



Effect of Migration on Children's Self-esteem in Rural China

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Abstract

China's rapid economic growth has been facilitated by its large volume of rural to urban migration. China's projected future development, especially increasing urbanization, implies that such migration will further intensify. However, migration does not come without cost. There are concerns about the potential negative impacts of migration on children's care, education, and, in particular, the self-esteem of children left behind in villages where one or both parents have out-migrated to cities. In this paper, we employ unique survey data collected from Shaanxi Province, where more than 4700 ninth grade students from 36 rural junior high schools in five counties were surveyed in late 2011. The results show that having both parents migrate into cities significantly reduced children's self-esteem. The effects are also gender sensitive. Girls that had a father or both parents who had out-migrated were inclined to have lower self-esteem than boys. Moreover, our study findings indicate that parental migration decreased children's self-esteem more for individuals with initial low self-esteem.

Key words: children left-behind, migration, rural China, self-esteem

JEL codes: I15, O12, O15

I. Introduction

Over the past 20 years in China, migrants have been venturing further from home, with the

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trend continuing in recent years (de Brauw *et al.*, 2002; Li *et al.*, 2013). Statistics show that there were more than 230 million migrants in 2012 (NBS, 2013). With the current push for further urbanization and industrialization, it is almost certain that rural to urban migration will continue and remain an important component of China's economic growth. Although China's government is trying to facilitate further migration from rural to urban areas to allow more people to benefit from its development success, there is substantial concern about the potential negative impacts of migration (Luo *et al.*, 2011; Mo *et al.*, 2012). One such concern is over childcare when one or both parents are away from home (Chen *et al.*, 2009; de Brauw and Mu, 2011).

Previous studies have shown that migration has played a role in contributing positively to not only the nation but also to households, individuals as well as their source communities. The nation must rely on labor markets to facilitate its transformation by shifting labor from rural to urban areas (de Brauw *et al.*, 2002). Rural labor migration is a key transformative process in agricultural regions of the developing world (Li *et al.*, 2013; Clark and Bilsborrow, 2014), and migration has been and will continue to be one of the main methods of alleviating poverty in China (Zhang *et al.*, 2002; Chen *et al.*, 2009; Liu and Zou, 2011; Wang, 2013). Having a family member as a migrant worker can significantly increase households' per capita income (Du *et al.*, 2005). Migration imparts significant benefits to individuals through higher returns for skill, and also has substantial impacts on rural families and the communities from which these migrants come (Skeldon, 2002; Ellis, 2003; Taylor *et al.*, 2003; Hu and Wu, 2012).

Although many researchers have contributed to the debate on the effects of rural labor migration, many of the previous studies and their findings focus on the positive effects of migration, such as increased incomes and reduced poverty (Du *et al.*, 2005; de Brauw and Giles, 2007). Increasingly, non-economic impacts of migration have gained scholars' attention (Chen *et al.*, 2009; Luo *et al.*, 2011). In particular, the impacts of migration on children's health (both physical and mental), education and care have gained the attention of scholars, policy-makers and the public (Cheng, 2012; Dong and Zhang, 2013). According to the census conducted in 2010, approximately 58 million children were left behind in villages by their migratory parents. This raised concerns over whether the migration of the current workers will result in deteriorated quality of life for the next generation (Kortenkamp and Macomber, 2002). Unfortunately, evidence does reveal that migration is not costless in this respect (Chen *et al.*, 2009; Zhao *et al.*, 2012).

Increasingly, researchers and scholars are paying attention to the psychological problems of the children left behind, often focusing in particular on the children's self-esteem (e.g. Zhang, 2007; Han, 2012). Zhao *et al.* (2012) find that parental migration into cities or suburban areas in Ningxia Province decreased children's self-esteem due to the absence of parental fiduciary. Spera (2005) suggests that parental involvement and

monitoring are robust predictors of children's growth, and China is no exception to the rule.

