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The Impact of Remittances Versus Parental Absence on Children's Wellbeing: Evidence from Rural Punjab

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Abstract

This study examines the impact of migration on children left behind in terms of schooling and child labor by quantifying two aspects of migration: remittances and parental absence, in cases where the father is the migrant. The study is based on a panel analysis of data drawn from the Multiple Indicator Cluster Survey for 2007 and the Privatization in Education Research Initiative survey for 2011. The sample comprises 820 households with children aged 5–14 years. The study uses the instrumental variable (IV) approach due to endogeneity. Exogenous variation in parental absence and remittances sent by migrants from a given kinship network are employed as IVs. This, combined with household fixed effects and random effects, increases the reliability of the results. While remittances benefit the children, father's absence has adverse consequences for them. However, mother's presence in the house appears to compensate for the father's absence, making the migration beneficial on net for the child. The father's absence has worse consequences for girls in terms of increased child labor, where the money coming in through remittances has a larger impact on boys' schooling.

Keywords: Migration, remittances, schooling, child labor, mother presence, Pakistan.

JEL classification: F24, O15.

1. Introduction

This study examines the impact of migration on children's wellbeing with a focus on child labor and education in rural Punjab. While most studies focus on the impact of remittances and (migrant) parental absence as separate aspects, this research combines the two with respect to their collective effect on children left behind.

The World Bank reports that, in 2012, 22.3 percent of Pakistan's population still lived below the poverty line; the country is also ranked among the world's lowest spenders on education (around 2 percent of its

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GDP).[1] According to International Labor Organization (ILO) estimates, over 200 million children in the world are engaged in child labor. In Pakistan, 3.8 million children aged 5–14 years are economically active, a third of whom have never been enrolled in school.[2] In most cases, children engage in child labor to help support their families. Milligan and Bohara (2007) note that poor households resort to child labor and reduced schooling as a way of dealing with economic shocks. In such cases, child labor displaces education, thereby lowering future returns to labor for children over their lifespan, which ultimately worsens poverty levels in that country.

I examine the role of migration, focusing on households in which the father has migrated for work, to determine the net impact of remittances and paternal absence on children. Migration in this context includes both international and domestic migration, both of which imply, from the child's perspective, that the father is absent. The impact of migration is likely the twofold impact of the positive benefits associated with remittances and the negative effect of parental absence. Assessing the impact of either component separately – which is what much of the existing literature does – fails to provide a holistic picture of the net impact of migration on children. While remittances help to ease the financial constraints of poor households, the absence of a family member (particularly the father) may create an excess burden of work along with emotional consequences, leaving children worse off overall. Thus, while remittances ease the budget constraint, leading to a decrease in child labor and an increase in schooling, parental absence may reduce the overall positive impact.

This study asks to what extent the total effect of migration can be decomposed into the monetary benefit of remittances and the loss resulting from the father's absence. Formally, a panel analysis is carried out using the instrumental variable (IV) approach, combined with household fixed effects (HFE) and random effects (RE), focusing on children aged 5–14 years in rural Punjab. The study deals explicitly with the problem of endogeneity with respect to remittances and the father's absence by using separate kinship group IVs for both. For the latter, the kinship network refers to the fraction of households belonging to a given kinship group, in a given district, that include a migrant, excluding household *j*. Similarly, for remittances, the kinship network refers to the fraction of households belonging to a given kinship group, in a given district, that receive remittances, excluding household *j*. These instruments use the variation over time in the migrant

[1] http://info.worldbank.org/etools/docs/library/237384/toolkitfr/pdf/facts.pdf
[2] http://www.ilo.org/islamabad/areasofwork/child-labour/lang--en/index.htm

network to which a particular household belongs. Combining the IV approach with RE and HFE increases the reliability of the results.

The results indicate that the inflow of remittances benefits the school enrollment of the child. After controlling for time-invariant factors at the household level, remittances increase the probability of the child being enrolled in school by 20 percentage points. The money coming in through remittances also reduces child labor by lowering the opportunity cost of schooling because it decreases the marginal utility of income. In this context, the results indicate that, in developing countries such as Pakistan, remittances are spent not only on consumption goods, but also on productive investments in human capital development. On the other hand, the father's absence has a strong impact on child labor, increasing its probability by 27 percentage points. The money coming in from remittances does not necessarily offset the negative impact of the father's absence, mainly because the child is now subject to a larger work burden and less parental monitoring. However, if the child's mother is at home, the negative effect of the father's absence disappears, as she is there to share the burden of work and monitor the child.

There is also a gender differential when one looks at how the money remitted is spent: boys' schooling is favored over that of girls. Remittances increases the probability of boys being enrolled in school increases by 25 percentage points; the corresponding result for girls is 18 percentage points. Remittances also tend to favor boys over girls in terms of reducing child labor. The results suggest that, as more money comes in, boys are substituted away from child labor toward schooling – perhaps because they are seen as future breadwinners for their family. However, the father's absence only affects girls in terms of reduced schooling. Girls are more likely to engage in household work, but both genders may be compelled to work, particularly in cases where the mother is absent.

The study is organized as follows. Section 2 briefly reviews the existing literature. Section 3 describes the datasets used. Section 4 presents some descriptive statistics. Sections 5 and 6 describe the methodology used, followed by a discussion of the results. Section 7 concludes.

2. Literature Review

On the applied side, various studies have been carried out to assess the impact of migration on the household of origin, particularly on the children the migrant leaves behind. Most of this work focuses on the impact

of migration through remittances or parental absence alone. The reported impact of remittances and parental absence is mixed. While much of the literature is consistent with the idea that remittances ease the household's financial constraints, thereby improving the situation of children left behind in terms of increased schooling and reduced child labor (see Edwards & Ureta, 2003; Calero, Bedi & Sparrow, 2009; Alcaraz, Chiquiar & Salcedo, 2012), some studies argue that remittances may increase child labor if the money received gives the household a chance to start a new business. Similarly, others conclude that parental absence compels children at home to shoulder an excess work burden; this, along with the lack of monitoring, leaves them worse off (Grogger & Ronan, 1995; Lang & Zagorsky, 2001; Milligan & Bohara, 2007). Finally, some studies point out that migrant parents may be more aware of the importance of education and thus encourage their children's schooling.

Hanson and Woodruff (2003) examine the impact of remittances on educational attainment in Mexico in terms of accumulated schooling. They test whether children from households with an external migrant complete more years of schooling than their peers. The authors conclude that remittances do increase schooling for left-behind children, but only in households where the parents are not highly educated. Supporting this conclusion, Bayot (2007) argues that Mexican households receiving remittances enjoy a better quality of life: the money coming in eases the household's budget constraint, giving it the chance to substitute children away from child labor and toward schooling.

Using historical migration rates to instrument for migration in Punjab, Arif and Chaudhry (2015) find that remittances have a positive effect on children's schooling outcomes, measured by enrollment, accumulated levels of schooling, the number of days spent in school and lower dropout rates. Several studies have attempted to take this a step further by disentangling the impact of remittances by gender. In a study on Jordan, Mansour, Chaaban and Litchfield (2011) find that, after controlling for the socioeconomic determinants of schooling, remittances improve educational attainment and attendance.

This result holds more strongly for boys than for girls, given that, in most developing countries, sons are seen as future breadwinners and parents thus have incentives to invest more in them. Based on data for Nepal, Vogel and Korinek (2012) conclude that remittances are spent disproportionately on boys, while girls benefit only if they belong to a higher-income household. Mansuri (2006) finds, however, that remittances

may reduce gender inequality by benefiting both genders. Using migration networks as an IV to control for simultaneity bias, her work on rural Pakistan shows that remittances reduce gender inequalities in access to schooling, with a greater and significant impact on girls' schooling.

