration is the total accumulated years of migration.

self-employed had such a long migration experience. Interestingly, self-employed returnees have also experienced much more frequent changes in both jobs and working cities during migration, and they have repatriated two times more savings on average (16,263 yuan *versus* 8,548 yuan)⁸⁵. Finally, Table 4.6 also displays the occupational distribution of return migrants in their last urban jobs. It indicates that before return, the majority were wage-workers: 35% were manual workers, 39% were skilled workers, and only 26% were self-employed⁸⁶. A comparison of the distributions across self-employed and non self-employed return migrants reveals some interesting additional features. While there is no significant difference in the proportion involved in self-employment before return, self-employed return migrants were significantly more likely to be skilled workers, but less likely to be manual workers than non self-employed return migrants (49% vs. 32% and 22% vs. 45%).

4.5.1 Empirical strategy

In this section, we propose to formally test the impact of migration experience on self-employment decision upon return, by estimating the determinants of return migrants' choice toward self-employment. For this purpose, we further restrict our sample to return migrants only and use a bivariate Probit model similar to the one presented in Section 4. We also introduce explanatory variables that account for both migration experience and post-return experience together with a series of individual and household socio-economic characteristics.

As highlighted in Section 2, migration experience through repatriated capital and/or enhanced entrepreneurial abilities may be expected to influence occupational decisions in favor of self-employment. For the empirical test of these hypotheses, we measure financial capital accumulated during migration through the total family members'

⁸⁵ The exact question asked during the interview to each individual migrant is: "How much of your total financial savings did you bring back with you?". We use this question to calculate repatriated savings upon return. Since some couples have non-separable repatriated savings and self-employed business is mostly a family business with an overall family financial contribution, repatriated savings here are calculated as the total family members' migration savings upon return.

⁸⁶ While in cities, self-employment activities concentrate in catering business, construction, and retail business.

repatriated savings upon return⁸⁷. As for human capital or experience accumulated during migration, we use two proxies to account for urban job experience. The first one measures the frequency of job changes during the whole process of migration⁸⁸, and the second one takes a value of one if the return migrant has ever worked in a big city⁸⁹.

Moreover, as also mentioned in Section 2, in models of temporary migration, return savings are considered as inherently related to migrants' return life-time plans. From a statistical point of view, it implies that repatriated savings must be considered as a potentially endogenous variable in the estimation of the return migrants' occupational choice model⁹⁰ (Ilahi, 1999; Mesnard, 2004; McCormick & Wahba, 2001). A key issue is to find valid instruments, i.e. variables that should affect repatriated savings, but the choice of activity upon return only via repatriated savings. Following previous empirical works, we consider three different instrumental variables to correct for the possible sources of endogeneity: *i*) "age at first migration"; *ii*) "squared age at first migration"; and *iii*) "reasons for the choice of the first migration destination". There are at least two rationales for using age at first migration as an instrument. First, as argued by Dustmann and Kirchkamp (2002), while "variables which are determined during or after the migration period may be affected by activity choice or/and duration", it should not be the case of "characteristics before migration" (p. 363). Second, one feature of internal migration in China is that young migrants are usually employed in tough and demanding jobs, which enables them to earn more money (with a longer working time) in compensation to difficult tasks. But older migrants tend to be less employable in such positions and are given menial occupations that pay much less. In this respect, the

⁸⁷ One may argue that the effect of repatriated savings on self-employment decision could be non-linear (Mesnard, 2004). On our sample, specifications including higher order powers for savings did not show evidence of any non-linear effect.

⁸⁸ Although it cannot be considered as a measure of human capital accumulation, the frequency of job changes during migration entails an accumulation of experience through a need to adjust to new situations and the learning of new skills.

⁸⁹ A "big city" refers to a provincial capital city, one of the four municipalities (Beijing, Shanghai, Tianjin, Chongqing) or a Special Economic Zone city like Shenzhen.