However, our concerns extend beyond migrant children and the children left behind by migrating parents. With the children left behind performing more poorly than their urban peers, we are concerned about the widening human capital gap between rural and urban areas: a key aspect of social inequality, and an important factor in China's future development. The large human capital gap is likely to contribute to China falling into the middle-income trap if actions to narrow the gap are not taken soon enough (Zhang *et al.*, 2013). It seems clear that for China to become a modern and industrial economy, it requires a high quality labor force in the future (Cai and Wang, 2010; Liu *et al.*, 2009 and 2012). In other words, China needs to ensure that future labor forces are well-educated and healthy. As children today are destined to be the future workforce of China, any negative impact of migration on the quantity and quality of their human capital affects the prospects for sustainable economic growth in China. As Heckman (2005) argues, over the long term, the Chinese Government should modify education policies to favor children of migrants.

Furthermore, the extent to which policy can be modified or improved depends on how much we know about the impacts of migration on children, particularly on their mental health. What factors other than migration are associated with the mental health of children? The existing studies are somewhat incomplete, either due to insufficient data or a lack of measurement of certain indicators, such as a standard scale for measuring self-esteem. The fact that the mental health of the children left behind has not received serious attention until quite recently partially explains why no strong evidence or a large data pool exist to reflect its degree and seriousness. This is what the present paper contributes to the literature.

The overall goal of the present paper is to examine the effect of parental migration on the self-esteem of their children. To meet this overall goal, we will pursue two specific objectives. First, we will analyze the relationship between parental migration and children's self-esteem, and determine whether it is positive or negative. Second, we will examine whether there is any heterogeneous effect of parental migration on children's self-esteem by gender and the self-esteem distribution.

The rest of the paper proceeds as follows. Section II describes the sampling methodology and data. In Section III, we describe the relationship between parental migration and child self-esteem. Section IV introduces the empirical specification followed by results from a multivariate analysis. Section V concludes.

II. Data

The data for the present study come from a survey that was conducted by the authors

themselves in October 2011. The sample was randomly drawn from 36 public rural junior high schools in five poor counties in Shangluo Prefecture, Shaanxi Province. Shaanxi is one of the nation's poorest provinces, with a GDP per capita of 33 427 yuan (US\$5305). Shaanxi ranks 15th among all provinces, was among the provinces with the slowest growth in China during the 2000s (NBS, 2012a), and is one of China's most important provinces in regards to rural labor surplus. Shangluo Prefecture is a mountainous region located in the south-east of Shaanxi Province. With a per capita income of just under US\$500, an underdeveloped system of roads and communications and low levels of arable land per capita (NSB, 2012b), Shangluo Prefecture is a typical representation of the poorest areas in southern Shaanxi. Statistics show that 56 percent of the rural labor force in Shangluo Prefecture out-migrate to work (Mao, 2010); in this regard, Shangluo Prefecture is a representative sample.

The sampling procedure consisted of three stages. First, we studied official records and selected the five poorest counties from seven counties in Shangluo Prefecture. These five counties were Shangzhou, Zhashui, Shangnan, Danfen and Shanyang. Next, a number of carefully sequenced steps were followed to choose the schools to be included in the study. Using official records, we created a sampling frame of all junior high schools in the sample counties. A total of 86 schools were identified. We then contacted each of these schools to determine their planned enrollment in the autumn of 2011 and their current enrollment right before the summer break of 2011. With this information, we chose the junior high schools within our total school sample frame based on certain criteria. According to our criteria, we only included schools with sufficient junior high school enrollment (and dropped smaller schools with limited enrollment) in order to increase the external validity of the study. As such, we first excluded schools that reported to have fewer than 15 first year junior high school students. This is because smaller rural schools in China are frequently closed and merged (Liu *et al.*, 2009; Mo *et al.*, 2012). If we chose schools that were highly likely to be closed, it would disrupt our research, as students would be facing different schooling environments during our survey period. On the other hand, schools that are likely to be the recipient of students from closed schools would also face disruption. Thus, we excluded schools that reported a likely 30-percent decrease or increase in enrollment due to school merges. We also excluded privately owned and operated schools, no matter where they were located. In the end, we identified 36 rural public junior high schools that met our criteria for sample schools.

The last step was to choose students to participate in our study. All of the students in ninth grade classes in the 36 sample schools were included as our sample students. In total, we had 4725 students in 133 classes (approximately four classes per school, on average, and roughly 40 students per class). Once sample students were selected, we administered a questionnaire survey to all students in order to collect data and information.

