Father's Migration and Child Illness in India: How Does the Effect Vary by Community Socioeconomic Development and Community Gender Context?

Lei Lei[1], Sonal Desai[2] and Feinian Chen[2]

1. Rutgers University-New Brunswick
2. University of Maryland-College Park

Abstract

Due to international and internal migration, millions of children in developing countries are geographically separated from one or both parents. Prior research has not reached a conclusion about the impact of parental outmigration on children's well-being and little is known about under what conditions parental out-migration is harmful or beneficial to children's health. Using data from the Indian Human Development Survey in 2011-12, we estimate community fixed-effect Poisson regression models predicting the number of sick days due to acute illness. Results show that father's outmigration is associated with higher risks of illness among girls but not boys in India. In communities with higher levels of socioeconomic development, father's outmigration is related to an increased likelihood of child illness, but it reduces the risk of illness in less-developed rural communities. The positive association between father's absence and girls' illness is further exacerbated in communities with more strict norms of female seclusion.

1. Introduction

Due to the massive flow of internal and international labor migration, millions of children in developing countries are geographically separated from one parent or both parents. Parental out-migration is a family strategy that leads to conflicting consequences. Many studies have shown that labor out-migration could bring economic benefits to the families staying behind through remittances (Taylor, Rozelle et al. 2003, Mberu 2006, De Brauw and Rozelle 2008). Meanwhile, parental migration entails family disruption that generates emotional strain among the children left behind and reduces parental input in children's development. Partly due to these countervailing forces, previous studies reported mixed findings regarding the overall implication of parental migration on children's well-being, such as education and health. Some studies suggested that parental absence due to migration is detrimental to children's physical health (Gibson, McKenzie et al. 2011, Lu 2015, Tong, Luo et al. 2015, Davis and Brazil 2016), psychological well-being (Ye and Pan 2011, Botezat and Pfeiffer 2014, Murphy, Zhou et al. 2016), and educational outcomes (Wen and Lin 2012). Others reported positive influence of parental out-migration on children's health (Hildebrandt and McKenzie 2005, Mu and De Brauw 2015), educational attainment (Wen, Su et al. 2015), and behavioral outcomes (Wen, Su et al. 2015). Still, other studies reached a conclusion that the impact of parental migration on children's well-being is weak and inconsistent (Xu and Xie 2015, Ren and Treiman 2016).

These mixed findings may partly be attributable to different measurements and analytical strategies (Hamilton and Choi 2015), but a more important reason could be that the impact of parental out-migration depend on the characteristics of the children, the families, and the social contexts. However, little is known about under what conditions parental out-migration could be harmful or beneficial to children's health and well-being. A number of studies have shown that

the effect of parental migration could vary by whether one or both parents are absent, the gender of the migrant parent, and the presence of grandparents (Tong, Luo et al. 2015, Huang, Song et al. 2018). But much less attention has been paid to how the impact of parental migration on the well-being of children is contingent on social contexts. Cross-national comparative studies have identified different consequences of parental outmigration for children's health across study settings (Lu 2015, Nguyen 2016). These scholars attempted to attribute the different findings to the distinct levels of socioeconomic development in these countries, but they are unable to empirically test hypotheses about contextual effects. In this study, we take advantage of the tremendous geographic diversity in the levels of economic development as well as the nature of gender inequality in India and empirically test whether the health effect of parental outmigration on child health is conditioned by the community socioeconomic development and community gender context.

There is a growing body of literature examining the impact of parental migration on children's health, measured by mortality, birth weights, nutritional status, self- or parent- rated health, and immunization (Gibson, McKenzie et al. 2011, Yabiku, Agadjanian et al. 2012, Lu 2015, Huang, Song et al. 2018). Childhood illness is a relatively understudied health outcome. We examine child acute illness in this study because it represents a major burden of diseases in developing countries. In India, 50% of deaths among children under age five are due to diarrhea and pneumonia (Million Death Study Collaborators 2010). Even if the illness does not lead to death, it would constrain children's activities, such as playing, learning, and social interactions. Child illness has also been shown to reduce children's cognitive skills, physical health, and social status as adults (Case, Fertig et al. 2005). Previous studies have linked childhood illness and child mortality to social factors such as poverty, mother's education, parenting behaviors, attitudes, and culture (Das Gupta 1990, Myntti 1993). This study will contribute to the literature by examining how parental migration presents challenges or opportunities to children's health in a developing country that experiences the burden of childhood illness and child mortality.

Using longitudinal data from the Indian Human Development Survey (IHDS), this study makes the first effort to examine the influence of parental migration on children's health in India. It aims to answer several research questions. 1) *What is the overall impact of father's migration on illness among children in India (given that the labor migration in India is dominated by males)*? 2) *How does the effect of parental out-migration on child illness vary across communities with different levels of socioeconomic development*? 3) *How does community gender norms moderate the consequences of parental outmigration for boys and girls in India*?