⁹⁰ One may argue that the frequency of job changes could be endogenous too if these job changes were mostly voluntary and somehow connected to the business set up upon return (meaning that migrants would indeed try many different jobs in order to have enough contacts or find a market niche for their own business later). However, this seems not to be the case in the studied area. As indicated below, we collected information on the reasons why return migrants changed jobs during migration and we found that the majority of job mobility was involuntary. Moreover, the surveyed return migrants also declared that the choice of a specific city for labor migration was usually not related upstream to any desire to set up business after return.

age during the first migration may determine the capacity of migrants to save more, everything else being constant. The last instrumental variable is a binary variable which is set to equal one if the choice of the first migration destination is primarily due to a social network reason, such as migrating with family members, relatives, friends or joining them in destination areas. The rationale for introducing this instrumental variable is inspired by the work of Bauer and Gang (2002), who highlight the positive effect of social networks on migrant wages in the migration destination.

Probit estimates using a maximum likelihood estimator to account for the potential endogeneity of repatriated savings are presented in Table 4.7 together with standard Probit estimates. The validity of the instruments is tested using the Amemiya-Lee-Newey overidentification test (Baum *et al.*, 2006). As the null hypothesis that the instruments are uncorrelated with the error term and correctly excluded from the outcome equation is not rejected ($p=0.98$ for Model 1 and $p=0.90$ for Model 2), these instruments can be accepted as being valid in our specification⁹¹. Next, the Wald test of the null hypothesis of exogeneity is not rejected at the 1% level. Hence, a standard Probit regression is appropriate to estimate the magnitude of the savings effect⁹².

4.5.2 Estimation results

By holding all other variables constant, our estimation results show that migration experience does significantly influence the choice in favor of self-employment among return migrants. Both repatriated savings and the frequency of job changes are found to significantly increase the return migrants' participation in self-employment, whereas working experience in a big city does not appear significant. The importance of financial accumulation during migration can be illustrated by calculating the predicted probability of being self-employed at different levels of repatriated savings, holding all

⁹¹ In the first-stage equation for the IV-probit estimation, the p-values for the instruments' coefficients are 0.152, 0.113 and 0.519 respectively for age at first migration, its square and the reasons for the choice of the first migration destination. Excluding the third (non-significant) instrument from the IV estimation does not change any of the results.

⁹² Mesnard (2004) also finds that the exogeneity of return savings cannot be rejected in her estimations.

other variables in the model at their means. For example, an increase of return savings by one standard deviation, which corresponds to more than doubling the savings brought back by an average return migrant, would lead to an increase in the predicted probability from 41.7% to 64.2% (using Model 1). As compared to the observed frequency of the self-employed among return migrants, this effect would represent a fairly big increase of 45%. The finding that the probability to be self-employed increases with the amount of repatriated savings supports the idea that financial capability is a key element in the establishment of self-employed activities. This result is consistent with empirical findings on the key role of accumulated savings in self-employment choices among return (international) migrants for other countries, such as Pakistan (Ilahi, 1999), Tunisia (Mesnard, 2004) and Albania (Piracha & Vadean, 2010). This finding is also in line with the comprehensive study on self-employment in rural China provided by Mohapatra *et al.* (2007), which gives support to the hypothesis that greater personal wealth eases the self-employment decision by relaxing financial constraints⁹³. As highlighted by Zhang *et al.* (2006), people in rural China face underdeveloped capital markets, and credit constraints are strong enough to prevent them from starting up businesses without personal financial assets. For illustration, self-employed firms in rural China barely acquire assets through debt and liabilities, which represents only 12% of their total assets.

⁹³ The lack of financial assets has been shown to be an important impediment to self-employment in a number of studies on both developed and developing countries. See for example Evans and Jovanovic (1989) and Holtz-Eakin *et al.* (1994) on the US, and Paulson and Townsend (2004) on Thailand.