Other studies have focused on the negative aspect of migration and argue that the positive effect of remittances is, in many cases, offset by the negative effect of the migrant's absence, especially if one or both of the child's parents is a migrant (Grogger & Ronan, 1995; Lang & Zagorsky, 2001). In Sri Lanka, for example, many mothers migrate overseas to earn a better livelihood for their families. In such cases, their absence generates loneliness among left-behind children. In the long term, a sense of family disunity and lack of communication between child and mother can leave the former harmed psychologically, with adverse consequences for his/her schooling performance (Ukwatta, 2010).

The absence of a migrant father often means that children have no male role model. In a study on Swaziland, Booth (1995) finds that women whose husbands had migrated overseas complained they could not manage their children's behavior or schooling. Further, with one parent – in most cases, the father – gone abroad, the mother's workload at home increases, leaving her less time to spend with her children and making her more "unavailable" to them. Milligan and Bohara (2007) point out that remittances can also create a moral hazard problem if families who receive remittances choose to invest the money in risky business projects, compelling their children to seek work rather than remaining in school in the migrant's absence.

This study is closest to the approach of Amuedo-Dorantes and Pozo (2010), who assess the impact of remittances and migrant absence on children left behind. The authors focus on migration from the Dominican Republic to the US. Initially, they divide their data into migrant and nonmigrant households. The dataset is such that most of the children in the sample – and most children whose families receive remittances – belong to a nonmigrant household (one that receives remittances from a relative who is not considered part of the immediate family). The first part of the analysis deals with nonmigrant households, which allows the authors to isolate the impact of remittances from that of migrant absence. The analysis is then repeated to include children living in migrant households and the results compared. As an IV, the study uses US unemployment rates for 1999/2000 along with average real earnings for those areas (in the US) where Dominican migrants have settled. They conclude that remittances have a positive impact on

schooling when using the nonmigrant household sample, but observe that this declines on taking into account the negative impact of migration by using the entire sample. Child labor increases concomitantly. Children may engage in market activities to support migration expenses, leaving them less time for school. They may also have to assume responsibility for household chores in the absence of an adult family member.

The present study's objective is to build on the literature in several important ways. First, it seeks to identify the total effect of migration, i.e., the collective impact of remittances and parental absence. It separates these two effects quantitatively, which most other studies do not. Unlike Amuedo-Dorantes and Pozo (2010), all the recipient households in the sample used include a migrant member. Moreover, rather than using one IV as the authors have done for both samples,[3] this study makes a stronger case by using two separate IVs: one for remittances and one for paternal absence. While Amuedo-Dorantes and Pozo do not distinguish between migrant household members, I have focused on migrant fathers per se to capture the impact of parental absence. Second, the study looks at both dimensions of children's wellbeing: child labor status and schooling status. In doing so, it deals explicitly with the issue of endogeneity with respect to remittances and the father's absence. The study builds a panel analysis using an IV approach combined with HFE. Third, the study uses kinship networks as an instrument on the assumption that the close association among kinship groups (which can include migrants) is likely to serve as a source of knowledge about migration and remittances: this, in turn, may encourage prospective migrants. Finally, this study is the first to identify the joint quantitative impact of remittances and parental absence in Pakistan's case.

3. Datasets

Two datasets were used to create a panel. The first was taken from the Punjab government's Multiple Indicator Cluster Survey (MICS), which was conducted at the tehsil and district level in 2007. The second dataset was from a survey funded by the Open Society Institute's Privatization in Education Research Initiative (PERI). Conducted in 2011 by the Lahore School of Economics in collaboration with the Punjab Bureau of Statistics, the PERI survey sampled eight rural tehsils of Punjab in seven districts. The dataset includes 1,024 rural households who had previously been interviewed as part of the MICS.[4]

[3] Although differences between samples can be endogenous.

[4] See http://www.creb.org.pk/Data%20PERI. The districts covered include Bahawalpur, Faisalabad, Jhang, Hafizabad, Nankana Sahib, Khanewal and Chakwal.

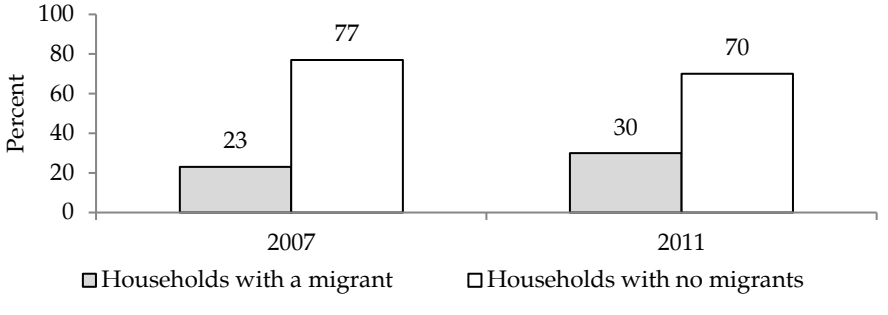
For the purposes of this study, children fall within the 5–14-year age bracket. After cleaning the data, a panel of 820 households remained. This panel was constructed at the rural household level, allowing MICS households to overlap with those from the PERI dataset. However, the same children within the household might not overlap because the panel was not constructed at the individual level. Thus, it was not necessary for one child to remain part of the analysis in both rounds. Any child who fell within the 5–14 age cohort at the time of the survey was included in the sample for that year. Since this is an unbalanced panel, children who fell within the age bracket of 5–14 were included in the first round if they were still part of this age bracket in the next round. However, children who had passed 14 by 2011 were excluded from the sample for that year.[5]

We observe the child labor and schooling outcomes of those children who fell within the 5–14 age bracket at the time of the survey. Thus, 1,382 children fell within this cohort in 2007 (MICS) and 1,581 children fell within the cohort in 2011 (based on 820 PERI households). About 62 percent of these children overlapped and were thus part of both rounds; the remaining children were part of either the MICS or PERI datasets only.

4. Descriptive Statistics

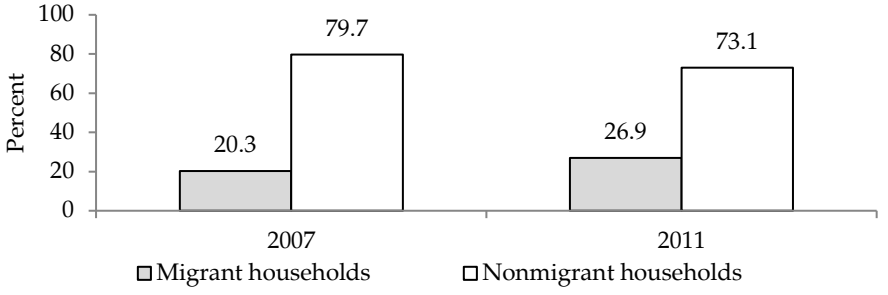
Figure 1 shows what proportion of households included a migrant in 2007 and 2011. Clearly, migration increased between these years. Figure 2 gives the distribution of children who belonged to a migrant or nonmigrant household in 2007 and 2011.

Figure 1: Migrant and nonmigrant households



[5] A child who was five years old in 2007 was nine years old in 2011. Since s/he falls within the 5–14 age bracket in both years, s/he will be included in both rounds. On the other hand, a child who was 14 years old in 2007 was 18 years old in 2011. S/he is, therefore, part of the 2007 sample, but not part of the 2011 sample.

Figure 2: Children from migrant and nonmigrant households



In Figure 3, we see the percentage of children whose fathers were absent. The father's absence is explained by (i) migration, (ii) the dissolution of the family unit as a result of separation or divorce, or (iii) death.

