

**The cumulative effect of parental migration on the educational outcomes of children in rural West Bengal: Combining India Human Development Survey and a primary survey data**

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# **The cumulative effect of parental migration on the educational outcomes of children in rural West Bengal: Combining India Human Development Survey and a primary survey data**

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## **Abstract:**

This paper analyses both waves of India Human Development Survey data (2004-05 and 2011-12) and data from a primary survey conducted in four districts of West Bengal in 2019 to discern the effect of parental migration on children's achievement test levels and over-aged schooling. The results show that in 2004-05 and in 2019, left-behind children of the current migrant parents were likely to score higher in all the achievement tests relative to those of the children of non-migrants. The paper also found that in 2004-05 and in 2019, over-aged schooling was higher among the left-behind children of current migrant parents. However, in 2011-12, children of non-migrant parents were found to have higher over-aged schooling relative to other

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groups of children. The paper suggests that understanding the impact of parental migration on children's educational development needs to go beyond conventional indicators of children's academic performance or years of schooling and look at children's psychological health. Moreover, while taking advantage of the positive effect of the educational investment, government needs to expand its role to alleviate the negative effect of lack of guardianship and ensure long-term human capital improvements in rural areas.

**Keywords:** parental migration, achievement test levels, over-aged schooling, West Bengal

## Introduction

Unprecedented migration flows in the last couple of decades, both internal and international, have had far-reaching effect on family structures and home communities of migrants (Graham and Yeoh, 2013). Over the past few decades India has experienced significant economic and societal changes that have driven rural residents to seek non-farm employment in urban centers (Mishra, 2016; Mishra, 2020; Mishra and Nayak, 2020). The number of people migrating domestically for employment-related reasons in India have increased from 33 million in 2001 to 51 million in 2011 (Census of India, 2001; 2011). Due to the massive flows of internal labour migration, millions of children are affected, mostly being left behind by their migrant parents (Cebotari et al., 2018; Nobles, 2013; Dreby, 2010). Economic constraints and/or uncertain nature of the migration journey often impel many male migrants to leave their children or both wives and children in the country side where the children are generally cared for

by a single parent, grandparents, other family members, or by non-relatives (Valtolina and Colombo, 2012; Lie et al., 2017; Ruhm, 2000; Whitehead and Hashim, 2005; de Brauw and Mu, 2011; Cawley and Liu, 2012). The daily supervision provided by grandparents and/ or other family members is likely to differ from that provided by children's own parents. Studies have found that left-behind children (LBC) in the absence of single or both parents may suffer from a reduced level of parental care (Lie et al., 2017). This is likely to have consequences on the education as well as health of the LBCs (Kong and Meng, 2010). The plight of the children 'left-behind' in care of single parent or others have galvanised a rising concern about the potential costs and benefits of migration in recent years (Lei et al., 2017).

Although, it is difficult to make any precise estimate of the number of LBCs around the globe, empirical evidence shows that number of children affected by parental temporal migration is very high, mostly in the developing countries. For example, in countries like Bangladesh, Tanzania and Mali 18-40 per cent, 50-60 per cent and 80 per cent were reported of being left behind by their migrant parents in rural areas (Whitehead and Hashim, 2005). Similarly, approximately one million children in Indonesia and half-a-million in Thailand are found to be left behind by parents working overseas (Bryant, 2005). In India too, scattered empirical evidence suggests that majority of the male rural out-migrants leave behind their wives and children at their villages and move to destination places, mostly other states for work (Singh and Yadava, 1981; Sajjad, 1998; Pattanaik, 2009; Roy, 2011).

Parental migration holds the ability to both restrain and strengthen the educational development of children. There is some consensus that remitted earnings from migration results in higher household spending on items enhancing human capital formation such as nutrition, healthcare and education (Mu and De Braw, 2015; Yang, 2008; Hanson and Woodruff, 2003; Cox

Edwards and Utera, 2003 Jones, 1995; Taylor, 1987), as per studies in Philippines (Yang, 2004; Chami et al., 2003; Taylor et al., 1996; Durand and Massey, 1992; Papademetrious and Martin, 1991), El Salvador (Cox Edwards and Ureta, 2003), Guatemala (Adams, 2006), Nepal (Thieme and Wyss, 2005) and Pakistan (Mansuri, 2007). Moreover, the act of migration can also be transformative for migrants and their families left behind as migrants can function as channel of progressive ideas for “social remittances”<sup>3</sup>, a developmental tool to benefit their families (Levitt, 1998; 2001; 2005; Vertovec, 2004; Choi, 2016). Thus, parents’ migration can be advantageous to their LBCs by providing the latter with greater economic resources for pursuing educational and occupational aspirations. Nevertheless, parental migration can also have negative effect on LBCs educational outcomes and wellbeing since prolonged absence of close family member(s) may disrupt child development and education (Moretti and Peled, 2004; Duan and Zhou, 2005; Su et al., 2013; Zhang et al., 2014; Zhao et al., 2014; Liu et al., 2018). A number of studies have found that children left behind by their migrant parents face several challenges in terms of education and health care (Chang et al., 2011; de Brauw and Mu, 2011; Lu, 2012). They go through various psycho-social difficulties and are exposed to different kind of exploitation (Bakker et al., 2009). Moreover, as family composition and roles change, children may be required to take care of more household responsibilities (Hanson and Woodruff, 2003). Chang et al. (2011) in their study found that parental absence may increase both domestic and farm work burden for LBCs (Chang et al., 2011). Studies have also found that school drop-out is higher among children living with single parent or extended family members (Duan and Wu,

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3. The term “social remittances” was coined to capture the notion that, in addition to money, migration also entails the circulation of ideas, practices, skills, identities, and social capital between sending and receiving communities (Lacroix et al., 2016).

2009; McKenzie and Rapoport, 2011). Educational outcomes are also found to depend on whether the children are being left behind by their mothers or not. Mother-only migrant families may have inherent vulnerability. Wen and Lin (2012) in their study found that LBCs with mother/ both parent as migrants had worse self-reported school performance than LBCs with only father as migrants and/or children belonging to non-migrant households. A number of studies has observed that the effect of parental migration varies depending on type of migration i.e. whether single/ both parents have migrated, the gender of the migrant parent if only one parent migrated, and the presence of grandparents in the origin household (Huang et al. 2018; Tong et al., 2015). In contrast to this stream of literature, some studies have also reported insignificant difference between LBCs and non-LBCs in terms of academic performance and life satisfaction (Hu et al., 2013; Zhao et al., 2014). A few studies have found the impact of parental migration and remittances on LBCs are conditional on other supporting factors such as community and available services. For instance, remittances may increase school attendance of the LBCs in a community with access to schools, whereas, communities with poorer access to education may only improve child's school attendance when there was no out-migration from the household, thereby, implying a negative effect of migration on the education of children (Amuedo-Dorantes et al., 2011).

