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From Left-Behind Children to Youth Labor Migrants: The Impact of Household Networks, Gendered Migration, and Relay Migration in Southeast Asia

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Abstract: Do children with migrant parents or migrant family members have a greater likelihood of migration as they reach adulthood? Three possible patterns of youth migration are examined in this study: (1) network migration, when families migrating first pave the way for subsequent generations to follow; (2) gendered migration, where the gender of migrant parents and left-behind children influences the probability of youth migration; and (3) relay migration, which involves transgenerational migration switching within a family. We use data collected from Thailand in 2008/2010 (Wave 1) and tracked in 2019 (Wave 2) to understand how the migration of parents and other family members influenced youth migration in 2019. Within the network effect, household migration was one of the driving forces behind youth migration, while mother-involved migration appeared to be strongly associated with youth labor migration, especially among males. There is, however, no evidence that return migration, whether parental or non-parental in the same household, was associated with an increased likelihood of youth labor migration. This study demonstrates the relative strength of network effects of household migration when compared to relay migration on youth migration. The findings also highlight the complexity of gender-based migration in the Thai context. This research contributes to the larger field of left-behind children and youth migration by establishing the transition between these two roles and illustrating different reasons for migration in sending countries.

Keywords: left-behind children; youth migration; migration networks; gendered migration; relay migration; Southeast Asia

1. Introduction

The global scale of migration has resulted in a significant number of children being left behind in many countries, for instance, 69 million in China (UNICEF 2019) and 1.5 to 9 million in the Philippines (Global Education Monitoring Report Team 2018). Research on left-behind children focuses primarily on health, education, and employment outcomes; however, parental absence has compelling effects, as remittances sent by migrant parents provide more educational investment, whereas psychological distance may adversely impact child health (Arguillas and Williams 2010; Graham and Jordan 2011; Lu 2014). There is, however, a lack of attention in current scholarship given to the subsequent migration behaviors of left-behind children. As they reach adulthood, the children once left behind might follow in the footsteps of their migrant parents and become labor migrants. Their participation in global migration suggests that migration behaviors may be transmitted across generations, which may present unique challenges and opportunities in accommodating new generations of labor migrants given their experiences of growing up in migrant households (Antman 2013).

The research on the migration behaviors of youths aged 15–24 (UNDESA 2013), on the other hand, has evolved significantly over the last decade, with a focus on individual mobility (Bastianon 2018; Herrera Almanza and Sahn 2020; Punch 2007). The existing literature provides a unique theoretical framework that explains their migration behaviors; however, there has been little research situating youth migration in the context of an entire household (Juárez et al. 2013). Many migration flows, especially those involving youths, are better understood within household contexts (Liu et al. 2018). Migration is often a household strategy, and the migration behaviors of youths cannot be understood in isolation from the power relations within the household in which they are embedded (Huijsmans 2014). Even when young people migrate without their parents, they maintain connections with their larger family systems (Boyden 2013). However, only a limited number of qualitative studies in the migration literature explore how youth mobility is embedded in households and across generations (Punch 2015).

By exploring three theoretical arguments, namely network migration, gendered migration, and relay migration, the study examines the migration behaviors of left-behind children reaching adulthood, thereby highlighting the contextual influences on labor migration among youngsters in migrant-sending communities. A network migration scenario describes how the migration experiences of prior migrant family members can be transmitted to left-behind members as well as how those experiences can facilitate subsequent migration (de Haas 2010; Massey 1990). It is also crucial to include a gender perspective, including the gender of both migrant parent and left-behind child, in any examination of transgenerational migration, especially given ongoing debates about migration, gender, and social reproduction (Kofman and Raghuram 2015). Most of the prior research focuses on the single aspect of how parent gender influences child or migrant outcomes without acknowledging the gendered effect between migrant parents and prospective migrants left behind (e.g., Nguyen and Purnamasari 2011; Wen and Lin 2012). Third, relay migration, a comparatively less examined concept in migration studies, refers to the replacement of labor migrants. This scenario posits that young people who were left behind will follow in the footsteps of their migrant parents to continue the migration trajectory as labor migrants by working in the same industry in the future, thereby replacing the parent migrants (Durand 2011).

The current study investigates (1) whether youths whose family members with migration experiences have a greater likelihood of migration compared to their counterparts without migrating family members; (2) how the gendered effect between migrant parents and their children impacts youth migration behaviors; and (3) whether youth migrants practice relay migration, following their migrant parents to become labor migrants and thereby replacing their parents.

The study aims to contribute in three ways to the scholarship on migration and youth development. It explains possible rationales for youth migration by highlighting different factors in the family context and demonstrates the profound effects of being left behind on adulthood (Eremenko and Bennett 2018). Furthermore, we can gain a deeper understanding of the effects of parental and household migration in different life stages on individuals' migration choices and behaviors as they enter adulthood through data collected at two time periods in the children's lifetimes. The study also sheds light on transgenerational migration in migrant-sending communities of developing countries by examining youth migration in Thailand. The migration patterns in Thailand, a middle-income country, provide an example of the changing demographic context that other lower- and middle-income countries (LMICs) are likely to follow (Nauman et al. 2015).

2. Literature Review

2.1. Migrant Networks and Transgenerational Trajectories

Migrant networks are composed of interactive relationships between migrants and their families and friends (Haug 2008). Migrant workers often come from communities with a history of migration, possess knowledge about migration networks, have experienced

the benefits of remittances, and have a sense of relative benefits to encourage sustained migration (Stark and Taylor 1989). Individuals or groups undertaking migration lower the social and economic barriers to later migration through the dissemination of information and the provision of patronage (Boyd 1989). As migration becomes more accessible, it becomes a collective behavior leading to mass migration. The importance of migrant networks has been demonstrated in neoclassical models where potential migrants are aware of the relative price of labor between their home country and the destination where they wish to migrate (de Haas 2010).

A micro-level perspective emphasizes networks as mechanisms for explaining how actors interact with one another to influence individual migration decisions. A migration network is considered an essential resource for the adaptation of migrants, facilitating employment and housing (Massey et al. 1993), reducing the cost of migration in the short term, and aiding migrants' long-term adaptability to the destination (Portes and Sensenbrenner 1993). Family attitudes and stories about migration may be passed from generation to generation to reduce perceived risk and enhance anticipated rewards as well as provide enrichment. In addition to facilitating the exchange of information, arranging travel and lodging, and providing employment opportunities, networks assist in the establishment of norms regarding the costs and benefits of migration. A culture of migration can result from these norms, in which young individuals grow up expecting to leave for particular destinations as a rite of passage (Garip and Asad 2016; Massey and España 1987). Lastly, immigrants have social capital or access to resources and social support as a result of the interactions with friends and family that form their networks (Massey 1990; Massey and Espinosa 1997).