2. Father's Migration and Left-Behind Children in India

According to the 2011 Census, India has 454 million migrants based on the place of last residence (Office of the Registrar General & Census Commissioner 2011), which has increased from 30% in 2001 to 37% of the total population in 2011. While two-thirds of the migrants are women, who usually migrate at the time of marriage, there are 141 million migrant men in 2011 for whom work and employment is one of the main reasons for migration. The number of men who migrated for work and business purpose (42.4 million) was five times more than that of women who migrated for the same reasons (8.5 million). Moreover, in 2015, 16 million persons from India were living outside the country, contributing to the most significant "diaspora" in the world (Department of Economic and Social Affairs 2016).

Solo male migration is a prevalent livelihood strategy adopted by families in India. Due to the low income, the uncertain employment conditions, and the expensive housing in the

migration destinations, male workers often leave their wives and children in the place of origin. In regions like Bihar and Uttar Pradesh, it is common for men to live in large cities for decades, only visiting their families twice a year (Gulati 1993, Deshingkar, Sharma et al. 2008). Moreover, in many rural areas, Indian men often undertake short-term migration during agricultural downtime or when agricultural labor demand is high in other regions. A study shows that in 2009 about 11.3% of Indian children do not see their fathers on a daily basis because the father works far from home and this number has increased from 6.5% in 2007 (Nguyen 2016). Using data from the second wave of the IHDS in 2011-12, we found that about 10% Indian children had a migrant father who is currently away or had migrated for at least one month during the past five years.

3. Theories and Literature

Why parental migration matters for children's health?

Empirical research in the U.S. and developing countries found that children living with a single parent have worse developmental outcomes than children in two-parent families (Dawson 1991, Amato 2001). The literature on family dissolution suggests that parental presence may be important in ensuring the healthy development of children through two primary mechanisms, economic resources and socio-cultural resources (McLanahan and Sandefur 1994). Following divorce, separation, or death of a parent, children's health can be affected by a decline in economic resources, reduced quality of parenting, and stress or confusion directly related to the family change (Amato 2000). Both the parents and the children need to adjust to the change in the family relationship and figure out new roles and functions. Using the family theory above as a guiding framework, we discuss how parental outmigration, as a change in the family relationship, may affect children's health in both positive and negative ways in the context of India.

First, unlike other types of parent-child separation (e.g. divorce and death of parents) that imply a decline in economic resources, parental outmigration is often associated with an improvement in economic conditions through remittances sent back by the migrant parents. Participation in migration has been shown to improve household economic resources and living standards (Hadi 1999, Hugo 2002, Aghajanian, Alihoseini et al. 2014). The increased economic resources allow the left-behind family to gain access to quality food and water, household sanitation, and health care services (Antón 2010, Amuedo-Dorantes and Pozo 2011, Mu and De Brauw 2015). Therefore, parental migration could have a positive impact on children's health and reduce the likelihood of child illness by improving access to economic resources.

Another positive impact of parental outmigration on child health is through health knowledge. A study showed that both the migrant parent and the staying-behind spouse have more health-related knowledge than parents in non-migrant families in Mexico (Hildebrandt and McKenzie 2005) and the positive effect of parental migration on child health is partially explained by the amount of health knowledge. In the context of India, living in the migration destinations, the migrant fathers are usually exposed to more socioeconomically developed contexts, and they tend to learn health knowledge through the mass media and social interaction with people in the destinations. The knowledge transmitted back to the caregivers in the migration origins could improve the quality of childcare and improve children's health.

The absence of fathers due to migration directly leads to reduced parental time and energy. Besides, the remaining caregiver, either the mother or the grandparents may face additional household responsibilities, which limit the amount of time that the caregivers spend in childcare.

For example, without the father to shoulder other household management tasks, the mother may be left with less time to prepare quality food, to clean the child frequency, to maintain a sanitary home environment, and to use health services to boost child health. Prior research found that children in migrant households received less time breastfeeding and fewer immunizations (Hildebrandt and McKenzie 2005). In addition, the absence of father could potentially increase the risk of delinquency and deviant behaviors among children due to the lack of monitoring and supervision (Coley and Medeiros 2007), which can lead to higher risks of accident and risky health behaviors. Wen and Lin (2012)(2012)(2012)(2012) found that left-behind children are more likely to engage in unhealthy behaviors, including drinking, smoking, and illicit drugs.

In some circumstances, when the father is away, older children need to share more responsibilities in housework, farming, and caring for younger siblings (Antman 2011, Chang, Dong et al. 2011, Ye and Pan 2011). These added responsibilities could reduce children's time and energy available for studying, playing, and social interaction with peers, which is detrimental to children's healthy physical development. In some areas with poor facilities in India, household members still spend a significant amount of time fetching water and firewood. Due to the lack of labor in the father's absence, children are more likely to participate in these household drudgeries, making them more susceptible to illness.