Table 4.7 Marginal effects for the probability of return migrants to be self-employed

Determinants of P(self-employed)	Standard Probit model		IV Probit model	
	(1)	(2)	(3)	(4)
<i>Individual characteristics</i>				
Age (years)	0.096 (1.62)	0.079 (1.33)	0.093 (1.25)	0.019 (0.29)
Age squared	-0.001* (-1.91)	-0.001 (-1.56)	-0.001 (-1.42)	-0.000 (-0.39)
Male (=1)	0.177 (1.28)	0.125 (0.93)	0.181 (1.15)	0.169* (1.66)
Married (=1)	0.079 (0.29)	0.275 (1.02)	0.064 (0.16)	0.009 (0.02)
Education (years)	0.004 (0.18)	0.011 (0.51)	0.002 (0.05)	-0.023 (-0.77)
<i>Household characteristics</i>				
Household size	-0.085 (-1.21)		-0.087 (-1.18)	
# children under 6		-0.389* (-1.85)		-0.273 (-0.83)
# male working adults		0.135 (0.96)		-0.025 (-0.13)
# female working adults		-0.280 (-1.44)		-0.067 (-0.23)
# old members (over 70)		-0.179 (-0.97)		-0.315* (-1.83)
Land per person (<i>mu</i>)	-0.120 (-0.84)	-0.169 (-1.23)	-0.111 (-0.50)	-0.017 (-0.09)
<i>Migration experience</i>				
# job changes during migration	0.292*** (2.90)	0.351*** (3.37)	0.293*** (2.89)	0.266 (1.27)
Repatriated savings (1,000 yuan)	0.015** (2.0)	0.017** (2.32)	0.017 (0.50)	0.035*** (4.26)
Worked in a big city during migration (=1)	0.021 (0.14)	0.097 (0.59)	0.012 (0.0.6)	-0.034 (-0.24)
Return duration (years)	0.024 (1.35)	0.014 (0.73)	0.024 (1.29)	0.013 (0.76)
Gaogou town (=1)	-0.461** (-2.47)	-0.506** (-2.37)	-0.458** (-2.15)	-0.273 (-0.66)
Dougou town (=1)	-0.588*** (-3.80)	-0.640*** (-3.71)	-0.589*** (-3.78)	-0.547 (-1.22)
Tanggou town (=1)	-0.428** (-2.55)	-0.409** (-2.11)	-0.430** (-2.59)	-0.278 (-0.91)
Sample size	86	86	86	86
Pseudo R ²	0.3482	0.3946		
Overidentification test: Amemiya-Lee-Newey minimum chi-sq (p-value)			0.9828	0.9044
Wald test of exogeneity (p-value)			0.9557	0.3689

Source: Wuwei 2008 Survey.

Notes: 1. Marginal probabilities are obtained from Maximum likelihood estimates. Robust standard errors are adjusted for clustering by households (61 households). Z-stat are reported in parenthesis.

2. *: Significant at 10%. **: significant at 5%. ***: significant at 1%.

3. Instruments for repatriated savings are 'age at first migration', its square and 'social network as a main reason for the choice of the first migration'. The Amemiya-Lee-Newey test results for overidentification of instruments are obtained using Baum *et al.* (2006) *overid.ado* programme for Stata after estimation by Newey's minimum chi-squared estimator.

Our estimations also show that a higher frequency of job changes during migration increases the probability to be self-employed after return. Various complementary explanations can be put forward depending on the voluntary or involuntary nature of such job mobility. In our dataset, a further look at the main reasons for job changes indicates that return migrants' job changes during migration are more likely to be of an involuntary nature, since more than 70% are either due to 'work push' reasons (such as low wages, the difficulty of the job, the end of the labor contract, being dismissed, etc.), or to health or family reasons. In the case of involuntary job mobility, a higher frequency of job changes may indicate greater job insecurity during migration, which may at least partly explain why migrants would like to choose to return and establish their own businesses at home. This explanation falls in line with Evans and Leighton's (1989) finding that men are more likely to enter self-employment when they have changed jobs frequently. On the other hand, facing a higher frequency of job changes that entails different jobs or different occupations may result in the acquisition of a richer and a broader working experience. Hence, the positive influence of job changes may at least suggest a relatively important role of such "general human capital" accumulated through different working experiences on the decision to participate in self-employment activities.