The experience of migration within household networks may encourage further migration by lowering the costs and risks of migration for other members (Massey et al. 1993; Soe et al. 2011). Households are the basic unit of reproduction, where people negotiate to maintain family resources and contribute to the development of family members (Douglass 2006). Given the network effects of household migration, other extended family members can play important roles in youth labor migration. Family members generally cooperate to achieve household goals, and migrants often make decisions concerning their migration paths through consideration of the interests, goals, and needs of other family members (Francisco-Menchavez 2020; Huijsmans 2014). The capabilities of all family members are mobilized to generate income and other resources to meet the needs of reproductive and consumption behaviors (Harzig et al. 2009). When young people enter the labor force, they are also expected to contribute to family development by increasing revenues while minimizing risks through their positions within family cycles (Stark and Bloom 1985). As a result, migration networks also work at the household level to encourage the involvement of young family members. Based on the theoretical background, two hypotheses are formulated to examine the impact of migration networks derived from both parental migration and non-parental household migration.

Hypothesis 1.1. *Individuals experiencing parental migration previously or currently are more likely to migrate in young adulthood than their counterparts without migrant parents.*

Hypothesis 1.2. *Individuals with other migrating household members previously or currently are more likely to migrate than their peers in households without other migrant members.*

2.2. Gendered Migration and Family Gender Roles

While conventional economic approaches often present migrants as genderless agents responding to macro-level socioeconomic changes, migration experiences are shaped by gender identity (Hoang 2011). Gendered migration is also explained by gender-related economic opportunity and cultural expectations that structure the migration decision-making process (Boyd and Grieco 2003). Gendered migration has long been studied in the

family context and is important for understanding how family decisions and obligations can contribute to migration flows (Hoang 2011; Kofman and Raghuram 2022).

Gender influences migration decisions via family circumstances and migration motivations (Chiang et al. 2015). While many women in many developing countries have traditionally been dependent on male laborers for their livelihoods, an increasing number of women have worked as migrant workers in the last decade (de Haas et al. 2022). Mothers, in particular, are motivated to develop resources to provide their children with quality education as well as the promise of improving the socioeconomic status of their families (Yeoh et al. 2020). Migrant mothers have been found more likely to maintain ties with their places of origin and transmit migration capital (Jordan et al. 2018; Vianello 2013). While the absence of fathers may reduce the amount of migration capital transmitted back home, migrant mothers often send both social and financial remittances back, making the migration of left-behind children more feasible (Butt et al. 2017). Migration experiences narrated by migrant mothers offer a firsthand view of migration life to their left-behind children, reducing psychological barriers and illustrating migration as a way of life (Levitt and Lamba-Nieves 2011). Therefore, the impact of parental migration on children's migration is likely to vary depending on whether mothers are migrants themselves.

In addition to the role a mother's migration may play, the selectivity of youth labor migrants is also conditioned by their own gender position in the family. Migrant families may choose the children with the best socioeconomic prospects (Heckert 2015). Gender norms play significant roles in migrant families as a means of determining migration patterns under the household strategy, with sons chosen for labor migration while daughters are bonded to domestic work and agricultural production (Pei and Cong 2019; Tong et al. 2019). This gender ideology in the migration process has been observed in Confucian countries such as China (Chiang et al. 2015) and Vietnam (Hoang 2011), as well as in non-Confucian countries such as Mexico (Schmalzbauer 2011) and Georgia (Hofmann 2015). Granted that women exert agency in the migration decision-making process, their own migration may be limited because they must negotiate for their interests to preserve family harmony (Hoang 2011). This is also reflected in the gender-specific expectation that unmarried women need to exert more effort to acquire consent for migration from their parents (Kabeer 2002). Consequently, migration also has a gendered aspect in relation to the position of the child's gender within the social reproduction of the family. Regarding gendered migration, two hypotheses are formulated to investigate the role of gender in youth migration.

Hypothesis 2.1. *Children of migrant mothers are more likely to become youth labor migrants compared to those without migrant mothers.*

Hypothesis 2.2. *The gendered impact of parental migration is stronger for daughters than sons.*

2.3. Relay Migration and Family Reproduction Strategy

Labor migration can be viewed as a kind of geographic mobility of capital for survival and reproduction. Families of migrants, often from more rural areas, obtain resources that enable them to continue in agricultural and social production by sending parents and then their children to work in wage-earning occupations in a progressive order (Arizpe 2014). This phenomenon, relay migration, occurs when a member of a family moves temporarily to a destination country to seek employment and support family members back home, then returns home after a period of time while another individual migrates in turn to sustain the family with remittances (Durand 2011). The relay migration theory emphasizes the use of procedural explanations to explain youths' migration motivations or behaviors in migrant families when they follow in the steps of their migrant parents as replacements. Especially when parents, who constitute the core family structure, have migrated, their children may be forced to migrate in the future (Durand and Massey 2019). As a result, labor migrants across generations are required to support their families, and migration of the second generation is one strategy for ensuring long-term household viability (Palloni 2017).

Relay migration is a result of the unequal distribution of capital between more rural economies and those with industrial development. Even though families have invested considerable effort in local production, the persistence of inefficient subsistence agriculture reinforces the need to move further afield to obtain more materials for family consumption (Arizpe 2014). It is also evident that this pattern of migration extends to internal migration, that is, migration from the countryside to the city, as wage gaps exist between agricultural work and the labor market in the city (Durand 2011). While the phenomenon has mainly been identified in Latin America as a strategy used by rural households (e.g., Durand and Massey 2010; Grasmuck 1982), less research on relay migration has been conducted in the migration context of Asian countries. There is, however, one exception in China focusing on the replacement of internal migration which argues that most rural households are unable to achieve upward social mobility through migration, as younger generations are in a similar socioeconomic and occupational position to their parents (Pan 2018). The majority of youth migrants, moreover, are impacted by their limited capital and increased expectations from their families, significantly restricting their mobility (Mueller et al. 2018). The position of labor migrants is static, unlike that of educational migrants who obtain qualifications and move to more active markets in a stepwise manner (King and Skeldon 2010). Therefore, this strand of the literature suggests a static picture of social mobility among rural households and their family members, with children eventually migrating as replacements for their parents in labor-sending societies. Following the theoretical framework, hypothesis 3 is developed to examine the potential effect of relay migration.

Hypothesis 3. *Living in households with returning migrants increases individuals' likelihood of labor migration during their young adulthood.*

To summarize, we have argued that network migration of both parental and non-parental household members, gendered migration considering both the gender of the migrant parent(s) and children left behind, and relay migration between returning migrants and newly migrating family members associated with migration capital and family economic diversification are significant factors in understanding youth labor migration in LMICs. The next section introduces the Thailand migration context, followed by an introduction of data and methods, results, and discussion.