The conflicting evidence clearly suggests that the overall effect of parental migration on children's educational outcomes seems to be inconclusive. On the one hand, remittances sent by the migrant parent are found to improve academic performance of the children by easing liquidity constraints and increasing investment in their education (Amuedo-Dorantes and Pozo, 2010; Calero et al., 2009; Lu, 2012; McKenzie, 2005). On the other hand, parental absence is observed to harm the academic performance of the LBCs by lowering parental care and

increasing the domestic and farming responsibilities (Chang et al., 2011; de Brauw & Mu, 2011; Lu, 2012; McKenzie, 2005). Migration can thus affect child development positively as well as negatively, depending on how and what outcomes we value, the spatial and temporal frame of analysis, the context and selectivity of migration and the population group considered (Haas et al., 2008). However, it is difficult to disentangle the two effects described above because of the considerable challenges involved in separating the effects due to increases in income, on the one hand and parental absence on the other hand (Yang, 2009). Furthermore, it is also hard to ascertain which effect is stronger due to the web of causal linkages. Also, although it is an important issue for migration studies, very few researchers have addressed this problem (Whitehead & Hashim 2005; UNICEF n.d.), particularly in the context of domestic or internal migration. Moreover, a few studies have examined the causal impact of migration on the educational outcomes for the children, and even fewer have considered the difference between the effects of different types of parental migration within the country (i.e., inter- versus intra-state migration, and migration of both parents versus migration of one parent). Although a substantial body of research has examined the impact of parental migration on the educational outcomes of left-behind children in other Asian countries (Jampaklay, 2006; Arguillas and Williams, 2010; Meyerhoefer and Chen, 2011; Vogel and Korinek, 2012), work on this issue remains nascent in the context of India. Only a handful of studies has examined how parental migration impacts children's education in India (Coffey, 2013; Soyuz and Pandian, 2014; Roy et al., 2015; Nguyen, 2016).

Following the given strand of literature, in this paper we seek to examine the effect of parental out-migration on the educational outcomes (achievement test levels) and over-aged schooling among the children who either accompany their migrant parents or left behind by their parent(s) in rural West Bengal. We carry



out the analysis using both waves of India Human Development Survey (IHDS) data and data collected through primary survey conducted in four districts of West Bengal. As information on achievement test levels for children was not collected during primary survey, achievement test levels were imputed for the primary survey data using pooled data of IHDS-I (2004-05) and IHDS-II (2011-12).

### **Data and methods**

This paper uses data from two waves of the Indian Human Development Survey (IHDS), conducted in 2004–2005 and 2011–2012, and primary survey conducted in West Bengal in 2019. Carried out jointly by the National Council of Applied Economic Research (NCAER) and the University of Maryland, while the first wave of survey (IHDS-I) interviewed a nationally representative sample of 41,554 households containing 215,751 individuals, the second wave of survey (IHDS-II) re-interviewed 83 per cent of the original households with a re-contact rate over 90 percent in rural areas and 72 percent in urban areas (Desai and Vanneman, 2015), as well as the households split from the original households that were residing within the same locality. The sample is spread across 971 urban blocks and 1503 villages in 388 districts of the country covering 34 states and union territories. The IHDS collected information on household economic activities, social networks, living standards, migration and remittances, and healthcare utilisation and expenditure. We pooled both the waves of IHDS data and analysed the data of 12,967 children (6167 children from IHDS-I and 6800 children from IHDS-II) aged 8–11 years belonging to rural areas of India, whose fathers were engaged in cultivation, allied agriculture, agricultural waged or non-agricultural waged work. In other words, we tried to confine our analysis to a sample of households who were not very diverse in terms of their occupational profiles and per capita consumption expenditure. The IHDS interviewed a knowledgeable informant, usually the

male household head, about the household's socioeconomic condition and employment and migration status for all household members. In IHDS survey the respondent was asked: "Does any woman/ man in the household have a husband/wife who lives outside the household?" If a husband/ wife was away at the time of survey, we considered him/ her current migrant in the analysis. In addition, the IHDS-II survey asked whether any household members had left home to find seasonal/ short-term work for at least one month during the past five years and returned back. The head of the household also reported that for how many months in the last one year preceding the survey household members had stayed outside the home district, and if they were accompanied by their spouses and children or not. It must be noted that the scope of IHDS was limited in following up individuals who migrated to join the early migrant(s) or members of the entire households who moved together to another location. We constructed a categorical variable distinguishing among (1) non-migrant: single or both parents who had not migrated for work even for a single month in the past five years; (2) returned migrant parents with left-behind children: children whose single parent or both parents had migrated to find work in the last 5 years, and stayed outside the home district for less than 6 months in the last one year and returned; (3) returned migrant parents with accompanied children: children who accompanied their parents when the latter migrated for work in the last 5 years and returned; and (4) current migrant parents with left-behind children: individuals identified in the non-resident raster, and also children whose single/ both parents had migrated to find work in the last 5 years, and have stayed outside the home district for 6 months or more in the last one year. However, it is important to mention that West Bengal part of the IHDS sample did not have any household falling under the category (3). Moreover, the IHDS-I and II data are not comparable as migrants who have returned are not recorded in IHDS-I survey.

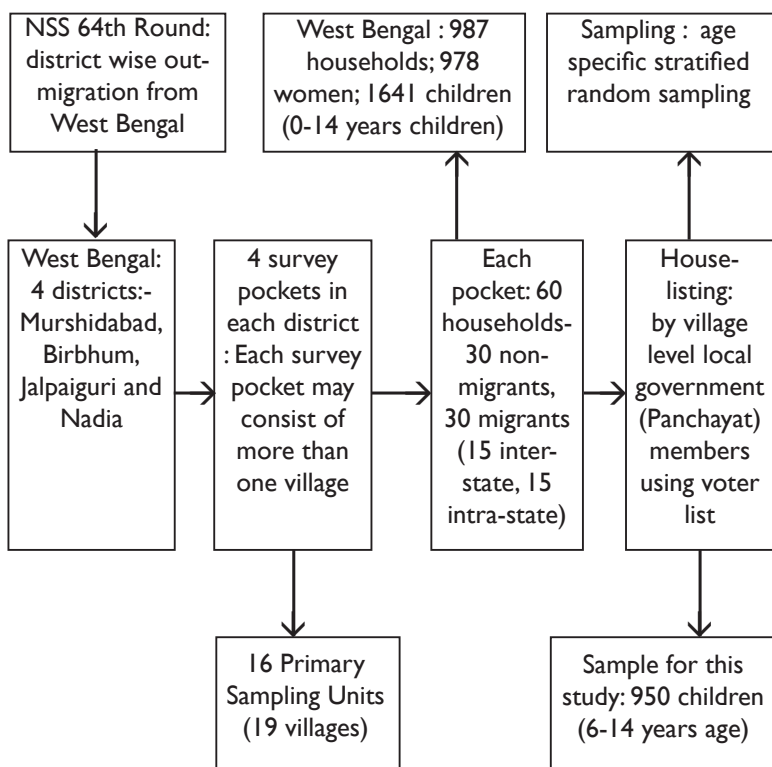
The primary survey was conducted in four districts of West Bengal- a state in the eastern bottle-neck of India. Although West Bengal was a major recipient of migrants since the late nineteenth century, the state has experienced higher intensity of male out-migration from economically and agriculturally depressed areas over the past two decades with the relative slowing down of the economy (Ghosh, 2013; Das et al., 2016; Debnath and Nayak, 2018). According to the Census of India (2011), West Bengal ranks fourth among the States from where people have migrated in search of work. Between 2001 and 2011, nearly 5.8 lakh people migrated from West Bengal (from both rural and urban areas), next only to Uttar Pradesh (37.3 lakh), Bihar (22.6 lakh), and Rajasthan (6.6 lakh). Our primary survey considered migrants as those individuals who have stayed outside their home district (i.e., usual place of residence) for at least three months in the last one year preceding the survey for earning a livelihood. Our operational definition excluded all short-term migration of less than three months duration and all migrations which did not occur due to income-earning activities. Moreover, children living in households with migrant members other than parents were excluded from the study. Further, we have considered only rural to urban migrants in this study.