The Moderating Role of Community Context

Community socioeconomic development

How the countervailing mechanisms play out largely depends on the social and economic environment of the communities where the children grow up. In a resource-poor community, children's health may suffer from the lack to access to clean water, nutritious food, and poor hygiene. The lack of health knowledge may also be a risk factor resulting in disadvantaged health status among children. Therefore, the increased economic resources due to remittances and transmission of health knowledge may outweigh the negative impact of the reduced parental attention, resulting in a positive net impact of parental out-migration on children's well-being in these contexts. In contrast, in communities with higher levels of socioeconomic development, where the lack of economic resources and health knowledge is not a threat to child health, the reduced quantity and quality of care might play a more important role than the financial gain through remittances for children. Thus, the father's absence due to outmigration might impose a negative overall effect on the health of left-behind children. In a comparative study, Lu (2015) found that parental migration has a more positive impact on children's physical growth in Indonesia, a resource-poor context, than in Mexico, a country with a higher level of economic development. She speculates that parental outmigration may have a more positive influence on children's health in less developed communities than in more wealthy communities. The current study will draw on the geographic diversity in India and empirically test the hypothesis.

Community gender context

India is a country with a pervasive son preference and a low status of women. Child mortality for girls exceeds child mortality for boys by 43% in India (Arnold, Choe et al. 1998). However, in this culturally diverse country, son preference and discrimination toward girls is much stronger in the North than in the other parts of India (Das Gupta, Zhenghua et al. 2003).

Due to the discrimination against girls, household resources are unequally allocated between boys and girls and girls are more likely to be neglected. Thus, in migrant households, the increased economic resources due to remittances and health-related information are more likely

to be used to boost the health of boys than girls. Moreover, when facing the lack of labor, girls are more likely to boys to help the remaining caregivers with housework, farming, and childcare, which could be stressful and detrimental to their health. We expect that the outmigration of father to have a more positive health effect on boys than for girls. If the net effect is negative, then it should be more detrimental among girls than among boys.

However, these gender effects can further be contingent on the community gender context, in terms of the general level of son preference and women's status. In communities with strong son preference, the gender gap in the effect of father's absence due to migration should be larger than it is in communities with weak son preference and more egalitarian gender norms.

4. Data and Methods

Data

This study uses data from two rounds the IHDS interviews, which were conducted in 2004-05 and 2011-12. The respondents were spread across 34 states and Union Territories, and span 971 urban blocks and 1,503 villages in 388 districts in India. In 2004-05 survey collected data on 41,554 randomly selected households containing over 200,000 individuals; 83 percent of the same households (as well as any split households) were re-interviewed in 2011-12. An additional sample of 2,148 households was included to refresh the urban sample where the re-contact rates were lower. This results in a 2011-12 sample to 42,152 households containing 215,748 individuals. The household questionnaire covered a wide range of topics, including household economic activities, social networks, living standards, household member's demographic characteristics, education, work status, income, and health. In each survey, women aged 15 to 49 years responded to additional questions about health, gender relations, fertility, and natal care in the eligible women questionnaire and provided information on the health and education of their children. At both waves, IHDS conducted village level focus group discussions among village government officials, local businessmen, and other adults, to collect information about village structure, infrastructure, labor market characteristics, land use, and agricultural production, among other things. The analysis will use the second wave of IHDS data, which contain information about on 17,819 children between ages 0 and 15 years old.

Key Measures

The dependent variable for this study is the number of days that children were unable to do usual activity in the past 30 days due to illness such as fever, cough, and diarrhea. It is a count variable indicating both the incidence and seriousness of the disease.

The focal independent variable is the father's migration status. We construct this variable using information from two survey questions. First, for all married women, information was collected about whether their husbands were absent due to outmigration at the time of the survey. In addition, the IHDS-2 interview asked questions about whether any members of the household left to find seasonal/short-term work for at least one month during past five years, and returned to live in the household. For people who took more than one trip, we only use the information on the most recent trip. Based on the information from these two questions, we construct a binary indicator of whether the father has taken any migration trips in the recent five years. The reference group would be children whose fathers have not taken a migration trip in recent five years.

We will examine the conditioning effects of two aspects of community characteristics, community socioeconomic development and community gender context. Community socioeconomic development is a composite measure based on both the location of the

community (urban vs. rural) as well as development indicators (such as availability of electricity, piped water, modern gas, and telephone in the community). Using these indicators, we group the urban communities and villages into four categories: metro urban, other urban, more-developed rural, and less-developed rural. Community gender context is captured by two variables. Community level of son preference is an aggregate measure of the proportion of women (15-49 years old) who said they ideally want more boys than girls. Community gender norm is measured by the proportion of women performing *purdah/ghunghat* in the community. The practice of *purdah/ghunghat* (or female seclusion) is the most visible marker of gender in Indian communities. It is performed in a variety of forms, including "wearing a full burqa, covering one's face with a shawl or sari when in the presence of men, lowering voices and eyes in the presence of men, remaining in separate rooms or behind a screen when unrelated men are present, or not going to public places unaccompanied" (Stroope 2015).

With regard to control variables, we consider a wide range of individual and family characteristics, including the child's gender, age and birth order, the mother's age, the father's and the mother's education, the total number of children in the household, the presence of young children under age 5, the presence of grandparents in the household, castes and religious groups, household wealth and income, and father's previous employment and income measured at IHDS-1.