3. Research Context

Although Southeast Asia is a major labor-sending region that contributes a significant portion of both intra-regional and international migration, the number of studies on migration in Southeast Asia is relatively limited (Fong and Shibuya 2020). Temporary migration regimes for elementary occupations and medium-skilled work are the main forces of labor migration in the region (International Labour Office 2010). Thailand, a middle-income country in Southeast Asia, has seen a steady number of migrants in the last few decades, both internally and internationally (Jampaklay et al. 2018). There are a substantial number of internal migrants in Thailand, with 8.3% of the population moving in the previous five years and 21.8% of the population not residing in their hometowns (National Statistical Office 2010). These numbers, however, are likely to underestimate the actual number of internal migrants since seasonal migration is excluded from the calculation. These migrants generally work as unskilled or semi-skilled low-wage laborers to diversify their family income and to cover the education costs of their school-aged children (Chamaratana et al. 2010). Men are employed in skilled agriculture or heavy manufacturing, while women are often sent to service positions (Sobieszczyk 2000). A substantial number of children under the age of 18 are impacted by such prevalent migration. According to a representative national survey, 42.8% of Thai children under 18 live separately from one or both of their parents (National Statistical Office of Thailand 2020). Children impacted by parental migration may experience vulnerability in their mental health (Adhikari et al. 2014), although mobilization of emotional and financial resources may contribute to resilience

(Rose-Clarke et al. 2022). As these children enter adulthood, parental migration may have a profound impact on their own migration decision-making.

The age at which youths are most likely to first migrate is 20 for females and 21 for males, reflecting a youthful migration profile, which is especially notable within the international context (Bernard et al. 2014). In 2016, 54.5% of migrants who moved were between the ages of 25 and 29 (National Statistical Office of Thailand 2016). Since most migrants are from relatively impoverished backgrounds, employment-related motives are likely to be their primary motivation for migrating and working in industrial estates and urban centers (Pholphirul 2012). Most migrant workers work in elementary industries. Therefore, the prevalence of migration across generations in Thailand provides a valuable laboratory for the study of the transition from left-behind children to youth labor migrants as well as the motivations behind such decision-making, which can contribute to broader theoretical and practical debates.

4. Data and Methods

4.1. Data

The data used in this study are drawn from two complementary studies: Child Health and Migrant Parents in South-East Asia (CHAMPSEA) and Children Living Apart from Parents due to Internal Migration (CLAIM). CHAMPSEA conducted a 2008 baseline study of 1030 households with a child residing in one of the target age groups: aged 3 to 5 as a young cohort (*n* = 509) and aged 9 to 11 as an older cohort (*n* = 521). In the absence of any existing sampling frames, the CHAMPSEA survey used a three-stage flexible quota sampling approach to collect data using sentinel site surveillance methods (Byass et al. 2002; Wilson et al. 2006). Any future replication should produce a sample identical in all its major characteristics to the CHAMPSEA sample according to detailed protocols. Therefore, although the sampling is not nationally representative, it reflects local circumstances and the goals of CHAMPSEA (see Graham and Jordan 2011 for more detailed information). Only one child (index child) in each household qualified for the study and all were children of two married parents (either one or two migrant parents, or two non-migrant parents for the comparison group). Migration histories of parents and development indicators of index children were recorded in the survey, along with the migration status of household members other than the nuclear family of parents and index child, such as grandparents, siblings, and other relatives. CLAIM recruited an original sample of 1456 households in 2010 using similar sampling strategies inclusive of index children aged 8 to 15 years old, a subsample of which, those aged 11 to 13 in 2010, were age comparable to the CHAMPSEA older child cohort (*n* = 596). The second wave of surveys was conducted to track the development of same-age cohort youths from both studies (date of birth 1999–2001) aged 19–23 in 2019/20. The second wave followed up with 876 households (CHAMPSEA: 411; CLAIM: 465), resulting in attrition rates lower than 23% for both surveys (see Table 1), similar to other studies in the region (Rindfuss et al. 2007). The resulting analytic sample was 872 households, as two index children had passed away and two others had significant missing values. Given that the focus of this study is labor migration, we excluded youths migrating for education, resulting in 605 cases for the analysis. The questionnaires followed Wave 1 to allow for capturing changes in demographic characteristics of household members in both migrant and non-migrant households to investigate the impacts of diverse household characteristics on youth migration. The fieldwork was conducted in local languages in Thailand, and the study received ethical clearance from the relevant research ethics boards at The University of Hong Kong and Mahidol University.

Table 1. The attrition rates of CHAMPSEA and CLAIM datasets.

Dataset	W1 Cohort	W2 Follow-Up	Attrition
CHAMPSEA (N = 1030)	*n* = 509 (Aged 3–5)	N.A.	N.A.
	n = 521 (Aged 9–11)	*n* = 411	21%
CLAIM (N = 1456)	*n* = 860 (Early childhood)	N.A.	N.A.
	n = 596 (Comparable cohort)	*n* = 465	22%

4.2. Measurement

4.2.1. Outcome Variable

Migration behavior of young adults. We constructed this variable based on the following factors: the main reason for youth migration, youths' educational trajectories and current status of education/occupation, and youths' migration history in the previous six months, if any. We only selected labor migration in the current study, as the pursuit of educational opportunity is a different consideration (Crivello 2011). A dummy variable indicates whether youths were labor migrants or not at the time of Wave 2 data collection (0 = no, 1 = yes).

4.2.2. Predictor Variables

This study consists of three main sets of predictor variables. The first set includes the migration status of parents and other household members to capture these key components for measuring network effects. The second set is related to gendered migration to present the involvement of mothers in migration. The third set is associated with the theoretical argument of relay migration.

Network migration. The migration history of parents was reported in the household questionnaire. A responsible adult with knowledge of the family structure and background answered whether at least one parent in the household had been a labor migrant within the previous six months. To determine whether a household had at least one migrant parent, we used dummy variables in both waves (0 = no, 1 = yes). We also traced the migration status of other household members recorded on the non-resident household roster to determine if any other non-parental members attached to the household were migrants as well. These members included grandparents, siblings, parents' relatives, and other members who used to live in the same household as the index child before migration. The variable was recoded into a dummy variable to indicate whether the index child had non-parental migrant members (0 = no, 1 = yes). We included two dummy variables to indicate whether the household had migrant members other than parents at two waves, respectively.

Gendered migration. To investigate the effects of gendered migration, we further distinguished father-only migration and mother-involved migration based on parental migration status in both waves. We used a three-category variable to indicate whether the father, mother, or both were labor migrants for at least six months prior to the interview (0 = both non-migrants, 1 = father-only migration, and 2 = mother-involved migration). We categorized mother-only migration with both-parents migration, referring to the category as mother-involved migration because the proportion of mother-only migration was extremely small in the sample (<4% in both waves).

