Education of Children Left Behind in Rural China*

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Abstract

Despite China's substantial internal migration, long-standing rural-urban bifurcation has prompted many migrants to leave their children behind in rural areas. This study examined the consequences of out-migration for children's education using longitudinal data from the China Health and Nutrition Survey (N = 885). This study took into account the complex family migration strategies and distinguished various types of migration in China, including different forms of parental migration as well as sibling migration. The results showed that migration of siblings generates benefits for children's education, which is particularly pronounced for girls and children at middle-school levels. But parental migration has not given children left behind a significant advantage in educational prospects as their parents had hoped. Younger children seem to be especially susceptible to the disruptive effect of parental out-migration.

In developing societies an increasing number of children grow up with one parent or no parents (United Nations Children's Fund, 2007). Such situations largely arise from labor migration, in which children are left behind by migrant parents to circumvent the high costs and uncertainties associated with migration. A growing body of literature has examined the well-being of children left behind by international migrants, but very limited work has studied children affected by internal migration, which is also a highly prominent occurrence. China is a prime example, with a record number of domestic migrants and children left behind in rural areas; the number of children left behind has been estimated to be as high as 58 million (China Youth Research Center [CYRC], 2006). This huge number of children left behind is largely a result of China's long-standing institutionalized rural-urban bifurcation that has precluded internal migrants from fully incorporating themselves into cities of their own country.

In the present research examined the education of children left behind in rural China. The study is informed by an extensive literature on the effects of family disruptions and parent-child separation on child development, as well as by a growing literature on the impact of migration on various aspects of the family. A synthesis of these two literatures suggests that the effect of out-migration on children left behind is not completely clear-cut. Studies of labor migration have often viewed emigration as a household strategy for improving the socioeconomic circumstances of both the migrants and individuals in the households left behind (Stark & Bloom, 1985). Research on family separation, by contrast, has underscored the detrimental consequences of parental absence for a range of child outcomes (McLanahan & Sandefur, 1994).

What is the overall impact of migration on the educational status of children left behind in

China? I investigated this central question using longitudinal data from the China Health and Nutrition Survey. Furthermore, because children of different genders and ages may show different capacities and vulnerabilities, I assessed how the effect of out-migration varies by children's gender and school level. Throughout the analysis, I focused on the main effect of emigration rather than the social and economic mediating mechanisms underlying the effect. I distinguished different groups of children left behind to reflect the complex family arrangements and family migration practices in China (i.e., migration of mother, father, both parents, or a sibling). I used panel fixed-effect models to account for potential bias in the selection of migrant families.

Previous research has consistently shown that family disruption, especially in the form of parent-child separation, has substantial adverse effects on the education, cognitive development, and psychological well-being of children in a range of different circumstances. In Western societies, such separation is often the result of marital dissolution (Amato & Cheadle, 2005; Potter 2010). In the developing world, parental death as a type of family separation has been shown to exact a considerable psychological and social toll on children (Beegle, Filmer, Stokes, & Tiererova, 2008). Not until recently has attention been paid to separation due to migration.

Regardless of family type, the number of family disruptions and transitions is crucial for children's well-being, with children in relatively stable family structures showing better outcomes than those experiencing many family changes (Raley & Wildsmith 2004). The moderating role of the gender of the remaining parent and the age of the child has yet to be definitively determined. Biblarz and Raftery (1999) found that children in single-father

households had worse outcomes than those in single-mother households because mothers were often the primary caregivers, whereas a recent study by Dufur, Howell, Downey, Ainsworth, and Lapray (2010) showed negligible parenting differences by gender in single-parent families. With respect to the child's age, the deleterious impact of parental absence could be stronger for younger children because they are more vulnerable to parenting deficits (Ermisch & Francesconi, 2001). Nevertheless, to the extend that family disruption results in reduced economic resources, the negative effect may be more pronounced for older children facing educational transitions at higher levels that incur higher expenses (Steele, Sigle-Rushton, & Kravdal, 2009).

The family literature has also examined how the various complex family systems shape children's outcomes and the impact of family disruption. Extended kinship systems, in particular the presence of grandparents, could provide supplementary tangible and intangible resources, thereby buffering the negative impact of family disruption and helping protect children from various crises. This was found both in developing countries where the extended family ideal is common (Pong, 1996) and in the United States for members of racial/ethnic minority groups (Dolbin & Targ, 2001). Sibling composition and cultural preferences are also important for child well-being. In developing societies, siblings are often critical contributors to household resources (Gomes, 1984). In many patriarchal societies, the education of sons is often promoted at the expense of daughters, suggesting that increased economic resources could have a stronger impact on girls (Parish & Willis, 1993).

