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Migrant remittances and the web of family obligations: Ongoing support among spatially extended kin in Northeast Thailand, 1984–94

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Abstract

Exchanges of money, goods, and assistance among family/kin members are influenced by the intertwined lives of individuals and their family/kin. As people pass through the young adulthood years, acquiring obligations as spouses and parents, and migrating in search of economic opportunities, tensions can arise over existing obligations. Using rich longitudinal data from Northeast Thailand, we examined the role of family networks (origin and destination) on migrants' exchanges with family/kin. Our approach overcame many shortcomings of earlier studies, allowing us to 'see' the family social network arrayed in a broader network. We show that intra-family exchanges are influenced by marital status, the presence of children, having parents in the origin household, and having siblings depart from it. The results are stable across sensitivity tests that systematically include or exclude various familial links. And reports provided by origin households on migrant remittances are consistent with reports from migrants themselves.

Keywords

Migration; remittances; extended kin; social networks; agricultural help

Introduction

In geographically mobile societies where family/kin members live a considerable distance from one another, ongoing patterns of social support and contact are instrumental in maintaining family/kin ties and disseminating resources to those needing them (Litwak 1960a, b; Knodel and Saengtienchi 2007). Such support, often in the form of remittance exchanges between migrants and their origin households, is crucial for those less developed countries experiencing rapid urban growth and industrialization, where social-welfare

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programmes are absent or underdeveloped, and where the dominant migration streams are from poor rural areas to economically developing urban areas. Another common form of help occurs when migrants periodically return to provide agricultural labour or other forms of support.

From the perspective of the origin household, migrant remittances can provide funds to expand agricultural activities and improve the household's standard of living, and can be critical during times of crisis (Taylor et al. 2003; Sana and Massey 2005). Returning migrants can also provide temporary help with agricultural tasks during the busy planting, weeding, and harvesting seasons, thus reducing the household's labour burden. For migrants, the receipt of money and goods in kind from origin households can be essential during periods of unemployment, or while the migrant is a student, or early in the migrant settlement process. These flows of material support and assistance are usually thought to be motivated by a combination of altruism, investment, and insurance, and can be part of a broad, diversified household economic strategy (Rapoport and Doccquier 2005).

For many rural out-migrants in less developed countries, the point in their life course when they are most likely to migrate and live apart from their family of orientation (i.e., the family in which they were raised) coincides with important transitions into marriage and parenthood, or more generally the formation of a family of procreation. As such, it is a time when migrants are embedded in a complex and changing web of social relations among close family/kin (parents, spouse, children, siblings, in-laws) in which new ties of social obligations can compete with earlier ones, affecting the overall pattern of transfers of social support.

In the study reported here, which used rich longitudinal data from Nang Rong district, Northeast Thailand, we examined the influence of multiple aspects of family networks (origin and destination) on migrants' remittances (money and in kind), help during the agricultural busy season, and assistance (money and in-kind) from the migrant's origin household. As we discuss in more detail below, the data and approach we used overcame many shortcomings of earlier studies of transfers of social support in developing settings. We were enabled to 'see' the landscape of the social network of the family in a broader array than had previously been possible, and to view the linked lives of both migrants and non-migrants. Our results show that both the provision and receipt of help and material support by migrants are affected by marital status, the presence of children, having parents in the origin household, and having siblings depart that household. The patterns of flows observed were consistent with expectations based on altruism, diversified risk management, and motivation to protect inheritance rights, distinguishing among these motivations is beyond the scope of this paper.

Background

In contemporary less developed countries, a major migration stream is that of young adults moving from poor, rural areas in search of better-paying jobs and urban amenities (and sometimes better educational opportunities), and leaving their family of orientation behind (Lavely 1990; Ruggles 2007). On arriving at an urban destination, these young migrants may rely on help from, and even live with, friends or kin who preceded them. In some cases they are also dependent on funds from the origin household (Fuller et al. 1990; Massey et al. 1993).

A second major migration stream in many less developed countries is between rural villages, typically nearby villages. In the absence of a frontier offering free or low-priced land (Rindfuss, et al. 2007a), or the introduction of new farming practices requiring additional

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labour inputs (e. g. rubber trees, see Ziegler, Fox and Xu 2009), the typical reason for rural-to-rural migration is marriage.

While their departure might put a strain on the remaining members of the origin family, who must cope with the loss of help with agricultural activities, the impact of migrants on the family left behind may not end with the departure. For some migrants, particularly those in urban destinations, the sojourn away can enable them to save enough to be able to return to their place of origin and build a dwelling unit, purchase land, or buy needed agricultural equipment. Furthermore, their earnings may allow them to send money and goods to their origin households. These remittances can be critical to the development of the economy of the area from which the migrants came (Durand and Massey 1996; Taylor 1999).

The ties of family and non-family social networks have long been recognized for their role in the provision of material support and help between migrants and those still in origin (Boyd 1989), and in many other aspects of migration such as getting settled in destination (Carletto, et al. 2005; Curran et al. 2005; Krissman 2005; Massey et al. 1993; Stecklov 2005; Winters et al. 2001). However, for several reasons it has been difficult to 'see' empirically how family networks operate in the provision of these exchanges. First, social-network ties, even ties between close family members, are difficult to measure, especially in the typical cross-sectional migration survey, because the networks encompass a wide range of individuals who are members of diverse households. Consequently, the scope of the exchanges examined is frequently quite limited, with exchanges between adult child and parent being the most common (Hermalin 2003; Knodel et al. 2010; Stark and Lucas 1988). There may be simply a global question on remittances to relatives (Menjivar et al. 1998), which treats ties as if they were a homogeneous category without regard to their specific relation to a migrant. What is needed, conceptually, is a broader and more spatially-extended view of families. To refer to such families, we use Litwak's (1960b) term 'modified extended family', which is a family/kin group that does not require '… geographical propinquity, occupational nepotism, or integration, and there are no strict authority relations…' (p385).

Second, it is difficult to distinguish ties in a new destination from those established initially at origin. Through the process of cumulative causation whereby migrants follow previous migrants from origin to destination (Kandel and Massey 2002) some destination ties are actually transplanted origin ties. Further, new destination ties have received relatively little attention, though Luke's (2010) recent study in Kenya on sexual partners at place of destination is an exception. Luke finds that having a serious, non-marital sexual partner is associated with lower levels of remittances to the family of origin—a finding that could be the outcome of competing obligations that arise when migrants are in transition from family of orientation to family of procreation.

A third difficulty is that a variety of demographic processes can alter the size and composition (and no doubt the functioning) of modified extended families over time, with inevitable consequences for patterns of remittances and help among the geographically dispersed members. For example, the force of mortality reduces the size of a social network, while fertility or marriage expands its size and composition (Korinek et al. 2005). The movement of siblings out of the origin household is another example; this move might be to a different household in origin or to locations outside it. Again, it is difficult to measure such changes, especially in a cross-sectional survey.