Relay migration. We compared migration status in two waves to track changes in migration status. The parental and non-parental migrants were categorized into three categories, indicating whether the sampled household had returning migrants or new migrants, as opposed to only having members who remained non-migrants during both waves.

4.2.3. Control Variables

We also controlled for additional confounding variables. Migration behavior is also associated with individual demographic characteristics such as age, gender, marital status, parental occupation, household demographic composition, and economic circumstances.

Marital status. The marital status of the index child was recorded as a categorical variable (1 = single, 2 = living together, 3 = married, 4 = divorced). We further recoded the variable into a binary outcome to indicate whether they had a marriage history, as the proportion of living together and divorced was comparatively small (0 = single or living together, 1 = married or divorced).

Parental occupation. The household questionnaire reported parental occupations following the International Standard Classification of Occupations (ISCO) (International Labour Office 2012). We used occupation information at Wave 2 as control variables. Their occupational status was further recoded into a binary variable to indicate whether they were employed in primary/agricultural occupations or not (0 = no, 1 = yes).

Household income. Household income, measured as the monthly amount of all income-generating activities, including remittances sent from migrant parents, was used to indicate household economic circumstances. A logged value of household income at Wave 2 was adopted for analysis.

4.3. Analytical Approach

We first report summary statistics to offer a complete picture of youth migration in the sampled households. Although two-wave data were collected, the status of youth labor migration was only reflected in Wave 2. Therefore, we employed logistic regression to assess the transition from left-behind children to youth labor migrants. We applied stepwise regression, entering blocks of predictor variables to examine the association between network migration and youth migration, highlighting the effects of other household members. Following all control variables, predictor variables regarding parental and non-parental migration were added. Regarding gendered migration, we analyzed the full sample to examine the impacts of mothers' engagement and then we divided the entire sample according to child gender to explore the gender profiles of the sampled youths. Finally, we used logistic regression to investigate whether there was any association between return migration and migration behaviors of youngsters to present evidence of relay migration. The variance inflation factor (VIF) of each regression model was examined, and all VIFs were <5, indicating that there was no severe collinearity in our analysis. The log-likelihood and McFadden R2 of each model were reported to assess the fitness of the logistic models.

5. Results

Table 2 presents the characteristics of sampled households. The overall percentage of youths who became labor migrants between the two waves was approximately 60%. Regarding the factors related to network migration, around half of the sampled households had at least one migrant parent at Wave 1, and the number declined to around one-third at Wave 2. The number of households with other migrant family members increased from one in ten at Wave 1 to almost half at Wave 2. There was a decline in both father-only and mother-involved migration at Wave 2. Among the factors associated with relay migration, approximately one-quarter of parents returned home, whereas the proportion of return migration among other household members was relatively small, suggesting that the majority of migrant parents continued their migration and more household members migrated as well.

Table 2. Descriptive statistics of sampled households.

Variables	N = 605
Outcome variable	
Youth migration status (% of labor migrants)	60.3%
Predictor variables	
Network migration	
Parental migration status	
Parental migration Wave 1 (% of migrants)	51.8%
Parental migration Wave 2 (% of migrants)	32.2%
Other household migration status	
Household migration Wave 1 (% of migrants)	11.9%
Household migration Wave 2 (% of migrants)	48.1%
Gendered migration	
Gendered migration W1 (ref. = both are non-migrant)	
Father migration	25.5%
Mother-involved migration	26.3%
Gendered migration W2 (ref. = both are non-migrant)	
Father migration	11.3%
Mother-involved migration	21.0%
Relay migration	
Parental migration change (ref. = stay non-migrant)	
Remain or new migration	32.3%
Return migration	24.1%
Migration changes of other household members (ref. = stay non-migrant)	
Remain or new migration	48.1%
Return migration	4.1%
Control variables	
Child characteristics	
Age at Wave 2 (19–23)	Mean = 21.8 (SD = 0.9)
Gender (% of female)	42.9%
Education (% of upper secondary or above)	68.7%
Marital status (% of married or divorced)	32.8%
Parent characteristics Wave 2	
Father occupation (% of skilled or professional)	34.1%
Mother occupation (% of skilled or professional)	20.3%
Household characteristics at Wave 2	
Number of children aged 0–17 (0–5)	Mean = 0.5 (SD = 0.5)
Number of elderly aged 60+ (0–3)	Mean = 0.5 (SD = 0.5)
Household income (log)	Mean = 5.8 (SD = 1.0)

Table 3 examines the effects of network migration on youth migration. Despite a high degree of variability indicated in the models, non-parental migration in relation to youth labor migration was statistically significant. Young people with other household members' migration at both waves were more likely to become labor migrants compared to those without such migration networks at the household level, supporting Hypothesis 1.2. There was, however, no significant association between parental migration and youth migration in either Wave 1 (Model 1) or Wave 2 (Model 4), so Hypothesis 1.1 was not supported. This finding suggests that the network effect of migration on left-behind children may operate at the household level and engage extended family members rather than only operating at the level of generational transmission between parents and children within a more nuclearized family structure.