Figure 3: Distribution of children, by father's presence

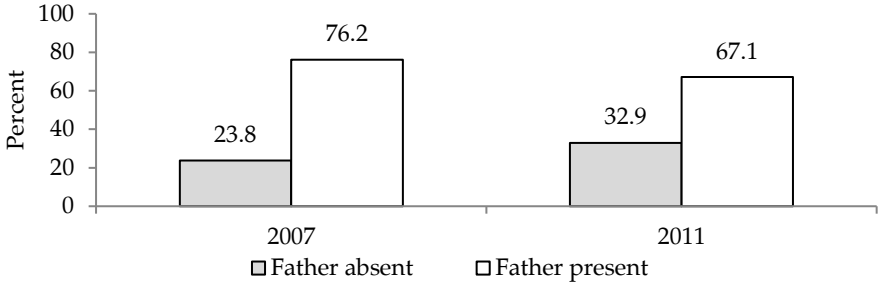


Figure 4 gives the distribution of children by their mother's status. Figure 5 shows that migration does not account for the mother's absence in either year, which leaves either death (applicable in most cases) or divorce/separation as the reason for her absence from the household.

Figure 4: Distribution of children, by mother's presence

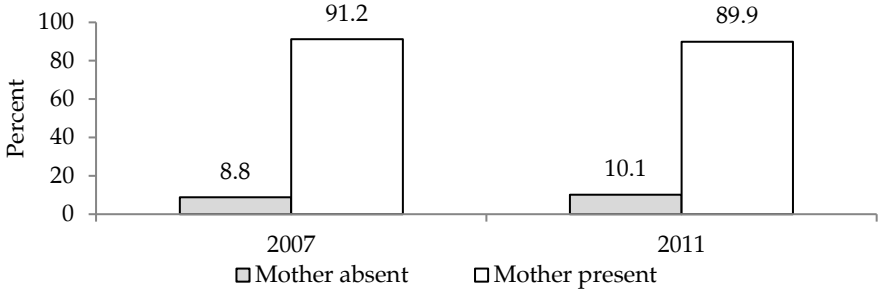


Figure 5: Reasons for mother's absence as a percentage of children whose mother is absent

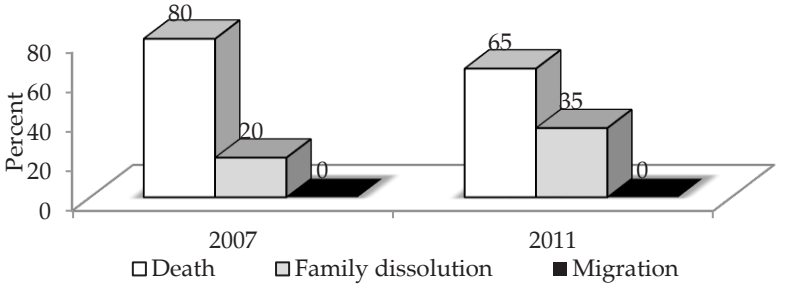


Table 1 gives the percentage of recipient households and the distribution of remittances between domestic and international sources. The table indicates an increase in the number of households receiving remittances, the bulk of which originate from within Pakistan. Table 2 shows that, between 2007 and 2011, the number of non-working children going to school increased. "Work" includes any labor carried out at home as well as outside. The "work and school" and "work only" categories register a decline for both genders.

Table 1: Distribution of households, by receipt and type of remittances

	Percentage of households	
Remittances received	**2007**	**2011**
No	84.00	81.00
Yes	16.00	19.00
Type of remittances		
Domestic remittances only	75.00	73.68
International remittances only	18.75	21.05
International and domestic remittances	6.25	5.27

Source: Author's calculations.

Table 2: Distribution of children, by activity

	2007		2011	
Activity	**Boys**	**Girls**	**Boys**	**Girls**
School only	65	25	70	29
Work and school	23	65	20	62
Work only	8	10	6	8
Neither	4	0	4	1

Source: Author's calculations.

Figure 6 shows that, of the total number of children working, 11 percent were engaged in work outside the home (whether paid or unpaid) in 2007; this declined to 7 percent in 2011.

Figure 6: Children engaged in nonhousehold labor as a percentage of the total number of working children

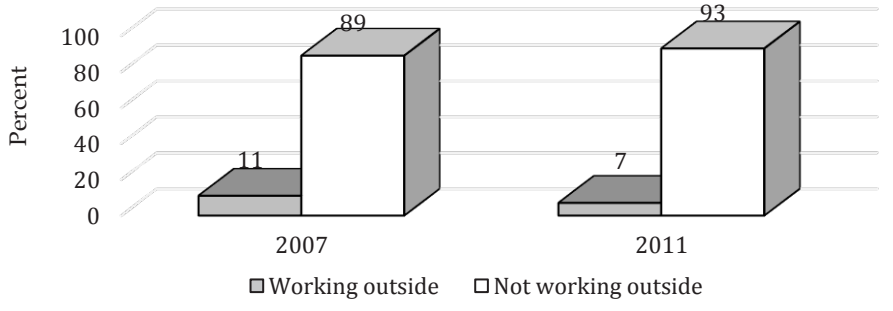
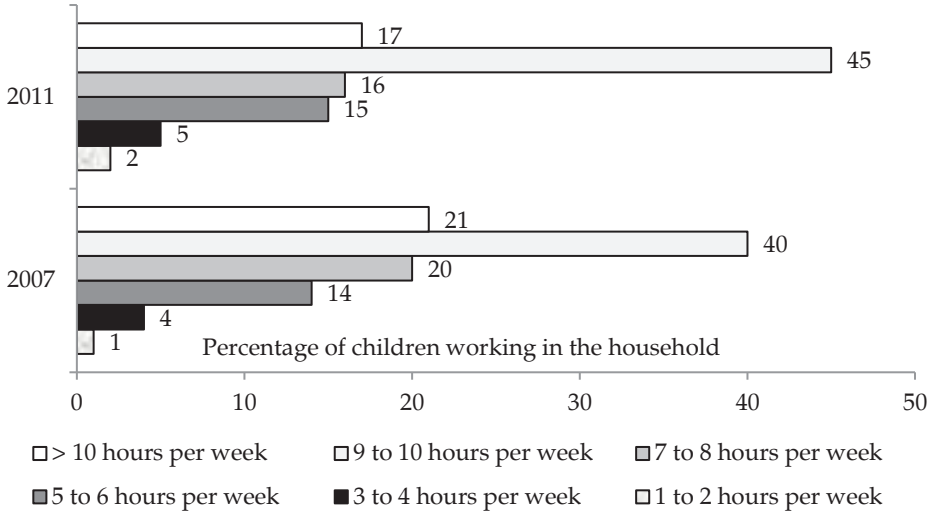


Figure 7 shows the percentage of children engaged in household work by the number of hours worked (those spending more than 10 hours a week carrying out household chores).

Figure 7: Percentage of children engaged in household labor, by hours worked in the last week



The figures and tables above show that trends in remittances, paternal absence, schooling outcomes and child labor outcomes have changed over time.

5. Methodology

Since the dependent variables are binary, we use a linear probability model (LPM) to estimate the specifications below. An LPM not only allows one to compare coefficients across groups and models, but it also enables intuitive interactions. It has the added advantage of giving coefficient results that are very close to their discrete counterparts when using dummy variables. The LPM also works well if one wants to estimate the average effect of a variable on any outcome of interest (Angrist, 2001).