### ***Quasi-sampling frame***

In the absence of any district-wise out-migration data, we relied on India's National Sample Survey (NSS 64th round: 2007-08) data for West Bengal for identifying the districts with higher incidence of out-migration. Based on the list of districts contributing higher sample households with out-migrants, we selected four districts, namely, Murshidabad, Birbhum, Jalpaiguri and Nadia. A total of 16 primary sampling units (PSUs) were selected by scouting and 19 villages with higher (reported) incidence of out-migration were identified. In each select village, house listing was done with the help of village-level member or official of the local government (Gram Panchayat) using voter

list prepared and maintained by the Election Commission. Only households having children aged 0 to 14 years were listed to form the sampling frame and stratified random sampling was used to draw the sample in each PSU. The sampling frame was divided into three strata: – list of households with no migrant workers (stratum 1); –from the remaining households, list of households with at least one intra-state migrant workers (stratum 2); and from the remaining households, list of households with at least one inter-state migrant workers (stratum 3). A sample size of 60 households was allotted to each PSU. In each PSU, attempt was made to survey 30 households from stratum 1 and 15 households each from strata 2 and 3. In case of short-fall, higher number of households were surveyed from the adjacent stratum. Although, target number of total sample for the study was 960 (16 PSU × 60 sample households per PSU), due to some unavoidable circumstances during the survey, the sample size had to be marginally increased in a few PSUs. A total of 1641 children were surveyed belonging to 987 households. Our analysis is based on 950 children of 6 to 14 years age group. For carrying out the quantitative survey, a structured questionnaire was prepared which along with other relevant questions also included a detailed set of questions on psychological health symptoms for the children. The questionnaire was first prepared in English and then translated into the local language (i.e., Bengali). The questionnaire was pre-tested at sites other than the study sites and was then finalised and administered among the study participants. In order to complement the quantitative data, adequate qualitative information was collected through 8 Focus Group Discussions (FGDs) and a number of In-depth Interviews (IDIs) in four districts of West Bengal (Figure 1). All the FGDs and IDIs were recorded and verbatim was transcribed. All original names were changed wherever they were mentioned in the analysis. The survey took place from May to September, 2019.

**Figure 1. Study area selection and sampling for primary survey**



Source: Prepared by the Authors

## Outcome variables

The IHDS administered reading, writing, and arithmetic tests for children aged 8–11 years. Pratham, an NGOs working on education in India, developed simple assessment tests and used them nationwide for the Annual Status of Education Report (Banerji et al., 2013). The test's reliability and validity were established across various school curricula and language of instruction (Vagh, 2012). For the IHDS, similar tests were developed in 12 Indian languages and English and were administered among school-going children between the ages of 8 and 11. We used these test results as our dependent variables which included: result on mathematical skill test (as a measure of cognitive development) and result on reading and writing skills (as measures of language development) among the children. Categorisation of achievement tests levels is shown in Table 1. The variable 'over-aged schooling' of the children is calculated from two variables i.e., standard completed by a child and modal standard completed<sup>4</sup> by children of that particular age. If standard completed by a child of particular age is lower than modal standard completed, the child is considered with over-aged schooling.

**Table 1. Categorisation of achievement skill levels**

Skills	Data	Categorisation
Arithmetic skill	IHDS-1	'cannot read numbers=0', 'can recognise numbers but cannot do any arithmetic operations=1', 'can subtract a two-digit number from another number=2', and 'can divide a three-digit number by a one-digit number=3'.
	IHDS-II	
Reading skill	IHDS-1	'cannot read at all', 'can read alphabets not words', 'can read words but cannot read full sentences', 'can read a short paragraph of 2–3 sentences but cannot read a full story', and 'can read a full story';
	IHDS-II	

4. Modal standard completed refers to the standard completed by highest number of children of a particular age.

Skills	Data	Categorisation
Writing skill	IHDS-1	'cannot write at all=0', 'can write a sentence with two or fewer mistakes/ no mistakes=1' 'cannot write at all=0', 'can write a sentence with two or fewer mistakes=1', and 'can write a sentence with no mistakes=2'
	IHDS-II (Re-cate- gorisation) <sup>a</sup>	'cannot write at all=0', 'can write a sentence with two or fewer mistakes/ no mistakes=1'

Source: IHDS-I & II

Note: <sup>a</sup> In line with the categories of IHDS-I, in IHDS-II data we merge together the two categories of writing achievement test 'can write a sentence with two or fewer mistakes', and 'can write a sentence with no mistakes' to form a single category 'can write a sentence with two or fewer mistakes/ no mistakes'.

## Estimation strategy

Although IHDS data consists of achievement test levels for children aged 8-11 years, our primary survey data is limited in this scope since no achievement test was conducted during our primary survey. However, following Hentschel et al. (2000) we imputed achievement test levels on our primary survey data. Hentschel et al. (2000) in their study use the case of Ecuador to demonstrate how sample survey data can be combined with census data to yield predicted poverty rates for the population covered by the census. The method is similar to that of small-area and synthetic estimation procedures used in demographic and area statistics (Purcell and Kish, 1980; Isaki, 1990). In those procedures the interest is in deriving (unobserved) local-area attribute, such as a mean or total, often in the form of proportions (Farrell et al., 1997).<sup>5</sup>

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- For example, if we know population changes for a large area, we can use small-area estimation techniques to calculate population changes at lower geographic levels based on postulated functional relationships

It is important to note that, the primary survey we conducted in West Bengal in 2019 was seven years after the IHDS-II survey (2011-12). IHDS-I (2004-05) survey was also conducted 7 years before the IHDS-II (2011-12) survey. For imputing achievement levels for reading, math and writing for West Bengal, we first estimate models for achievement levels using pooled data of the both waves of IHDS, so that we can control for time. While predicting the achievement score using IHDS data, we are constrained to use only those explanatory variables which are also present in the primary survey data. Our set of explanatory variables include parent's migration status, child's age, child's sex, household size, number of siblings, caste, religion, mother's education, mother's occupation, father's education, father's occupation, household wealth index and state dummy.