Table 3. Effects of network migration on youth labor migration.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Migration status W1						
Parental migration	1.207		1.240			
	[0.818, 1.780]		[0.839, 1.834]			
Other household migration		1.678 [+]	1.720 [+]			
		[0.910, 3.094]	[0.931, 3.177]			
Migration status W2						
Parental migration				1.308		1.300
				[0.834, 2.052]		[0.828, 2.041]
Other household migration					1.462 *	1.458 *
					[1.004, 2.129]	[1.001, 2.124]
Child age	1.694	1.675	1.669	1.719	1.722	1.744 [+]
	[0.885, 3.241]	[0.874, 3.212]	[0.870, 3.202]	[0.897, 3.292]	[0.896, 3.308]	[0.907, 3.354]
Child age squared	0.994	0.994	0.994	0.994	0.994	0.994
	[0.979, 1.009]	[0.979, 1.009]	[0.979, 1.009]	[0.979, 1.009]	[0.979, 1.009]	[0.979, 1.009]
Child gender (female vs. male)	1.568 *	1.611 *	1.610 *	1.563 *	1.573 *	1.566 *
	[1.057, 2.326]	[1.084, 2.395]	[1.083, 2.395]	[1.054, 2.320]	[1.058, 2.336]	[1.053, 2.327]
Child education (upper secondary or above vs. lower secondary or below)	1.296	1.232	1.236	1.314	1.300	1.324
	[0.835, 2.010]	[0.793, 1.915]	[0.795, 1.922]	[0.846, 2.041]	[0.836, 2.019]	[0.851, 2.061]
Marital status (married or divorced vs. single or living together)	1.735 *	1.723 *	1.716 *	1.773 **	1.731 *	1.764 *
	[1.124, 2.677]	[1.116, 2.661]	[1.111, 2.650]	[1.147, 2.740]	[1.119, 2.678]	[1.138, 2.733]
Father occupation (skilled or professional vs. agricultural or primary)	0.735	0.748	0.727	0.698	0.757	0.703
	[0.485, 1.115]	[0.494, 1.133]	[0.479, 1.105]	[0.453, 1.077]	[0.501, 1.146]	[0.456, 1.086]
Mother occupation (skilled or professional vs. agricultural or primary)	1.140	1.154	1.111	1.148	1.204	1.175
	[0.692, 1.876]	[0.703, 1.896]	[0.673, 1.835]	[0.699, 1.885]	[0.733, 1.978]	[0.713, 1.935]
Number of children aged 0–17	0.817 [+]	0.818 [+]	0.823	0.810 [+]	0.826	0.822
	[0.646, 1.034]	[0.647, 1.035]	[0.650, 1.041]	[0.640, 1.024]	[0.652, 1.045]	[0.649, 1.041]
Number of elderly aged 60+	1.514 **	1.542 ***	1.509 **	1.495 **	1.518 ***	1.473 **
	[1.181, 1.942]	[1.205, 1.973]	[1.176, 1.936]	[1.163, 1.922]	[1.186, 1.943]	[1.145, 1.895]
Household income (log)	0.592 ***	0.577 ***	0.581 ***	0.592 ***	0.588 ***	0.591 ***
	[0.474, 0.739]	[0.462, 0.722]	[0.465, 0.726]	[0.474, 0.740]	[0.470, 0.734]	[0.473, 0.739]
Log likelihood	−324.6	−323.7	−323.1	−324.4	−323.1	−322.5
McFadden R2	0.092	0.095	0.096	0.092	0.096	0.098
Observation	605	605	605	605	605	605

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, [+] $p < 0.1$.

Table 4 presents the results of gendered migration. The results of the full sample highlight the increased likelihood of joining migrant labor forces for youngsters living in households whose mothers were also involved in migration, compared to those living in non-migrant households. This association was not present in father-only migrant households, providing support for Hypothesis 2.1. Further analysis of the gendered sample demonstrated that while the effect of mother engagement was associated with male youth migration, female youth migration was not associated with either father-only migration or mother-involved migration, in contrast to Hypothesis 2.2. It appears that there was an observable effect of gendered migration between the experience of parental migration and subsequent youth migration.

Table 4. Effects of gendered migration on youth labor migration.

	Full Sample		Male Sample		Female Sample	
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Gendered migration W1						
Father migration	0.837		0.660		0.958	
	[0.532, 1.315]		[0.349, 1.246]		[0.474, 1.939]	
Mother-involved migration	2.164 **		3.524 **		1.254	
	[1.235, 3.791]		[1.618, 7.676]		[0.545, 2.886]	
Gendered migration W2						
Father migration		0.976		1.063		0.849
		[0.534, 1.782]		[0.461, 2.448]		[0.336, 2.147]
Mother-involved migration		1.701 +		2.685 *		0.950
		[0.946, 3.060]		[1.198, 6.019]		[0.392, 2.306]
Child age	1.282	1.297	1.922	1.959	1.282	1.297
	[0.527, 3.118]	[0.543, 3.100]	[0.673, 5.490]	[0.678, 5.660]	[0.527, 3.118]	[0.543, 3.100]
Child age squared	1.004	1.003	0.988	0.987	1.004	1.003
	[0.983, 1.025]	[0.982, 1.024]	[0.965, 1.012]	[0.964, 1.012]	[0.983, 1.025]	[0.982, 1.024]
Child gender (female vs. male)	1.567	1.375	1.447	1.402	1.567	1.375
	[0.875, 2.805]	[0.781, 2.422]	[0.678, 3.089]	[0.659, 2.983]	[0.875, 2.805]	[0.781, 2.422]
Child education (upper secondary or above vs. lower secondary or below)	3.451 ***	3.192 ***	1.030	1.037	3.451 ***	3.192 ***
	[1.752, 6.796]	[1.637, 6.223]	[0.554, 1.915]	[0.558, 1.927]	[1.752, 6.796]	[1.637, 6.223]
Marital status (married or divorced vs. single or living together)	0.537 *	0.578 +	0.878	0.925	0.537 *	0.578 +
	[0.299, 0.964]	[0.322, 1.040]	[0.453, 1.700]	[0.458, 1.870]	[0.299, 0.964]	[0.322, 1.040]
Father occupation (skilled or professional vs. agricultural or primary)	1.339	1.290	0.844	0.878	1.339	1.290
	[0.644, 2.781]	[0.636, 2.619]	[0.394, 1.809]	[0.401, 1.926]	[0.644, 2.781]	[0.636, 2.619]
Mother occupation (skilled or professional vs. agricultural or primary)	0.860	0.861	0.722 +	0.727 +	0.860	0.861
	[0.611, 1.210]	[0.615, 1.206]	[0.509, 1.024]	[0.514, 1.029]	[0.611, 1.210]	[0.615, 1.206]
Number of children aged 0–17	1.282	1.424 *	1.239	1.296	1.282	1.424 *
	[0.917, 1.792]	[1.023, 1.981]	[0.795, 1.931]	[0.840, 2.000]	[0.917, 1.792]	[1.023, 1.981]
Number of elderly aged 60+	0.673 *	0.655 *	0.601 **	0.594 **	0.673 *	0.655 *
	[0.481, 0.943]	[0.469, 0.916]	[0.435, 0.829]	[0.430, 0.820]	[0.481, 0.943]	[0.469, 0.916]
Household income (log)	1.282	1.297	1.922	1.959	1.282	1.297
	[0.527, 3.118]	[0.543, 3.100]	[0.673, 5.490]	[0.678, 5.660]	[0.527, 3.118]	[0.543, 3.100]
Log likelihood	−320.2	−323.4	−170.58	−175.50	−140.58	−140.69
McFadden R2	0.104	0.095	0.152	0.128	0.082	0.082
Observation	605	605	337	337	268	268

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Table 5 presents the effects of changes on migration status. Youths having migrant household members other than parents at both or the most recent time point were more likely to migrate for employment, further illustrating the network effect of migration. However, there was no significant effect of return migration, regardless of whether the return migrants were parents or other household members, on the trajectories of youth labor migration. As a result, we were not able to find significant evidence to support Hypothesis 3.

Table 5. Effects of relay migration on youth labor migration.