There are several reasons for using an LPM over logit and probit models. While the latter make it easy to interpret estimated marginal effects (McGarry, 2000), they are more complicated to use than an LPM. Furthermore, probit models can entail the problem of perfect correlation (Reiley, 2005). Since the endogenous regressors are dummy variables, using a logit or probit model could be problematic (see Heckman, 1978). Despite being less commonly used, the LPM is at par in terms of classification and selection bias relative to logit and probit models (Chatla & Shmueli, 2013).

5.1. Main Specification

We begin with a simple LPM that estimates the impact of remittances and paternal absence on a child's welfare:

$$Y_{iht} = \beta_0 + \beta_1 X_{iht} + \beta_2 Z_{ht} + \beta_3 remittances_{iht} + \beta_4 father\ absent_{iht} + \varepsilon_{iht} \quad (1)$$

where the child is denoted by the subscript i, the household by h and time by t. Y_{iht} is the dependent variable and takes four forms:

- $Schooling_{iht}$ is a dummy variable for child i in household h if he/she is currently enrolled in school at time t. Hence, if the child was "attending school" at the time of the survey, the variable equals 1 and 0 otherwise.
- $Overall\ child\ labor_{iht}$ is a dummy equal to 1 if child i has engaged in any kind of work, whether within or outside the home, in the past week, and 0 otherwise at time t. This follows the definition of child labor adopted by Binci and Giannelli (2012) where a child is deemed to have engaged in labor if s/he answers "yes" to at least one question relating to the last seven days' work. Thus, if child i has worked outside his/her home for someone or helped with household chores or

engaged in any family business (such as selling goods on the street) in the last week, the dummy equals 1 and 0 otherwise.[6]

- $Nonhousehold\ child\ labor_{iht}$ is a dummy equal to 1 if the child has engaged in any kind of work outside the home (that is, worked for someone who is not a member of the household) in the last week and 0 otherwise (see Figure 6).
- $Household\ child\ labor_{iht}$ is a dummy equal to 1 if the child has engaged in any kind of household chore for more than 10 hours in the last week and 0 otherwise[7] (see Figure 7).

Schooling and child labor decisions are a function of household and individual characteristics. X_{iht} is a vector of the child's characteristics at time t where child i belongs to household h. These include the child's age and gender (dummy variable equals to 1 if the child is a female), his/her father's education, mother's education and mother's presence. Z_{ht} denotes the characteristics of a given household h at time t. These include the household head's education, household size and wealth index.

Remittances is dummy variable which equals 1 if the child i belongs to household h which received remittances in the past year at time t. This includes both domestic and international remittances.

Father absent is a dummy equal to 1 if the father of child i is absent at time t and 0 otherwise. In this case, the father may be absent either as an international or domestic migrant. Since we cannot identify each migrant's exact location, it is not possible to determine whether the father has migrated overseas or within Pakistan. Moreover, we cannot measure how far away the father lives and, therefore, how often he visits home.

Finally, ε_{iht} is the time-varying or idiosyncratic error term representing unobservable factors that might affect the dependent variable. The standard errors are clustered at the district level.

5.2. Specification Issues

Simple ordinary least squares (OLS) will yield biased estimates. The error term and explanatory variables may be correlated as a result of omitted variables and selection bias, along with the problem of reverse causality. These issues are discussed in detail below.

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[6] UNICEF considers any work done inside the household to be a part of child labor.
[7] As defined in the ILO's global estimates of child labor (see footnote 2).

5.2.1. Endogeneity of the Remittances and Father Absent Variables and Selection Bias

Ideally, one would want to generate unbiased estimates by looking at the causal impact of remittances between recipient households and their outcomes in the counterfactual scenario where the same households do not receive remittances. However, since the households that receive remittances or have a parent absent due to migration are "self-selected" (based on their unobservable characteristics), households without migrants or those that do not receive remittances do not represent a suitable counterfactual.

Remittances are expected to ease the household's financial constraints, increasing schooling and reducing child labor. However, in situations where the migrant parent values education to the extent that he has chosen to migrate to provide better schooling for his child, it may be schooling that causes the inflow of remittances (e.g., a father might remit money home to reward a child who is doing well at school). In this case, schooling determines remittances, which creates a simultaneity bias in the estimates.

Hanson and Woodruff (2003) give the example of a father who has lost his job due to poor economic conditions and decided to migrate to seek better employment. Such adverse conditions may also force children at home to drop out of school and compensate for the father's absence by taking on extra household chores. The authors argue that poorer households may be less likely to send a member abroad and, at the same time, less likely to send their children to school. This creates bias in a simple OLS estimation.

The household's opportunities and connections can also bias estimates. Even unobservable characteristics such as the child's inherent ability, parents' perception of schooling and the motivation they provide their children can affect the left-hand-side and right-hand-side variables, creating endogeneity in the estimates. Adding the relevant controls does not solve the problem entirely because the unobservable variables will remain a concern. Thus, using OLS with observables added as controls will still yield biased estimates.

Given that adding controls does not address all these issues, we combine the IV approach with RE and HFE, instrumenting the endogenous variables to present two sets of results. The following section explains in detail how these approaches enable better estimates than simple OLS.

5.2.2. IV Approach with RE and HFE

In this case, kinship (or biraderi) networks serve as the instrument. We create separate IVs for remittances and the father's absence. The kinship network variable represents the fraction of households belonging to a given kinship group, in a given district, that receive remittances (excluding household *j*) at time *t*. Biraderi *B* denotes the different kinship groups and district *D* refers to the various districts. Thus, for *remittances*, the kinship network IV is the fraction of households belonging to a given kinship group, in a given district, that receive remittances, excluding household *j*.

$$\text{Remittances kinship (biraderi) IV} = \frac{\begin{array}{l}\text{Number of households belonging to}\\ \text{biraderi } B \text{ in district } D\text{, that receive}\\ \text{remittances at time } t\text{, excluding}\\ \text{household } j\end{array}}{\begin{array}{l}\text{Number of households belonging to}\\ \text{biraderi } B \text{ in district } D \text{ at time } t\end{array}}$$

For the *father absent* variable, the kinship network IV refers to the fraction of households belonging to a given kinship group, in a given district, that have had a family member migrate in the past, excluding household *j*.

$$\text{Migrant kinship (biraderi) IV} = \frac{\begin{array}{l}\text{Number of households belonging to}\\ \text{biraderi } B \text{ in district } D\text{, that have had}\\ \text{someone migrate in the past, at time } t\text{,}\\ \text{excluding household } j\end{array}}{\begin{array}{l}\text{Number of households belonging to}\\ \text{biraderi } B \text{ in district } D \text{ at time } t\end{array}}$$

These instruments help exploit variation over time in the migrant network to which a particular household belongs. This leads to exogenous variation in the likelihood of migrating as well as the amount of money being remitted. Although the father may be absent for several reasons, we can use the migrant biraderi IV to capture specifically the migration effect of his absence or the local average treatment effect (LATE).

The intuition behind constructing kinship network variables is that people who belong to the same biraderi and live in the same district are likely to associate closely with each other. Thus, the presence of migrants in a network might motivate others to migrate and send remittances to their family and friends back home. Current migrants often prove to be a source of information (in seeking jobs) and help (providing accommodation) for prospective or new migrants. Kinship association may also encourage

remittance inflows when households belonging to the same biraderi in the same district see others receiving remittances and urge their own migrant members to do the same.