The combination of new obligations at the migrant's destination and changing circumstances at origin is captured by the life-course principle of linked lives (Elder 1977, 1983; Elder et al. 2003), which is at the heart of patterns of material support between a migrant and

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members of their modified extended family. Whether it is for reasons of altruism, insurance against risk (Stark and Lucas 1988; Stark 1991; Lillard and Willis 1997; Taylor et al. 2003), the absence of credit markets (Stark and Lucas 1988; Itzigsohn 1995; Sana and Massey 2005), or giving the appearance of being filial to protect a potential inheritance (Hoddinot 1994; de la Brière et al. 2002; VanWey 2004) the lives to which a migrant is linked, and changes therein, are likely to shape patterns of material support within the modified extended family.

In general, we expected obligations to family of procreation to trump obligations to family of orientation, obligations to parents to be stronger than obligations to siblings, and obligations to children to be stronger that those to a spouse if the children and spouse were in different locations. While these expectations would also apply in the absence of migration, as a young adult acquired obligations in his or her family of procreation, but migration could exacerbate the process as the friction of distance and, in the case of urban migrants, contrasting modes of social organization added to the natural tensions that can exist between families of orientation and procreation.

Finally, especially in the case of rural-to-urban migration, material support among modified extended family members places financial transfers within a context of quid-pro-quo exchanges between adult children and their parents. Commonly, parents (that is, the grandparent generation) are found to receive money as compensation for time spent helping adult children with child care and housework (Cox 1987; Secondi 1997; Lillard and Willis 1997; Frankenberg et al. 2002). Rural grandparents often provide long-term child care for children of migrating parents (Richter 1996; Schmalzbauer 2004; Dreby 2007), a service that has been linked to remittances (Piotrowski 2009).

Study Site: Nang Rong and Thailand

In our data, covering the period 1984–94, origin households are located in Nang Rong, a poor, agricultural district in Northeast Thailand, which is the country's poorest region (Deolalikar 2002). Since 1984, Nang Rong has undergone considerable economic, demographic and technological change. Here we describe the 1984–94 period; in the conclusion we address the question of whether our findings would continue to hold given changes since 1994.

Between the 1950s and the mid-1990s, Nang Rong switched from experiencing considerable in-migration to large-scale out-migration. Like many parts of Thailand in the 1950s and 1960s (e.g. VanLandingham and Hirschman 2001), Nang Rong was a frontier with ambiguously titled land available for clearing. The frontier was closing in the 1970s (Entwisle et al. 1998), a process that coincided with the beginning of the demographic transition. As a result, more infants survived to young adulthood, and, until fertility began declining, the surviving cohort sizes were large. A combination of reduced land availability, larger than average surviving cohorts, and the limited availability of non-agricultural jobs led to high out-migration levels. Among those aged 4 to 24 years living in Nang Rong in 1984, 42 per cent were living outside their origin village in 1994.

The mid-1990s is an ideal period for the examination of linked lives, migration, and flows of resources. Nang Rong was changing its economy from one based predominantly on subsistence farming to a monetized economy with accompanying improvement in infrastructure. To illustrate the latter: in 1984 only one-third of the villages were connected to the electric grid; by 1994, all were. In Nang Rong, upgrading one's dwelling unit, accessing transportation or electricity, or purchasing a television or petro-based fertilizer required money, and remittances were the major source.

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Paddy rice was, and continues to be, the predominant crop. During the period 1984–94, small walking tractors (similar to rototillers, with large metal wheels to navigate flooded rice paddies) largely replaced draft animals as a means of ploughing rice paddies, but throughout that period, rice was harvested by hand. Given the large surviving cohorts, even with considerable out-migration, the pool of available labour was large enough to provide for the needs of households that wanted to hire workers for the rice harvest (Hull 2007). For the 1993 harvest, almost half the households hired help for an average daily wage of approximately 50 baht (about 2 US$ at 1993 exchange rates).

During the period 1984—94 there were indications that wealth was increasing and that inequality was emerging. The percentage of households owning televisions increased from 8 to 68, refrigerators from 1 to 15 per cent, and motorcycles from 8 to 30 per cent. Concomitantly, households became smaller (5.5 people on average in 1984 versus 4.3 in 1994), with the change particularly notable at the tails of the distribution. In 1984, 5 per cent of the households had 1 or 2 persons and 29 per cent had 7 or more; the comparable figures in 1994 were 15 and 9 per cent.

Commonly, Nang Rong residents marry someone from outside their home village (Jampaklay 2006). The stated cultural practice is to reside temporarily with the wife’s parents, but in practice post-nuptial residence is wherever the best opportunities are available (Chamratrithirong et al. 1988; Yoddumnern-Attig 1992; Limanonda 1995; Jampaklay 2003). Conventionally, the youngest daughter and her spouse are expected to stay with the parents, and to care for them in old age (Caffrey 1992a,b). In practice, the elderly live with whichever child seems to offer them the best option (Knodel and Saengtienchai 1995). Further, rooted in Thai Buddhist traditions and beliefs is the expectation that children will support their parents even if they are not co-resident, and the majority of the elderly do receive material support from their non-coresident children (Knodel, Chayovan, et al. 1992; Knodel and Chayovan 1997; Knodel et al. 1999). This support pattern is gendered, with daughters providing more support.

Thailand has been characterized by high levels of internal migration. Initially rural-to-rural migration dominated, but increasingly rural-to-urban flows are more common (Goldstein et al. 1976; Guest and Tan 1994; Pejaranonda et al. 1995). Bangkok, Thailand’s primate city, and the Eastern Seaboard, an economic development zone southeast of Bangkok, are the main urban destinations. We examined remittance flows and help in the mid-1990s, before the economic crisis of 1997. Being one of the 'Asian Tigers', Thailand’s economy grew substantially, averaging 10 per cent annual growth in the period 1985–95 (Bello et al.1998). The value of manufacturing exports overtook agricultural exports during the mid-1960s (Warr and Nidhiprabha 1996). During the period examined, most migration from Nang Rong to other rural areas was related to marriage and most migration to urban areas was job related.

Data and Variables

Our data were from the 1984 and 1994 rounds of a longitudinal study of social change (see http://www.cpc.unc.edu/projects/nangrong/data). In the first wave, conducted in 1984, all households in a sample of 51 Nang Rong villages were interviewed, and information was obtained about all household members. The average village had 115 households. Interviews were 'group interviews', in the sense that all available household members were present. The questions put to them sought factual information rather than subjective viewpoints. The group interview approach allowed household members to adjudicate differences among them in the information recalled.