	Model 1	Model 2	Model 3
Parental migration change			
Remain or new migration	1.295		1.304
	[0.800, 2.097]		[0.805, 2.115]
Return migration	0.973		0.997
	[0.607, 1.562]		[0.621, 1.603]
Other household migration change			
Remain or new migration		1.475 *	1.475 *
		[1.006, 2.164]	[1.005, 2.167]
Return migration		1.118	1.158
		[0.433, 2.890]	[0.449, 2.991]
Child age	1.717	1.711	1.729
	[0.896, 3.290]	[0.889, 3.294]	[0.897, 3.333]
Child age squared	0.994	0.994	0.994
	[0.979, 1.009]	[0.979, 1.009]	[0.979, 1.009]
Child gender (female vs. male)	1.562 *	1.574 *	1.567 *
	[1.053, 2.319]	[1.059, 2.339]	[1.054, 2.331]
Child education (upper secondary or above vs. lower secondary or below)	1.315	1.296	1.319
	[0.846, 2.044]	[0.833, 2.014]	[0.847, 2.056]
Marital status (married or divorced vs. single or living together)	1.775 **	1.726 *	1.758 *
	[1.148, 2.745]	[1.115, 2.671]	[1.133, 2.727]
Father occupation (skilled or professional vs. agricultural or primary)	0.698	0.755	0.699
	[0.452, 1.076]	[0.498, 1.144]	[0.452, 1.082]
Mother occupation (skilled or professional vs. agricultural or primary)	1.152	1.199	1.168
	[0.699, 1.898]	[0.729, 1.973]	[0.706, 1.934]
Number of children aged 0–17	0.809 +	0.827	0.823
	[0.639, 1.024]	[0.653, 1.046]	[0.650, 1.043]
Number of elderly aged 60+	1.496 **	1.516 ***	1.469 **
	[1.163, 1.923]	[1.184, 1.941]	[1.141, 1.891]
Household income (log)	0.592 ***	0.587 ***	0.590 ***
	[0.474, 0.740]	[0.470, 0.734]	[0.472, 0.739]
Log likelihood	−6.118	−6.003	−6.204
McFadden R2	0.092	0.096	0.098
Observation	605	605	605

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

The impacts of individual and household characteristics were also highlighted across models. Individual attributes, such as marital status, were positively associated with youth migration, suggesting a cumulative effect of different aspects of youths' transition to adulthood. On the other hand, an increase in the number of elderly people living in the household was significantly associated with youth migration, while household income showed a negative association with labor migration among young people. We also explored possible interactions with no significant findings to better determine the mechanisms operating in these associations.

6. Robustness Test

To ensure the robustness of our findings, we conducted a series of sensitivity analyses. To examine the impacts of gendered migration, we added interaction terms between the gender of migrant parents and that of their children. There was a similar pattern in gendered migration where young males were more likely to be affected by mother-involved migration. We also compared relay migration effects with two comparison groups, returning migrants with remaining migrants, and returning migrants with remaining non-migrants. The results were similar to those presented above (see Appendix A: Tables A1 and A2). Due to concerns regarding possible attrition bias, we examined any significant differences between respondent and non-respondent households in terms of parental and household migration status, the age and gender of index children, and household characteristics. Only the

migration status of the parents significantly predicted sample attrition, with households of migrant parents at Wave 1 being more likely to drop out. As a consequence of this attrition, our study may underestimate the impact of parental migration.

7. Discussion

Through migration both domestically and internationally, youths in LMICs are increasingly diversifying their opportunities (McKenzie 2008). Whether youth migration across generations proceeds in a linear manner or along distinct paths segmented by human capital and social networks within youths' households remains equivocal. Previous studies mostly examined left-behind experiences and youth labor migration separately without acknowledging that migration behaviors can be reproduced cross-generationally within migrant households. This study instead combines two seemingly distinct scholarships and examines the impact of migrant household members on youths to assess which type of migrant experiences would increase youths' likelihood of becoming labor migrants. To the best of our knowledge, this study represents the first attempt to examine the transition from left-behind children to youth labor migrants in Southeast Asia. The results highlight how migration networks at the household level and the important roles of migrant parent and child gender function to influence the labor migration of youths who experienced parental migration during childhood. Furthermore, this study emphasizes how household-level dynamics within the extended family operate.

The network effect of household migration highlights the influence of the prevalence of migration among other household members. Family members play significant roles in one's transition; however, their roles in youths' migration decision-making have remained underexplored (Liu et al. 2018). We shift from the more common focus on parental migration alone to include the migration status of other household members, and our results indicate that household migration at both waves had a positive association with youth labor migration (supporting H1.2). In contrast, there was no significant association between parental migration and youth labor migration (H1.1 was not supported). The effect may be explained by the difference between the migration capital of parents and the capital associated with other household members, with the latter sometimes exhibiting more significance in migration propensity (Palloni et al. 2001). One study conducted in a Thai village suggested that while strong ties such as parents can provide trustworthy information, other networks may provide more information on diverse occupational resources and alternative destinations (Garip 2008). Other household members may function as a source of migratory prevalence facilitating youths' labor migration, particularly for their first trip (Massey and Riosmena 2010). Our data also illustrate that a significant proportion of other migrant household members changed from the same generation as the youths' parents at Wave 1 to the youths' siblings at Wave 2, further illustrating the network effect of migration capital at the household level.

The results of gendered migration present a different picture between father-only and mother-involved migration, demonstrating variations in youth migration caused by mothers' involvement in migration journeys (supporting H2.1). The reason for this might be a difference in parenting styles between migrant fathers and mothers, as migrant fathers may be less emotionally intimate with their children and less involved in long-distance parenting than migrant mothers (Parreñas 2008; Pribilsky 2012). Children left behind may benefit from frequent communication with their migrant mothers to gain information, ideas, and life perspectives (Toyota et al. 2007), which may in turn facilitate their future migration journeys. Furthermore, when the sample was divided based on child gender, a significant effect of mother-involved migration was only found in the male subsample (rejecting H2.2). This might be explained by perceived economic return, gender norms, and gender-specific expectations in Thailand. Firstly, there may be a gendered anticipation of a return to the labor market within households as well as differences in family practices in order to reap migration benefits, as males' migrant wages tend to be higher than those of females. Alternatively, as a result of the less favorable labor market for women, girls may

be tied to the home by their more intensive contributions to household chores, particularly if younger sisters are not available to replace them (Herrera Almanza and Sahn 2020; Jordan et al. 2018). Furthermore, migrant parents may reinforce the gendered ideology that men are breadwinners while women are caregivers, and migrant women may also be presented as the dependents of their migrant husbands (Hoang 2011). This gendered distribution of labor in favor of men and the power accorded to the male breadwinner in the household allow men to be more assertive regarding migration, as seen across Latin America and Confucian-influenced Southeast Asia (Hoang 2011; Nobles and McKelvey 2015). Finally, in Thailand, where bilateral kinship ties are more prevalent, the decreased likelihood of young women migrating could also reflect a more privileged gendered position not to migrate (Curran et al. 2005).