Studies of the consequences of migration for migrant-sending communities have long focused on macro-level outcomes such as economic development and how migration networks sustained

migratory flows. A growing literature has begun to examine the impact of emigration on the micro worlds of families. This line of research has shown that whereas migrants and families left behind continued to share strong bonds of collective welfare, the family separation has inevitably led to changes in family relations and gender identities (Parreñas, 2001). Researchers have examined the   implications of emigration for specific family members, especially children. In many resource-constrained settings, parents commonly undertake migration to improve the life chances of their offspring, yet the overall effect of parental emigration is not clear-cut because of potentially countervailing impacts due to economic benefits and parent-child separation. In the following paragraphs, I discuss the psychosocial and economic processes for understanding the overall influence of out-migration, but in this research I was able to examine only the overall effect, not the the underlying processes.

The adverse impact of family separation on children noted in the broader family literature is likely to arise in the context of migration. When parents migrate, the children left behind tend to receive less parental support and supervision. The remaining care provider would almost certainly face increased household responsibilities (Taylor et al., 1996), further undermining his or her ability to parent. Migration may also lead to the absence of traditional authority figures and the breakdown of essential social control in the household. Children themselves could endure not only the emotional costs of separation from parents but also increased household obligations (Jones, Sharpe, & Sogren, 2004). Migrant families sometimes seek to cope with the separation by turning to extended kin for support. These and similar resources may help alleviate some family constraints but this is not consistently the case (Parreñas, 2001).

Nevertheless, unlike many other types of parent-child separation, parental emigration may generate economic advantages from migrants' remittances; as Stark and Bloom (1985) posited in " The New Economics of Labor Migration" theory, migration decisions often are made collectively to diversify risks and maximize household economic welfare. As a result, a large fraction of migrants' incomes are devoted to remittances - to their families which could reduce the economic vulnerability of the original households (Azam & Gubert, 2006). From the perspective of child development, such remittances might improve children's educational prospects insofar as they are used to invest in children, or to mitigate the time and energy constraints of the caregiver or the demand for child labor (R. Brown & Poirine, 2005). Emigration could also bring about social remittances, for example, of knowledge, perceptions, and practices (Levitt, 1998), that are conducive to child development, although such remittance might also reduce educational aspirations if migration appeared a more viable route to economic success than education (Kandel & Kao, 2001).

A growing number of empirical studies have examined the link between migration (mostly international migration) and various aspects of children's schooling. Some have suggested that emigration positively affects children's schooling and improves their school performance (Adams, Cuecuecha, & Page, 2008; Curran, Cadge, Varangrat, & Chung, 2004; Kandel & Kao, 2001). In contrast, others have demonstrated a deleterious impact (Lopez-Cordoba, 2005; McKenzie & Rapoport, 2006) or a neutral impact of migration on schooling (Arguillas & Williams, 2010; Borraz, 2005) and have suggested that children left behind by mothers experience more difficulties in school than those left behind by fathers (Battistella & Gastardo-Conaco, 1998). Parental migration even seemed to lower educational aspirations in Mexico as

children waited to follow in their parents' footsteps (Kandel & Kao, 2001).

These studies provide very valuable insights but many of them faced several limitations. First, most of the attention has focused on international migration, although internal migration also has generated widespread family separation. In addition, very few studies have distinguished different groups of children left behind to capture the complex family arrangements and family migration practices in migrant-sending areas. Even fewer studies have addressed a common methodological difficulty, endogenous selection of migrant households, although there are a few exceptions (e.g., Adams et al., 2008).

THE STUDY SETTING

China is a compelling setting in which to study the consequences of internal migration for children, both because of its unprecedented labor migration and limited educational provision in rural migrant-sending areas.

Migration and Family in China

Since the early 1980s an estimated 220 million migrants have moved from rural areas of China to work in cities (National Bureau of Statistics [of China], 2011). A large fraction of these migrants are married and have children. A long-standing bifurcated social institution (the household registration [*hukou*] system, which categorizes all citizens into a rural – urban dichotomy), however, has led to various structural and social barriers that precluded migrants from becoming full urban citizens, resulting in limited provision of social services for migrant families such as

education and health care for their children (Solinger, 1999). Because of these difficulties and the high costs of arranging child care and schooling in cities, many migrant parents leave their children behind in rural sending areas. Over 70% of children of migrants (approximately 58 million) are left behind while one or both of their parents migrate for work; among them, nearly one third are separated from both parents (CYRC, 2006).

The main reason for migration is often to better provide for families. Hence, over 75% of Chinese migrants send money back to their original families; for those with children, the rate is over 90% (Cai, 2007; CYRC, 2006). These remittances had a strong and positive influence on household income (Du & Park, 2006), but the disruption of family life is felt by people left behind as well as the ones who migrate. Although migrants seek to maintain regular contact with those left behind (e.g., via the telephone), in general children left behind have limited close contact with one of both parents. Fewer than 30% of children left behind saw their migrant parents every year (Ye & Murray, 2005).