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In 1994, all households in the 51 sample villages were again interviewed, and information was collected on each member. Key for our analysis was the distinction between 'old', or successor households, and 'new' households. Within each village, interviewers had a list of all 1984 households, including the name, age and sex of each 1984 member. The field team first located 1994 households that were successors to the 1984 households, with “successor” defined as the household containing the oldest female from the 1984 household. If that oldest female no longer lived in the village, the field team searched for the household containing the oldest male from the 1984 household. Next in rotation was the second oldest female, and so forth. After all the old (successor) households were interviewed or it was determined that no one from the 1984 household was still living in the village, the remaining not-yet-interviewed households were classified as 'new' and were interviewed. For a variety of reasons (see Rindfuss et al. 2007b), cooperation with interviewers was excellent and there were essentially no refusals. Across the 51 villages in 1994, successor households were located and interviewed for 90 per cent of the 1984 households. For the remaining 10 per cent, all the 1984 household members had either died or moved from the village.

For all old households interviewed in 1994, information was collected on all 1984 household members who were no longer part of the household. Interviewers determined whether the person was dead, living in another household in the village, or living outside the village. For those outside the village, interviewers asked how long the person(s) had been gone, where they were living, their marital status (and if married, where their spouse lived), their occupation, whether they sent or received money or in-kind goods from the origin household, and whether they came back to help with the most recent rice harvest. Our analysis was based on 7,233 household members from 1984 who, in 1994, were alive, aged 14–34, and had left the village for 2 or more months.

The data structure permitted examination of remittance and help flows between migrants and the 1994 successor households based on links to parents, spouse, children, and, in some cases, siblings. We show the definitions of these variables below in detail, but first note that, although we had a broader array of potential family and kin linkages than heretofore available, there are some theoretically interesting relationships for which we did not have data. For example, if migrants had young children not living in the origin household, then the number and location of these children was not known. To examine the implications of such potential 'omitted variables', we conducted a sensitivity analysis, deliberately omitting some relationship variables and seeing how their omission affected our model parameter estimates.

While the data were well suited to the examination of assistance flows within the framework of linked lives, at times we made a relatively strong assumption. Most of the information about migrants’ parents, spouses, siblings, and children was for a single time point: 1994. Caution is needed in drawing conclusions about the implications of changes in individuals’ lives. For example, if we had found that married migrants were less likely to remit than unmarried migrants, and had concluded that taking on responsibilities for the family of procreation had led to a lower probability of remitting to the family of orientation, we would have been making a classic synthetic cohort assumption (e.g. Shryock and Siegel, 1973, 292). We were comfortable with this assumption in this case since the results were consistent with our a priori expectations.

Remittance and help flows

We examined remittance flows in two directions: from the migrant to the origin household and from the origin household to the migrant. For both directions, we examined monetary and in-kind remittances, with the latter including clothing, food, household items, electrical appliances, and vehicles. We also examined whether the migrant returned to help during the

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rice harvest, which occurs between late November and early January. Rice must be harvested fairly quickly after maturation, and since harvesting was done by hand, it was crucial for households to have adequate available labour, with migrants being one source. All five flow measures referred to the year preceding the interview.

As is typical in the literature on remittances, our analyses were based on reports from the origin household, a fact that raises a data quality issue which the unique features of our data allowed us to address. For 1,275 of the migrant-household pairs we also had reports of migrant remittances. The interviews with migrants occurred up to one year after the origin household interviews, so migrants and their origin households were reporting on different periods, which probably introduced noise into the comparison. Despite this, as shown in Appendix A, agreement on flows of money to or from origin households is quite high. The levels of agreement for in-kind flows are lower, but still reasonable.

The actual distributions of the five remittance and help variables are shown in Table 1. Migrants sending money to the origin household is the most common flow; 57 per cent of the migrants did so. Almost two-fifths of the migrants remit in-kind. Conversely, it is rarer for the origin household to send money or in-kind goods to migrants (approximately one in seven did so). Migrants return to help with the rice harvest for only one in ten migrant-household pairs.

These five flows are not mutually exclusive. A migrant could remit money, remit in-kind goods, receive money, and receive in-kind goods and help with the rice harvest. Empirically, however, the overlap is moderately low. The principal exception involves remittances of both money and in-kind goods from the migrant. Of those who send in-kind goods to the origin household, 86 per cent also send money; and of those who send money to their origin household, 58 per cent also send in-kind goods. For the multivariate analysis we keep money and in-kind remittances separate because, as shown in Appendix A, the quality of the monetary remittance data appears higher than in-kind reports.

Estimation issues

Each of the five variables in Table 1 was a dependent variable in a probit regression equation. We used a multivariate probit model that jointly estimated the five equations. Error terms were allowed to be correlated across equations. If the cross-equation error terms were significant, the model produced more efficient estimates than would have been the case if five individual equations had been estimated (Maddala 1983). The model can be written:

$$y^*_{mi} = \beta_{m0} + \sum_{h=1}^{p} \beta_{mh} x_{mhi} + u_{mi} \quad (1)$$

where there are $m = 1,\ldots,5$ equations, $i = 1,\ldots, N$ observations, and y_{mi}* unobserved latent variables. We observe $y_{mi} = 1$ if $y_{mi}^* > 0$ and $y_{mi} = 0$ otherwise; y_{1i} and y_{2i} represent migrant-to-household monetary and in-kind remittances, respectively; y_{3i}, represents migrant's help with the origin household's rice harvest; and y_{4i} and y_{5i} represent household-to-migrant monetary and in-kind remittances, respectively. The β_{mh} s are probit coefficients. The error terms u_{mi} follow a multivariate normal distribution with mean zero and variance covariance matrix ψ (*shown below as a lower diagonal*), given by:

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$$\psi = \begin{pmatrix} 1 & & & & \\ \rho_{1,2} & 1 & & & \\ \rho_{1,3} & \rho_{2,3} & 1 & & \\ \rho_{1,4} & \rho_{2,4} & \rho_{3,4} & 1 & \\ \rho_{1,5} & \rho_{2,5} & \rho_{3,5} & \rho_{4,5} & 1 \end{pmatrix}$$

where $\rho_{m,k}$ is the correlation between u_m and u_k (m,k = 1,2,3,4,5; $m \neq k$). We estimated the model using Stata's *mvprobit* command, which uses simulated maximum likelihood (SML) and the Geweke-Hajivassiliour-Keane (GHK) simulator to evaluate the multivariate normal distribution (see Cappellari and Jenkins 2003 for details).

We used heteroskedastically robust standard errors (see White 1980 for details), and we corrected for clustering of individual records within households and households within villages. Following work by Angeles, Guilkey, and Mroz (2005) we corrected for clustering at the highest hierarchical level (i.e., the village level); doing so is sufficient to obtain reliable point estimates and standard errors. We report the magnitude of the effects of selected variables using microsimulated predicted probabilities in which we varied the value of a single variable, keeping the others equal to their values in the data set; we did this for each case and then averaged across cases. These microsimulated predicted probabilities can be compared to the actual raw values in Table 1.