Analytical methods

In Table 1, we first present the descriptive statistics for the characteristics of children, households, and communities in India. Then, we employ Poisson regression models to assess the impact of father's migration on the days of illness among children, while including community fixed-effects.

The research on the impact of migration is challenged by the issue of selectivity bias, because not all households are equally likely to send migrants. In addition, migration tends to be chained and clustered. Many predictors of migration are actually community-based characteristics, such as wage level, location, transportation, social networks, and economic shocks. By including community fixed-effects, we rule out all the observed and unobserved community features that could influence both father's migration and children's health. In this way, we compare children with their peers in the same community whose parents tend to have a similar likelihood of outmigration. We also try to control for a variety of household-level variables in order to eliminate the influence of the factors that simultaneously affect father's migration behaviors and children's health.

To test the conditioning effects of community context, in subsequent models, we include the interaction terms between father's migration status and community socioeconomic development, and the three-way interaction among father's migration status, child's gender, and community gender context (measured by community-level son preference and community-level practice of purdah).

As the next step, we will merge data from the IHDS-1 (2004-05) and IHDS-2 (2011-12) and estimate person fixed-effect regression models as a way to rule out the influence of all time-invariant individual confounders and check whether the results are consistent with cross-sectional analysis.

5. Preliminary Results

The results show that father's migration does not have a significant overall impact on children's illness. That means, in general, the risk of disease is not different among left-behind children and children of non-migrants, after controlling for community and family characteristics. However, the influence of the father's migration varies by the level of community socioeconomic development (see Figure 3). In more developed areas, father's absence due to migration tends to increase the risk of illness among children, whereas in less-developed areas father's outmigration is associated with lower rates of disease. A plausible explanation is that in poor communities the economic benefits of remittances and the health information brought back by the migrant fathers are more important for children's health and it offsets the negative impact of the lack of parental time.

Moreover, we found that father's absence due to migration significantly reduces the illness among boys, but not among girls (See Figure 4), which is expected in a country characterized by gender inequality. We also examined how the gender difference in the impact of father's outmigration is conditioned by community gender context. Father's migration is shown to bring more benefits to children's health (i.e. reducing illness) in communities with higher levels of son preference than it does in communities with lower levels of son preference. However, the gender difference in the impact of parental outmigration is not altered by the level of son preference (see Figure 5).

Regarding the community-level practice of purdah, the results indicate that father's outmigration tends to reduce illness of girls in an egalitarian community, where no one practices purdah. However, the father's outmigration increases the likelihood of disease among girls and reduces the risk of illness among boys in communities with unequal gender norms, namely where all women practice purdah (see Figure 6).

Table 1. Descriptive Statistics of the Characteristics of the Children and Households in India, IHDS-2, 2011-2012

Variable	Mean or percentage	Standard deviation
Days of illness	1.20	2.97
Father's migration status (1=migrant)		
Non-migrant	90.91	
Migrant	10.09	
Gender (1=girls)		
Boys	52.16	
Girls	47.84	
Age (in months)	124.05	35.33
Mother's age	34.65	5.69
Mother's years of education	5.00	4.78
Father's years of education	7.04	4.77
Presence of grandparents	33.0	
Total number of children in the household	2.82	1.23
Any children under age 5	9.5	
Birth order	2.51	1.65
Caste and religious groups		
Forward caste	19.85	
OBC	34.40	
Dalit	23.08	
Adivasi	7.41	
Muslim	12.83	
Christian, Sikh, Jain	2.43	
Household assets		
Poorest	18.54	
2nd quintile	17.32	
Middle quintile	24.60	
4th quintile	20.32	
Richest	19.23	
Household income		
Negative or <1000	1.15	
Poorest	14.84	
2nd quintile	20.06	
Middle quintile	22.09	
4th quintile	21.31	
Richest	20.55	
Father's employment status at IHDS-1		
Not working	4.97	
Less than 240 hours per year	1.34	
Part-time	41.37	
Full-time	52.33	
Father's earnings at IHDS-1	48771.48	67568.4
Community context		

Level of Development		
Metro urban	4.82	
Other urban	24.27	
More developed village	33.02	
Less developed village	27.90	
Son preference	0.27	0.17
(% of women have son preference)		
Gender norm	0.64	0.37
(% of women perform purdah)		
Number of children	17,819	

Table 2. Community Fixed-Effect Poisson Regression Models Predicting the Number of Sick Days Due to Illness among Children in India, IHDS-2 2011-12