This entails the following first stage:

$$Remittances_{iht} = \mu_0 + \mu_1 X_{iht} + \mu_2 Z_{ht} + \mu_3 remittances\ biraderi\ IV_{ht} + \mu_4 migrant\ biraderi\ IV_{ht} + \nu_{iht} \quad (2)$$

$$Father\ absent_{iht} = \mu_5 + \mu_6 X_{iht} + \mu_7 Z_{ht} + \mu_8 remittances\ biraderi\ IV_{ht} + \mu_8 migrant\ biraderi\ IV_{ht} + \nu_{iht} \quad (3)$$

Next, we use the predicted values of *remittances* and *father absent* from the first stage in the original specification. Thus, the second stage is:

$$Y_{iht} = \alpha_0 + \alpha_1 X_{iht} + \alpha_2 Z_{ht} + \alpha_3 \widehat{remittances}_{iht} + \alpha_4 \widehat{father\ absent}_{iht} + \varepsilon_{iht} \quad (4)$$

We combine the IV estimates in turn with HFE and RE and compare the results to determine their robustness. RE is used when there is no omitted variable problem in the specification or when the omitted variables are believed to be uncorrelated with the model. This produces unbiased estimates and the smallest possible standard errors if all the data available is used. The key concern in using RE is that it will estimate the effects of time-invariant variables, but yield biased results if one does not control for omitted, unobserved time-variant variables. Thus, the study presents these results only as a robustness check to support the main argument, while basing the discussion and results on HFE, which is appropriate since it controls for time-invariant unobservable characteristics within a household. In this case, the subject is the control group itself, household *j*. Certain time-invariant factors may affect the household and will continue to affect it in the same way at later points (i.e., the effect remains constant).

Although biraderis will likely differ from one another in terms of entrepreneurial skills, ability and connectivity, the biraderi itself remains constant over time for a given household. This makes it possible to apply HFE controls for those dimensions of the biraderi that do not change over time. Since we are using a panel dataset, the IV numerator will be different in both periods for a single household *h* because its receipt of remittances and migration status will change over time. The net change will be

exogenous, as variations in characteristics between biraderis do not drive the results. It is thus reasonable to argue that such changes in kinship networks are correlated with the receipt of remittances and migration for the reasons explained above. This renders the IV informative, but not with respect to household-level labor market decisions. An individual's knowledge of a migrant kinsman should not affect the schooling or child labor decision of child *i*. Thus, the instrument will affect schooling and child labor decisions solely through the remittances and migration channel.[8]

We apply the Hausman test after every specification as shown in the second-stage results (see Tables A2, A4 and A6 in the Appendix) to test the null that the RE estimator has the same coefficients as the consistent HFE estimator. If the coefficients are insignificant ($p > 0.05$), then we have the option of using RE. If the p-value is less than 0.05, we should rely on the HFE results instead.[9] We will see that the Hausman tests run also support the HFE results over the RE.

6. Extending the Main Specification

This section extends the main specification to find out whether the impact of *remittances* and *father absent* differs for girls and boys. It also looks at the extent to which the mother's presence might compensate for the father's absence.

6.1. Impact of Gender

The *remittances* and *father absent* variables interact with dummies denoting sons and daughters such that:

$$Y_{iht} = \alpha_0 + \alpha_1 X_{iht} + \alpha_2 Z_{ht} + \alpha_3 remittances_{iht} * male_{iht} + \alpha_4 remittances_{iht} * female_{iht} + \alpha_5 father\ absent_{iht} * male_{iht} + \alpha_6 father\ absent_{iht} * female_{iht} + \varepsilon_{iht} \quad (5)$$

$Male_{iht}$ is a dummy variable equal to 1 if child i is male and 0 if female. $Female_{iht}$ is a dummy variable equal to 1 if child i is female and 0 if male. Since $remittances_{iht}$ and $father\ absent_{iht}$ are endogenous, their

[8] We also test the validity of the instruments using the over-identification test (results available on request).

[9] The results tend to have a p-value below 0.05 in most cases, indicating that the HFE estimates are more reliable in this context.

interaction terms will also be endogenous. We instrument for these by constructing the following IVs:

Endogenous variable	Instrument
Remittances * male	Remittances biraderi IV_{ht} * male
Remittances * female	Remittances biraderi IV_{ht} * female
Father absent * male	Migrant biraderi IV_{ht} * male
Father absent * female	Migrant biraderi IV_{ht} * female

Interaction terms involving *remittances* and *father absent* in both cases (male and female) will allow us to look directly at which gender is affected more by remittances and by the father's absence.

6.2. Impact of Mother's Presence

We hypothesize that the negative impact of the father's absence is, to some extent, offset by the presence of the mother, who will presumably prevent the excess burden of work (associated with the father's absence) from falling solely on the child's shoulders and will also monitor the child's performance at school.

$$Y_{iht} = \phi_0 + \phi_1 X_{iht} + \phi_2 Z_{ht} + \phi_3 remittances_{iht} + \phi_4 father\ absent_{iht} + \phi_5 mother\ present_{iht} + \phi_6 mother\ present_{iht} * father\ absent_{iht} + \varepsilon_{iht} \quad (6)$$

Mother present is a dummy variable equal to 1 if the mother of child i in household h is at home at time t and 0 otherwise. This specification is identical to the main specification with the difference that it includes an interaction term comprising *mother present* and *father absent*. The coefficient ϕ_6 shows to what extent the presence of the mother offsets the impact of the father's absence on child i. Since the problem of endogeneity re-emerges, we instrument for *remittances*, *father absent* and *mother present* * *father absent*. This is done by creating an instrument for the term *mother present* * *father absent* by enabling *mother present* to interact with the migrant biraderi IV.

6.3. Mother Present as an Exogenous Variable

Mother present would have been endogenous had any mother in the sample been absent as a result of migration. However, in our case, *mother present* is exogenous because the sample does not contain any migrant mothers (see Figures 4 and 5). Mothers for whom this variable takes the value of 0 are absent either because they have died or because they are separated or divorced. This is not surprising, given that most rural women

in Pakistan have restricted mobility both due to social norms and domestic responsibilities.

7. Results and Discussion

7.1. LPM Results of Main Specification

The results of the main LPM specification indicate that the inflow of remittances has a positive impact by increasing the probability of the child being enrolled in school (Tables A1 and A2). This suggests that money is an important component of the schooling decision and remittances are, to some extent, part of this. For households that receive remittances the probability of the child being enrolled in school increases by 20 percentage points (column 2). This result contradicts the body of literature suggesting that, in developing countries such as Pakistan, remittances merely increase consumption levels or expenditure on nondurable goods instead of promoting investment in human capital, such as in education (Amuedo-Dorantes & Mundra, 2007). Remittances are thus used by households to make productive investments and not used solely to meet consumption or basic subsistence needs.

Table A2 shows that remittances are also significant in reducing overall child labor since they ease the budget constraint for the households (column 4). This indicates that the money remitted benefits the household by increasing school enrollment as well as by reducing child labor. When the inflow of remittances eases the household's budget constraint, this reduces the child's overall work burden and lessens his/her responsibility for household work (if, for example, the household can now afford to hire help to carry out domestic chores or for childcare).

Additionally, the money coming in may be used to purchase labor-saving appliances, which free the child from having to carry out certain tasks; the installation of a gas stove, for instance, would reduce the need to collect firewood – a task that might otherwise have been assigned to the child. Households receiving remittances can compensate for the foregone income, thus lowering the opportunity cost of attending school. Remittances provide an alternative source of income, thus reducing the prevalence of child labor significantly at least within the household. The results suggest that remittances reduce the household's labor supply, particularly of children, by increasing the reservation wage of the remaining household members (see Danziger, Haveman & Plotnick, 1981).

