Parental Labor Migration and Left-Behind Children's Development in Rural China

Hou Yuna
The Chinese University of Hong Kong
Houyuna@cuhk.edu.hk

1. Main perspectives

Labor migration between urban and rural areas is considered to be an inevitable phenomenon in economic development all over the world. The labor migration phenomenon began in China in 1980s, along with China's economic reform and acceleration of urbanization. However, unlike other counties, the situation in China is very different owing to the segmentation of urban and rural areas which makes it most difficult for migrants to obtain permanent residence in the city. In addition, due to the economic, social, and cultural differences between urban and rural areas and the much higher living cost in the city, labor migrants have no choice but to leave their children at home. The issue of Left-Behind Children came into public attention as a result of its large scale and potential serious consequence. According to China's sixth census in 2010, the total number of left-behind children in rural area amounts to 61.0255 million, accounting for 37.7% of all rural children and 21.88% of all children in China. The Left-behind children are in the sensitive and critical period of growth, thus their academic and socio-psychological development cause extensive concern from the whole society.

Our main objective is to investigate the impact of parental labor migration on left-behind children's academic and non-cognitive development. We also explore three possible sources of heterogeneity employing a control function and investigate the following issues: (1) whether boys and girls have different outcomes when they are left behind. (2) whether the length of time since parents' migration affects left-behind children's outcome. (3) whether "who migrants"(both of parents, only father or only mother) makes a difference in children's outcomes. What calls for special attention is the sample selection bias documented in Heckman(1979). More specifically, children with some kind of background or characteristics are more likely

to be left-behind. Consequently, observed difference between the left-behind and non-left-behind children may be driven by other reasons, rather than the parental labor migration itself. We address the sample selection bias by applying the propensity score matching (PSM). Additionally, three commonly used matching methods including nearest-neighbor, radius, kernel matching are employed in our study.

2. Literature Review

At present, empirical studies regarding the impact of parental labor migration on left-behind children's academic and non-cognitive development are limited and most importantly, inconclusive. The prior literatures from some scholars showed labor migration can relieve family's economic constraints by remittances, thus increases educational investment in left-behind children, and exerts a positive influence on left-behind children's development. Studies in Philippines, Brazil, Mexico and other countries found that parents' migration reduces housework burdens of left-behind children, and prolongs their learning time at school, which in turn improves their academic performance (Yang, 2008; Acosta, 2006; Hanson and Woodruff, 2003; Asis, 2006; Kandel and Kao, 2001). Antman (2012), and Liang and Chen (2007) found that short-term migration of parents has a negative influence on left-behind children, while long-term migration with remittance is conducive to children's educational development. On the other hand, there are some scholars believing that the left-behind children's academic and social psychological development will be negatively affected due to the lack of accompany and discipline from parents. Studies in Albania and Mexico found that labor migration of parents has a significant negative impact on left-behind children's enrollment and graduation rate (Giannelli and Mangiavacchi, 2010; Mckenzie and Rapoport, 2006) and may even cause emotional and behavioral problems, such as resentment, inferiority, depression, or violent behavior in school (Lahaie et al., 2009).

A lot of work has been done on labor migration in China and its impact on Chinese children's development. However, a potential problem in empirical studies on this topic regarding Chinese left-behind children is that prior studies do not control for

sample selection bias. What's more, due to different samples and method employed, little consistent evidence is provided. Hu and Li (2009) used sample from five cities in China and found that the academic performance of rural left-behind children is significantly lower than that of non-left-behind children. Left-behind girls are most vulnerable when there are many left-behind children in a family. Lee and Park (2010) used data from Gansu province and found that father's migration benefits left-behind girls' academic performance, reduces left-behind boys' school enrolment and has a negative effect on children's psychological development. Meyerhoefer and Chen (2011) found that left-behind children have significantly lower schooling than non-left-behind children, and the negative impact is mainly driven by girls. Tao and Zhou(2012) found that labor migration of both parents for a long period of time has a significant negative impact on left-behind boys. Li (2013) and Liang(2010) also found a negative impact of migration on children's academic development.

However, some studies on Chinese left-behind children find no significant or positive impact of parental labor migration.. Using data from Shaanxi province, Chen et al (2009) found that the migration of both parents has no significant impact on children's academic performance, while father's migration has a significant positive effect. Morooka and Liang (2009) found that parental labor migration in Fujian province improves children's enrollment rate and significantly reduces the gender differences in educational opportunity. Peng and Zhou (2011) and Ye (2006) also found no significant difference in academic development between left-behind and non-left-behind children.