Data collected in this study included the following sets: (i) basic characteristics of students; (ii) information on their education history; (iii) basic information on their families; and (iv) their parents' characteristics. Moreover, we also administered the Trends in International Mathematics and Science Study (TIMSS) standardized math test to generate a baseline value for academic performance. There are many ways to measure academic performance, and most studies prefer to use test scores from math and language assessments (Alderman *et al.*, 2001; Chen *et al.*, 2009), such as the TIMSS test.

To measure the key variable, the migration status of parents, we collected further detailed information on the migration histories of each student's parents. In this study, if a student's father or mother worked outside of the village in the past 8 months, we defined this status as "migration." In the questionnaire that was filled out by students and their families under the supervision of enumerators, there was a section on the migration status of each parent during the past year. As a way of cross-checking, the homeroom teacher was asked to verify the information on parents' migration status. Based upon migration status, we classified four types of households in this study: both parent migrant households, neither parent migrant households, father-only migrant households and mother-only migrant households.

The other key outcome variable of interest in this study is students' self-esteem. In this study, the level of self-esteem is measured using the Rosenberg self-esteem scale (SES). The Rosenberg SES is a brief and unidimensional measure of global self-esteem. The Rosenberg SES has demonstrated good reliability and validity across a large number of different sample groups. The scale has been validated for use with both male and female adolescent, adult and elderly populations. The scale is comprised of 10-item Likert scales with items answered on a four-point scale ranging from strongly agree to strongly disagree. The Rosenberg SES has been translated and used many times in China in the past (Cheng and Page, 1989; Farruggia *et al.*, 2004; Schmitt and Allik, 2005; Song *et al.*, 2011; Wang *et al.*, 2013). According to the authors of these studies, the internal reliability and factor structure of the test are psychometrically sound across many languages, including Mandarin (Wang *et al.*, 2013). For the present study, the Rosenberg SES questions were answered and then the scores were calculated and recorded.

The Rosenberg SES included 10 statements, each self-rated from 1 to 4. The 10 statements were answered on four-point scales ranging from "strongly agree" to "strongly disagree." Because five statements employed reverse scoring, the scale ranged from 0 to 30, with 30 indicating the highest score and 0 the lowest possible score. The higher score infers higher self-esteem, and vice versa.

In addition to the self-esteem score and migration status of students' family members, we also collected information on variables that could help us explore whether the effects of

migration on children's self-esteem were heterogeneous across various households. To create the control variables, we collected information on three aspects. The first set of information consisted of student characteristics, including gender, age and study experience in other provinces, whether or not they had ever repeated any grade, and whether they were boarding at school in the current term. The second set of information consisted of parents' characteristics, including parents' age, level of education (measured in years of schooling) and parental care. The parental care variable was a dummy variable, denoted by 1 if parents always cared about their children's learning and 0 otherwise. The third set of information consisted of family characteristics, including the family asset value, which is the total asset value (unit 1000 yuan) of the student's household, and number of siblings (the number of older or younger siblings that they had).

In summary, data collected on such a large scale and with multiple dimensions provide a reliable method of measuring self-esteem. We believe that the data form a good foundation for this empirical study.

III. Parental Migration and Children's Self-esteem: Descriptive Analysis

Our sample was drawn from five poor counties in Shangluo Prefecture in Shaanxi Province and Table 1 presents the distribution of students across the sample counties in Shaanxi. Within the total sample of 4725 students and their families, Shanyang has the highest percentage and Shangzhou accounts for the lowest in terms of the distribution among the five counties. However, this difference in the number of students between counties partially reflects the relative size of these counties.

Table 2 presents the definition and descriptive statistics of the main variables. In terms

Table 1. Distribution of Students across Sample Counties in Shaanxi Province

County	Number of students	Percent
Danfeng	729	15.4
Zhashui	755	16.0
Shanyang	1819	38.5
Shangnan	1203	25.6
Shangzhou	213	4.5
All sample	4725	100

Source: Authors' survey.