4.6 Conclusion

Using original data from a household survey carried out in Wuwei County (Anhui province, China) in late 2008, this chapter examines the impact of migration experience on individuals' choice of being self-employed in rural return areas. Two complementary angles are considered in the analysis. We first propose a comparative analysis between rural non-migrants and return migrants. We then examine the role of an individual's migration experience in self-employment choice upon return.

Key findings can be summarized as follows. The comparative analysis with non-migrants shows that return migrants are more likely to be self-employed than their rural counterparts. The higher propensity of return migrants to be self-employed is an internationally documented phenomenon, and our analysis confirms that the Chinese rural area under study is no exception. In the vein of entrepreneurship models, this

finding suggests that through migration, return migrants have accumulated various forms of capital that increase their likelihood to become self-employed.

Entrepreneurship is generally recognized as a key component in the development process while at the same time a scarce resource in economically disadvantaged rural areas where it is most needed (Ma, 2001). As a consequence, the observed higher participation of returnees into self-employment may be of importance in terms of potential for rural development. Using a 20-year labor market dataset, Mohapatra *et al.* (2007) find that in Chinese rural areas, self-employment is a sign of development. Self-employed individuals are found to perform better than wage earners in rural China, and self-employed firms are found to be profitable despite their relatively small-scale (Zhang *et al.*, 2006). Our own evidence of higher entrepreneurship among returnees supports the view of self-employment as a positive choice against the traditional Harris-Todaro view of informal jobs arising from a negative selection.

Second, the analysis of the determinants of return migrants' self-employment decisions highlights the positive impact of both repatriated savings and the frequency of job changes during migration on this decision. These findings are consistent with the general view that migration experience is a process of human and financial capital accumulation, and that the preference of returnees for self-employment "is a rational response to the opportunities and constraints during migration and upon return" (Ilahi, 1999). In particular, by confirming the prominent role of repatriated savings in return migrants' occupational choice toward self-employment, our results corroborate the theoretical predictions and empirical findings on international migration that have been discussed above.

From a local development perspective, our findings highlight the potential role that migrants can play in stimulating forces of rural development through their accumulated experience and financial capital during migration. Hence, creating a favorable business environment, including simplified administrative formalities to encourage migrants to invest in source regions by repatriating their financial capital, is certainly a key policy issue. On the other hand, our findings on the role played by repatriated savings also highlight the difficulty for rural people to overcome credit constraints that hinder the start of small-scale businesses. Anecdotal evidence from face-to-face interviews conducted during the survey further supports this hypothesis. Indeed, from these

interviews, financial constraint appeared to be the primary issue for both non-migrants and return migrants who want to engage in self-employment activities. Therefore, further efforts are needed in order to give local people a better access to credit to support the establishment and the development of small-scale businesses.

V General Conclusion

No matter how far away, individuals remain connected to their past and their origin. This dissertation has documented the strength of the ties between migrants and their sending communities during and after migration. During the process of migration, remittances are a key link between migrants and their source region. These remittances, whether international or internal, have been shown to be closely connected with both trustful and reciprocal behavior of those in the source region who are the recipients, although in various ways. Consider that migration duration is composed of numerous possible decision-making moments; migrants are attached to their source communities throughout this process by taking family needs into consideration when choosing whether “to return” or “to stay”. This dissertation has highlighted the role of children left behind in the sending regions as a factor driving return migration, and shown that the pulling force is even stronger with young children. Finally, the source region gains from return migration. Return migrants demonstrate high economic performance with a strong tendency to pursue entrepreneurial activities. Their past migration experiences matter considerably in this occupational choice.

A key lesson that can be drawn from the dissertation is that the interaction between migrants and their sending region does not stop, and, in fact, as soon as migration occurs, various changes affect the sending community.