3.   Research Design

3.1.   Methodology

In the following, we briefly introduce the PSM, followed by a discussion on the three matching methods and the average treatment effect on the treated(ATT).

Suppose that D is a binary variable, and the sample in our study can be classified into two groups: (1) The treatment group. They are left-behind children, both of whose parents migrant. Here Di equals 1 ,and (2)The control group. They are the

non-left-behind children. Here Di equals 0. The propensity score is defined as the conditional probability of receiving a treatment given pre-treatment characteristics (Rosenbaum and Rubin, 1983).

$$p(X) = \Pr[D = 1 | X] = E[D | X] \qquad (1)$$

Where X is the vector of characteristics of the control group, D is the indicator variable. If we can get the propensity score, the ATT can be estimated by the difference of the outcomes of the treatment group and the control group using the following equation, where Y_{1i} and Y_{0i} represent the outcomes of the treatment group and control group, respectively.

$$ATT = E[Y_{1i} - Y_{0i} | D_i = 1] = E[E[Y_{1i} - Y_{0i} | D_i = 1, p(X_i)]] \qquad (2)$$

$$= E[E[Y_{1i} | D_i = 1, p(X_i)] - E[Y_{0i} | D_i = 0, p(X_i)] D_I = 1]$$

The most widely used matching methods includes Nearest-Neighbor Matching, Radius Matching and Kernel Matching. NNM method is to find the closest case in the control group using the PS score of the treatment group. The Radius matching method is to find cases with the PS score falling within a radius of r in the control group to matching the treatment group. The idea of the Kernel matching method is that each case in treatment group is matched with a weighted average of all the cases in the control group with weights inversely proportional to the distance between the PS score of the treatment and control group.

The rest of this paper proceeds as follows: First, we use the Probit model to determine variables that enter in the migration decision model where "whether left-behind or not" is the dependent variable. Second, we do the propensity score estimation and get the "p-score". Third, we match the left-behinds(treatment group) with the non-left-behinds(control group) employing three different matching methods mentioned above. Fourth, we compare the mean outcome of both groups and get the average treatment effect. Lastly, we check the matching hypothesis and matching quality of our study.

3.2. Data sources and Variables

Data used in this paper comes from the 'Basic Education in Western Areas Project' supported by the World Bank and the U.K.'s Department for International Development (DFID) with the aims to improve educational opportunities for poor children and ethnic minorities so that they would be better prepared to take advantage of economic and social opportunities.. The project was implemented from 2004 to 2009 in five poorest provinces in western China (Gansu, Guangxi, Ningxia, Sichuan, and Yunnan). Our research draws on surveys in 2008 and the sample is of 6150 children with 2025 left-behinds and 4125 others.

The dependent variables in our model are children's academic performance (math score and language score) and non-cognitive skills(school adjustment including teacher-student relation, emotion & behavior, self-concept and school-attitude).

The explanatory factors can be categorized into four groups:(1) Personal characteristics of migrant parents and their children, including gender, nationality and father's education; (2) Family factors, including the number of children and the economic condition; (3) School factors, including variables estimating teacher quality and school condition; (4) Macroeconomic factors in place of origin, including per –capita GDP and per-capita net income of famers in the county.

4. Empirical Results

In this section, we will first discuss the general impact of parents' labor migration on left-behind children's academic performance and school adjustment. Secondly, according to the varying length of migration time, the children sample will be divided into "short-term" left-behinds whose parents have been out of home for less than three years, and "long-term" left-behinds whose parents have been out for three years or more and then the heterogeneous impact of migration will be explored. Lastly, we will explore the influence of different migration option("both parents out", "father out" and "mother out").

4.1. The Full Sample Effects of Parental Labor Migration

1. The Effect of Parental Labor Migration on Academic Achievements

We use three approaches, as mentioned above, to estimate ATTs. Whatever

matching method employed, the full sample results show that left-behind children score significantly higher than non-left-behind children in both math and language. By gender investigation, we find that the math score of left-behind boys is significantly higher than that of non-left-behind boys while there is no significant difference in language scores between two boy groups. What's more, left-behind girls perform better in language than non-left-behind girls while their math scores are not significantly different. In sum, the performance difference between the left-behinds and the non-left-behinds in math are mainly driven by boy sample, and the differences in language by girls. Parents' migration has no obvious effect on left-behind boys' language performance or girls' math performance.