VARIABLES	(1)	(2)	(3)	(4)	(5)
Father's migration status					
Non-migrant father (ref.)					
Migrant father	-0.031	0.594**	-0.097**	0.113	-0.033
Interaction with the level of development					
Migrant father × other urban		-0.279			
Migrant father × more-developed rural		-0.622**			
Migrant father × less-developed rural		-0.723**			
Interaction with the child's gender					
Girls	0.041**	0.040**	0.025	0.063*	0.024
Migrant father × girls			0.136**	0.242*	-0.244+
Interaction with community gender context					
Migrant father × son preference				-0.615**	
Girls × son preference				-0.127	
Migrant father × girls × son preference				-0.337	
Migrant father × purdah practice					-0.079
Girls × purdah practice					0.001
Migrant father × girls × purdah practice					0.480**
Birth year					
1997 (ref.)					
1998	0.163***	0.160***	0.163***	0.160***	0.165***
1999	0.192***	0.192***	0.192***	0.189***	0.193***
2000	0.327***	0.327***	0.327***	0.324***	0.328***
2001	0.177***	0.173***	0.177***	0.175***	0.177***
2002	0.294***	0.297***	0.295***	0.293***	0.294***
2003	0.414***	0.415***	0.414***	0.413***	0.415***
2004	0.439***	0.440***	0.438***	0.436***	0.438***
2005	0.597***	0.599***	0.599***	0.594***	0.598***
2006	0.603***	0.603***	0.603***	0.599***	0.604***
Birth order	-0.011	-0.013+	-0.011	-0.011	-0.011

Mother's age	-0.007**	-0.007**	-0.007**	-0.007**	-0.007**
Mother's years of education	0.006*	0.006*	0.006*	0.007**	0.006*
Father's years of education	-0.011***	-0.011***	-0.011***	-0.011***	-0.010***
Presence of grandparents	-0.044*	-0.048**	-0.044*	-0.044*	-0.045*
Number of children in the household	-0.155***	-0.156***	-0.156***	-0.155***	-0.156***
Any children under age 5	-0.122***	-0.119***	-0.122***	-0.118***	-0.122***
Caste and religious groups					
Forward caste (ref.)					
OBC	-0.021	-0.021	-0.021	-0.019	-0.024
Dalit	0.053+	0.054+	0.053+	0.051+	0.053+
Adivasi	-0.256***	-0.265***	-0.260***	-0.262***	-0.264***
Muslim	0.102*	0.102*	0.103*	0.108*	0.102*
Christian, Sikh, and Jain	-0.040	-0.040	-0.040	-0.041	-0.039
Household assets					
Poorest (ref.)					
2nd quintile	-0.029	-0.032	-0.031	-0.035	-0.032
Middle quintile	-0.086**	-0.089**	-0.087**	-0.094**	-0.090**
4th quintile	-0.058	-0.061+	-0.061+	-0.068+	-0.063+
Richest	-0.253***	-0.257***	-0.255***	-0.263***	-0.258***
Family income					
Poorest (ref.)					
2nd quintile	-0.002	-0.009	-0.003	-0.007	-0.002
Middle quintile	-0.088**	-0.090***	-0.089***	-0.094***	-0.087**
4th quintile	-0.081**	-0.080**	-0.080**	-0.085**	-0.078**
Richest	-0.106**	-0.106**	-0.106**	-0.110**	-0.104**
Father's employment at IHDS-1					
Not working					
Less than 240 hours	0.116	0.119+	0.114	0.128+	0.118+
Part-time	-0.153***	-0.152***	-0.150***	-0.149***	-0.154***
Full-time	-0.082*	-0.080*	-0.079*	-0.076*	-0.082*
Father's earnings at IHDS-1	0.000	0.000	0.000	0.000	0.000

Number of children	14,487	14,487	14,487	14,482	14,487
Number of communities	1,396	1,396	1,396	1,395	1,396
Log-likelihood	-29083	-29065	-29078	-29056	-29072
Chi-square	1360	.	1368	1398	1382
Degrees of freedom	35	38	36	39	39

*** p<0.001, ** p<0.01, * p<0.05, + p<0.1

Figure 1. Theoretical Pathways through which Parental Migration Influences Child Illness.

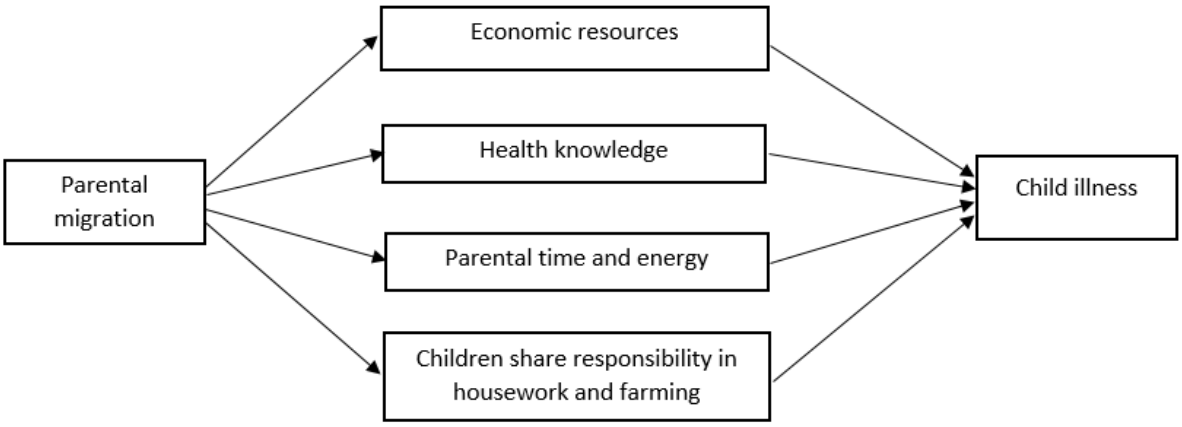


Figure 2. The Impact of Father's Outmigration on Child Illness, Conditioning Effects by Community Socioeconomic Development and Gender Context