It is nevertheless difficult to ascertain whether that all of these changes accompanying migration are favorable for local development. From the case study of Vietnam, we have seen that, if remittances increase trust and reciprocity, then the potential benefits, though invisible, would be far-reaching for the society of recipients. We may expect to see high entrepreneurial activities (Caliendo *et al.*, 2010) and a better development of social interaction and networks (Caliendo & Kritikos, 2011) in a high trust society. And remittances turn out to be an important channel through which people are connected to

each other in many developing countries⁹⁴. For our understanding of development, it is important to account for such interpersonal and intrafamilial interactions since these are strongly linked with trust. Nevertheless, since the mechanisms at stake in the relationship between remittances and trust could be much more complex than what we have explored in this dissertation, a clear identification of the causal relationship cannot be fully achieved. Moreover, though sending and receiving remittances is based mainly on personal willingness, government intervention is still necessary to some extent. For example, the success and the amount of remitting depend largely on the procedures for sending and receiving remittances, as well as their cost. As an example, in China, despite the wide availability of remittance service providers, people who live in poorer and remote localities are experiencing difficulties in obtaining access to remittance service providers (Murphy, 2006). Therefore, special attention could be paid to how remittances can reach receivers more safely, easily and at lower cost.

From the case study of China, while return migration is a “gain” for sending regions later on, migration has already put a high social price on leaving the children behind in the first place. An intuitive solution to reducing the cost of left-behind children would be to discourage more out-migration. However, other problems would probably arise: on the one hand, there would be a strong need to find more economic opportunities for these potential migrants in the locality, and on the other hand, the potential “gain” from remittances and from return migration would be reduced.

The question is therefore whether there is any desirable model for achieving both economic and social development for the sending communities. In the case of China, the dissertation has shown that the phenomenon of children left behind is one cause pulling migrants back home, and the reason for such a widespread phenomenon is closely related to the *hukou* system, which is tied in turn to the education system in China. Can relaxing these institutional settings help solve the social problems related to left-behind children? Or should one encourage migrants to return? The two policy orientations can result in different trends of internal population movement in China. In the first case, more rural-to-urban out-migration and permanent settlement in the

⁹⁴ For example, in China, data from our 2008 Wuwei survey show that 36% of the households surveyed have received some remittances (excluding return savings) in the year 2007. The average amount of remittances accounts for 28% of total agricultural and non-agricultural household income.

destination areas would be generated, while in the second case, more counter flow of urban-to-rural return migration would be observed. In the following paragraphs, we are going to further discuss the potential gains and losses of each of the two policy orientations.

Relaxing the institutional barriers essentially suggests a reform of the *hukou* system. In the long run, one prior policy suggestion is to phase out the *hukou* system. As discussed in the dissertation, the *hukou* no longer serves as a severe tool to control interior population mobility; nevertheless, it is directly linked to different rights of public and social welfare, such as social security, housing, health care, employment, education, etc. Therefore, it is a key remaining barrier to the integration of migrants into the urban system. Up to now, it has produced two crucial consequences for the society as a whole: first, a widespread spatial separation between migrants and their family members left behind; second, stratification into a dual society with migrants being considered as “second-class” citizens in urban areas. Dismantling the *hukou* system is therefore a must for long-term development.

In the short term, given that the *hukou* system cannot disappear at once, some transitory measures could be taken. One policy suggestion is that social welfare, including the education system, should be separated from the *hukou* system. Park (2008, p. 60) proposes it be “*hukou* blind”. The advantage would be to give everyone equal rights, whatever their standing in terms of *hukou*. For example, in terms of the college entrance exam system, children should be allowed to take entrance exams in whatever residential place they have attended high school. Simultaneously, there is a need to reconsider the current public finance system in which the budget allocation for education is based on local governments. Local governments basically take into consideration the local *hukou* population for the education system, and exclude those non-local *hukou* groups.