In the face of parental out-migration, especially when both parents migrate, children are often left with grandparents and sometimes other relatives (Ye & Murray, 2005). This reflects the widespread extended family arrangements in rural China and the extensive involvement of grandparents in child care. In rural China, over 50% of people older than age 60 live with their adult children (Zimmer & Kwong, 2003). The presence of extended kin, in particular grandparents, tends to have a positive effect on child development by offering additional resources and intergenerational support (Falbo, 1991). Studies of family systems in rural China also demonstrated the role of older siblings in supporting younger ones (Ye & Murray, 2005).

This pattern has persisted even under the one-child policy because this policy is imposed mainly in urban areas. In rural areas, multiple children are generally allowed, especially if the first child is a girl (Goodkind, 2004). Ethnographic accounts have suggested the commonality of a family history of migration, with remittances from older siblings used to finance household expenditures and younger siblings' education (Gaetano, 2010): Parents migrated for work first; when older children grew up, parents would return to tend to the land and elderly parents or younger children while sending older children to work in cities.

The large number of children left behind has received increasing media and scholarly attention, but previous research has been largely restricted to anecdotal evidence or qualitative studies in specific areas. A study of 250 middle school students left behind in a rural area in Hubei Province found that more than half of them experienced difficulties in adapting to parents' emigration and about half of them performed poorly in school (Li & Wen, 2009). Some observations also indicated that children left behind were at a higher risk for problematic behaviors at the two extremes, being either withdrawn or excessively aggressive (Yang, 2005). These studies, however, collected data only on children left behind; they did not sample a comparison group of nonmigrant children. This makes it impossible to accurately assess the effect of being left behind. In addition, previous research has not taken into account different types of parental emigration and migration of siblings.

Rural Education

In China, whether one lives in an urban or a rural area is crucial in determining one's educational opportunities (Knight & Li,1996). The rural areas are characterized by relatively high

educational costs, limited educational opportunities of lower quality, and a strong gender bias favoring boys (Hannum & Park, 2009). In many rural areas, the lack of local revenues leads to an increase in educational fees, because many schools have to cover costs by charging fees directly to students. Although the compulsory education law stipulated that 9 years of public education (primary school and middle school) must be tuition free, education in China has never been completely free, and educational expenses (e.g., uniforms, books, and supplies) shouldered by the parents have continued to rise (Tsang, 2000). This situation becomes more pronounced at the middle-school level, where fees are often more than twice as high as at the primary level. The educational expenses are even higher at the high-school level where compulsory schooling ends.

Since 2000, the central Chinese government has ordered local governments to enforce the free 9 years of compulsory education in rural areas. These recent initiatives have improved rural education, but this goal has yet to be fully achieved. Although urban children have nearly universal enrollment, the enrollment rates for rural children are 90% in primary schools and 85% in middle schools (Knight & Song, 2005). The rural-urban gap can also be observed in the quality of education. Poor school quality in rural areas substantially reduces the likelihood that rural children advance to high school and college. Another persistent feature of rural education is the preference for sons. Despite some recent improvements, girls continue to have fewer educational opportunities than boys (P. Brown & Park, 2002).

The Present Research

My main research question was "What is the overall effect of out-migration on the educational status of children left behind by internal migrants in rural China?" To take into account the

complex family migration strategies, I used a typology to differentiate children in households with no migrants, with one or both parents as migrants, and with siblings as migrants (while living with both parents). Given the common role of older siblings in supporting younger ones, I expect that children with migrant siblings would enjoy better educational outcomes than children in nonmigrant households but that children with migrant parents would not be likely to enjoy the same benefits given their extended separation from their parents.

The second and the third research questions assessed (a) "How does the effect of emigration vary by gender?" and (b) "How does it vary by the school level of children?" Given the strong male bias in rural China that results in resources being devoted to daughters only when resources are plentiful, migration may redistribute the opportunities between boys and girls. Girls are thus likely to benefit more from emigration. In addition, because the educational costs are substantially higher at higher school levels, the benefits of emigration may be more important for older children than for younger children. By contrast, younger children may fare worse than their older counterparts when experiencing separation from parents because they are more attached to parents and usually less capable of adapting to family change. Hence, the overall effect of emigration is likely to be more positive for older children than for younger children.

METHOD

Data

The data analyzed in this study are from the China Health and Nutrition Survey (CHNS), a longitudinal study led by researchers at the University of North Carolina at Chapel Hill to

examine a wide range of social, economic, and health outcomes of the Chinese population (see http://www.cpc.unc.edu/projects/china). The survey followed a large nationally representative sample of households and conducted interviews to collect information on all members of the households. The response rate was quite high, close to 90% at the household level in each wave (Popkin, Du, Zhai, & Zhang, 2010). After the first round in 1989, six additional panels were collected in 1991, 1993, 1997, 2000, 2004, and 2006, resulting in a total of over 4,400 households and 19,000 individuals. The study population was drawn from both rural and urban areas of nine provinces (Guangxi, Guizhou, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Liaoning, and Shandong) that vary substantially in social and economic development. This variability provided a national-level account of the Chinese population. Sampling within each province was done using a stratified multistage random cluster technique. Since 1997, the sampling procedure has been slightly modified to make up for sample attrition. The survey added newly-formed households that resided in the sample areas as well as additional households to replace those no longer participating in the survey. New communities were also added to replace communities no longer participating.