We estimate ordered logit models for each achievement test variable. The ordered logit model for an ordinal response  $Y_i$  with  $C$  categories is defined by a set of  $C-1$  equations where the cumulative probabilities  $g_{ci} = \Pr(Y_i \leq y_c / x_i)$  are related to a linear predictor  $\beta'x_i = \beta_0 + \beta_1x_{1i} + \beta_2x_{2i} + \dots$  through the logit function (Johnson and Albert, 1999)

$$\begin{aligned} \log \text{it}(g_{ci}) &= \log \left( \frac{g_{ci}}{(1 - g_{ci})} \right) \\ &= \alpha_c - \beta'x_i, c = 1, 2, \dots, C-1 \end{aligned} \quad (1)$$

The parameters  $\alpha_c$ , called thresholds or cutpoints, are in increasing order ( $\alpha_1 < \alpha_2 < \dots < \alpha_{c-1}$ ).

We estimate the models using individual sampling weights.

In the next stage, we use the estimated regression equation based on IHDS data for imputing the test levels for the primary survey data.

For a child's over-aged schooling, we estimate the binary logit regression model. The model is specified as (Gujarati and Sangeetha, 2007)



$$\log \text{it}(y_i = 1 | X_i) = \log \left( \frac{P_i}{1 - P_i} \right) = \beta_1 + \beta_2 X_i + u_i \quad (2)$$

Where,  $P_i = \text{pr}(Y_i = 1 | X_i)$  is the conditional probability of  $Y_i = 1$  given  $X_i$ ,  $Y_i$  = dependent variable i.e., over-aged schooling of the  $i$ th child,  $\beta_1$  is the overall intercept and  $\beta_2$  is the vector of regression coefficients.  $X_i$  is the independent variables and,  $u_i$  is the error term for observation  $i$  because it contains all factors affecting  $Y_i$  other than  $X_i$ .

## Results

### Sample characteristics

The sample characteristics of the study population for West Bengal are presented in Table 2. Only the select statistics pertaining to the dependent variable and main predictors are presented. Although most of the mothers in 2004-05 (IHDS-I) and 2011-12 (IHDS-II) are found illiterate (64.5 per cent and 53.9 per cent), most of the mothers of the children surveyed in West Bengal in 2019 are found educated up to Secondary (43.0 per cent) with mothers of non-migrant households being the highest in share (47.9 per cent). Most of the sampled mothers in all the three surveys are non-working. Estimates from IHDS-I data shows that most of the fathers are agricultural waged labour (62.9 per cent) with non-migrants and returned migrants being the maximum in share (63.9 per cent). However, IHDS-II data shows a decline in engagement in agricultural works where 39.5 per cent of the fathers were engaged in agricultural waged work with returned migrants being maximum in share (44.4 per cent). Also there is a rise in engagement in non-agricultural waged work. Estimates from primary survey data (2019) show that, among the current migrant parents of left behind children 90.8 percent are non-agricultral waged labourers.

**Table 2. Sample characteristics (West Bengal)**

Variables	IHDS-I (2004-05)		IHDS-II (2011-12)				Primary Survey (2019)			
	Non-migrants	Current migrant parents with left-behind children	Total	Non-migrants	Returned migrant parents with left-behind children	Current migrant parents with left-behind children	Total	Non-migrants	Current migrant parents with left-behind children	Total
Mean child age (years)	9.5	9.6	9.5	9.5	9.4	9.3	9.5	9.9	9.3	9.6
Sex										
Male	52.1	65.9	52.3	49.7	66.7	61.0	51.7	45.0	46.3	45.6
Female	47.8	34.0	47.6	50.2	33.2	38.9	48.2	54.9	53.6	54.3
Caste										
ST	38.9	89.4	39.7	8.1	0	0	6.9	2.7	3.2	2.9
SC	8.5	0	8.4	37.8	39.5	39.3	38.0	23.6	20.0	21.8
OBC	46.0	10.5	45.5	11.4	3.9	0	10.1	68.0	69.4	68.7
Others	6.4	0	6.3	42.6	56.5	60.6	44.8	5.6	7.2	6.4
Religion										
Hindu	69.3	31.1	68.7	60.7	51.7	45.3	59.0	33.2	30.9	32.1
Muslim	29.4	68.8	30.1	35.6	48.3	54.6	37.8	66.8	69.0	67.8
Others	1.1	0	1.1	3.6	0	0	3.1	-	-	-

Variables	IHDS-I (2004-05)				IHDS-II (2011-12)				Primary Survey (2019)			
	Non-migrants	Current migrant parents with left-behind children	Total	Non-migrants	Returned migrant parents with left-behind children	Current migrant parents with left-behind children	Total	Non-migrants	Current migrant parents with left-behind children	Total	Non-migrants	Current migrant parents with left-behind children
Mother's education												
Illiterate	71.4	87.7	71.6	54.4	31.7	69.5	53.9	22.9	23.8	23.3	22.9	23.8
Primary	18.7	12.2	18.6	22.8	55.5	17.4	24.8	26.4	35.8	31.0	26.4	35.8
Secondary	8.9	0	8.8	18.7	12.6	13.0	17.8	47.9	37.9	43.0	47.9	37.9
Above secondary	0.8	0	0.8	3.9	0	0	3.3	2.7	2.4	2.5	2.7	2.4
Mother's occupation												
Non-working	65.0	35.9	64.5	73.9	62.1	41.1	70.8	78.3	79.3	78.8	78.3	79.3
Self-employed in agriculture				0.7	0	0	0.6	2.7	0.6	1.7	2.7	0.6
Self-employed in non-agriculture				1.4	0	0	1.2	6.1	5.9	6.0	6.1	5.9
Agricultural wage labour	17.9	31.1	18.2	11.0	16.3	9.0	11.2	5.4	4.8	5.1	5.4	4.8
Non-agricultural wage labour	12.9	0	12.7	9.7	21.4	49.8	13.3	5.8	6.1	6.0	5.8	6.1
Others	4	32.8	4.4	2.5	0	0	2.2	1.4	3.0	2.2	1.4	3.0

	IHDS-I (2004-05)				IHDS-II (2011-12)				Primary Survey (2019)			
	Non-migrants	Current migrant parents with left-behind children	Total	Non-migrants	Returned migrant parents with left-behind children	Current migrant parents with left-behind children	Total	Non-migrants	Current migrant parents with left-behind children	Total		
Secondary	12.2	12.2	12.2	18.4	23.0	6.5	17.9	25.6	17.4	21.6		
Above secondary	0.5	0	0.5	3.7	0	6.5	3.6	-	0.2	0.1		
Father's occupation												
Self-employed	0.5	0	0.5	28.1	23.2	11.4	26.6	21.3	1.2	11.4		
in agriculture												
Agricultural wage labour	63.9	0	62.9	42.3	44.4	0	39.5	21.9	2.1	12.2		
Non-agricultural wage labour	35.4	100	36.5	29.4	32.3	88.5	33.7	34.0	90.8	62.0		
Independent/ Others	0.5	0	0.5	-	-	-	-	22.6	5.7	14.3		
Household size	6	3	5	5	5	4	5	4.5	4.7	4.6		
Number of siblings	2	2	2	2	1	2	2	1	1	1		
Wealth Index												
Low	87.0	100	87.3	46.6	65.5	42.7	47.6	28.4	39.3	33.7		
Moderate	11.1	0	10.9	41.2	20.8	39.8	39.7	35.8	31.4	33.6		
High	1.8	0	1.7	12.1	13.6	17.3	12.6	35.6	29.2	32.5		