Table 2 The Impact of Parental Migration on Children's Academic Development

	Full Sample	Boys-subsample	Girls-subsample
Nearest Neighbor Matching			
Math	1.232**	1.012*	0.295
	(2.078)	(1.738)	(0.342)
Language	1.088**	0.661	1.283*
	(2.161)	(0.974)	(1.755)
Radius Matching			
Math	1.128**	1.302*	-0.005
	(2.123)	(1.726)	(-0.006)
Language	1.205***	0.742	1.442**
	(2.760)	(1.202)	(2.117)
Kernel Matching			
Math	0.932*	1.035	0.366
	(1.868)	(1.456)	(0.498)
Language	1.175***	0.829	1.521**
	(2.853)	(0.989)	(2.470)

Note: * * *, * *, and * represent significance at 1%, 5% and 10% level, respectively, with t-values in parentheses.

2. The Effect of Parental Migration on School Adjustment

Using the nearest neighbor matching method, we find from the full sample that the self-concept level of left-behind children is significantly higher than that of non left-behind children at the 10% level, while the emotional and behavioral adjustment

level of the left-behinds are significantly lower. That is to say, the left-behind children have a good self-evaluation of themselves, thinking they themselves have a lot of advantages and the classmates like them very much. However, since without parental care or accompany, the left-behind children tend to show some level of timidity and anxiety or some kind of aggressive and destructive performance in school. In addition, no significant difference is found on dimensions of teacher-student relationship and school attitude. According to the gender subgroup results, parental migration has a significant positive impact on self-concept of both left-behind boys and girls and the ATTs on boys are larger than that on girls. On the dimension of emotion and behavior, left-behind boys perform worse than non-left-behind boys, while this dimension is not significantly different within the girl-subgroup. The above results show that, parental migration raises the self evaluation of both left-behind boys and girls, and at the same, causes emotional and behavioral problems for boys. Radius matching method finds no significant treatment effect, while the kernel matching result verifies the above results.

Table 3 The Impact of Parental Migration on Children's School Adjustment

	Full Sample	Boys-subsample	Girls-subsample
Nearest Neighbor Matching			
Teacher-Student Relation	0.033	0.036	0.010
	(0.972)	(0.743)	(0.220)
Emotion & Behavior	-0.043*	-0.052*	-0.036
	(-1.794)	(-1.646)	(-0.888)
Self-Concept	0.059*	0.094**	0.050*
	(1.724)	(1.968)	(1.652)
School-Attitude	0.035	0.050	-0.047
	(1.028)	(1.014)	(-1.016)
Radius Matching			
Teacher-Student Relation	0.025	0.011	0.043
	(0.824)	(0.251)	(0.998)
Emotion & Behavior	-0.033	-0.046	-0.019
	(-1.104)	(-0.981)	(-0.503)
Self-Concept	0.043	0.058	0.022
	(1.426)	(1.285)	(0.502)
School-Attitude	0.001	0.005	-0.034
	(0.014)	(0.113)	(-0.813)

	Kernel Matching		
Teacher-Student Relation	0.029	0.030	0.018
	(1.050)	(0.727)	(0.456)
Emotion & Behavior	-0.031**	-0.049*	-0.015
	(-2.131)	(-1.654)	(-0.422)
Self-Concept	0.064**	0.071*	0.062*
	(2.249)	(1.724)	(1.651)
School-Attitude	0.025	0.024	-0.014
	(0.898)	(0.555)	(-0.352)

Note: * * *, * *, and * represent significance at 1%, 5% and 10% level, respectively, with t-values in parentheses.

4.2. The Effects of Varying Length of Parental Labor Migration

1. The Effect of Varying Length of Parental Labor Migration on Academic Achievements

Comparison of the two subgroups with respect to the influence of time length of migration is shown in Table 4. Results of all three matching methods consistently show that there exists no significant difference in math or language score between short-term left-behind children and non-left-behind children. However, the long-term subsample shows an opposite result with left-behind children outscoring non-left-behind children in both math and language. What's more, gender subgroup results show that long-term left-behind boys perform significantly better than non-left-behind boys in both math and language, while the performance difference between the left-behinds and the non-left-behinds within girl group exits only in language. The above results show that short-term migration does not affect academic performance of left-behind children and long-term parental migration improves academic development of left-behind children.