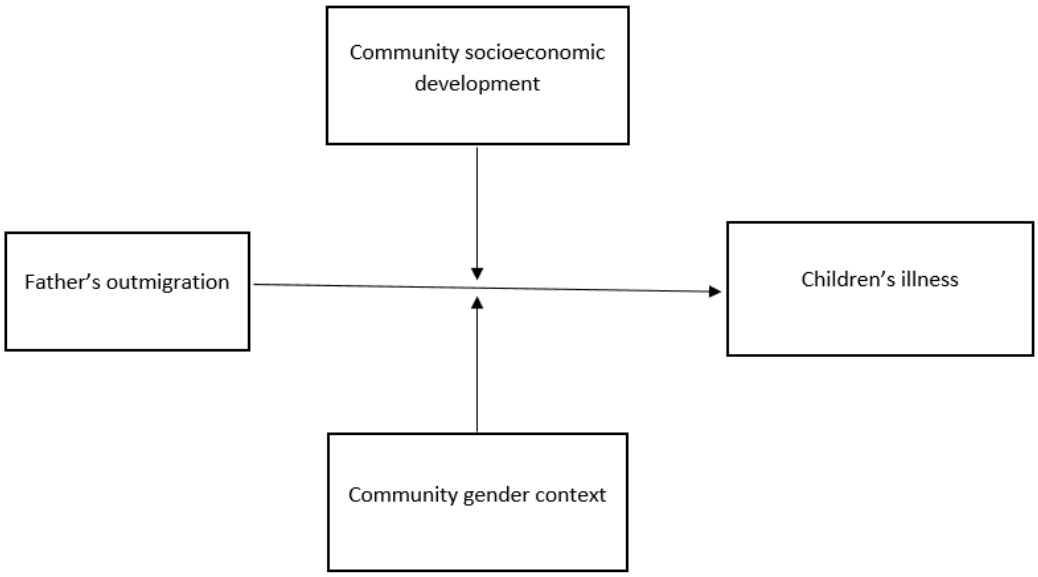


Figure 3. Incidence Ratio of Illness among Left-behind Children vs. Children of Non-migrants, by Community Socioeconomic Development

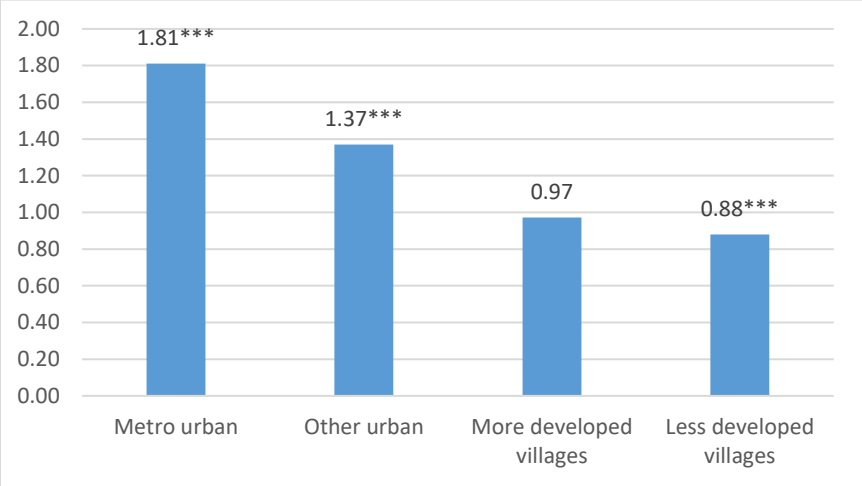


Figure 4. Incidence Ratio of Illness among Left-behind Children vs. Children of Non-migrants, By the Gender of the Child

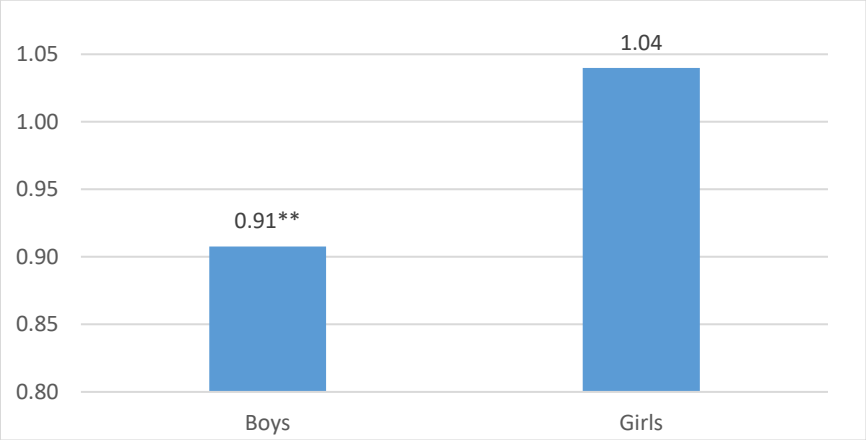


Figure 5. Incidence Ratio of Illness among Left-behind Children vs. Children of Non-migrants, by Child's Gender and Community-Level Son Preference