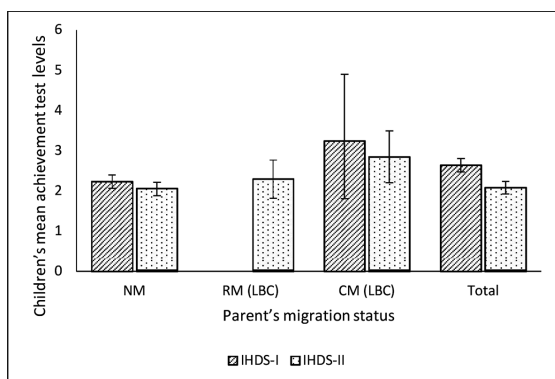
Source: IHDS- I and II (2004-05 and 2011-12); Primary Survey, 2019

Note: ST- Scheduled Tribe; SC- Scheduled Caste; OBC- Other Backward Class

## Children's educational outcomes

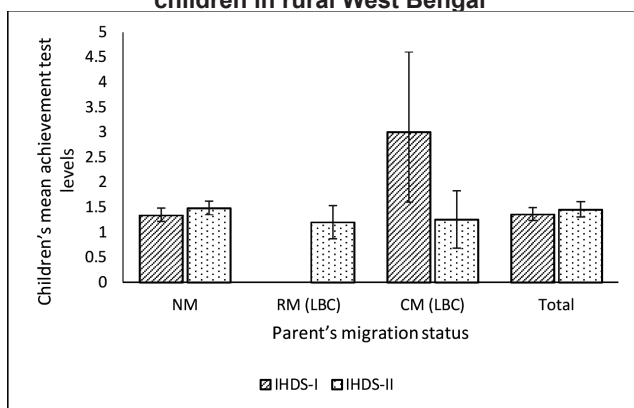
We start by examining the achievement test levels based on IHDS datasets. It reveals that children in 2004-05 performed better in reading and writing tests than children in 2011-12. However, left-behind children of current migrant parents also performed better in both 2004-05 and 2011-12 than other groups of children. In arithmetic skill, children in 2011-12 performed better than children surveyed in 2004-05 (Figure 2-4).

**Figure 2. Mean achievement levels in reading test among children in rural West Bengal**



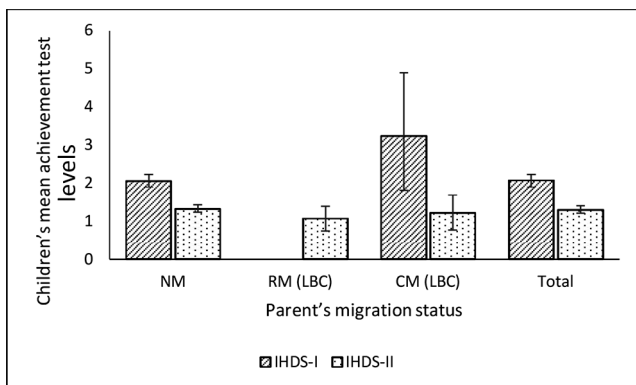
Source: IHDS- I and II (2004-05 and 2011-12)

**Figure 3. Mean achievement levels in arithmetic test among children in rural West Bengal**



Source: IHDS- I and II (2004-05 and 2011-12)

**Figure 4. Mean achievement levels in writing test among children in rural West Bengal**



Source: IHDS- I and II (2004-05 and 2011-12)

Results from ordered logit model using pooled data of both the waves of IHDS are presented in Table 3. After controlling for time, the model shows a significant time-invariant relationship with a decline in both reading and arithmetic achievement test levels among children of 8-11 years age. However, it shows a rise in writing levels among children in 2011-12 compared to 2004-05. Although accompanied children of the returned migrant parents are likely to score 1.5 per cent and 1.1 per cent less in reading and arithmetic achievement tests than children of non-migrants, left-behind children of the current migrant parents are likely to score higher by 0.5 per cent and 0.5 per cent in reading and writing test relative to those of the children of non-migrants. Among covariates, girls are likely to score lower in all the three achievement tests than boys. Also, Muslim children, children belonging to households having more members and children of illiterate and working mothers are likely to score less in all the three achievement tests.

**Table 3. Ordered logit model showing children's achievement test levels by parent's migration status (all India)**

Covariates	Reading	Arithmetic	Writing
Parent's migration status (Ref: Non-migrants)			
Returned migrant parents with left-behind children	-1.4** (-2.7, 0.1)	-1.1** (-2.1, -0.1)	-0.2 (-1.03, 0.7)
Returned migrant parents with accompanied children	-0.2 (-0.5, 0.1)	-0.2 (-0.5, 0.2)	-0.12 (-0.49, 0.24)
Current migrant parents with left-behind children	0.4*** (0.1, 0.7)	0.4 (0.1, 0.7)	0.48*** (0.16, 0.81)
Year (Ref. 2004-05)			
2011-12	-0.3*** (-0.5, -0.2)	-0.3*** (-0.5, 0.2)	0.2** (0.04, 0.4)
Child age	0.35 (-0.7, 1.4)	1.85*** (0.8, 2.9)	1.1 (-0.3, 2.4)
Child age squared	0.01 (-0.05, 0.06)	-0.1*** (-0.1, 0.02)	-0.0 (-0.1, 0.04)
Sex (Ref. Male)			
Female	-0.2*** (-0.3, -0.1)	-0.4*** (-0.5, -0.3)	-0.3*** (-0.4, -0.1)
Number of siblings	0.01 (-0.02, 0.04)	-0.01 (-0.04, 0.02)	-0.002 (-0.04, 0.03)
Household size	-0.1*** (-0.2, -0.1)	-0.1*** (-0.2, -0.1)	-0.1*** (-0.2, -0.04)
Caste (Ref. ST)			
SC	0.1 (-0.2, 0.24)	-0.1 (-0.3, 0.13)	-0.1 (-0.3, 0.2)
OBC	0.3*** (0.1, 0.4)	0.2*** (0.1, 0.4)	0.2 (-0.1, 0.4)
Others	0.4*** (0.2, 0.5)	0.3*** (0.1, 0.4)	0.2** (0.02, 0.5)
Religion (Ref. Hindu)			
Muslim	-0.2** (-0.4, 0.1)	-0.4*** (-0.6, -0.2)	-0.4*** (-0.6, -0.2)