Migrants' links to origin

To capture 'linked lives', we created a set of migrant-to-origin-household variables measuring migrants' links to parents, spouse, children and siblings. The distributions are shown in Table 2. We begin by discussing marital status. Most migrants (54 per cent) were not married in 1994. Among the married, most spouses live in the same destination as the migrant. The remaining spouses are in four different locations in relation to the migrant. There are few in each location but we retained them because of their theoretical significance. For example, a migrant's spouse living in the origin household, which is true for only 1 per cent, should be a strong incentive to the migrant to remit as well as to return to help with the rice harvest. A similar argument applies to the 2 per cent of migrants whose children reside in the origin household.

We show the number of parents living in the origin household, and, if only one, whether it is the mother or father. For the large majority (65 per cent), both parents live in the origin household. If only one parent is in the origin household, it is typically the mother (18 per cent). In only 12 per cent of the origin households is neither parent present. Among those migrants with no parents in the 1994 household, we note that in almost two-thirds of the cases neither parent was present in 1984.

We included two variables reflecting household configurations that tap, primarily, the linked lives of siblings. The first was the number of 1984 household members (other than the index migrant and the migrant's parents, spouse, and children) who were migrants in 1994. The average household had 2.3 such migrants. The second variable was the number of 1984 household members (other than the migrant's parents, spouse and children) no longer living in the origin household by 1994 but who remained in the village, living in a different household (referred to as 'local movers' in Table 2). The average origin household has 0.5 local movers. For both variables, all we know for certain is that the individuals were in the migrant's household in 1984 but not in 1994. We expect that the vast majority were the migrant's siblings (and their spouses and children), and interpret the results as such. When household members other than the migrant (and the migrant's parents, spouse and children)

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move out of the origin household, additional ties and obligations are created for the origin household. And the migrant might adjust his or her behaviour based on assumptions about the behavior of those who have left the origin household.

Control variables

We included several migrant control variables. One was migrant's age. Once the migrant's links to family of orientation and procreation are accounted for, age reflects the relative ability of the migrant to afford to send remittances, their need for help from the origin household, and the flexibility to return to the origin village to help with the rice harvest. As migrants age, they are likely to accumulate commitments to the family of procreation. If they were living in an urban area, their willingness to do hard physical labour may have decreased, and so we expected a lower likelihood of help with the rice harvest. Sex of migrant was a second control variable. We expected that women were more likely to remit and help.

We used two migrant socio-economic indicators: education and occupation. Compulsory education ended at primary school for the time period of our study. More than half the sample of migrants (58 per cent) have a primary school education, with 25 per cent below this level. Because higher levels of education qualify migrants for better-paying urban jobs, we expected a positive effect of education on remitting and a negative effect on helping with the rice harvest. Yet, to the extent that higher levels of education expose migrants to different ideas about family obligations, it was also possible to envisage a negative effect on the likelihood of remitting. With regard to occupation, only three per cent are not employed —a mix of students, those who recently arrived at destination, and those who had lost their job. We expected migrants who were not employed would be less likely to remit and more likely to receive. Among the rest, a little more than a third were in agricultural occupations. To the extent that they lived in nearby villages, they were more likely to help with the rice harvest.

We also controlled for migrant destinations. Just over half were in Bangkok or the Eastern Seaboard, where they were likely to be in factory or construction work, in school or looking for work. Almost one in five were in Buriram province—the province where Nang Rong is located. They will be in a mix of rural and urban areas, but relatively close to Nang Rong to help with the rice harvest or to bring or receive money or in-kind goods. The remainder were scattered across diverse destinations.

One household control variable was also included in the analysis: the number of 'additional' household members resident in 1994, with ‘additional' meaning those who were not the migrant's parents, spouse, or children. The mean is 2.5. These additional household members are young, with 89 per cent less than age 40. Most are likely to be the migrant's siblings, and their spouses and children.

Results

Our discussion of results centers on characteristics of ties between migrants and their origin households. Table 3 shows results from the multivariate probit regression for the five dichotomous dependent variables. We start with marital status, and, if married, the location of the spouse. Looking across the dependent variables, there are two main patterns. The first involves never-married migrants, who are significantly involved in all five flows of money, in-kind goods, and help. Never-married migrants are more likely to send money or in-kind goods and more likely to return to help with the rice harvest than are married migrants who live with their spouses in destination. Based on predicted probabilities (controlling for other characteristics), two-thirds remit money, 42 per cent send in-kind remittances, and 12 per

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cent help with the rice harvest. Further, the never-married are significantly more likely to receive money and in-kind goods from the origin household. This is not surprising. They are most likely to be establishing themselves in the destination and to need help.

Among married migrants, if their spouse lives in the origin household, they are the most likely to remit money (a predicted probability of 75 per cent) and to return to help with the rice harvest (20 per cent). This is not surprising. If the spouse is in the origin household the migrant is probably away for the purpose of earning sufficient money to enable the couple to stay in the origin village. The money may be needed to build the couple's own dwelling unit, to purchase farm land, or to buy some piece of farm equipment. A similar argument likely applies if a migrant's spouse is in a different location from the migrant outside the village. It seems likely that if the spouses are in different destinations the reason is that they are saving to be able to establish themselves back in Nang Rong or the spouses' origin region.

If the spouse lives in the origin village but not in the origin household, the migrant is considerably less likely to remit money or in-kind-goods to the origin household, or to receive in-kind goods from that household. This result is consistent with a process whereby migrants as they marry are likely to transfer their remitting obligations from family of orientation to family of procreation. The lower flow of in-kind goods from the origin household suggests that the feeling of diminished obligations is reciprocal. In interpreting these results, however, it is important to note that there might have been transfers occurring within the village between the household containing the migrant's spouse and the migrant's origin household. Such within-village flows were not measured.

If the migrant has children living in the origin household, the effect is similar to having a spouse live in that household: the migrant is more likely to send money (73 per cent) and to return to help with the rice harvest (27 per cent). One possibility is that children are living with the migrant's spouse in the origin household. Another is that the migrant's parents are caring for the migrant's children, and in return, migrants help the origin household (Piotrowski 2009). Under either scenario, migrant–child bonds lead to high levels of remittance and help.