Table 2. Definition and Summary Statistics of Variables

Variable	Description	Mean	Standard deviation	Minimum	Maximum
Rosenberg self-esteem scale score	Rank 0–30	17.2	7.4	0	28
Student characteristics					
Girl	1 = Yes, 0 = No	0.5	0.5	0	1
Age	Age, year	15.1	0.91	12	19
Ever repeated any grade	1 = Yes, 0 = No	0.4	0.5	0	1
Study experience in other provinces	1 = Yes, 0 = No	0.1	0.2	0	1
Normalized standardized TIMSS test score	Standard math tests	0.2	1.0	–3.9	2.1
Boarding in school in this term	1 = Yes, 0 = No	0.6	0.5	0	1
Parent characteristics					
Father's age	Father's age, year	41.4	4.1	29	68
Mother's age	Mother's age, year	39.4	3.7	29	61
Father's education	Father's years of schooling	8.0	2.8	0	17
Mother's education	Mother's years of schooling	6.4	3.0	0	16
Parents' care	1 = Often, 0 = Otherwise	0.8	0.4	0	1
Family characteristics					
Family asset value	1000 yuan	14.9	26.5	0.6	505.4
Number of siblings	Person	0.3	0.6	0	4

Source: Authors' survey and calculation.

Note: TIMSS, Trends in International Mathematics and Science Study.

of gender, there is a balanced representation, consisting of 50 percent each of boys and girls. In terms of learning history, our data show that 40 percent of students have repeated grades. However, each student's family conditions and environment are quite heterogeneous. For example, although the average age of a student is 15, the ages of the students range between 12 and 19. In addition, although the majority of students are from single-child families, there are still some families with as many as 4 children. Family wealth measured by the value of assets shows large variation. There are a large proportion of students (60 percent) who had stayed in dormitories during the school term. Only 10 percent of students have ever studied outside of their provinces. There is great disparity between families in terms of the parents' education. The average education was 8 years for fathers and slightly more than 6 years for mothers.

Similar to the migration status in many other poor rural areas in China (Chen *et al.*, 2009), most households were migrating families.¹ Table 3 presents the migration status of

¹If one or both parents out-migrated to cities, we refer to this family as a "migrating family."

Table 3. Migration Status of Parents

	Numbers of observations	Percent
Neither parent migrated	450	9.5
Father-only migrated	1093	23.1
Mother-only migrated	71	1.5
Both parents migrated	3111	65.8
All sample	4725	100

Source: Authors' survey.

parents. Among the 4275 households in our sample, 90.5 percent of them have migrating parents, while less than 10 percent of households have no migration. Most households fall into the type where both parents have migrated, amounting to 3111 households, accounting for 65.8 percent of our sample. Households where only the father migrated accounted for 23.1 percent (1093 households) and households where neither parent migrated accounted for 9.5 percent (450 households) of households. The smallest type is the type where only the mother migrated, which only accounted for 1.5 percent of households (71 households).

To understand the correlation between parents' migration status and students' self-esteem, we describe the self-esteem score by parental migration status (Table 4). As discussed earlier, students' self-esteem was measured using the Rosenberg SES. Our data show that "an average" student scored 17.2 on the SES (row 5, column 3). When we divided the scores by gender, there was no difference between boys and girls on average. However, when we linked those scores to their parents' migration status, we found that for female students, the SES score was the highest where neither parent migrated (18.7), whereas the score was the lowest when both parents migrated (16.8). In comparison, for male students, the SES score was highest when only the mother migrated (18.5) and the lowest when both parents migrated (17.0).

Of course, the above analysis is only descriptive and other factors are not controlled

Table 4. Self-esteem Score by Parental Migration Status

	All sample			Girls			Boys		
	<i>N</i>	Mean	SD	<i>N</i>	Mean	SD	<i>N</i>	Mean	SD
Neither parent migrated	450	18.5	6.4	236	18.7	6.4	214	18.4	6.6
Mother-only migrated	71	18.4	6.2	37	18.2	6.2	34	18.5	6.2
Father-only migrated	1093	17.4	7.2	559	17.4	7.3	534	17.5	7.1
Both parents migrated	3111	16.9	7.6	1566	16.8	7.4	1545	17.0	7.7
All	4725	17.2	7.4	2398	17.2	7.3	2327	17.2	7.5

Source: Authors' survey.