The CHNS represents the only publicly available panel study that permits a national-level understanding of the well-being of children left behind because of parental migration. The longitudinal structure also provides a stronger basis for causal inference than cross-sectional studies. The timing of the survey is ideal for studying the consequences of migration, because it corresponds to the soaring internal migration in China (i.e., from rural to urban areas). Starting in 2000, the survey began gathering basic information on family members not currently living at home, which permitted identification of the families left behind. For this reason, in this study I

used the 2000, 2004, and 2006 waves of the CHNS.

As with all panel studies, a fraction of the sample was lost to follow-up in each wave. The analysis was carried out for rural children ages 7-18 between 2000 and 2006. The sample size of eligible children in the 2000 wave was 1,219, of whom 832 were followed again in 2004. Because new family members (including children) were added in each wave of the survey, the total number of eligible children was 951 in 2004, of whom 780 were followed in 2006. To retain sufficient sample size and to reduce sample attrition, children with at least two observations over the six-year period were included. In the analytic sample, the quantity of missing information was small. After deleting the 4% of cases containing any missing data, the final set used for analysis was based on complete of 885 children.

I conducted a sensitivity analysis to evaluate how sample attrition may affect the results. This analysis used multiple imputations to fill in missing information and data missing due to sample attrition. The multiple-imputation analysis yielded results similar to those of the complete-case analysis, as discussed below. For example, the coefficients of parental and sibling emigration were respectively, 0.009 and 0.419, and the corresponding standard errors were 0.138 (p-value=0.951) and 0.141 (p-value=0.018). This similarity was in part because much of the attrition in CHNS was due to changes in survey operations (e.g., the whole community withdrew from the survey because of administrative difficulties). Previous work also has shown that the individuals lost to follow-up were not significantly different in major characteristics from those who remained in the survey (Popkin et al., 2010).

Variables and Analytic Plan

The analytic sample was rural children ages 7-18 inclusive during the study period (2000-2006).
Although the typical age for starting school is six, it is common for rural children to start school
late. For this reason, age 7 was used as the starting age. The upper age limit was set at 18 to
reduce selective attrition caused by post-secondary students who left home to attend schools in
urban areas. Hence, the analysis focused on children of primary-school (6 years of school) and
secondary-school (3 years of middle school and 3 years of high school) ages.

The dependent variable was a continuous measure of children's highest grade completed,
ranging from 0 (no education) to 12 (third year of high school).(For the small number of
children in technical or vocational schools, the grade level was converted to the corresponding
level in high school. Highest grade is a more sensitive indicator of family disruption issues than
are current enrollment or completed schooling. This measure allows one to study delayed
schooling processes such as grade retention, school interruption, and other types of discontinuity.
In rural China progression through school is often interrupted: At any given age, rural children
tend to complete very different levels of schooling.

The key predictor of educational progress is household out-migration status; I constructed this
variable by combining information on the migration status of each family member with the
individual's relationship to the focal child. First, I made a dichotomous distinction: whether the
child lived in a household in which one or more family members had emigrated for work. I then
used a more detailed measure to differentiate children in nonmigrant households (NM), in
households in which one or both parents were migrants (PM), and in households with siblings as

migrants (SM). I further disaggregated the measure to distinguish circumstances in which the

mother, the father, or both parents had migrated. It should be noted that this last procedure

yielded small sample sizes in each category and may thus yield relatively less stable estimates.

Migration constituted the primary source of family separation in rural China. Other causes such

as divorce, non-marital fertility, and death of prime-age adults (i.e., parents of school-age

children) were far less common in comparison (Cohen, 1992; Liao & Heaton, 1992; Zimmer,

Kaneda, & Spess, 2007). Therefore, I excluded a small number of children (< 2%) with absent

parents due to non-migration related reasons. A very small number of children in families with

other relatives as migrants were also excluded.

Other covariates included socio-demographic variables such as children's age and gender.

Because of the relatively wide age range, I included a quadratic age term to capture the

possibility that grade level increased at young ages but decreased at older ages. I also included a

discrete variable of the highest level of education attained by any household member age 25 and

above was included to measure household educational environment. It would have been helpful

to study the educational level of the emigrants, but such information was unavailable. I used per

capita annual household income, which did not include income from out-migrants, as an

indicator of family economic background. The natural log of this variable was included in the

models. To control for family structure, I included whether the child lived in an extended family

and the number of school-age children (age 6-18) in the household. The former captured the

complex living arrangements in rural China, with over 80% of the extended family members

being grandparents. The latter reflected the level of competition for household educational

resources. Finally, I added discrete variables of survey provinces and survey years to account for

the province-level contextual effects and the effects of macroeconomic shocks.