We now turn to a different type of parent–child link, namely the one between the migrant and his or her parents. The omitted category is 'both parents live in the household'. The most consistently significant effect involves situations where neither parent lives in the origin household and was also not there in 1984. Overall, such migrants are less likely to remit, less likely to receive money or in-kind goods, and less likely to return to help with the rice harvest. Not only are these effects statistically significant, they are large. To illustrate: for migrants who had no parents in the origin household, the predicted percentage sending money to the origin household is 38 per cent compared to 60 per cent for those who had both parents in the origin household. If there are no parents in the origin household in 1994 but they were there (one or both) in 1984, the migrant is less likely to remit money or in-kind goods or receive money from the origin household, and the magnitude of the effects is larger than if both parents were not there at both time points. For example, the simulated probability of remitting money is 29 per cent if parents (one or both) were in the household in 1984 but neither was there in 1994. For those with no parents in the household in 1994, we tested whether the difference was statistically significant between those who had neither parent in the origin household in 1984 and those who had one or both parents there. The coefficients for sending money to or receiving it from the origin household are significantly different.

There are no significant differences on any of the five dependent variables between having both parents in the origin household and having only the father there. But for sending in-

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kind goods to the origin household and receiving money from that household, the flow is significantly less likely if only the mother is in the origin household rather than both being there—a result we had not expected.

There are two variables measuring the number of members from the origin household, other than the migrant's parents, spouse, or children, who left the household between 1984 and 1994 as migrants or movers into another village household. These migrants and local movers are most likely to be the migrant's siblings and their spouses/children. These departures from the origin household have no effect on the migrant's remittances to the origin household or the likelihood that the migrant will return to help with the rice harvest. But departures from the origin household do significantly reduce the likelihood of the migrant receiving money or in-kind goods from that household. This asymmetry is understandable. As people move out, the origin household has a greater diversity of people/households to whom it has obligations, but the migrant does not alter his or her remittance or help behaviour, suggesting that migrants remit and help as their own circumstances permit without taking into consideration the behaviour of others who left the origin household.

With few exceptions, the control variables behave as anticipated. Older migrants are more likely to remit. Men are less likely than women to send remittances and more likely to receive money from the origin household. Patterns by education are mixed. Compared to those with a primary education, those with lower education levels are less likely to send money or goods to the home household. They are also less likely to return to help with the rice harvest, which is not what we expected. On the other hand and as expected, the better educated are less likely to return to help with the rice harvest. Better educated migrants are less likely to remit money, despite the fact that they are likely to be earning more money and might have been expected to repay their parents' educational investment. Earlier we commented on the possibility that higher education encourages a different outlook on family ties and obligations; perhaps this is the explanation.

As expected, those having non-agricultural occupations are more likely to remit, less likely to receive in-kind goods, and less likely to help with the rice harvest than migrants engaged in agriculture. Those not employed are less likely to remit, more likely to receive money, and less likely to come back to help with the rice harvest. This last relationship is perhaps surprising, since those not employed should have had time available to help with the rice harvest. However, we would not want to over-interpret this coefficient since the rice harvest preceded the interview by four to six months, and some of those not employed at interview might have been employed during the rice harvest. The residual category also includes students who may have constraints on their schedule.

The pattern of correlations across the error terms of the five probits is shown at the bottom of Table 3 and is of substantive interest. Many of the correlations of the error terms are significant, indicating that these equations are not stochastically independent. The significant correlations indicate that omitted variables affecting one aspect of remitting or helping are likely to affect other aspects. For example, norms of reciprocity or gift-giving, feelings of altruism towards family members, or any other omitted factors may be common across many of our outcomes. The strongest correlations involve monetary and in-kind remittances ($\rho = 0.77$), perhaps indicating unmeasured factors related to the ability to send any remittances. All of the remaining significant correlations involve household-to-migrant in-kind support, suggesting that there are unmeasured aspects, such as transport links, that affect the flow of in-kind goods. Somewhat surprisingly, there is not a significant correlation between the migrant helping with the rice harvest and either the migrant sending back money or in-kind goods to the origin household. We expected that factors, such as whether the migrant was altruistic towards the origin household, would affect all three types of help.

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Sensitivity tests

An issue with our results, as well as those reported in other papers in the migration literature, is that migrants are embedded within a complex web of obligations at origin, destination, and other places where they may have family/close kin. While the data we use permitted us to examine and control for a wider set of links than heretofore possible, there are links/obligations not in our data set that create a potential 'omitted variables' problem. To simulate the problems that omitted variables might produce, we conducted a series of sensitivity tests in which we deliberately omitted key links. The results are reported in Table 4.

Table 4 is complex and requires some explanation. The coefficients in the A columns are directly copied from Table 3. The coefficients in the B columns are from our sensitivity tests. There are five sets of variables linking the migrant to his or her family/kin network: ties to (i) spouse, (ii) children, (iii) parents, (iv) migrants from the 1984 origin household, and (v) local movers from the 1984 household. For the sensitivity tests we kept one of the five linking variables and re-estimated the analyses shown in Table 3, omitting the other four linking variables. These are the boxed results shown in the B columns. To illustrate: the boxed results in the B column for 'ties to spouse and marital status' are from a multivariate probit model estimated simultaneously for the five dependent variables, including all control variables shown in Table 3, but excluding the other four 'ties' or linking variables.

These sensitivity tests suggest that our results are robust to the inclusion or exclusion of other variables that measure the migrant’s links to other people or households. To see this, compare the coefficients in columns A and B. Across the 65 pairs of coefficients, the magnitudes of the coefficients are similar. With two exceptions, the signs are the same, and for both exceptions neither coefficient is significantly different from zero. And there is only one case where a marginally significant coefficient becomes insignificant.

We also conducted a second set of sensitivity tests. The analyses in Table 3 exclude two variables included in many papers in the remittance literature: 1994 origin household wealth and duration of migrant absence. We exclude them because there are good arguments suggesting they are endogenous. To see if our main results were robust to their inclusion or exclusion, we estimated models with them. Their inclusion or exclusion does not affect our main results.

Summary and Discussion

To summarize, our approach and data permitted a broader view than is usually possible of the flows of money, in-kind goods and help between migrants and their origin households. We find the relationships to be quite nuanced, as theory and general expectations would suggest. Obligations to family of orientation and family of procreation are evident, as are tensions between them.

Consider marital status and spousal location. Never-married migrants are more likely to remit to and help origin households than are currently married migrants whose spouses are with them in the place of destination. But if the married migrant’s spouse is in the origin household then remittances are increased substantially. Further, if the spouse is in the origin village but not in the origin household, the likelihood of remittances decreases. In short, with our approach we can see that it is not just marital status that matters, but where the spouse is living relative to both the migrant and origin household.

The web of potential family/kin links and obligations is large and complex. Since it is well nigh impossible to imagine a study design that captures all of them, it is important to address

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the implications of having only some links available for analysis. Because we had five sets of linking variables, we were able to examine this issue by systematically re-estimating our statistical model with some variables excluded and noting whether the omissions affected the outcome. The results of these sensitivity tests were remarkable for showing the stability of the coefficients whether or not other links/variables were included or excluded. This result increases confidence not only in our results, but also in those of other studies that examine patterns of remittances and help but without data as rich as ours.