One natural outcome of a more relaxed policy would be higher inter-regional population mobility. It would also lead more migrants to settle permanently in urban destinations, and more migrant children to be enrolled in urban schools. One further concern that arises is whether children would be better off in the destination areas. For example, in the international migration case, Dustmann (2003b) argues that the future of a female child would be better in the home country. Concerning China, there is a

tendency for inhospitality by urban residents towards migrants and their children. For example, rural migrants are being increasingly discriminated against by the urban population and migrants' children are looked down upon by local children (Garcia, 2004). Woronov (2009) reveals that prejudice is prevalent among urban residents, and thus a psychological obstacle is set up between urban residents and migrants. Further upward mobility is especially difficult for poorer and less educated rural migrants who find it hard to enter the primary urban labor market (Garcia, 2004). The situation can be even worse in largest cities where the extremely high prices of housing stop migrants earning relatively lower salaries from even dreaming of reaching a level of living equivalent to urban residents.

Another concern is that while policy reforms can relax the institutional constraint, the economic constraint may be even more prominent. This means migrants may still have to leave their family at home because of high urban living costs and their relatively low earnings as compared to urban residents. For example, Démurger *et al.* (2009) show that urban residents earned 1.3 times as much as rural migrants in 2002. Research also finds that, despite a smaller living space, rural migrants pay a much higher price for housing than do permanent residents (Jiang, 2006).

A complementary way to solve the “left-behind” children problem is to encourage return migration. Though not initially an emphasis, this dissertation has found that return migration depends significantly on the economic development of the sending region. A bad situation pushes people to leave; whereas a sound environment pulls migrants back and even keeps potential out-flow from occurring. As a result, a development policy could focus on improving the economic situation in the sending regions in order to attract return migration. The rationale is that as more economic opportunities are created, local people would no longer need to depend on migration as a way of making a living. Staying at home rather than migrating could thus accomplish both economic success and family unification.

This is a long-lasting development project in which the central government plays an important role. Due to large regional economic disparities, the policy orientation should focus on resource allocation and redistribution to less developed areas. For example, providing more education resources to less developed areas would have long-term benefits. The lack of education is a leading contributor to rural poverty (Park, 2008, p.

60). Even in the urban labor market, Démurger *et al.* (2009) find that pre-market differences (especially lower education attainment in rural areas) rather than on-market discrimination explain earnings differences between migrants and urban residents. Policy makers may also consider providing supportive investment policies and favorable investment conditions in less developed areas, so that more and more enterprises would be attracted to invest in these areas, and therefore more economic opportunities would be created.

Significantly, return migrants themselves are also an important source of rural development to consider. Return migrants can contribute better to local development by repatriating their physical and human capital accumulated during migration. The repatriated savings can play an important role in solving capital constraints for various productive investments and set up entrepreneurial activities in the context of the imperfect rural credit market. They are “renewed” human capital embodied with both a “new” and an “old” part. While the “old” part is their origin, the “new” part is what they have integrated during the process of migration in the destination areas. If there are also “spill-over” effects from return migrants to the local community, then the potential positive impact can be even greater. Hence, return migrants can play a key role in the development of less developed areas.

Such a role highlights the importance of both the possibility of “acquisition” during migration and the “transferability” after return. The first indicates the degree of contribution that the return migrants can make after return. For urban authorities, it is therefore important to create equal learning and working opportunities for migrants in destination areas. As such, they can have a better chance to acquire the useful skills and knowledge that they wish to acquire. “Transferability” refers to the extent to which the migrant resources can be efficiently used for local economic development. When the gap between urban and rural settings is too wide, migrants may have difficulty in settling into a position in rural areas where their human capital acquired in urban areas can be used efficiently and therefore lack a better return. Again, local government could play an essential role here. A long-term development plan may be carried out to ensure adequate use of region’s own human resources of return migrants in local development. One model of development that could be considered is to develop towns or small cities around rural areas, McKensy’s “townisation” (2009). It refers to localized urbanization

gathering rural industries and commercial activities. This is a way to offer more economic opportunities for people from nearby villages in a geographic area and to give return migrants a platform for skill and knowledge transfer as well as private investment in various industrial and commercial activities.

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