Table 4 The Impact of Varying Length of Parental Migration on Children's Academic Development

	Short-term			Long-term		
	Full sample	Boys	Girls	Full sample	Boys	Girls
Nearest Neighbor Matching						
Math	0.211	1.359	-0.288	1.467**	2.054**	0.428
	(0.256)	(1.161)	(-0.241)	(1.978)	(2.009)	(0.411)
Language	0.373	1.451	-0.110	1.117*	1.806**	1.914**

	(0.554)	(1.533)	(-0.110)	(1.833)	(2.141)	(2.140)
Radius Matching						
Math	0.152	1.054	-0.075	1.442**	1.827*	0.453
	(0.211)	(1.032)	(-0.07)	(2.236)	(1.918)	(0.458)
Language	0.359	1.410	0.083	1.575***	0.693*	1.427*
	(0.607)	(1.621)	(0.093)	(2.932)	(1.886)	(1.710)
Kernel Matching						
Math	0.052	0.297	-0.470	1.191**	1.608*	0.057
	(0.074)	(0.300)	(-0.458)	(1.960)	(1.846)	(0.064)
Language	0.407	0.412	0.410	1.377***	1.422*	1.575**
	(0.713)	(0.504)	(0.485)	(2.709)	(1.956)	(2.083)

Note: * * *, * *, and * represent significance at 1%, 5% and 10% level, respectively, with t-values in parentheses.

2. The Effect of Varying Length of Parental Labor Migration on School Adjustment

According to the results of short-term subsample using the nearest neighbor matching method, parents' short-term migration has a significant positive impact on left-behind children's self-concept level and the Kernel matching method shows consistent result. There is no significant difference between the left-behind children and non-left-behind children in the other three dimensions of school adjustment. Long-term migration subsample shows that parental migration for a long period of time has a significant adverse effect on left-behind children's emotion and behavior in school. If we pay attention to the gender difference, we will find that the differences of school adjustment between left-behind children and non-left-behind children(no matter short-term or long-term) are driven mainly by the boy subgroup. In sum, sons of short-term migrant parents tend to make positive self-evaluation but they have adjustment problems like hesitating to talk with others , telling lies, and attacking classmates or destructing public facilities in school.

Table 5 The Impact of Varying Length of Parental Migration on Children's School Adjustment

	Short-term			Long-term		
	Full sample	Boys	Grils	Full sample	Boys	Grils
Nearest Neighbor Matching						
Teacher-Student Relation	0.043	-0.046	0.082	0.042	0.048	-0.001

	(0.953)	(-0.703)	(1.278)	(1.007)	(0.803)	(-0.021)
Emotion & Behavior	0.006	0.095	0.012	-0.056*	-0.123**	0.024
	(0.139)	(1.331)	(0.212)	(-1.904)	(-2.069)	(0.482)
Self-Concept	0.073*	0.050	0.055	0.044	0.049	0.064
	(1.642)	(0.764)	(0.834)	(1.032)	(0.818)	(1.093)
School-Attitude	-0.027	-0.012	-0.076	0.020	0.091	-0.049
	(-0.581)	(-0.181)	(-1.194)	(0.467)	(1.454)	(-0.867)
Radius Matching						
Teacher-Student Relation	0.010	-0.100	0.094	0.057	0.096	0.014
	(0.261)	(-1.452)	(1.588)	(1.536)	(1.487)	(0.258)
Emotion & Behavior	0.014	0.063	0.025	-0.047*	-0.112*	-0.023
	(0.338)	(0.951)	(0.496)	(-1.803)	(-1.94)	(-0.483)
Self-Concept	0.033	0.050	0.041	0.031	0.036	0.071
	(0.817)	(0.826)	(0.665)	(0.808)	(0.629)	(1.280)
School-Attitude	-0.016	-0.005	-0.057	-0.002	0.042	-0.001
	(-0.404)	(-0.074)	(-0.971)	(-0.04)	(0.71)	(-0.004)
Kernel Matching						
Teacher-Student Relation	-0.011	-0.068	0.056	0.047	0.087	-0.008
	(-0.282)	(-1.228)	(1.009)	(1.368)	(1.673)	(-0.175)
Emotion & Behavior	0.008	0.032	-0.007	-0.046*	-0.100*	-0.003
	(0.212)	(0.517)	(-0.146)	(-1.693)	(-1.953)	(-0.071)
Self-Concept	0.062*	0.093*	0.030	0.055	0.038	0.082
	(1.779)	(1.682)	(0.509)	(1.544)	(0.727)	(1.607)
School-Attitude	0.004	-0.020	-0.044	0.040	0.049	-0.002
	(0.100)	(-0.349)	(-0.799)	(1.126)	(0.886)	(-0.049)

Note: * * *, * *, and * represent significance at 1%, 5% and 10% level, respectively, with t-values in parentheses.