Notes: *N*, number; SD, standard deviation.

for. We believe there might be some other factors that contribute to these results, but we were unable to identify them using simple descriptive analysis. Therefore, further analyses are needed to explore the impacts of migration on self-esteem, while holding as many other factors as possible constant.

IV. Multivariate Analysis

1. Methodology

The objective of this study is to examine the effect of parental migration activities on the self-esteem of their children. To reveal the relationship between the migrant status of parents and the self-esteem of students, some other influencing factors needed to be controlled. We analyzed the effect of migration on children's self-esteem using two regression models. Model (1), the unadjusted model, simply includes the dummy variables for different categories of migrants, relative to children's self-esteem:

$$Y_i = a + d M_i + e_i. \quad (1)$$

Here, t is an index for the student, Y_i can be any of the outcome variables that were defined above, M_i is the migrant variable and e_i is a random disturbance term. Defined in this way, d is our parameter of interest.

Model (2) includes additional controls for a set of predetermined variables, such as parents' care, number of siblings and family asset value, to increase the estimation efficiency of the effect:

$$\text{Adjusted model: } Y_i = a + d M_i + g X_i + e_i. \quad (2)$$

This model is identical to Model (1), except for the addition of the X_i term, which is a vector of covariates that captures the characteristics of students, parents and households. The vector X_i includes measurements of student age, gender and if ever repeated any grade, and parents' characteristics, such as parents' age and parents' education; it also includes family characteristics, such as number of siblings and family asset value (measured in 1000 yuan).

It is worth noting that there is a statistical issue regarding how best to adjust inferential procedures for clustering at the school level. Traditional cluster adjustments, such as the Moulton and the Stata command cluster, rely on more than 42 clusters (Angrist and Pischke, 2008), which is not for the case for our study. Bell and McCaffrey (2002) suggest using a procedure called bias-reduced linearization (BRL) to adjust standard errors; it has proven to perform very well in real settings (Angrist and Lavy, 2009). Hence, we estimated standard errors using the BRL estimator.

2. Empirical Results of Multivariate Analysis

In this subsection, we will present our results using two models. The results from the regression models show that the estimates of the treatment effect (i.e. the coefficient on the any-parent migrated dummy variable) are largely the same across two specifications (Models 1 and 2). The unadjusted model shows that the coefficient for the father-only migrant (−1.098) and both parent migrants (−1.643) are statistically significant (Table 5, rows 1 and 3, column 2). Nevertheless, when controlling other variables, the both parent migrants variable remains statistically significant (−1.384). This result shows that the migration of both parents negatively impacts the next generation's self-esteem. Similar to our above analysis, students' self-esteem is negatively influenced when both parents migrated.

To evaluate the effects of parental migration activities on children's self-esteem more rigorously, we also used interaction terms by gender, distinguishing types of migrant households. To examine whether these effects were statistically significant, we examined the regression analysis with a few interaction variables. When reporting the results, we mostly focused on the results from the adjusted model. The coefficient of the interaction term between the variable of both parents migrated and girls is −1.202 and significant (Table 6). The coefficient of the interaction term between the variable of father-only migrated and girls is −1.276 and significant (row 4, column 3). The magnitude of these coefficients provides evidence that the girls whose father or both parents migrated out to work in other cities are inclined to score lower in the self-esteem test than boys. One possible reason could be that girls are more sensitive than boys, and when they do not receive care and help from their parents, they have to be more self-reliant. Consequently, they have lower self-esteem. Han (2012) also demonstrates that boys' self-esteem scores were higher than those of girls.

Our results also indicate that some control variables are significant. As for student characteristics, the coefficient for the students' normalized standardized TIMSS test scores is 2.144 and statistically significant (Table 6, row 11, column 3). This result suggests that students with higher school performance could have enhanced self-esteem. Furthermore, the coefficient for boarding students is −0.68 and significant (row 12, column 3). This shows that students living at school will experience a negative influence on their self-esteem. When we look at parents' characteristics, the coefficients for fathers' and mothers' education are 0.142 and 0.102, respectively (rows 15–16, column 3), making them statistically significant. This implies that having well-educated parents can improve a child's self-esteem. The coefficient for parental care is 1.691 (row 17, column 3), suggesting that students who obtain more care from their parents could have enhanced self-esteem. Finally, in terms of family characteristics, the significance of the number of siblings' coefficient is 1.343 and significant (row 19, column 3). This indicates that students with more siblings could have higher self-esteem than those with fewer siblings.