We find evidence that over the life course, some ties are loosened or 'let go' while others are acquired and strengthened. This is a natural progression as the transition from family of orientation to family of procreation proceeds. Migration, owing to the friction of space as well as the typical economic disparities between origin and destination, exacerbates and changes the process, influencing the nature of exchanges between people with interlocking lives. This is true of migration wherever it takes place, but is especially the case when places of origin are poor, rural, and only recently becoming monetized, destinations are expanding urban areas, and the sizes of the migration streams are large. Monetization at origin creates previously non-existent needs for goods and services, but the subsistence nature of agricultural practices leaves many with few opportunities to earn money where they are until they can acquire the resources to extend the area they farm and intensify their agricultural practices through the use of fertilizer and mechanized farm equipment. The disparity in opportunities across rural and urban places leads to high migration rates among young adults. For some, migration is temporary, just long enough to earn sufficient capital to return and buy the necessary land or equipment to set up as an independent adult in origin. For others, migration is more long-term, even if the migrants initially expected it to be short-term. The consequences of shifts in obligations accompanying the transition to adulthood are magnified by the geographic (and social) separation between origin and destination.

Our results pertain to a specific time and place: Thailand, 1994. As explained earlier, the convergence of social, demographic, and economic trends in this setting created an ideal context for observing migrant linkages in relation to rural-to-urban migration. To what extent would we find similar results today given that much has changed in Thailand in general and Nang Rong specifically? For example, the introduction of rice harvesting machines has dramatically reduced the need for labour during the rice harvest. At a minimum, we would expect very few migrants now return to help with the rice harvest. Further, improved transportation links, the availability of cell phones, and the ability to transmit money electronically have made it easier to visit, remit, and simply stay in touch. We expect the effects of these changes have been to increase awareness of the needs that both migrants and origin households might have, and this increased awareness could be having the effect of increasing the flows of money and in-kind goods. On the other hand, the economic situation in Nang Rong has improved considerably since 1994 (after recovery from the 1997 economic crisis). There is increased use of fertilizer and herbicides, producing improved yields, some of which can be sold. Put differently, Nang Rong has been moving away from subsistence agriculture. Further, there is now an active agricultural land rental market, such that those who, for age-related or other reasons, can no longer farm their land, rent it to others and receive part of the yield as rental income—typically 25 per cent of the yield. These changes, taken together, could have led to less need for remittances from migrants.

The above arguments refer to levels of flows of money, in-kind goods, and help between the migrant and the migrant’s origin household. But, we do not expect that these changes in level have had any effect on the patterns of flows, and therefore we expect the patterns reported for the earlier period to be the same today for Nang Rong migrants and their origin

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households. The importance of parental, spousal and offspring ties remain, as does the competition across these ties.

Further, our broad findings probably have relevance elsewhere. The migration of young adults from origin households in poor, rural areas to urban areas is common in many countries (China provides an example on a massive scale) as well as from the rural areas of less developed countries to urban areas of richer countries (two examples are the movements from rural areas of Mexico to U.S. cities and from rural North Africa to Europe's cities) (Roberts 1997; Brockerhoff 2000; Castles and Miller 2009). Migration disrupts social relations and affects linked lives in many settings. Our findings for Thailand are probably also applicable in these other settings, with suitable adjustments for existing family and kinship systems.

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Appendix A. Reporting on remittances

Remittances involve a transfer of money or goods between a migrant and the migrant's origin household. Either party could be asked to report on the remittance, but the typical study design only asks one of them. We do not know if both parties would provide the same response. The study design of the Nang Rong project, which includes a migrant follow-up component, allows us to address this question. Under certain circumstances, described below, both migrants and their origin households were asked the remittance questions, which made it possible to compare their responses with those of the origin household. (Unfortunately, because migrants were not asked about going back to the origin village to help with the rice harvest, comparisons with the reports from the origin household were not possible.) As discussed below, agreement between migrant and origin household was reasonably high for monetary remittances, but less so for in-kind remittances.

For a sample of 22 of the 51 villages, interviews were attempted for migrants to the top four migration destinations: greater metropolitan Bangkok; the industrializing provinces of the Eastern Seaboard; Korat, which is the largest city in Northeast Thailand; and Buriram town, the provincial centre closest to Nang Rong. A stratified random sample was used to select the 22 villages for the follow-up work with two stratifying variables: (i) half or more of the households grew cassava versus less than half, and (ii) the village was located five or fewer kilometers from a main highway versus more than five kilometers.

The 1994 round of data collection in the villages occurred between April and June. When a successor to the original 1984 household was found and interviewed, the respondents were asked the current location of all 1984 household members. If a 1984 household member had

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moved out of the village, the successor household was asked where that individual currently resided.

Multiple strategies were employed to locate and interview migrants in target destinations between August 1994 and May 1995. First, if a clear address was available, an interviewer went there. Second, to capitalize on social networks at destination, whenever a migrant was located and interviewed, he or she was shown a list of all migrants from the origin village. This list included migrants to all destinations. The interviewed migrant was asked if he or she knew other migrants from their home village, and if so, where any migrant not yet interviewed could be located. When that migrant was located in a target destination, he or she would be interviewed even if the information obtained from the migrant's household had suggested that the migrant was in a non-target destination. Third, to capitalize on connectedness to place of origin, interview teams went to the 22 villages during holiday and festival times when migrants were likely to visit their home villages, and attempted to interview visiting migrants. An initial screening occurred. If a migrant was found and that migrant was not living in a target destination, that migrant was not interviewed. Only migrants who were currently living in one of the target destinations or had just returned from a target destination to live in the village were interviewed.

Remittance responses from migrants were available for 1,275 cases, a sample sufficiently large to permit comparisons with the remittance responses from the origin household. In addition to not being in a target destination, there were several other reasons why remittance information might not be available from the migrant. Some migrants (719 cases) were not located and interviewed in the migrant follow-up phase of data collection because addresses were not available, the migrant lived in factory dormitories and interviewers were denied access by the employer or similar failure to contact reasons. Some migrants had returned to live in the village by the time he or she had been located (149 cases), and therefore was not asked the remittance questions. Some migrants moved as a group (60 cases), and in this situation only one member of the group was asked the remittance questions.

In interpreting the degree of correspondence between the origin household's response and the migrant's response, several factors need to be kept in mind. First, the interviews in the village were interviews with a household, and there was no requirement that all household members be present. So it is possible that a remittance was given or received by a household member not present for the interview. Second, the questions were asked about remittances in the previous 12 months. The household interviews in the village occurred between April and June 1994, whereas the interviews of migrants occurred between August 1994 and May 1995. Hence, migrants and their origin households were using different referent periods. But we expect some consistency over time in remitting behaviours and hence concordance between household and migrant reports. Finally, the amount remitted could be quite small, and hence less memorable to one of the parties.