The father's absence, on the other hand, seems to significantly affect both schooling and child labor outcomes adversely hence leaving the children worse off. Having a migrant father, a child is 15 percentage points less likely to be enrolled in school (Table A2, column 2). The father's absence is significantly correlated with child labor, increasing the probability of the child engaging in overall child labor by 27 percentage points (Table A2, column 4). This suggests that, in the father's absence, the child is left to assume additional responsibilities both inside and outside the home. With the father migrating the child is 25 percentage points more likely to work within the household (column 6) and 6 percentage points more likely to work outside the home (column 8). Hence, with the father gone, the child is less likely to be enrolled in school simply because either he/she is working more or because of the lack of monitoring of the child with the father gone abroad.

Overall, children tend to benefit from remittances since it helps increase school enrollment and reduces overall child labor for the child. However, the physical absence of the father leaves the child worse off. The positive impact of remittances is to an extent offset by the negative effect of the absence of the father, diminishing the net impact of migration for the child.

7.2. LPM Results of Main Specification With Gender Interactions

This specification aims to determine whether the impact of remittances and the father's absence differs between girls and boys (see Tables A3 and A4). For this, the gender terms *male* and *female* interact with both *remittances* and *father absent*. Looking solely at the (*remittances* * *male*) and (*remittances* * f*emale*) terms in Table A4 indicates that remittances benefit both boys' and girls' schooling. However, the magnitude is greater for boys as compared to girls. Remittances increases the probability of being enrolled in school by 25 percentage points for boys as compared to 18 percentage points for girls (column 2). That is, parents are more likely to use the additional money from remittances to send their sons – rather than their daughters – to school. Column (4) of Table A4 show that remittances reduce overall child labor significantly for boys as compared to girls. A boy is 30 percentage points less likely to work. It seems as if for the boys, remittances help them substitute away from child labor and towards schooling as opposed to girls. One possible explanation for this may be that boys are considered the household's future breadwinners: any money spent on their schooling (as opposed to putting them to work) is assumed to increase the future returns on their education. Moreover, in rural households, parents are

far more likely to live with their adult sons than their daughters. Most girls in rural Punjab marry after a certain age and move away; parents may accord less value to investing in their schooling if they perceive smaller future returns. These results contradict the moral hazard problem presented by Milligan and Bohara (2007), who suggest that the money coming in through remittances may increase child labor if households decide to start a new business in which their children, particularly boys, are expected to take part. Parents appear to value education and tend to invest in it when they have the money to do so, particularly for the boys.

The father's absence appears to have a negative impact on schooling for girls as compared to the boys, based on the negative coefficient *father absent * female* in column (2) of Table A4. A female child is 14 percentage points less likely to be enrolled in school if her father has migrated abroad, while father's migration has an insignificant impact on boys schooling.

The term *father absent * female* with respect to household child labor is positive and significant, indicating that the father's absence is likely to increase girls 'overall workload, particularly in with the household. Females are 37 percentage points more likely to work due to the absence of their father (column 4). However, where nonhousehold child labor is concerned, the father's absence appears to increase the likelihood of both genders working outside the home, especially boys. Overall, however, the results indicate that remittances are spent more favorably for boys as compared to girls. Remittances help the boys substitute away from child labor towards schooling. While remittances do also increase schooling for girls, they do not significantly lead to a reduction in child labor for the them. As far as child labor is concerned, girls are compelled to work more, as opposed to boys whose burden of work increases only with respect to labor outside the home. Hence, the girls are left with additional household chores and overall work load once the father is away.

7.3. LPM Results of Main Specification With Mother Present Interaction

This specification divides the effect of parental presence into two parts: (i) the father's absence and (ii) the interaction between the father's absence and mother's presence to determine how far the latter offsets the impact of the former (see Tables A5 and A6). Looking at the key variables of interest in Table A6, *remittances* and *father absent*, the results are in line with those in Table A2, i.e., remittances benefit the child while the father's absence leaves the child worse off.

The interaction of the *father absent* variable with *mother present*, i.e., *mother present * father absent*, shows that the mother's presence compensates for the father's absence in households in which the father has migrated. In the second-stage results in Table A6, the variable *father absent* has a negative sign in column (2); its interaction with *mother present* changes the sign to positive for schooling. This suggests that, to some extent, the lack of monitoring on the absent father's part is offset by the mother's role in ensuring that the child concentrates on school.

Even if the father's migration increases the child's household responsibilities, the mother is likely to share in the overall workload. Thus, her role as the primary parental figure responsible for looking after the child on a daily basis and assuming some of the father's household responsibilities in his absence will benefit the child. While the father's absence increases the probability of overall child labor by about 59 percentage points in column (4), the presence of the mother reduces this probability by 65 percentage points. To a greater extent, her presence may even more than offset the rise in child labor.

According to columns (6) and (8), if the father of the child is away but the mother is present at home, a child is 86 percentage points less likely to work at home and 13 percentage points less likely to work outside the household as compared to a child whose parents are both absent.

The idea of "unavailable mothers" – who may be unable to give their children enough time in view of the increased workload they must bear in their spouse's absence – does not seem to hold in rural Punjab. The presence of extended family members, such as older siblings and grandparents, means there are also other adults in the household who are liable to assume part of the workload. In many cases in rural Pakistan, this extends to neighbors – women who share their additional workload with each other, giving them more time to spend with their children.

Another explanation for this result is that, as the mother's responsibility for her children and household increases in the father's absence, so too may her level of empowerment, especially if she is the one receiving the remittances. She may then engage in intra-household bargaining with other family members to protect her children's interests. This redistribution of power enables the mother to determine intra-household allocations. Her concern for her children's wellbeing may lead her to spend more on education and reduce the burden of child labor (Antman, 2012). Moreover, to some extent, the mother's presence is likely to compensate for the father's absence at a psychological level, alleviating the child's loneliness.

Hence, the negative impact of the absence of the father is in large part being offset if the mother is present at home. The mother does not only share the workload, reducing child labor, but also has a positive impact on the child's schooling.

8. Conclusion

This study decomposes the impact of migration into two components: the effect of remittances and the effect of the migrant father's absence on children left behind. While most other studies have looked at one or other of these effects, this study examines both countervailing channels affecting child labor and schooling. It deals explicitly with the issue of endogeneity with respect to remittances and the father's absence by using kinship networks as an IV along with HFE and RE.

The study concludes that remittances enhance children's wellbeing by increasing their likelihood of being enrolled in school rather than engaging in child labor. On the other hand, the migrant father's absence is likely to increase the overall household and nonhousehold workload, part of which may fall to the child at the expense of his/her schooling. The financial benefit of remittances from migration may not completely offset the effect of the father's absence in this context. Given this, we introduce the effect of the mother's presence, assuming she is likely to shoulder the additional workload in the father's absence, monitor the child's schooling and provide the emotional support needed to redress the disruption associated with the father's migration. This greatly reduces the negative effect of the father's absence while we still retain the positive effect of remittances along with the mother's presence.

A gender difference emerges when we look at how the money received through remittances is spent: remittances increases the probability of a boy being enrolled in school by 25 percentage points, while the father's absence compels girls to spend more time working at home, increasing their probability of working at home by about 37 percent. However, to a lesser extent, the father's absence increases the nonhousehold workload for both boys and girls.

References

Alcaraz, C., Chiquiar, D., & Salcedo, A. (2012). Remittances, schooling, and child labor in Mexico. *Journal of Development Economics*, *97*(1), 156–165.

Amuedo-Dorantes, C., & Mundra, K. (2007). Social networks and their impact on the earnings of Mexican migrants. *Demography*, *44*(4), 849–863.

Amuedo-Dorantes, C., & Pozo, S. (2010). Accounting for remittance and migration effects on children's schooling. *World Development*, *38*(12), 1747–1759.

Angrist, J. D. (2001). Estimations of limited dependent variable models with dummy endogenous regressors: Simple strategies for empirical practice. *Journal of Business and Economic Statistics*, *19*(1), 1–16.