The effect of migration may be biased by unobserved factors that affect both family migration decisions and children's education. For instance, if households with poor socioeconomic conditions tend to motivate people to migrate and such conditions also have a negative effect on children's schooling, one would observe a spurious effect of migration if one did not adequately capture household socioeconomic background. In the absence of experimental designs one cannot completely ascertain the causal effect of migration on children. Second-best strategies have been developed, however. One is to exploit longitudinal data to control for individual and familial circumstances via the fixed-effect models (FE). To study the first question of the overall effect of emigration, the model is formulated thus:

$$Edu_{it} = \mu_t + \beta Fmig_{it} + \gamma \mathbf{X}_{it} + \alpha_i + \varepsilon_{it} \tag{1}$$

where Edu_{it} is the educational status of child i in year t; $Fmig_{it}$ is family migration status for child i in year t; $\mathbf{X}_{it}$ is a vector of other covariates described above; μ_t is an intercept that differs in year t; ε_{it} is the random error; and α_i represents unobserved differences specific to each child and constant over time. The FE models purge out α_i by differencing (Equation 1) across waves of the survey. Equivalently, the FE models with continuous dependent variables can also be estimated using ordinary least squares regressions by including a dummy variable for each child (α_i) to adjust for individual differences. This approach relies on the assumption that the unobserved heterogeneity is time invariant. There may be time-varying factors that affect education and family migration status, but this assumption is not likely to be seriously violated

because many endogenous factors are part of the individual's past background or are highly heritable. Another strength of the FE approach is that it helps account for potential sample attrition bias that is associated with stable factors (Ziliak & Kniesner, 1998). A caveat regarding the FE approach is that time-invariant factors such as the main effect of gender cannot be explicitly modeled. I used the Hausman test to compare the FE models with corresponding random-effect models, which assume no unobserved heterogeneity. The test suggested that the two sets of models are significantly different. The FE models are thus more appropriate to use.

To study the second question of whether the effect differs by gender, I included an interaction between family migration status and the gender of children, as formulated in (Equation 2). To examine the differential effects by grade level, I stratified the sample by children according to whether they were primary-school and secondary-school age and tested for cross-level differences.

$$Edu_{it} = \mu_t + \beta_1 Fmig_{it} + \beta_2 Fmig_{it} * Gender_i + \gamma \mathbf{X}_{it} + \alpha_i + \varepsilon_{it} \tag{2}$$

RESULTS

Descriptive Statistics

The descriptive statistics are presented in Table 1. Over half of the sample were boys, a result consistent with the male bias in rural China. With respect to the grade level, it has increased over time, but the increase was smaller than the difference in the number of years between two consecutive waves of the CHNS. This provided some evidence for school interruptions in rural

China. Consistent with the low levels of socioeconomic status in rural areas, the highest level of

education among adults in the household was quite limited, with the majority of adults having

only a primary or middle-school education. Per capita annual income was low, reaching

approximately 600 USD by 2006. The number of school-aged children in the household was

between 1 and 2. This did not necessarily reflect the actual fertility rate in rural China, because it

did not include children younger than age 6 or older than 18 or migrated siblings. The extended

family arrangements were prevalent and seemed to have become more so over time.

[Table 1 about here]

With respect to family migration status, in 2000, approximately 18.7% of the children lived in

households with emigrants. There was a steady increase in the migration rate over time. By 2006,

over 33% of rural children lived in migrant households. Across the three waves of the CHNS, in

general over half of the children in migrant households lived apart from at least one migrant

parent, and the rest lived in households with migrant siblings. Migration of fathers was more

common than that of mothers. There was also a considerable fraction of children left behind by

both parents. In addition, migration of siblings was very common in rural China, at a rate

comparable to that of parental migration. This finding speaks to the important role of older

siblings in supporting the families and putting younger siblings through school. This pattern was

especially true in poor rural areas, where many children started working as migrants soon after

finishing middle school at around age 15.

In Table 2, I further compare the socioeconomic characteristics of different types of migrant

households. The results confirm earlier research that relatively poor households and households with at least some educated members were more likely to send out migrants than were more financially secure families, although the differences in household educational level were not significant. With respect to living arrangements, there were clear variations by family migration status. Children left behind by both parents were most likely to live in extended families, followed by children with migrant mothers, because these two types of households tended to experience the most parenting deficits.

[Table 2 about here]

Overall Impact of Family Migration on Children's Education

Regression results with child fixed effects are presented in Table 3. When the dichotomous migration measure was used, there seemed to be a positive effect of household migration. Net of other factors, children in households with emigrants completed significantly more schooling, by over one fifth of a grade, compared with children in NM households (see Model 1 in Table 3). This binary measure, however, obscured substantial differences across different types of migrant households. When disaggregating by family migration status, this positive effect turned out to be largely driven by SM households (see Model 2 in Table 3). By contrast, children in PM households did not experience significant improvements in educational status over children in NM. Additional tests showed that children in PM households were significantly more disadvantaged in school than those in SM households. This difference provides some evidence for the disruptive effect brought about by parental emigration.