Covariates	Reading	Arithmetic	Writing
Others	0.2 (-0.1, 0.5)	0.3* (-0.04, 0.5)	0.2 (-0.3, 0.6)
Mother's education (Ref. Illiterate)			
Primary	0.2*** (0.1, 0.2)	0.2* (-0.001, 0.3)	0.2** (0.03, 0.4)
Secondary	0.5*** (0.3, 0.7)	0.6*** (0.4, 0.8)	0.7*** (0.4, 0.9)
Above secondary	0.4** (0.04, 0.8)	0.5*** (0.1, 1.00)	1.2*** (0.4, 1.9)
Mother's occupation (Ref: Housework/ Non-working)			
Self employed in agriculture and allied	-0.6*** (-0.8, -0.3)	-0.4*** (-0.6, -0.2)	-0.5*** (-0.8, -0.1)
Self employed in non-agriculture	-0.5 (-1.5, 0.6)	-0.3 (-1.3, 0.6)	0.7 (-0.5, 1.8)
Agricultural wage labour	-0.1 (-0.2, 0.1)	-0.2** (-0.4, -0.03)	-0.1 (-0.4, 0.1)
Non-agricultural wage labour	-0.3** (-0.6, -0.1)	-0.4*** (-0.6, -0.1)	-0.3 (-0.6, 0.1)
Salaried/regular wage/ others	-0.01 (-0.5, 0.5)	0.1 (-0.1, 0.5)	-0.2 (-0.7, 0.4)
Father's education (Ref: Illiterate)			
Primary	0.2*** (0.1, 0.4)	0.2*** (0.1, 0.4)	0.1 (-0.03, 0.3)
Secondary	0.4*** (0.2, 0.5)	0.3*** (0.2, 0.49)	0.4*** (0.2, 0.6)
Above secondary	0.6*** (0.4, 0.8)	0.7*** (0.5, 1.0)	0.6*** (0.2, 0.9)
Father's occupation (Ref: Self employed in agriculture and allied)			
Agricultural wage labour	-0.3*** (-0.5, -0.04)	-0.03 (-0.3, 0.2)	-0.1 (-0.4, 0.2)
Non-agricultural wage labour	-0.2 (-0.3, 0.01)	-0.2 (0.3, 0.03)	-0.01 (-0.2, 0.2)



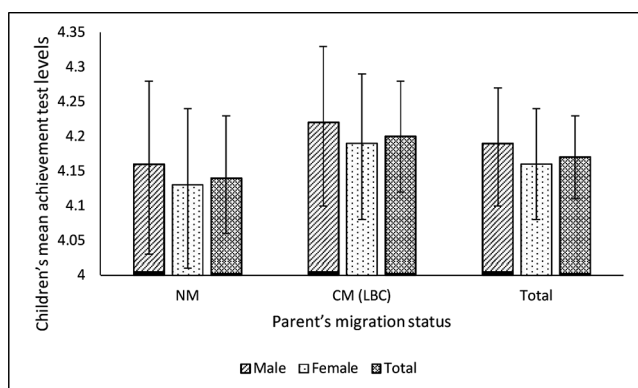
Covariates	Reading	Arithmetic	Writing
Wealth index (Ref: Low)			
Moderate	0.3*** (0.20, 0.5)	0.4*** (0.2, 0.5)	0.2** (0.03, 0.4)
High	0.6*** (0.4, 0.9)	0.7*** (0.5, 0.9)	0.6*** (0.3, 0.9)
State dummies	Yes	Yes	Yes

Source: IHDS- I and II (2004-05 and 2011-12); Primary Survey, 2019

Note:\*\*\*, \*\*, \* - significant at 1%, 5% and 10% level. ST- Scheduled Tribe; SC- Scheduled Caste; OBC- Other Backward Class

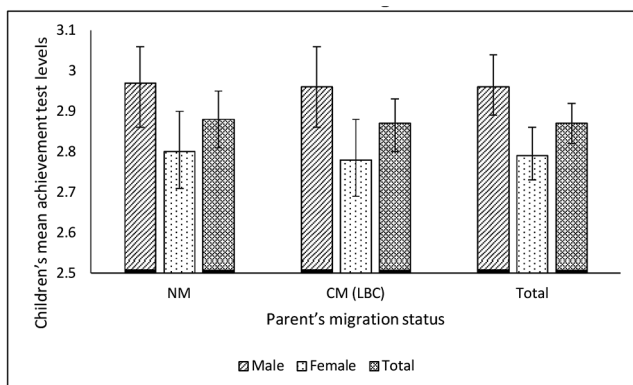
Imputation of achievement levels on primary survey data shows that average reading and writing achievement levels are predicted to be higher among the children left behind by their current migrant parents than children of non-migrants. Non-migrant children are predicted to have scored higher than the children left behind by current migrant parents in arithmetic achievement test, however, the difference is not significant. Although boys are found to have scored better in reading and arithmetic test, girls are found to have performed better in writing achievement test (Figure 5-7).

**Figure 5. Mean achievement scores in reading test among children by sex in rural West Bengal**



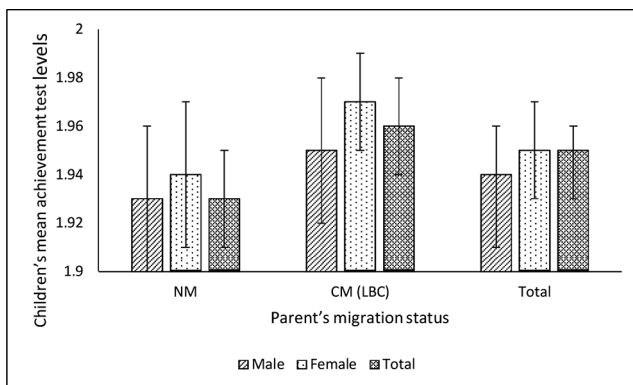
Source: Primary Survey, 2019

**Figure 6. Mean achievement levels in arithmetic test among children by sex in rural West Bengal**



Source: Primary Survey, 2019

**Figure 7. Mean achievement levels in writing test among children by sex in rural West Bengal**



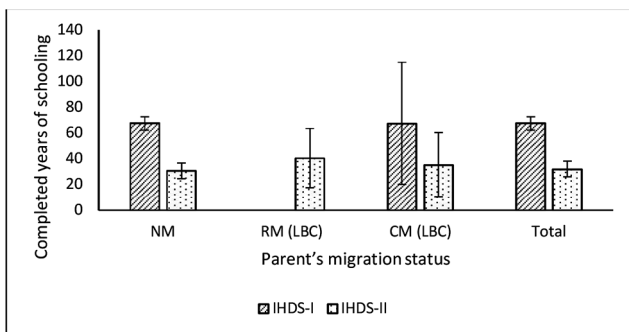
Source: Primary Survey, 2019

### ***Children's over-aged schooling***

Children's over-aged schooling by their parental migration status is presented in Figure 8 and 9. The figures show that in 2004-05 and 2019, over-aged schooling was higher among left-behind children of current migrant parents than children of non-migrants.

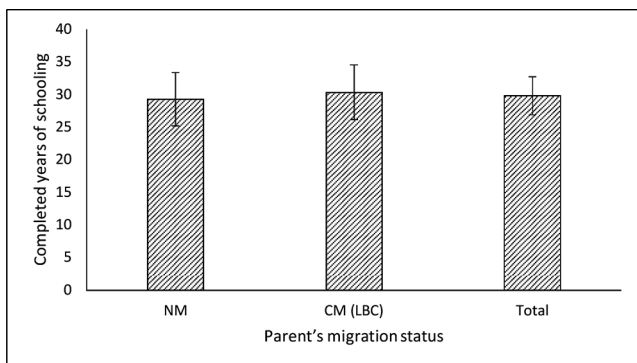
However, in 2011-12, children of non-migrant parents were found to have higher over-aged schooling relative to other groups of children.