Table 5. Estimation of the Correlation between Parental Migration and Children's Self-esteem

	(1)	(2)
	No covariates	Covariates
Father-only migration	-1.098** (0.422)	-0.474 (0.321)
Mother-only migration	-0.164 (0.655)	-0.644 (0.596)
Both parents migration	-1.643*** (0.502)	-1.384*** (0.413)
Student characteristics		
Girl, 1 = Yes		0.063 (0.257)
Age		-0.885*** (0.191)
Ever repeated any grade, 1 = Yes		0.139 (0.246)
Study experience in other province, 1 = Yes		-0.092 (0.402)
Normalized standardized TIMSS test score		2.141*** (0.269)
Boarding in school in this term, 1 = Yes		-0.677* (0.354)
Parent characteristics		
Father's age		-0.088* (0.049)
Mother's age		-0.007 (0.050)
Father's education		0.141*** (0.036)
Mother's education		0.101** (0.039)
Parents' care, 1 = Yes		1.682*** (0.264)
Family characteristics		
Household assets		0.003 (0.004)
Number of siblings		1.339*** (0.321)
Constant	18.544*** (0.446)	30.822*** (3.331)
Observations	4725	4725
R ²	0.005	0.150

Source: Calculated based on authors' survey.

Notes: Biased reduced linearization standard errors are reported in parentheses. TIMSS, Trends in International Mathematics and Science Study. ***, ** and * denote significance at the 1, 5 and 10-percent level, respectively.

Table 6. Estimation of the Heterogeneous Correlation between Parental Migration and Children's Self-esteem with Cross Terms

	(1)	(2)
	No covariates	Covariates
Father-only migration	-0.927** (0.452)	0.196 (0.450)
Mother-only migration	0.142 (0.939)	0.054 (0.897)
Both parents migration	-1.424** (0.592)	-0.754 (0.565)
Father-only migration * Girl	-0.326 (0.519)	-1.276** (0.603)
Mother-only migration * Girl	-0.585 (1.227)	-1.337 (1.233)
Both parents migration * Girl	-0.423 (0.605)	-1.202* (0.677)
Student characteristics		
Girl, 1 = Yes	0.299 (0.507)	1.169** (0.540)
Age		-0.885*** (0.191)
Ever repeated any grade, 1 = Yes		0.135 (0.242)
Study experience in other province, 1 = Yes		-0.090 (0.400)
Normalized standardized TIMSS test score		2.144*** (0.269)
Boarding in school in this term, 1 = Yes		-0.680* (0.352)
Parent characteristics		
Father's age		-0.089* (0.049)
Mother's age		-0.007 (0.050)
Father's education		0.142*** (0.036)
Mother's education		0.102** (0.039)
Parents' care, 1 = Yes		1.691*** (0.264)
Family characteristics		
Family asset		0.003 (0.004)
Number of siblings		1.343*** (0.320)
Constant	18,388*** (0.443)	30,232*** (3.390)
Observations	4725	4725
R ²	0.005	0.150

Source: Calculated based on authors' survey.

Notes: Bias-reduced linearization (BRL) standard errors are reported in parentheses. TIMSS, Trends in International Mathematics and Science Study. ***, ** and * denote significance at the 1, 5 and 10-percent level, respectively.

3. Test of Heterogeneous Effects

To investigate whether parental migration affects different sub-groups of children in a heterogeneous way, we used two approaches. First, we ran a quantile regression (QR) model. Specifically, we estimated the impact of parental migration on self-esteem at the 25th, 50th and 75th percentile of the self-esteem distribution. Table 7 presents the results from this model. The same covariates are included in the regression when estimating the average effects. We find strong and significant effects, demonstrating that father-only migration decreases one's self-esteem by 1.836 points for girls at the 25th percentile of the self-esteem distribution, compared to 1.226 points at the median, and 0.657 points at the 75th percentile (Table 7, row 4, columns 2–4).