Angrist, J. D., & Pischke, J.-S. (2009). *Mostly harmless econometrics: An empiricist's companion*. Princeton, NJ: Princeton University Press.

Antman, F. M. (2012). Gender, educational attainment, and the impact of parental migration on children left behind. *Journal of Population Economics*, *25*(4), 1187–1214.

Arif, R., & Chaudhry, A. (2015). The effects of external migration on enrolments, accumulated schooling and dropouts in Punjab. *Applied Economics*, *47*(16), 1607–1632.

Bayot, D. (2007). *The effect of remittances on child labor in Mexico*. Unpublished manuscript, Department of Economics, University of Nevada at Las Vegas, NV.

Binci, M., & Giannelli, G. C. (2012). *Internal vs. international migration: Impacts of remittances on child wellbeing in Vietnam* (Discussion Paper No. 6523). Bonn: Institute for the Study of Labor.

Booth, M. Z. (1995). Children of migrant fathers: The effects of father absence on Swazi children's preparedness for school. *Comparative Education Review*, *39*(2), 195–210.

Calero, C., Bedi, A. S., & Sparrow, R. (2009). Remittances, liquidity constraints and human capital investments in Ecuador. *World Development*, *37*(6), 1143–1154.

Chatla, S., & Shmueli, G. (2013). *Linear probability models (LPM) and big data: The good, the bad, and the ugly* (Working paper). Hyderabad: Indian School of Business.

Danziger, S., Haveman, R., & Plotnick, R. (1981). How income transfer programs affect work, savings, and the income distribution: A critical review. *Journal of Economic Literature*, *19*(3), 975–1028.

Edwards, A. C., & Ureta, M. (2003). International migration, remittances, and schooling: Evidence from El Salvador. *Journal of Development Economics*, *72*(2), 429–461.

Grogger, J., & Ronan, N. (1995). *The intergenerational effects of fatherlessness on educational attainment and entry-level wages* (National Longitudinal Surveys Discussion Paper No. 30). Washington, DC: Bureau of Labor Statistics.

Hanson, G. H., & Woodruff, C. (2003). *Emigration and educational attainment in Mexico*. Unpublished manuscript, University of California, San Diego. Retrieved from http://irps.ucsd.edu/assets/022/8772.pdf

Heckman, J. J. (1978). Dummy endogenous variables in a simultaneous equation system. *Econometrica*, *46*(4), 931–959.

Lang, K., & Zagorsky, J. L. (2001). Does growing up with a parent absent really hurt? *Journal of Human Resources*, *36*(2), 253–273.

Mansour, W., Chaaban, J., & Litchfield, J. (2011). The impact of migrant remittances on school attendance and education attainment: Evidence from Jordan. *International Migration Review*, *45*(4), 812–851.

Mansuri, G. (2006). *Migration, school attainment, and child labor: Evidence from rural Pakistan* (Policy Research Working Paper No. 3945). Washington, DC: World Bank.

McGarry, K. (2000). *Testing parental altruism: Implications of a dynamic model* (Working Paper No. 7593). Washington, DC: National Bureau of Economic Research.

Milligan, M., & Bohara, A. (2007). *The effect of remittances on child labor and child education in Nepal*. Unpublished manuscript, University of New Mexico, NM.

Reiley, D. H. (2005). *Field experiments on the effects of reserve prices in auctions: More magic on the internet*. Unpublished manuscript, University of Arizona, Tucson, AZ.

Ukwatta, S. (2010). Sri Lankan female domestic workers overseas: Mothering their children from a distance. *Journal of Population Research*, *27*(2), 107–131.

Vogel, A., & Korinek, K. (2012). Passing by the girls? Remittance allocation for educational expenditures and social inequality in Nepal's households 2003–2004. *International Migration Review*, *46*, 61–100.

Appendix

Table A1: First-stage results of main specification

	RE		HFE	
	Remittances	**Father absent**	**Remittances**	**Father absent**
Variable	**(1)**	**(2)**	**(3)**	**(4)**
Remittances biraderi IV	0.966***	-0.103*	0.969***	-0.110*
	(0.039)	(0.051)	(0.039)	(0.051)
Migrant biraderi IV	-0.018	1.008***	-0.013	1.005***
	(0.031)	(0.040)	(0.030)	(0.039)
Child's age	0.031	0.019	0.031	0.019
	(0.031)	(0.015)	(0.032)	(0.015)
Child's age sq.	-0.001*	-0.001	-0.001*	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Child's gender	0.009	-0.016	0.003	-0.019
	(0.011)	(0.015)	(0.011)	(0.015)
Father's education	0.005	0.007*	0.002	0.006
	(0.003)	(0.003)	(0.003)	(0.003)
Mother present	-0.074	-0.076	-0.071*	-0.073
	(0.076)	(0.071)	(0.066)	(0.071)
Mother's education	0.002	0.000	0.002	0.000
	(0.006)	(0.008)	(0.006)	(0.008)
HH head's education	0.005**	0.006**		
	(0.003)	(0.002)		

	RE		HFE	
	Remittances	Father absent	Remittances	Father absent
Variable	(1)	(2)	(3)	(4)
Wealth	0.009**	0.008*		
	(0.003)	(0.004)		
Size of HH	-0.012	-0.003		
	(0.014)	(0.005)		
Constant	0.031	0.019	0.031	0.019
	(0.031)	(0.015)	(0.032)	(0.015)
District dummies	Yes	Yes	No	No
First-stage F-value of excluded instruments	102.3	120.46	134.8	162.7

Note: RE = random effects, HFE = household fixed effects. Number of observations = 2,963, number of groups = 829. Standard errors clustered at district level (seven districts). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Source: Author's calculations.

Table A2: Second-stage results of main specification

	Schooling		Overall child labor		Household child labor		Nonhousehold child labor	
	RE	HFE	RE	HFE	RE	HFE	RE	HFE
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Remittance	0.168*	0.204**	-0.290***	-0.218*	-0.238**	-0.163	-0.052	-0.073
	(0.079)	(0.095)	(0.083)	(0.100)	(0.082)	(0.097)	(0.035)	(0.047)
Father absent	-0.071	-0.151**	0.223***	0.273***	0.206***	0.249***	0.028	0.060*
	(0.056)	(0.066)	(0.059)	(0.069)	(0.058)	(0.068)	(0.025)	(0.033)
Child's age	0.186***	0.180***	-0.107***	-0.105***	-0.111***	-0.107***	0.006	0.003
	(0.019)	(0.020)	(0.019)	(0.021)	(0.019)	(0.020)	(0.009)	(0.010)
Child's age sq.	-0.010***	-0.009***	0.003***	0.003**	0.004***	0.003**	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Child's gender	-0.008	0.013	0.042*	0.065**	0.050**	0.072***	-0.020*	-0.016
	(0.019)	(0.020)	(0.020)	(0.021)	(0.019)	(0.020)	(0.009)	(0.010)
Father's education	0.001	0.005	-0.002	0.006	0.004	0.014	-0.008***	-0.012***
	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.016)	(0.002)	(0.003)
Mother present	0.403***	0.356***	-0.251***	-0.294***	-0.276***	-0.324***	0.029	0.035
	(0.032)	(0.038)	(0.034)	(0.040)	(0.033)	(0.039)	(0.014)	(0.019)
Mother's education	0.002	0.006	0.014	0.011	0.024	0.021	-0.019***	-0.021***
	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.011)	(0.005)	(0.005)
HH head's education	0.002		0.002		0.002		-0.001	
	(0.003)		(0.003)		(0.003)		(0.001)	
Wealth	0.041***		-0.008		-0.008		-0.004	
	(0.006)		(0.007)		(0.007)		(0.003)	
Size of HH	0.020		0.050***		0.056***		-0.003	
	(0.018)		(0.008)		(0.008)		(0.003)	

	Schooling		Overall child labor		Household child labor		Nonhousehold child labor	
	RE	**HFE**	**RE**	**HFE**	**RE**	**HFE**	**RE**	**HFE**
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Constant	-0.071	-0.151**	0.223***	0.273***	0.206***	0.249***	0.028	0.060*
	(0.056)	(0.066)	(0.059)	(0.069)	(0.058)	(0.068)	(0.025)	(0.033)
District dummies	Yes	No	Yes	No	Yes	No	Yes	No
Hausman Test P-Value	0.0132		0.0221		0.0288		0.0319	

Note: RE = random effects, HFE = household fixed effects. Number of observations = 2,963, number of groups = 820. Standard errors clustered at district level (seven districts). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Instrumented variables = *remittances* and *father absent*.
Source: Author's calculations.