**Figure 8. Over-aged schooling among children in rural West Bengal**



Source: IHDS, 2004-05 and 2011-12

**Figure 9. Over-aged schooling among children in rural West Bengal**



Source: Primary Survey, 2019

The results of the logit regression modelling children's over-aged schooling are presented in Table 4. Results from pooled IHDS data in Model A and primary survey data in Model B shows no

significant relation between parent's migration status and over-aged schooling among the children. However, Model A shows a decline in over-aged schooling among the children over the years (i.e., from 2004-05 to 2011-12) by 1.8 per cent. Moreover, children belonging to households of moderate and higher wealth index are less likely to have over-aged schooling compared to those belonging to the poor households (i.e., households with low wealth index values).

**Table 4. Logit model showing over-aged schooling among children by parent's migration status (West Bengal)**

Covariates	Model A: IHDS-I & II	Model B: Primary survey
Parent's migration status (Ref: Non-migrants)		
Returned migrant parents with left-behind children	0.7 (-0.5, 1.9)	-
Current migrant parents with left-behind children	0.1 (-1.2, 1.4)	0.2 (-0.2, 0.5)
Year (Ref. 2004-05)		
2011-12	-1.8*** (-2.5, -1.05)	
Child age	8.4*** (4.5, 12.4)	-2.8*** (-3.4, -2.2)
Child age squared	-0.5*** (-0.7, -0.3)	0.2*** (0.1, 0.2)
Sex (Ref. Male)		
Female	0.01 (-0.4, 0.4)	-0.05(-0.4, 0.3)
Caste (Ref. ST)		
SC	0.3 (-0.7, 1.3)	-0.2 (-1.2, 0.8)
OBC	0.2 (-0.5, 0.9)	0.4 (-1.3, 2.1)
Others	0.6 (-0.2, 1.4)	0.1 (-1.0, 1.3)
Religion (Ref. Hindu)		
Muslim	0.1 (-0.6, 0.8)	-0.3 (-1.7, 1.1)
Others	1.3 (-0.6, -3.2)	

Covariates	Model A: IHDS-I &II	Model B: Primary survey
Number of siblings	0.1 (-0.1, 0.2)	-0.2 (-0.4, 0.1)
Household size	0.1 (-0.1, 0.2)	-0.1 (-0.3, 0.1)
Mother's education (Ref. Illiterate)		
Primary	-0.1 (-0.7, 0.4)	-0.3 (-0.7, 0.1)
Secondary	-0.1 (-0.8, -0.6)	-0.1 (-0.5, 0.3)
Above secondary	-	-0.5 (-1.5, 0.6)
Mother's occupation (Ref: Housework/ Non-working)		
Self employed in agriculture and allied	1.03 (-1.3, 3.4)	0.03 (-1.1, 1.2)
Self employed in non-agriculture	0.6 (-1.5, 2.7)	0.03 (-0.7, 0.7)
Agricultural wage labour	0.1 (-0.6, 0.7)	-0.1 (-0.8, 0.6)
Non-agricultural wage labour	-0.4 (-1.0, 0.2)	0.1 (-0.6, 0.7)
Salaried/regular wage/ others	1.1 (-0.3, 2.4)	-0.02 (-0.5, 0.7)
Father's education (Ref: Illiterate)		
Primary	-0.02 (-0.5, 0.5)	0.1 (-0.5, 1.4)
Secondary	0.01 (-0.7, 0.7)	-1.2*** (-2.0, -0.4)
Above secondary	-1.5 (-3.7, 0.7)	
Father's occupation (Ref: Self employed in agriculture and allied)		
Agricultural wage labour	0.1 (-0.9, 0.7)	0.2 (-0.5, 0.9)
Non-agricultural wage labour	0.2 (-0.7, 1.02)	0.02 (-0.6, 0.6)
Independent business/ others	-	0.4 (-0.2, 1.04)
Wealth index (Ref: Low)		
Moderate	-0.4 (-1.02, 0.2)	-0.5** (-0.8, -0.1)
High	-1.1** (-2.2, -0.01)	-0.02 (-0.4, 0.4)

Source: IHDS- I and II (2004-05 and 2011-12); Primary Survey, 2019

Note: \*\*\*, \*\*, \* - significant at 1%, 5% and 10% level. ST- Scheduled Tribe; SC- Scheduled Caste; OBC- Other Backward Class

## Discussion

India is one of the leading countries of origin of international migrants and has a substantial number of internal economic migrants (Nayyar and Kim, 2018; United Nations, 2019). A considerable volume of the internal male migrant workers migrate alone leaving their children behind in the countryside. Still limited evidence exists on how parent's migration affects the well-being of children in India. This paper addresses that gap by developing and testing a theoretical framework that articulates how parents' internal migration can influence the educational outcomes and over-aged schooling of children accompanied as well as left behind in rural West Bengal.

Our study reveals that in 2004-05 and 2019 left-behind children of the current migrant parents are likely to score higher in all the achievement tests relative to those of the children of non-migrants. Although left-behind children of current migrant parents performed better in reading test than other groups of children, children of non-migrants performed better in arithmetic and writing test than other groups in 2011-12, however, the difference is not significant. The literature on the impact of parental migration on children's educational outcomes corroborate this finding (Koska et al., 2013; Intemann and Katz, 2014). Studies have found that, although the absence of parental guardianship may impede children's schooling performance in the short run, remittances accrued from migrant parents provide left-behind children with necessary budget support for access to schools and private tuitions which in turn generates better educational outcomes (Hugo and Ukwatta, 2010; Antman, 2012; Ambler et al., 2015; Sarma and Parinduri, 2016; Arif et al., 2018). The information and opportunities the migrant parents get exposed to may improve their understanding of returns to education, thus making them recognise the importance of good education for their children (Batista et al., 2007; Shi and Zhao, 2016). Also, reduced financial distress within households lowers the need for child labour, facilitating left-behind children to enroll or remain

enrolled in schools (Kuhn, 2006). Our qualitative data reveals, a left-behind child's educational development depends upon whether the mother too has migrated along with father or not. Mother's absence is found to have an effect on the education of a left-behind child different from migration of father (Hildebrandt and McKenzie, 2005; Nobles, 2013). This can be explicated with the persisting gendered views in rural Indian society, with social expectations that, fathers adhere to the prescriptive role as provider for the children and mothers as carer and nurturer. Thus, paternal migration may have more positive impact on children's education than maternal migration. Unlike maternal migration, paternal migration in most of the cases is less likely to change children's everyday care and life, and influence children's emotional wellbeing (Arlini et al., 2019). In India, solo male out-migration is a common strategy to diversify family income (Lei and Desai, 2021). In an in-depth interview, Nirmala Biswas (31 years, mother of two children) from Nadia district of West Bengal, whose husband works in Kerala as construction worker, stated *'...children do not face any problem due to their father's absence. As their father works outside since the time they were very young, children never became very close to father. They never ask for something to their father directly, they would always tell me ...'* Moreover, the financial resources from remittances and/or other income are generally important for improving children's educational access. Remittances from migrant parents may be important and serve as additional financial resources that allow older children to access education beyond compulsory schooling. In an IDI, Sarbani Das (32 years, mother of a 13-year-old girl) from Nadia district of West Bengal, wife of a migrant who works in Mumbai as a cook stated, *'...now I receive enough money from my husband, and can spend more for our daughter's study.'* Apart from doing all the household chores, Sarbani works as an agricultural labour, where her work is to pick up vegetables. Sarbani further added *'...even sometimes when my husband used to get Rs 50 to Rs 100 extra for good work, he keeps for us that too. We want our girl to be educated and well established...'*