The structure of Thai compulsory education may also exert an influence. At the age of 14, Thai adolescents face a choice between further education or employment following the end of compulsory education. Sons might be more expected to participate in the labor force to diversify family income compared to daughters. Further studies could enhance our understanding of gendered migration and migration decision-making within households by providing more nuanced evidence across cultural contexts, especially Thailand and other LMICs, which are destinations for regional migration and sending societies for global migration. Qualitative studies could be used to probe migration negotiations between men and women and highlight the intersectionality between gender and other factors, such as family relationships and social cultures (Willis and Yeoh 2000).

The study did not find evidence to support the relay hypothesis, as there was no significant association between youth labor migration and return migration (H3 was not supported). This could be explained by the heterogeneity of motivations among return migrants (Constant and Massey 2002). Relay migration is a strategy households adopt as a geographic component of the generalized exchange of labor and resources between rural and industrial sectors. The decision to return is, nevertheless, not entirely determined by economic failures in the destination labor market as documented in dominant studies of return migration (Newbold and Bell 2001; Piotrowski and Tong 2010). Social considerations as well as family responsibilities may also cause migrants to return (Niedomysl and Amcoff 2011; Wang and Fan 2006). Thus, youth labor migrants may not be motivated to take on the roles of their parents by working in a similar industry (Somaiah et al. 2020). One study in Thailand illustrated how return migrants took advantage of emerging companies in peripheral regions while continuing to work in nonfarm jobs in the home region to diversify their household income (Junge et al. 2015). Therefore, return migration does not necessarily entail withdrawal from the labor force, especially for those who are still capable of contributing to the workforce. Several studies have revealed a different picture, where young migrants in Africa (Apatinga et al. 2022), South America (Boccagni 2015), and Southeast Asia (Barney 2012) received financial support from their parents as a form of reverse remittance. Therefore, the relay strategy may not be evident in migrant households if the youth labor migrants are not responsible for feeding their entire families once their parents return home. Other than the heterogeneity of return incentives, young people in Thailand, facing a relatively better-off economic situation, may strive to achieve social mobility through migration as opposed to the replication of the occupational status of their parents observed in many LMICs.

The study also indicates that household income is negatively associated with youth labor migration, which is consistent with the general finding that labor migrants are primarily motivated to migrate for the purpose of earning remittances, while household wealth generally discourages migration (Abramitzky et al. 2013). The study also highlights that the number of elderly people was positively associated with youth labor migration. It is possible that households with elderly members require more financial support due to increased dependence and a decline in the labor force to maintain the household economy (Garip 2014). This may motivate young people to seek employment as labor migrants to provide this support, especially in times of adverse family economic conditions; neverthe-

less, some evidence suggests that left-behind elderly can take on significant household responsibilities, especially when the main labor force, the middle generation, is absent (Chang et al. 2011; He and Ye 2014). Consequently, young people may be freed of onerous household responsibilities and be able to migrate to seek employment.

Despite the significant findings, there are some limitations to the study. Firstly, the sampled young adults were in their early adulthood and might not yet have experienced extensive migration during their lives. While the sampled households comprised both domestic and international migrants, the proportion of international youth migrants was relatively low (less than 10%). There is a possibility that these young labor migrants were constrained by their human capital and might have moved within Thailand as a first step before migrating to overseas countries in a stepwise manner (Paul 2011); a prior ethnographic study provided evidence of young Thai migrant workers beginning with internal migration but then planning to migrate overseas due to disappointment with domestic income (Peth et al. 2018). Further longitudinal studies would be required to fully examine the transition into adulthood. Although the destinations of migrant parents were reported in the dataset, specific location information on youth labor migrants was not provided beyond domestic/international. Whether these youth labor migrants followed their parents for a family reunion in the same destination or began their migration journeys to a new destination is unknown. To address these limitations, future studies should trace youth migration trajectories along with their destinations and durations of stay.

Second, young adults may have yet to experience other critical life events, such as the onset of fertility and other transitional changes. Since they are mostly single without children, their migration decisions are largely influenced by individual factors, as well as interactions with their parents and other extended family members. Most labor migrants migrate before marriage and parenthood, particularly regarding the first trip (Riosmena 2009). Compared to migrant parents we captured who had at least one child at the time of interview, these youths were in the early stages of adulthood and had not yet faced other key transitions, which might have influenced their migration decisions. Young adults in Thai society undergo a significant transition from single to married status (De Jong 2000). The migration decisions of parents were mostly motivated by the intention of investing in their children's education, while young adults hardly considered childcare and other parental responsibilities. Longitudinal data tracking such young people are needed to capture the nuance of how migration may be intertwined with other transitions to adulthood.

Thirdly, the present study investigated the transition from left-behind experiences to youth labor migration using three fundamental theoretical arguments without their potential interactive effects. It is possible that migration networks facilitate decision-making processes on a gendered basis. It has been suggested that whilst men tend to be connected to relatively more extended networks such as workplace networks for practical support, women are more likely to be connected to family networks, which provide them with not only information and practical support but also social protection (Hoang 2011). We speculate that relay migration could also be gendered as a way of reproducing gendered divisions of labor in migration. Future studies, including those with a cultural comparative focus, could consider more diverse factors regarding social position, such as ethnicity or religion, and adopt a more intersectional approach to explore their interactive effects with gender on the transition to adulthood.

Furthermore, the effects of community and its potential migration culture were not explored in the present study. The phenomenon of migration can be prevalent within a village, a community, or a residential neighborhood, as people witness the benefits associated with migration (Eacott and Sonn 2006). It is possible for left-behind children to have different values, norms, and evaluations of migration than their migrant parents. To provide a comprehensive picture of the transition from left-behind children to youth labor migrants in LMICs, future studies could adopt a multi-level method to investigate the

effects of community culture on migration and how it interacts with family and individual decision-making.

Finally, there are two limitations that should be acknowledged regarding sampling in data collection. Firstly, although the data were collected through rigorous sampling methods, they were not nationally representative. Future studies could adopt a national scope to better capture the variations between geographical clusters of communities with a high out-migration rate. Additionally, the sibling effect and the impact of parental migration might have been compromised as a result of the sampling procedure. After accounting for the quota design of child age and gender, the index child was randomly selected from each qualified household that had more than one child who met the inclusion criteria. The migration histories of parents and non-parental household members of a household should be captured in future studies to address this limitation more holistically.