Moreover, we separately examined the impact of parental migration on self-esteem for those whose self-esteem score was equal to or greater than the mean value. As mentioned

Table 7. Quantile Estimation of the Correlation between Parental Migration and Children's Self-esteem

	(1)	(2)	(3)
	25th percentile	50th percentile	75th percentile
Father-only migration	-0.098 (0.652)	-0.033 (0.388)	0.108 (0.465)
Mother-only migration	-1.016 (1.456)	-0.858 (0.870)	0.867 (1.038)
Both parents migration	-0.568 (0.589)	-0.078 (0.351)	-0.128 (0.420)
Father-only migration * Girl	-1.836*** (0.700)	-1.226** (0.614)	-0.657** (0.332)
Mother-only migration * Girl	-0.231 (2.025)	0.312 (1.204)	-2.824* (1.442)
Both parents migration * Girl	-1.746** (0.890)	-0.949* (0.578)	-0.304* (0.180)
Student characteristics ^a	Yes	Yes	Yes
Parent characteristics ^a	Yes	Yes	Yes
Family characteristics ^a	Yes	Yes	Yes
Constant	27.67***	23.41***	26.08***
Observations	4725	4725	4725
Pseudo R^2	0.079	0.031	0.030

Source: Calculated based on authors' survey.

Notes: Bias-reduced linearization (BRL) standard errors are reported in parentheses. ^aStudent characteristics include Female, Age, Ever repeated any grade, Study experience in other province, Normalized standardized Trends in International Mathematics and Science Study (TIMSS) test score, and Boarding in school in this term; Parent characteristics include Father's age, Mother's age, Father's education, Mother's education, Parents' care; Family characteristics include Household assets, Number of siblings. ***, ** and * denote significance at the 1, 5 and 10-percent level, respectively.

Table 8. Estimation of the Correlation between Parental Migration and Children's Self-esteem by Different Thresholds

	(1)	(2)
	Low self-esteem	High self-esteem
Father-only migration	0.154 (0.880)	0.054 (0.269)
Mother-only migration	1.740 (1.449)	1.051 (0.701)
Both parents migration	-1.564 (1.079)	-0.048 (0.254)
Father-only migration * Girl	-2.203* (1.286)	-0.316 (0.326)
Mother-only migration * Girl	-2.486 (2.728)	-1.951** (0.812)
Both parents migration * Girl	-0.387 (1.446)	-0.370 (0.330)
Student characteristics ^a	Yes	Yes
Parent characteristics ^a	Yes	Yes
Family characteristics ^d	Yes	Yes
Constant	25.691*** (4.922)	22.139*** (1.240)
Observations	1637	3088
R ²	0.151	0.023

Source: Calculated based on authors' survey.

Notes: Biased reduced linearization standard errors are reported in parentheses. ^aStudent characteristics include Girl, Age, Ever repeated any grade, Study experience in other province, Normalized standardized Trends in International Mathematics and Science Study (TIMSS) test score, and Boarding in school in this term; Parent characteristics include Father's age, Mother's age, Father's education, Mother's education, Parents' care; Family characteristics include Household assets, Number of siblings. ***, ** and * denote significance at the 1, 5 and 10-percent level, respectively.

above, the self-esteem mean value is 17.2, so we defined a score equal to or greater than 17 as low self-esteem and above 17 as high self-esteem. The rationale behind this is that we expect the situation may be even worse for those with low self-esteem. These results are presented in Table 8. Consistent with our results from the QR model, for a girl whose self-esteem score is 17 or below, the father's and mother's migration decreases her self-esteem score by 2.203 and 2.486 points (Table 8, rows 4–5, column 2), respectively, compared to 0.316 points and 1.951 points (rows 4–5, column 3), respectively, for those whose self-esteem score is above 17.

Taken together, these results indicate that parental migration decreased self-esteem more for individuals with initial low self-esteem scores, thus reducing overall self-esteem scores.