[Table 3 about here]

When further disaggregating parental emigration status (see Model 3 in Table 3), the beneficial

effect again held only in SM households. The coefficients for children in various PM families

were not significantly different from those in nonmigrant households. Turning to the differences

between the three types of PM households and SM households, which tended to reflect the

disruptive effect of parental absence, I found a negative effect of mothers' migration, and a

marginally negative effect for fathers' migration. Children in households in which both parents

were migrants, however, were not significantly worse off. This might be partly due to the role of

extended families, because most children with both parents out for work lived in such families,

especially with grandparents (see Table 2), and to the fact that the effect of being in extended

families was marginally positive (see Model 3 in Table 3). To explicitly examine whether the

disruptive effect of parental migration was largely offset by extended family members, I included

an interaction of extended family arrangements with family migration status. If extended families

mattered, children in migrant families with and without extended kin should fare significantly

differently. The results showed that the coefficient for PM households living without extended

families was 0.030 (SE = 0.130). The interaction term was positive and in the expected direction

(the coefficient was 0.154), but lacked statistical significance (SE = 0.195). These results lend

very weak support to my speculation, suggesting that although the role of extended families

appeared to be positive, the extended arrangements did not completely offset the repercussions of

family disruption. I discuss other possible explanations later in this article.

Turning to the other factors affecting children's education (see Table 3), note that age had a

curvilinear effect. Adults' educational levels were positively associated with children's schooling, but the effect of household income was not significant. This might be because the income measure excluded migrants' income. Once family emigration status was taken into account (and potentially additional resources from migrants), original family income was no longer a crucial factor. I conducted a sensitivity analysis by interacting the income variable with family migration status and found that family income mattered for nonmigrant households but not for migrant households.

Variations by Gender and Grade-level

With respect to the gender interactions, the positive effect of emigration was significantly greater for girls than for boys (see Table 4). This result underscored the potential for emigration to alleviate the persistent male bias in schooling in rural China. In contrast, emigration did not have a significant impact on boys, who already enjoyed better educational opportunities. The educational benefit for girls, however, was again overshadowed by parent-child separation in PM households. It was largely girls in SM households who were doing significantly better.

[Table 4 about here]

Results by school levels are presented in Model 3 through Model 6 (see Table 4). Because the relative educational expenses and subsequently the opportunity costs were much higher for children to enroll in middle schools and high schools than in elementary schools, the positive effect of emigration was more pronounced for secondary-school aged children, as shown in the contrasts between Model 3 and 5 and between Model 4 and 6. But this positive effect still existed

for children of primary-school age. Nevertheless, this positive effect was largely offset in PM households. The negative impact of separation (the difference between PM and SM households) was greater for younger children than for older children. This indicated that younger children might have a greater need for parental care and thus suffered more from their parents' absence. By contrast, older children could better adapt to parental absence. Hence, the overall pattern was that older children were more likely to benefit, and less likely to suffer from out-migration, as one can see by comparing the corresponding coefficient.

DISCUSSION

In the present research examined the consequences of out-migration for children's education in the context of China's rural-urban bifurcation and limited rural educational opportunities. As in many other settings, labor migration has become an institutionalized strategy for improving the lives of migrants and their families, especially children, in China. Nevertheless, the distinct state institutions in China have resulted in various structural and social barriers facing migrants in cities. This has led to many split families and children left behind by migrant parents. In some cases, rural families have adopted the strategy of sending older children out for work to finance household expenditures and support younger children.

At first glance, the results seemed to show a positive overall effect of emigration for children's education. Although the data lacked information on migrants' remittances, I speculated that such a positive impact may partly result from improved material resources resulting from remittances. These additional resources could be used to keep children in school, to pay for supplementary

educational services and other school supplies, and to enhance children's learning ability by affording health care and nutritious food. This beneficial role was particularly pronounced for girls and children at higher educational levels (i.e., secondary schools), for whom education was more closely tied to the availability of economic resources, but it also was present for children at the primary-school level. This suggested the role of economic benefits throughout children's educational trajectory: The benefits determined whether children entered school and did so at the proper age, and whether children could afford to stay in school in later transitions. Because migrants were largely drawn from middle- and lower-middle income households, migration seemed to afford these children opportunities to keep up with those from more affluent rural families and ameliorate some of rural girls' structural disadvantages in education.