Thus, unlike maternal migration, paternal migration may lead to higher aspirations among left-behind children resulting in improved educational outcomes (Wen et al., 2015). Our interview with 9 years old Sahiba, left behind by both of her parents and currently with her grandmother, reflects the prevailing sentiment. Sahiba's parents, along with her younger sister, stay in Chennai, where they work as construction workers. Although she did not face any problem staying with her grandmother, she often feels lonely and misses her parents and younger sister. Her narrative clearly hinted that mother's migration was more impairing for a child than father's migration. Echoing those of other left-behind children, her views adhered to the well-accepted script of the gender division of household labour. Rangila Begum (56 years), Sahiba's grandmother (Murshidabad district, West Bengal) added, '*...There is no work in this village. That's why they have gone to Chennai for work. The younger one is not admitted in school and that's why her parents took her with them. The elder one is staying with me and currently studying in a school. Her parents used to send money once in 6 months and that's all. Now I am getting older and cannot look after her. Also, there is no one here to look after her education...*'.

Our study found that both reading and arithmetic achievement test levels had declined among the children over the years (from 2004-05 to 2011-12). The unfortunate trend of declining learning and arithmetic levels is also ratified by Annual Survey of Educational Research (ASER, 2005; 2012). ASER report revealed that 43.06 per cent of the children of class I-VIII can read a full story in 2005 which declined to 37.70 per cent in 2012. Also, the proportion of children who cannot read anything has increased over the years by 1.03 per cent. ASER Report (2012) also shows a decline in arithmetic achievement test levels among children from 2005 to 2012 (see Appendix Table A1). The National Achievement Survey revealed that children belonging to Scheduled Caste and Scheduled Tribes continue to perform poorly in subjects such as language, mathematics and



environmental studies (National Council for Education Research and Training, 2012). This degeneration of learning levels can be attributed to a multitude of reasons, including the vast expansion of a number of elementary schools in the country, with no concurrent expansion in school management system.

Our study also found that in 2004-05 and 2019 over-aged schooling is more among the left-behind children of current migrant parents. However, in 2011-12, children of non-migrant parents were found to have higher overaged schooling relative to other groups of children. Scholars working on India's migration have expressed concern for poor educational outcomes among the children of migrants. Both Rogaly (1998) and Smita (2008) found migration negatively affecting enrollment and positively affecting dropout among the children of migrants. Our study provides quantitative evidence which further confirms the validity of these concerns. Our qualitative inquiry found plenty of stories where boys left their studies and joined paid employment to support family. While living in a household with limited economic resources and with many dependants to support, Jamal (Jalpaiguri district, West Bengal), at a very young age, felt a strong sense of obligation to reduce the burden of his parents. Stopping his education and taking up paid job is the only way to demonstrate his responsibility for family's betterment. Jamal's father works in Chennai as a construction worker and he is the only earning member of the family. He has three unmarried sisters. He did not go to school and is now taking training in repairing works and will start working soon. During our qualitative investigation, the respondents reported that many boys in village (rural West Bengal) drop-out of school after reaching 10-12 years age. Even if they are enrolled in school they attend very rarely. Moreover, some of the boys migrate to other states for work much before reaching 18 years age. As reported by the mother, Ayan (Jalpaiguri district, West Bengal), belonging to a non-migrant household, at a relatively young age of 10 decided not to continue his schooling. He used to accompany his father

for taking vegetables to the nearby market. Moreover, during potato season he used to engage in potato picking and for this he earns Rs. 50 per day. He stated, *'...picking up potatoes are too tiresome. It is warm outside. But I have two unmarried sisters at home and father has become quite aged and hence he is teaching me all the work...'* In an IDI with Raja Biswas (Birbhum district, West Bengal), a 14 years old boy belonging to non-migrant household, it is found that Raja did not go to school. Due to financial crisis, he works as daily wage labour in loading bricks and sands in the truck.

Our analysis also identified other factors such as child age, sex, caste, religion, parental education and occupation, household wealth, household size and other housing factors associated with the educational outcomes of children, which corroborate other studies (Coffey, 2013; Arlini et al., 2019; Vikram, 2021).

## **Conclusion**

Using nationally representative IHDS and primary survey data, our study has found that parental migration have significant positive effect on the achievement test levels of the LBC, which is an indication that parents' migration improve educational well-being for the children. The benefits accruing from household's increased income may lead to human capital gains. However, the results could be biased if the assumptions are untenable. Some factors that contribute to the decision of parent's migration are not observable to the researchers. For example, we are not able to distinguish the migrating parents who attach different importance to children's education. It is also important to note that left-behind children may negatively suffer from other dimensions of well-being such as mental health which might affect their psychological and educational development. Many studies have discussed the impact of parental migration on the subjective dimension of well-being of rural children in the short-run and have not arrived at a clear conclusion on this question. These studies also suffer from the lack of perspective on the

long-term impact. This may be an important topic that needs to be focused on in the future.

Our study clearly suggests that understanding the impact of parental migration on children needs a multidimensional perspective. For example, understanding the impact of parental migration on children's educational development should go beyond conventional indicators of children's academic performance or years of schooling and look at children's psychological health. Children of migrant parents may need psychological mentoring so that absence of parents does not affect their educational development in a negative way. While taking advantage of the positive effect of the educational investment, government can expand its role to alleviate the negative effect of lack of guardianship and ensure long-term human capital improvements in rural areas.

### **Ethics approval and consent**

The study was approved by the Ethics Committee of Institute of Development Studies Kolkata, and informed consent was obtained from the respondents. The secondary data used is publicly available and was collected by the India Human Development Survey.

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### **Disclosure statement**

No potential conflict of interest is reported by the authors.

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## Appendix Table

**A1. Reading and arithmetic test scores among children of standard I-VIII**

Test	Reading (%)		Test	Arithmetic (%)	
	2005	2012		2005	2012
Nothing	11.77	12.8	Nothing	19.6	10.7
Alphabets	14.05	19.5	Number recognised	26.36	24
Word	14.53	15	Subtraction	23.49	20.7
Paragraph	16.59	15	Division	30.56	20
(Level 1)					
Story (Level 2)	43.06	37.7	-	-	-

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