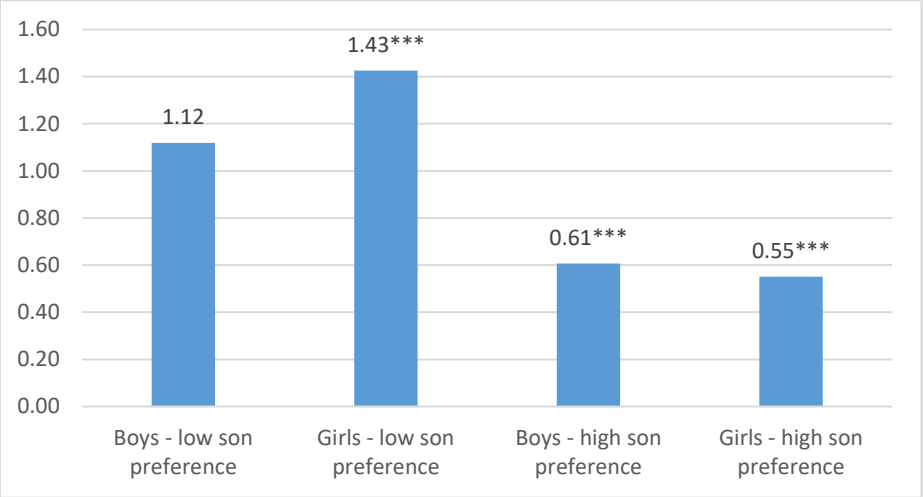
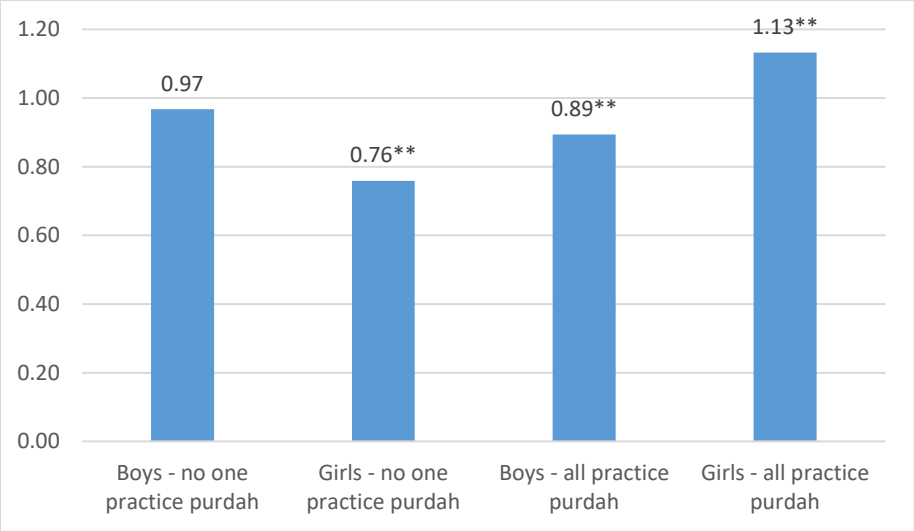


Figure 6. Incidence Ratio of Illness among Left-behind Children vs. Children of Non-migrants, by Child's Gender and Community Gender Norm



References

Aghajanian, A., et al. (2014). "Husband's Circular Migration and the Status of Women left behind in Lamerd District, Iran: A pilot study." Asian Population Studies **10**(1): 40-59.

Amato, P. R. (2000). "The consequences of divorce for adults and children." Journal of marriage and family **62**(4): 1269-1287.

Amato, P. R. (2001). "Children of divorce in the 1990s: an update of the Amato and Keith (1991) meta-analysis." Journal of family psychology **15**(3): 355.

Amuedo-Dorantes, C. and S. Pozo (2011). "New evidence on the role of remittances on healthcare expenditures by Mexican households." Review of Economics of the Household **9**(1): 69-98.

Antman, F. M. (2011). "The intergenerational effects of paternal migration on schooling and work: What can we learn from children's time allocations?" Journal of Development Economics **96**(2): 200-208.

Antón, J. I. (2010). "The Impact of Remittances on Nutritional Status of Children in Ecuador 1." International migration review **44**(2): 269-299.

Arnold, F., et al. (1998). "Son preference, the family-building process and child mortality in India." Population studies **52**(3): 301-315.

Botezat, A. and F. Pfeiffer (2014). "The Impact of Parents Migration on the Well-Being of Children Left Behind–Initial Evidence from Romania."

Case, A., et al. (2005). "The lasting impact of childhood health and circumstance." Journal of health economics **24**(2): 365-389.