Appendix Table 1 shows the level of agreement for the four remittance items (migrant to household and household to migrant, monetary and in-kind). Several patterns stand out in the table. First, for monetary remittances, which are perhaps the most important substantively, the percentages of origin households and of migrants agreeing on whether this occurred is quite high: approximately three-quarters for migrants sending money to the household and four-fifths for households sending money to migrants. The level of agreement is considerably lower for in-kind remittances, but still better than chance. One possible reason for the lower level of agreement over in-kind exchanges is that they were probably more likely to occur between a member of the household and the migrant rather than between the entire household and the migrant. Another possible reason is that in-kind

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exchanges could be quite small, perhaps as simple as part of a meal or an article of everyday clothing, and thus less memorable.

When migrant and household reports did not agree, in every case the migrant was more likely to report having sent or received the remittance than the reverse, and the differences were quite large for in-kind. A simple explanation for these off-diagonal differences is that the migrant interview was with the actual migrant (except in a very small number of cases when it was with the migrant's spouse) whereas the household interview was with those household members available at the time. Also, psychologically, the migrant might have had a need to feel connected to the origin household, and thus both be more likely to remember all the exchanges that did occur and perhaps construct some fictive ones.

Appendix Table 1

Per cent of cases where the migrant and household reports on remittances agree, migrant says yes and the household says no, and the migrant says no and the household says yes. Northeast Thailand 1984–94

	Agree	Migrant says yes Household says no	Migrant says no Household says yes	Total[1]
Monetary remittances:				
Migrant to household	74	19	7	100
Household to migrant	79	12	9	100
In-kind remittances:				
Migrant to household	56	33	10	100
Household to migrant	63	30	7	100
Number of cases	1,275			

[1] Totals may not sum to 100 because of rounding errors.

Source: As for Table 1

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Table 1

Type of support between migrant and origin household pairs, Nang Rong and Northeast Thailand 1994

Variable	Per cent
Migrant-to-household remittance	
Money sent	57
In-kind goods sent	39
Rice harvest help given	10
Household-to-migrant remittance	
Money sent	13
In-kind goods sent	14
Number of cases	7,233

Source: 1994 Nang Rong Household Survey

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Table 2

Descriptive statistics for measures of 'linked lives' and control variables used in a study of remittance flows, Nang Rong and Northeast Thailand 1994

Variable	Mean	SD
Characteristics of ties to origin household		
Ties to spouse and marital status		
Never-married	0.54	0.50
Post-married	0.02	0.12
Currently married		
Spouse lives in origin household	0.01	0.09
Spouse in origin village, different household	0.01	0.12
Spouse in same location outside of village	0.33	0.47
Spouse in different location outside of village	0.07	0.25
Spouse's circumstances unknown	0.02	0.15
Ties to children		
Any child(ren) in the origin household	0.02	0.13
Ties to parents		
Parents' residence in origin household in 1994		
Neither parent lives in household		
Neither parent in 1984	0.08	0.26
At least one parent in 1984	0.04	0.20
Only father lives in household	0.05	0.23
Only mother lives in household	0.18	0.38
Both parents live in household	0.65	0.48
Departures from origin household, 1984–1994[2]		
Number of migrants	2.32	1.73
Number of local movers	0.51	1.02
Migrant control variables		
Age	23.27	4.93
Gender (male)	0.54	0.50
Education		
Less than primary	0.25	0.43
Primary only	0.58	0.49
Greater than primary	0.17	0.37
Occupation		
Unemployed	0.03	0.18
Non-agriculture	0.61	0.49
Agriculture	0.36	0.48
Migration destination		
Buriram province	0.19	0.39
Bangkok or eastern seaboard	0.54	0.50
All other locations	0.26	0.44

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Variable	Mean	SD
Household control variable		
Number of additional household members 1994[1]	2.53	1.85
Number of Cases	7,233	

[1] Excludes focal migrant, migrant's parents, spouse, and children

Source: As for Table 1

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Table 3

Consequences of 'linked lives' for flows of support between migrants and their households, Nang Rong and Northeast Thailand 1984–94: Multivariate probit estimates, coefficients with standard errors in parentheses[1].

	Migrant-to-household			Household-to-migrant	
	Money	In-kind	Rice harvest help	Money	In-kind
Variable	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**	**Coefficient**
Intercept	−0.082	−0.900***	−0.409*	−0.754***	−0.848***
	(0.145)	(0.158)	(0.206)	(0.209)	(0.205)
Characteristics of ties to origin household					
Ties to spouse and marital status					
Never-married	0.626***	0.216***	0.309***	0.298***	0.126*
	(0.058)	(0.057)	(0.062)	(0.075)	(0.063)
Post-married	0.221	−0.091	−0.013	0.276	−0.248
	(0.144)	(0.147)	(0.175)	(0.160)	(0.175)
Currently Married					
Spouse lives in origin household	0.923***	0.239	0.681**	0.624*	0.360
	(0.189)	(0.205)	(0.249)	(0.264)	(0.249)
Spouse in origin village, different household	−0.650***	−0.719***	−0.049	−0.037	−0.751**
	(0.185)	(0.182)	(0.230)	(0.263)	(0.240)
Spouse in same location outside of village	--	--	--	--	--
	(--)	(--)	(--)	(--)	(--)
Spouse in different location outside of village	0.147*	−0.013	0.017	0.199*	−0.037
	(0.071)	(0.082)	(0.103)	(0.087)	(0.117)
Spouse's circumstances unknown	0.304*	0.185	0.116	0.135	0.369**
	(0.126)	(0.155)	(0.183)	(0.154)	(0.136)
Ties to children					
Any child(ren) in the origin household	0.540***	0.140	0.747***	−0.167	−0.146
	(0.145)	(0.137)	(0.214)	(0.229)	(0.206)
Ties to parents					
Parents' residence in origin household					