4.3. The Effect of Different Parental Labor Migration Option

1. The Effect of Different Migration option on Academic Achievements

Results of three matching methods consistently show that "both-parents-out" left-behind children score significantly higher in both math and language than non-left-behind children. This result applies equally to "father-out" left-behind children. The ATT of "father-out" is significantly greater than that of "both- parents-out", and this can be attributed to the negative effect of mother's migration. However, left-behind children whose mother is the labor migrant show lower math score, but the difference is not significant. Further analysis by gender shows that the migration of both parents has a significant effect on girls' academic scores, but no significant effect

on boys'. In contrast, father's labor migration has a significant positive effect on left-behind boys' math and language score but has no impact on left-behind girls. The above results show that in the western rural families, labor migration of parents as well as labor migration of father has a significant positive influence on children's academic performance. While migration of both parents benefit left-behind girls, migration of father is more advantageous to the left-behind boys.

Table 6 The Effect of Different Migration option on Academic Achievements

	Migration of parents			Migration of father			Migration of mother		
	Full Sample	Boys	Girls	Full Sample	Boys	Girls	Full Sample	Boys	Girls
Nearest Neighbor Matching									
Math	1.179*	0.224	2.270**	1.753**	2.400**	-0.647	-1.595	-2.262	0.765
	(1.665)	(0.198)	(1.975)	(2.234)	(2.229)	(-0.575)	(-0.951)	(-0.905)	(0.346)
Language	1.212*	-0.108	2.498**	1.489**	2.247**	1.000	0.471	1.089	0.197
	(1.852)	(-0.121)	(2.561)	(2.305)	(2.494)	(1.066)	(0.325)	(0.538)	(0.106)
Radius Matching									
Math	1.201*	1.376	1.437	1.894***	1.987**	0.155	-0.193	-1.250	1.823
	(1.685)	(1.337)	(1.380)	(2.795)	(2.059)	(0.151)	(-0.140)	(-0.564)	(1.015)
Language	1.044*	0.053	1.886**	1.714***	1.726**	1.576	0.577	0.959	0.265
	(1.771)	(0.064)	(2.127)	(3.030)	(2.106)	(1.563)	(0.501)	(0.533)	(0.171)
Kernel Matching									
Math	0.920	0.698	0.885	1.371**	2.056**	0.071	-0.100	-1.521	1.367
	(1.383)	(0.732)	(0.947)	(2.097)	(2.279)	(0.072)	(-0.074)	(-0.715)	(0.809)
Language	0.875*	-0.158	1.664**	1.529***	1.853**	1.305	0.483	0.655	0.279
	(1.690)	(-0.208)	(2.095)	(2.795)	(2.400)	(1.615)	(0.430)	(0.379)	(0.191)

Note: * * *, * *, and * represent significance at 1%, 5% and 10% level, respectively, with t-values in parentheses.

2. The Effect of Different Migration option on school adjustment

According to the results of three matching methods, the migration of both parents significantly improves the self-concept of left-behind children but deteriorates their emotion and behavior in school. On the other two dimensions, there is no significant difference between the left-behind and non-left-behind children. Further analysis on gender heterogeneity shows that the positive effect of "both-parents-out" on self-concept is mainly driven by the girl sample. In addition, when only one parent

goes out, the difference in any dimension of school adjustment between left-behind children and non-left-behind children is not significant anymore. In sum, in the west rural areas, the school adjustment of left-behind children will not be adversely affected if only one parent migrates, and this conclusion has no gender difference. However, if both parents migrant to the city, left-behind children show more emotional and behavioral problems in school but at the same time, tend to make positive self-evaluation.