V. Conclusion

In this paper, we have tried to analyze whether or not children's self-esteem suffers when their father, mother or both parents migrate from rural to urban areas. Using a unique survey dataset collected in Shangluo Prefecture in Shaanxi Province that involved more than 4725 ninth grade students from 36 rural junior high schools, we found that parental migration from rural to urban areas had a significant negative impact on children's self-esteem, even though the migration decision was endogenous. This was made clear through the finding that the migration of both parents reduced a child's self-esteem significantly. This result is consistent with earlier studies, and implies that even though migration has short-term financial benefits for a family, it has a significant negative impact on children's mental health in the long run. Such findings have important policy implications for China's long-term economic development and success, where more than economic gains should be taken into consideration.

Moreover, we examine whether there was any heterogeneous effect by gender, and then separately estimate the effects of father-only migration, mother-only migration and both parents migration. The effects of father-only migration and both parents migration are -1.276 and -1.202 , respectively. At the same time, we conduct further analysis by grouping self-esteem scores by quantile and different thresholds. We find significant effects, with father-only migration decreasing self-esteem by 1.836 points for girls at the 25th percentile of the self-esteem distribution, compared to 1.226 points at the median and 0.657 points at the 75th percentile. The results imply that girls were more negatively affected than boys were. One possible explanation for why female students did not perform well on self-esteem tests could be that they are more sensitive. At the same time, there may be some discrimination against girls in rural areas, perhaps making them more sensitive. The quantile and different threshold analysis results show that children with initial low self-esteem scores were more likely to be negatively affected by parents' migration decisions. In short, it might be tempting to conclude that father-only migration decreases girls' self-esteem at the 25th percentile, compared to at the median and the 75th percentile. Therefore, parental migration decreases self-esteem more for individuals with initial low self-esteem scores.

China's government places a lot of emphasis on investment in education and human capital development in the process of urbanization and industrialization. New policies aim to foster rural to urban migration and also support migrant families to settle in cities. However, the current institutional setting creates barriers for the transformation process. For example, how can better education opportunities be provided for children of migrant families? Whether to take their children with them to big cities or leave them behind in the source village becomes an important decision and strategic issue for migrating families.

Previous studies have shown that taking children to the cities for education might not be a good thing due to the fact that migrant children can only attend non-government schools, in which the quality of education is a concern. Other studies also show that leaving children behind could cause problems for the children, some of which are discussed in the present study. The development history shows that China's rapid economic growth has been achieved in part by sacrificing the future of the next generation of some rural families, especially migrant workers.

It is time to take effective measures to solve current problems, especially those relating to migrant children's care and education. Many scholars, including us, have been arguing that the central government should take up more financial responsibility for basic education. One of the reasons why public schools cannot accommodate migrant children is public schools' lack of financial support when all education resources are allocated based on local residents. If financial support to schools covers all students regardless of whether they have local *Hukou* or not, rural kids moving to cities can be offered local public schooling to attain quality basic education. This could be done better if such financial support comes from central government. On the other hand, the current financial responsibility sharing system in education also puts pressure on local government in out-migrating areas. Regions with lots of out-migration are usually poor in resources and face tremendous financial constraints. As a result, it will be difficult for the governments in these regions to allocate more resources to education. Thus, central government could play a better role in allocating financial resources and providing support to poor rural schools.

As for children's mental health development, one suggestion for children with relatively low self-esteem is placement with a nurturing foster parent or relative to provide children a chance to flourish. Another way to improve child welfare is to provide special counseling services to help children cope with difficulties when their parents migrate (Kortenkamp, 2002). From a family standpoint, we suggest that, in the migration family, parents should pay more attention to children's emotional needs and mental health, rather than meeting their material needs only. The least that migrating parents can do is to enhance communication with their children, and spend more time with their children. Parents should also be aware of and understand the influence of a child's home life on their growth.

With regard to the children left behind, who are particularly vulnerable members of our society, awareness should be raised not only in families, but also among school teachers, government officials and the general public that more attention needed to be paid to kids' emotional and mental development outside of knowledge learning. The central government is concerned about mental health problems in rural areas. The Ministry of Education published a circular to all provincial education departments in 2012 outlining how they might improve the mental health of students, especially in rural areas. Some schools have attempted to

address students' psychological and social problems. A common approach to deal with such problems is to have school counselors available when parents are far away from home. Arranging activities such as taking kids out to improve societal integration could also be helpful.

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