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	Migrant-to-household			Household-to-migrant	
	Money	In-kind	Rice harvest help	Money	In-kind
Variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Neither parent lives in household					
Neither parent in 1984	−0.658***	−0.522***	−0.461***	−0.430***	−0.443***
	(0.072)	(0.069)	(0.119)	(0.098)	(0.109)
At least one parent in 1984	−0.938***	−0.609***	−0.430	−1.182***	−0.193
	(0.112)	(0.114)	(0.227)	(0.170)	(0.135)
Only father lives in household	−0.085	−0.122	−0.176	−0.135	−0.120
	(0.072)	(0.096)	(0.157)	(0.135)	(0.141)
Only mother lives in household	−0.021	−0.163***	−0.136	−0.260***	−0.132*
	(0.049)	(0.049)	(0.072)	(0.069)	(0.067)
Both parents live in household	--	--	--	--	--
	(--)	(--)	(--)	(--)	(--)
Departures from origin household, 1984–94					
Number of migrants	0.008	0.007	−0.043	−0.097***	−0.048*
	(0.013)	(0.014)	(0.023)	(0.018)	(0.019)
Number of local movers	−0.014	−0.021	−0.039	−0.061*	−0.068**
	(0.019)	(0.019)	(0.029)	(0.027)	(0.025)
Migrant control variables					
Age	0.018**	0.039***	−0.012	−0.016*	0.004
	(0.006)	(0.006)	(0.008)	(0.007)	(0.007)
Sex (male)	−0.363***	−0.517***	0.060	0.148***	−0.054
	(0.036)	(0.039)	(0.047)	(0.037)	(0.047)
Education					
Less than primary	−0.223***	−0.201***	−0.228**	−0.037	−0.105
	(0.054)	(0.052)	(0.078)	(0.069)	(0.065)
Primary only	--	--	--	--	--
	(--)	(--)	(--)	(--)	(--)
Greater than primary	−0.220***	−0.053	−0.440***	0.179**	0.090
	(0.053)	(0.067)	(0.084)	(0.063)	(0.067)

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	Migrant-to-household			Household-to-migrant	
	Money	In-kind	Rice harvest help	Money	In-kind
Variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
Occupation					
Unemployed	−1.008***	−0.648***	−1.353***	0.862***	0.362**
	(0.121)	(0.128)	(0.299)	(0.140)	(0.121)
Non-agriculture	0.292***	0.251***	−0.698***	−0.095	−0.137*
	(0.039)	(0.049)	(0.088)	(0.070)	(0.065)
Agriculture	--	--	--	--	--
	(--)	(--)	(--)	(--)	(--)
Migration destination					
Buriram province	−0.440***	−0.140*	−0.044	0.168*	−0.031
	(0.063)	(0.064)	(0.084)	(0.075)	(0.087)
Bangkok or eastern seaboard	--	--	--	--	--
	(--)	(--)	(--)	(--)	(--)
All other locations	−0.309***	−0.312***	−0.150*	0.044	−0.126*
	(0.045)	(0.045)	(0.076)	(0.061)	(0.059)
Household control variable					
Number of additional household members 1994	−0.053***	−0.013	−0.043*	−0.009	−0.016
	(0.012)	(0.013)	(0.017)	(0.016)	(0.017)

Correlations (ρ)	Migrant-to-household			Household-to-migrant	
	Money	in-Kind	Rice harvest help	Money	In-kind
Migrant-to-household, money	--				
	(--)				
Migrant-to-household, in-kind	0.772***	--			
	(0.029)	(--)			
Migrant-to-household, rice harvest	0.031	0.031	--		
	(0.036)	(0.034)	(--)		
Household-to-migrant, money	−0.014	0.038	0.045	--	
	(0.030)	(0.027)	(0.034)	(--)	
Household-to-migrant, in-kind	0.238***	0.325***	0.126***	0.432***	--

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	Migrant-to-household			Household-to-migrant	
	Money	In-kind	Rice harvest help	Money	In-kind
Variable	Coefficient	Coefficient	Coefficient	Coefficient	Coefficient
	(0.029)	(0.029)	(0.035)	(0.038)	(--)
−2LL			30,270.32		
Number of cases			7,233		

*p<.05

**p<.01

***p<.001 (two-tailed test)

1Heteroskedastically robust standard errors adjusted for clustering within villages

Source: As for Table 1

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Table 4

Results of sensitivity tests to simulate omitted-variables problem: Comparison of coefficient estimates from (A) multivariate probit of complete model with all ties to origin household and (B) separate multivariate probit models including each set of ties individually[1] (All models have the same control variables as in Table 3.). Nang Rong and Northeast Thailand 1984–94

	Migrant-to-household						Household-to-migrant			
	Money		In-kind		Rice harvest help		Money		In-kind	
Variable	A[1]	B[2]	A[1]	B[2]	A[1]	B[2]	A[1]	B[2]	A[1]	B[2]
Ties to spouse and marital status										
Never-married	0.626***	0.603***	0.216***	0.218***	0.309***	0.279***	0.298***	0.298***	0.126*	0.134*
Post-married	0.221	0.170	−0.091	−0.144	−0.013	−0.028	0.276	0.233	−0.248	−0.286
Currently married										
Spouse lives in origin household	0.923***	0.914***	0.239	0.143	0.681**	0.884***	0.624*	0.486*	0.360	0.279
Spouse in origin village, different household	−0.650***	−0.644***	−0.719***	−0.708***	−0.049	−0.089	−0.037	−0.013	−0.751**	−0.726**
Spouse in same location outside of village	--	--	--	--	--	--	--	--	--	--
Spouse in different location outside of village	0.147*	0.167*	−0.013	0.008	0.017	−0.016	0.199*	0.170	−0.037	−0.037
Spouse's circumstances unknown	0.304*	0.296*	0.185	0.178	0.116	0.088	0.135	0.142	0.369**	0.367**
Ties to children										
Any child(ren) in the origin household	0.540***	0.396**	0.140	0.005	0.747***	0.713***	−0.167	−0.111	−0.146	−0.155
Ties to parents										
Parents' residence in origin household										
Neither parent lives in household										
Neither parent in 1984	−0.658***	−0.590***	−0.522***	−0.517***	−0.461***	−0.317**	−0.430***	−0.401***	−0.443***	−0.443***
At least one parent in 1984	−0.938***	−0.866***	−0.609***	−0.590***	−0.430	−0.384	−1.182***	−1.176***	−0.193	−0.186
Only father lives in household	−0.085	−0.103	−0.122	−0.124	−0.176	−0.196	−0.135	−0.173	−0.120	−0.138
Only mother lives in household	−0.021	−0.033	−0.163***	−0.166***	−0.136	−0.136	−0.260***	−0.260***	−0.132*	−0.134*
Both parents live in household	--	--	--	--	--	--	--	--	--	--
Ties to migrants										
Number of migrants	0.008	0.002	0.007	0.006	−0.043	−0.048*	−0.097***	−0.097***	−0.048*	−0.047*
Ties to local movers										
Number of local movers	−0.014	−0.022	−0.021	−0.026	−0.039	−0.048	−0.061*	−0.057*	−0.068**	−0.071**

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* p<.05

** p<.01

*** p<.001 (two-tailed test)

[1] Coefficients in A columns are identical to coefficients in Table 3

[2] Coefficients in B columns represent 5 separate model runs, coefficients from same model grouped using border pattern

Source: As for Table 1