Chang, H., et al. (2011). "Labor migration and time use patterns of the left-behind children and elderly in rural China." World Development **39**(12): 2199-2210.

Coley, R. L. and B. L. Medeiros (2007). "Reciprocal longitudinal relations between nonresident father involvement and adolescent delinquency." Child development **78**(1): 132-147.

Das Gupta, M. (1990). "Death clustering, mothers' education and the determinants of child mortality in rural Punjab, India." Population studies **44**(3): 489-505.

Das Gupta, M., et al. (2003). "Why is son preference so persistent in East and South Asia? A cross-country study of China, India and the Republic of Korea." The Journal of Development Studies **40**(2): 153-187.

Davis, J. and N. Brazil (2016). "Migration, remittances and nutrition outcomes of left-behind children: a national-level quantitative assessment of Guatemala." PloS one **11**(3): e0152089.

Dawson, D. A. (1991). "Family structure and children's health and well-being: Data from the 1988 National Health Interview Survey on Child Health." Journal of Marriage and the Family: 573-584.

De Brauw, A. and S. Rozelle (2008). "Migration and household investment in rural China." China Economic Review **19**(2): 320-335.

Department of Economic and Social Affairs (2016). International Migration Report 2015. New York, United Nations.

Deshingkar, P., et al. (2008). "Circular migration in Madhya Pradesh: changing patterns and social protection needs." European Journal of Development Research **20**(4): 612-628.

Gibson, J., et al. (2011). "What happens to diet and child health when migration splits households? Evidence from a migration lottery program." Food Policy **36**(1): 7-15.

Gulati, L. (1993). In the Absence of their Men: The Impact of Male Migration on Women. New Delhi, Sage Publications.

Hadi, A. (1999). "Overseas migration and the well-being of those left behind in rural communities of Bangladesh." Asia-Pacific Population Journal **14**(1): 43-58.

Hamilton, E. R. and K. H. Choi (2015). "The mixed effects of migration: Community-level migration and birthweight in Mexico." Social Science & Medicine **132**: 278-286.

Hildebrandt, N. and D. J. McKenzie (2005). The effects of migration on child health in Mexico, The World Bank.

Huang, Y., et al. (2018). "Migration, family arrangement, and Children's health in China." Child development **89**(2): e74-e90.

Hugo, G. (2002). "Effects of international migration on the family in Indonesia." Asian and Pacific migration journal **11**(1): 13-46.

Lu, Y. (2015). "Internal migration, international migration, and physical growth of left-behind children: a study of two settings." Health & place **36**: 118-126.

Mberu, B. U. (2006). "Internal migration and household living conditions in Ethiopia." Demographic Research **14**: 509-540.

McLanahan, S. and G. Sandefur (1994). Growing Up with a Single Parent. What Hurts, What Helps, ERIC.

Million Death Study Collaborators (2010). "Causes of neonatal and child mortality in India: a nationally representative mortality survey." The lancet **376**(9755): 1853-1860.

Mu, R. and A. De Brauw (2015). "Migration and young child nutrition: evidence from rural China." Journal of Population Economics **28**(3): 631-657.

Murphy, R., et al. (2016). "Parents' migration and children's subjective well‐being and health: Evidence from rural China." Population, Space and Place **22**(8): 766-780.

Myntti, C. (1993). "Social determinants of child health in Yemen." Social Science & Medicine **37**(2): 233-240.

Nguyen, C. V. (2016). "Does parental migration really benefit left-behind children? Comparative evidence from Ethiopia, India, Peru and Vietnam." Social Science & Medicine **153**: 230-239.

Office of the Registrar General & Census Commissioner (2011). PROVISIONAL -D-5 MIGRANTS BY PLACE OF LAST RESIDENCE, AGE, SEX, REASON FOR MIGRATION AND DURATION OF RESIDENCE-2011.

Ren, Q. and D. J. Treiman (2016). "The consequences of parental labor migration in China for children's emotional wellbeing." Social science research **58**: 46-67.

Taylor, J. E., et al. (2003). "Migration and incomes in source communities: A new economics of migration perspective from China." Economic Development and Cultural Change **52**(1): 75-101.

Tong, Y., et al. (2015). "The association between parental migration and childhood illness in rural China." European Journal of Population **31**(5): 561-586.

Wen, M. and D. Lin (2012). "Child development in rural China: Children left behind by their migrant parents and children of nonmigrant families." Child development **83**(1): 120-136.

Wen, M., et al. (2015). "Positive youth development in rural China: The role of parental migration." Social Science & Medicine **132**: 261-269.

Xu, H. and Y. Xie (2015). "The causal effects of rural-to-urban migration on children's well-being in China." European sociological review **31**(4): 502-519.

Yabiku, S. T., et al. (2012). "Labor migration and child mortality in Mozambique." Social Science & Medicine **75**(12): 2530-2538.

Ye, J. and L. Pan (2011). "Differentiated childhoods: impacts of rural labor migration on left-behind children in China." The Journal of peasant studies **38**(2): 355-377.