Despite these limitations, the study contributes to the scholarship on left-behind children in migrant households by revealing key determinants of the transition from left-behind child to youth labor migrant. This study pays particular attention to the impacts of other household members and gendered migration at the household level, illustrating the capital diversification strategy employed by the new generation of labor migrants. Given that longitudinal data on migration is particularly scant in LMICs, the study contributes to knowledge regarding the long-term effects of migration on child development by showing the continuity of migration behaviors across generations. The reproduction of migration on left-behind children also calls for research on the aspirations, occupational mobility, and family formation of youth labor migrants who experienced parental migration during childhood. Finally, both migrant-sending and migrant-receiving societies are expected to raise their awareness of this phenomenon and to better accommodate youth labor migrants in the future.

Appendix A

Table A1 shows the effects of gendered migration on youth migration with interaction terms. Our findings confirm that mother-involved migration had more substantial impacts on males than on females, which was supported by the interaction terms of mother-involved migration and female children.

Table A1. Effects of gendered migration on youth migration with interaction terms.

	Model 1	Model 2	Model 3	Model 4
Gendered migration W1				
Father migration	0.837	0.689		
	[0.532, 1.315]	[0.374, 1.269]		
Mother-involved migration	2.164 **	3.204 **		
	[1.235, 3.791]	[1.553, 6.608]		
Gendered migration W2				
Father migration			0.976	0.948
			[0.534, 1.782]	[0.426, 2.113]
Mother-involved migration			1.701 +	2.567 *
			[0.946, 3.060]	[1.209, 5.451]
Child age	1.651	1.705	1.645	1.651
	[0.855, 3.186]	[0.878, 3.309]	[0.856, 3.162]	[0.855, 3.186]
Child age squared	0.996	0.995	0.995	0.996
	[0.980, 1.011]	[0.979, 1.010]	[0.980, 1.010]	[0.980, 1.011]
Child gender (female vs. male)	1.581 *	1.698 +	1.579 *	1.581 *
	[1.062, 2.352]	[0.991, 2.908]	[1.063, 2.346]	[1.062, 2.352]
Child education (upper secondary or above vs. lower secondary or below)	1.473 +	1.515 +	1.371	1.473 +
	[0.937, 2.316]	[0.960, 2.390]	[0.878, 2.141]	[0.937, 2.316]
Marital status (married or divorced vs. single or living together)	1.715 *	1.784 *	1.733 *	1.715 *
	[1.108, 2.653]	[1.147, 2.775]	[1.119, 2.683]	[1.108, 2.653]
Father occupation (skilled or professional vs. agricultural or primary)	0.709	0.690 +	0.724	0.709
	[0.464, 1.081]	[0.450, 1.057]	[0.467, 1.122]	[0.464, 1.081]
Mother occupation (skilled or professional vs. agricultural or primary)	1.028	1.103	1.057	1.028
	[0.616, 1.715]	[0.656, 1.855]	[0.634, 1.763]	[0.616, 1.715]
Number of children aged 0–17	0.789 +	0.794 +	0.804 +	0.789 +
	[0.622, 1.001]	[0.625, 1.009]	[0.635, 1.017]	[0.622, 1.001]
Number of elderly aged 60+	1.330 *	1.319 *	1.430 **	1.330 *
	[1.024, 1.727]	[1.014, 1.714]	[1.105, 1.851]	[1.024, 1.727]
Household income (log)	0.626 ***	0.615 ***	0.610 ***	0.626 ***
	[0.499, 0.785]	[0.489, 0.773]	[0.486, 0.766]	[0.499, 0.785]
Interaction terms with Wave 1				
Father migration * Child gender		1.516		
		[0.602, 3.816]		
Mother-involved migration * Child gender		0.381 +		
		[0.141, 1.029]		
Interaction terms with Wave 2				
Father migration * Child gender				1.049
				[0.333, 3.306]
Mother-involved migration * Child gender				0.367 +
				[0.128, 1.049]
Log likelihood	−320.2	−317.2	−323.4	−321.6
McFadden R2	0.104	0.113	0.095	0.100
Observation	605	605	605	605

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, + $p < 0.1$.

Table A2 shows the effects of relay migration with different comparison groups. To minimize potential comparison bias, we compared the effects of returned migrants with two samples, remaining non-migrant and remaining migrant, across two waves. Neither of these studies, however, shows a significant effect of relay migration.

Table A2. Effects of relay migration on youth labor migration with different comparison groups.

	Return vs. Remain Non-Migrant		Return vs. Remain Migrant	
	Model 1	**Model 2**	**Model 3**	**Model 4**
Parental migration change	1.062		0.835	
	[0.655, 1.719]		[0.458, 1.522]	
Household migration change		1.358		0.835
		[0.516, 3.573]		[0.458, 1.522]
Child age	1.541	1.022	2.188	1.572
	[0.706, 3.366]	[0.413, 2.534]	[0.834, 5.741]	[0.101, 24.54]
Child age squared	0.996	1.003	0.986	0.986
	[0.978, 1.014]	[0.982, 1.025]	[0.964, 1.008]	[0.930, 1.046]
Child gender (female vs. male)	1.736 *	1.598 [+]	1.674 [+]	3.546
	[1.080, 2.791]	[0.934, 2.734]	[0.935, 3.000]	[0.599, 20.99]
Child education (upper secondary or above vs. lower secondary or below)	2.510 ***	1.018	0.723	1.563
	[1.480, 4.256]	[0.553, 1.873]	[0.361, 1.445]	[0.0884, 27.63]
Marital status (married or divorced vs. single or living together)	1.902 *	1.643 [+]	1.048	7.041 [+]
	[1.135, 3.187]	[0.916, 2.949]	[0.551, 1.992]	[0.938, 52.84]
Father occupation (skilled or professional vs. agricultural or primary)	0.587 [+]	0.683	0.893	0.490
	[0.342, 1.007]	[0.388, 1.203]	[0.485, 1.645]	[0.0959, 2.506]
Mother occupation (skilled or professional vs. agricultural or primary)	0.614	1.094	1.687	0.431
	[0.315, 1.194]	[0.564, 2.123]	[0.868, 3.276]	[0.0995, 1.868]
Number of children aged 0–17	0.798	0.824	0.904	1.352
	[0.601, 1.059]	[0.597, 1.137]	[0.621, 1.315]	[0.517, 3.536]
Number of elderly aged 60+	1.130	1.520 *	1.451 *	1.350
	[0.831, 1.538]	[1.087, 2.125]	[1.017, 2.069]	[0.535, 3.403]
Household income (log)	0.723 *	0.607 **	0.534 ***	0.194 **
	[0.544, 0.960]	[0.449, 0.820]	[0.386, 0.739]	[0.0561, 0.668]
Log likelihood	−224.65	−176.57	−265.12	−55.88
McFadden R2	0.101	0.081	0.103	0.304
Observation	408	315	311	72

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$, [+] $p < 0.1$.

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