The positive effect, however, persisted only when nonparent family members (e.g., siblings) migrated for work. In this scenario, children likely enjoyed improved economic resources without being separated from their parents. In the context of parental migration, the positive effect of emigration tended to be largely overshadowed by decreased parenting due to migration. Families with migrant parents are less able to offer academic assistance, adequate supervision, or a home environment that is conducive to learning. Children also might develop emotional and behavioral problems and face additional household labor burdens. All of these could hinder their school progress. This adverse effect was especially strong for younger children, who were more vulnerable to diminished parental input and supervision. It was also greater when the mother rather than the father migrated, which is what one would expect given China's patrilineal tradition that stresses the role of mothers in caregiving. One unexpected finding was that children left behind by both parents were not necessarily worse off than others, presumably because such

households may receive more remittances and the absent parents in such families may be especially attentive to maintain frequent contact with children. Overall, these findings show that parental migration has not given children left behind a significant advantage in educational prospects as their parents had hoped. This is unfortunate because one of the primary reasons for migration is to better provide for one's children.

The present study maps out the similarities and differences between parental emigration and other forms of family separation. Children experiencing parental divorce or death commonly suffer from a reduction in both tangible and intangible resources. In emigrant families, by contrast, the well-being of children could be understood as both a socioeconomic process and a psychosocial process stemming from family separation. Whereas the overall impact of emigration is not overly deleterious as in the case of other parent-child separation, the social costs of family separation due to emigration are real and often overshadow the potential benefits of migration. Hence, the overall impact of migration depends not only on the magnitude of migrants' transfers, but also on whether families undertake compensatory adjustments to mitigate the disruptions, either by sending someone whose role is less critical for child development (e.g., a sibling instead of a parent) or by resorting to household members who are good substitutes for parents (e.g., extended family members, grandparents in particular). The results of this study show that children did seem to benefit from siblings' migration, but the extended families did not fully substitute for the roles played by parents. This could be due to a lack of supervision authority among nonparent family members as well as a lack of education among rural grandparents. Previous ethnographic research and fieldwork showed that grandparents who take on childcare responsibility often find it difficult to provide the guidance and supervision growing

children need (CYRC, 2006).

This research adds to the literature on migration and families left behind by investigating different forms of family migration and variations by gender and grade-level. It also focuses on internal migrants and illustrates how the long-standing socialist institutions that divide rural and urban Chinese into two classes of citizens have shaped the educational prospects of children left behind in a domestic scene. On balance, parental migration has not really helped alleviate the long-standing educational disadvantages facing rural children, because it often entails family separation that can lead to deleterious and unintended ramifications for child development. Given that an increasing segment of the rural population is entering the migration stream in China, more migrant parents will face the stark choice of where to place their children. Unless rural migrants are provided better chances of incorporation into Chinese cities, the opportunities of upward mobility for their children would be rather limited.

This research also has some methodological implications for studies of children left behind. Because many migrant-sending geographic areas have complex family systems, households may commonly devise migration strategies that involve migration of nonparent family members, especially children's siblings. This study showed that the magnitude of sibling migration was comparable to that of parent migration and that children endured very different experiences when their parents and siblings migrated. A more sensitive measure of family migration would take account of these different family practices. Failing to do so (i.e. collapsing non-parental data migration with nonmigration data) would lead to biased estimates. I conducted a sensitivity analysis that grouped children in SM households with those in NM households, which tended to

understate the benefits and overstate the deleterious repercussions of parental migration.

Several limitations warrant discussion. The main limitation is the lack of data on crucial mediating mechanisms of the effect of emigration, especially the receipt of remittances as well as the quantity and quality of parenting. I thus could not explicitly examine the potential benefits from remittances and the potential costs from reduced parenting, and had to rely on indirect inferences to reach some of my conclusions (e.g., the estimates in SM households tended to reflect mainly the effect of migration due to tangible resources, and the differences between PM and SM households tended to manifest largely the disruptive effect of migration). Also, in spite of the use of longitudinal data to address potential bias, I cannot rule out all possible sources of bias that may result from time-varying unobserved heterogeneity and sample attrition. Although results from multiple imputation analysis yielded similar findings, I could not completely ascertain that multiple imputation assumptions (i.e., missing data, attrition at random) were met. Sample attrition could thus lead to biased results to an extent that would be difficult to gauge (e.g., if children with emigrant parents or children who performed poorly in school were more likely to drop out, the overall effects may underestimated or overestimated).

Despite these limitations, this study points to the potential countervailing effects of out-migration for children. It also highlights the importance of taking account of the complex family migration strategies, and of the differential vulnerabilities for boys and girls and for children of varying school levels. Better data are needed to establish a more accurate and comprehensive picture of the effects of emigration on various dimensions of child well-being as well as the underlying processes.