Table 7 The Effect of Different Migration Option on School Adjustment

	Migration of parents			Migration of father			Migration of mother		
	Full Sample	Boys	Girls	Full Sample	Boys	Girls	Full Sample	Boys	Girls
Nearest Neighbor Matching									
Teacher-Student Relation	0.025	0.029	0.077	0.067	0.002	0.060	-0.069	-0.083	-0.035
	(0.574)	(0.453)	(1.278)	(1.528)	(0.035)	(0.991)	(-0.752)	(-0.618)	(-0.286)
Emotion & Behavior	-0.070[*]	-0.097	-0.034	-0.020	-0.067	-0.015	0.068	0.202	-0.042
	(-1.700)	(-1.532)	(-0.677)	(-0.434)	(-1.010)	(-0.271)	(0.739)	(1.529)	(-0.328)
Self-Concept	0.067[*]	0.053	0.079[*]	-0.006	0.037	-0.083	0.010	-0.019	0.046
	(1.660)	(0.848)	(1.824)	(-0.123)	(0.573)	(-1.287)	(0.101)	(-0.131)	(0.333)
School-Attitude	0.025	0.026	-0.007	-0.015	-0.011	-0.009	0.084	0.099	0.013
	(0.556)	(0.380)	(-0.112)	(-0.338)	(-0.174)	(-0.149)	(0.858)	(0.706)	(0.101)
Radius Matching									
Teacher-Student Relation	0.059	0.026	0.075	0.055	0.021	0.020	-0.066	-0.073	-0.048
	(1.456)	(0.426)	(1.312)	(1.420)	(0.364)	(0.361)	(-0.875)	(-0.634)	(-0.450)
Emotion & Behavior	-0.092[**]	-0.098	-0.024	-0.028	-0.050	-0.034	0.084	0.155	-0.022
	(-2.422)	(-1.639)	(-0.495)	(-0.713)	(-0.809)	(-0.680)	(1.085)	(1.324)	(-0.209)
Self-Concept	0.100[**]	0.076	0.128[**]	-0.003	0.064	-0.087	0.061	0.040	-0.018
	(2.487)	(1.288)	(2.258)	(-0.079)	(1.101)	(-1.481)	(0.692)	(0.303)	(-0.153)
School-Attitude	0.022	0.054	-0.015	-0.029	0.007	0.008	0.119	0.201	-0.017
	(0.541)	(0.869)	(-0.258)	(-0.761)	(0.121)	(0.145)	(1.447)	(1.591)	(-0.153)
Kernel Matching									
Teacher-Student Relation	0.048	0.032	0.068	0.037	0.041	0.015	-0.027	-0.055	-0.014
	(1.277)	(0.580)	(1.331)	(1.018)	(0.751)	(0.296)	(-0.375)	(-0.493)	(-0.141)
Emotion & Behavior	-0.058[*]	-0.088	-0.023	-0.007	-0.041	-0.002	0.066	0.095	0.045

	(-1.656)	(-1.631)	(-0.535)	(-0.188)	(-0.719)	(-0.047)	(0.885)	(0.848)	(0.472)
Self-Concept	0.099***	0.083	0.125**	-0.002	0.056	-0.060	0.096	0.111	0.062
	(2.658)	(1.548)	(2.454)	(-0.052)	(1.030)	(-1.104)	(1.114)	(0.866)	(0.534)
School-Attitude	0.042	0.052	0.025	-0.016	-0.025	-0.011	0.139	0.179	0.091
	(1.108)	(0.912)	(0.500)	(-0.433)	(-0.455)	(-0.220)	(1.455)	(1.467)	(0.888)

Note: * * *, * *, and * represent significance at 1%, 5% and 10% level, respectively, with t-values in parentheses.

5. Conclusions

Our results show that parental migration has a significant positive impact on boys' math score and girls' language score. However, left-behind boys show timidity, anxiety and aggressive or disruptive behaviors.

Our results also suggest while there is no effect of short-term parental migration on left-behind children' academic performance, over-three-year migration benefits the left-behinds' academic development, but harms their emotion and behaviors in school. This is because the impact of short-term migration on relieving family economic constrain is small, and the negative effect of parental migration is not obvious yet. As migration time increases, the accumulated remittances improve family educational resources on one hand, and the lack of parental accompany leads to children's social psychological problems on the other hand. In summary, short-term parental migration has no effect on children's academic or non-cognitive development.

The comparison of parents', father's and mother's migration shows that father's migration has a positive influence on left-behind boys' academic development while parents' migration benefits girls significantly. We think this is due to the still existing old tradition in western rural areas in China: Females are often the subordinations in the family and the household head tends to give the first priority to the left-behind boys' education with remittances from father's migration. when both parents go out to work and remittances further improve the economic status of the family, then girls may benefit from parents' labor migration. The negative impact of mother migration is not statistically significant. Furthermore, the school adjustment of left-behind children is negatively affected only when both parents are out of home.

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