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Tables

Table 1. Percentages and Means of the Characteristics of Analytic Sample, Children Age 7-18 in 2000-2006, CHNS (N = 885)

Variables	2000	2004	2006
Age[a]	10.7	13.8	15.3
Male	55.6	54.8	54.2
Children's grade level[a]	4.3	6.8	7.7
Living in emigrant households[a]	18.7	28.3	33.8
Family migration status[a]			
Non-migrant, both parents present	81.3	71.7	66.2
Mother migrant	2.0	2.9	3.6
Father migrant	5.2	7.7	9.0
Both parents migrant	2.8	4.2	5.6
Sibling migrant, both parents present	8.7	13.5	15.6
HH highest education level[a]			
No education	2.3	1.5	1.8
Primary school	25.0	13.5	14.3
Middle school	46.1	55.2	49.7
Some high school or more	26.5	29.8	34.2
Per capita HH annual income (unit: yuan)[a]	3,144	4,225	4,749
Extended family[a]	23.8	29.4	36.3
Number of school-age children in the HH (6-18)	1.7	1.4	1.4

Note: $N = 885$. Yuan is the main unit of currency of China. In 2006, 1 U.S. dollar ≈ 8.0 yuan. HH is the acronym for household.

[a]The over-time differences are significant at the 0.05 level. Many statistical tests are significant at the 0.001 level.

Table 2. Demographic and Socioeconomic Status and Living Arrangements by Family Migration Status, 2006, CHNS (N = 885)

	NM[a]	MM[a]	FM[a]	BM[a]	SM[a]
Age[b]	15.5	14.8	14.7	14.5	15.1
Male	54.0	55.8	53.7	52.4	53.9
Children's grade level[b]	7.7	7.2	7.3	6.8	7.9
HH highest education level	8.8	9.1	8.9	8.8	9.2
Per capita HH annual income (unit: yuan)[b]	5,297	3,739	3,540	3,336	3,850
Extended family[b]	26.1	47.5	31.0	75.3	29.6
Number of school-age children in the HH (6-18)[b]	1.4	1.9	1.6	1.6	1.3

[a] They represent children in different types of households: Non-migrant, mother migrant, father migrant, both parents migrant, and sibling migrant.

[b] Differences by group are significant at the 0.05 level. Many statistical tests are significant at the 0.001 level.

Table 3. Fixed-effect Regressions Predicting Children's Education on Family Migration Status and Other Covariates, Children Age 7-18 in 2000-2006, CHNS (standard errors in parentheses)

	Model 1	Model 2	Model 3
Living in labor migrant HH (ref. in non-migrants HH)	0.21**		
	(0.08)		
Parental migration status, aggregated (ref. non-migrants)			
One or both parents migrant		0.09[a]	
		(0.09)	
Sibling migrant		0.32***	
		(0.09)	
Parental migration status, complete (ref. non-migrants)			
Mother migrant			-0.08[a]
			(0.17)
Father migrant			0.09[a]
			(0.12)
Both parents migrant			0.14
			(0.19)
Sibling migrant			0.33***
			(0.09)
Age	1.47**	1.40**	1.39**
	(0.45)	(0.46)	(0.46)
Age squared	-0.01***	-0.01***	-0.01***
	(0.003)	(0.003)	(0.003)
Number of school-age children in the HH	0.05	0.06	0.07
	(0.06)	(0.06)	(0.06)
Extended family	0.25	0.26	0.27†
	(0.15)	(0.16)	(0.15)
HH highest education level (ref. no education)			
Primary school	0.19	0.19	0.20
	(0.23)	(0.24)	(0.23)

Lower middle school	0.22	0.21	0.24
	(0.22)	(0.23)	(0.23)
Some high school or more	0.90***	0.87***	0.90***
	(0.24)	(0.25)	(0.24)
Per capita HH annual income (log)	0.06	0.06	0.05
	(0.05)	(0.05)	(0.04)
Constant	-9.16*	-8.37*	-8.63*
	(3.98)	(4.04)	(4.06)

Note: *N* = 885. The FE models drop stable factors including gender and province of residence, which are essentially adjusted for in the models.

[a]This denotes that the coefficient is significantly or marginally different from coefficient for SM households at 0.05 level.

†p < .10. *p < .05. **p < .01. ***p < .001.

Table 4. Fixed-effect Regressions Predicting Children's Education on Family Migration Status and Other Covariates, by Gender and Grade Level, Children Age 7-18 in 2000-2006, CHNS (standard errors in parentheses)

	Gender interaction		Primary school (Age 7 to 13-)		Secondary school (Age 13+ to 18)	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Living in labor migrant HH (ref. in non-migrants HH)	0.42***		0.16		0.38*	
	(0.11)		(0.10)		(0.19)	
Living in labor migrant HH * Male	-0.40**					
	(0.14)					
Parental migration status, aggregated (ref. non-migrants)						
One or both parents migrant		0.16		0.05[a]		0.36
		(0.14)		(0.12)		(0.29)
Sibling migrant		0.53***		0.30*		0.46*
		(0.12)		(0.13)		(0.21)
One or both parents migrant * Male		-0.25				
		(0.19)				
Sibling migrant * Male		-0.42*				
		(0.16)				

Note: $N = 885$. Other covariates are omitted, which are the same as in Table 2.
[a]This denotes that the coefficient is significantly or marginally different from coefficient for SM households at 0.05 level.
*$p < .05$. **$p < .01$. ***$p < .001$.