Table A3: First-stage results of main specification with gender interaction

	Random effects				Household fixed effects			
	Remittances * male	Remittances * female	Father absent * male	Father absent * female	Remittances * male	Remittances * female	Father absent * male	Father absent * female
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Remittances biraderi IV * male	0.929***	0.003	0.012	-0.164**	0.930***	0.004	-0.013	-0.006
	(0.042)	(0.026)	(0.038)	(0.052)	(0.042)	(0.026)	(0.052)	(0.071)
Remittances biraderi IV * female	-0.005	1.006***	-0.007	-0.005	-0.004	1.007***	0.007	-0.165**
	(0.057)	(0.036)	(0.052)	(0.071)	(0.057)	(0.036)	(0.038)	(0.052)
Migrant biraderi IV * male	-0.007	-0.016	1.019***	-0.002	-0.001	-0.014	1.003***	0.001
	(0.042)	(0.027)	(0.038)	(0.053)	(0.042)	(0.026)	(0.038)	(0.052)
Migrant biraderi IV * female	-0.003	-0.007	-0.022	1.009***	0.000	-0.007	-0.011	1.004***
	(0.033)	(0.021)	(0.030)	(0.041)	(0.033)	(0.021)	(0.029)	(0.041)
Child's age	0.029**	0.002	0.004	0.015	0.030**	0.002	0.003	0.016
	(0.010)	(0.006)	(0.009)	(0.012)	(0.010)	(0.006)	(0.009)	(0.012)
Child's age sq.	-0.001*	-0.000	-0.000	-0.001	-0.001*	-0.000	-0.000	-0.001
	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)
Child's gender	0.007	-0.006	-0.019	0.005	0.002	-0.008	-0.020	0.002
	(0.014)	(0.009)	(0.012)	(0.017)	(0.014)	(0.009)	(0.012)	(0.017)
Father's education	0.003	0.002	0.002	0.005	0.000	0.002	0.002	0.003
	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)	(0.001)	(0.002)	(0.003)
Mother present	-0.052***	-0.022*	-0.031*	-0.044*	-0.049***	-0.021*	-0.032*	-0.041*
	(0.014)	(0.009)	(0.013)	(0.017)	(0.014)	(0.009)	(0.013)	(0.017)
	0.004	-0.002	-0.000	0.000	0.004	-0.002	-0.000	0.000

	Random effects				Household fixed effects			
	Remittances * male	Remittances * female	Father absent * male	Father absent * female	Remittances * male	Remittances * female	Father absent * male	Father absent * female
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Mother's education	(0.005)	(0.003)	(0.005)	(0.006)	(0.005)	(0.003)	(0.005)	(0.006)
HH head's education	0.004***	0.001	0.001	0.005***				
	(0.001)	(0.001)	(0.001)	(0.001)				
Wealth	0.007**	0.003	0.004	0.004				
	(0.002)	(0.002)	(0.002)	(0.003)				
Size of HH	-0.009**	-0.004	0.002	-0.005				
	(0.003)	(0.002)	(0.003)	(0.004)				
Constant	-0.136**	0.009	-0.007	-0.089	-0.004	1.047***	0.007	-0.165**
	(0.047)	(0.030)	(0.042)	(0.058)	(0.057)	(0.036)	(0.038)	(0.052)
District dummies	Yes	Yes	Yes	Yes	No	No	No	No
First-stage F-value of excluded instruments	87.8	119.9	157.1	119.1	110.3	155.1	203.5	152.7

Note: Number of observations = 2,963, number of groups = 820. Standard errors clustered at district level (seven districts). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.**Source**: Author's calculations.

Table A4: Second-stage results of main specification with gender interaction

	Schooling		Overall child labor		Household child labor		Nonhousehold child labor	
	RE	HFE	RE	HFE	RE	HFE	RE	HFE
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Remittances * male	0.157*	0.249*	-0.383***	-0.297**	-0.335***	-0.252**	-0.070	-0.085
	(0.094)	(0.127)	(0.098)	(0.115)	(0.097)	(0.112)	(0.042)	(0.054)
Remittances * female	0.202*	0.182*	-0.134	-0.105	-0.084	-0.042	-0.005	-0.035
	(0.114)	(0.109)	(0.119)	(0.134)	(0.117)	(0.131)	(0.053)	(0.063)
Father absent * male	-0.041	-0.160	0.095	0.080	0.041	0.016	0.067	0.105*
	(0.087)	(0.097)	(0.091)	(0.102)	(0.089)	(0.100)	(0.040)	(0.048)
Father absent * female	-0.084	-0.144*	0.294***	0.366***	0.293***	0.361***	0.013	0.037*
	(0.065)	(0.075)	(0.068)	(0.079)	(0.067)	(0.077)	(0.030)	(0.019)
Child's age	0.187***	0.180***	-0.106***	-0.105***	-0.110***	-0.107***	0.007	0.004
	(0.019)	(0.020)	(0.020)	(0.021)	(0.019)	(0.020)		(0.010)
Child's age sq.	-0.010***	-0.009***	0.003***	0.003**	0.003***	0.003**	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.009)	(0.001)
Child's gender	-0.022	0.010	0.064*	0.116***	0.084**	0.136***	-0.039**	-0.037*
	(0.027)	(0.029)	(0.028)	(0.031)	(0.027)	(0.030)	(0.013)	(0.014)
Father's education	0.002	0.005	-0.004	0.003	0.001	0.010	-0.008***	-0.012***
	(0.005)	(0.006)	(0.005)	(0.006)	(0.005)	(0.006)	(0.002)	(0.003)
Mother present	0.402***	0.358***	-0.249***	-0.292***	-0.274***	-0.322***	0.029	0.037
	(0.032)	(0.038)	(0.034)	(0.040)	(0.033)	(0.039)	(0.014)	(0.019)
Mother's education	0.002	0.006	0.015	0.011	0.024*	0.020	-0.018***	-0.021***
	(0.010)	(0.010)	(0.010)	(0.011)	(0.010)	(0.011)	(0.005)	(0.005)
Wealth	0.039***		-0.007		-0.007		-0.004	
	(0.006)		(0.007)		(0.007)		(0.003)	

	Schooling		Overall child labor		Household child labor		Nonhousehold child labor	
	RE	HFE	RE	HFE	RE	HFE	RE	HFE
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
HH head's education	0.002		0.002		0.002		-0.000	
	(0.003)		(0.003)		(0.003)		(0.001)	
Size of HH	0.020*		0.050***		0.055***		-0.003	
	(0.094)		(0.098)		(0.112)		(0.042)	
Constant	0.202*	0.249*	-0.134	-0.105	-0.084	-0.042	-0.005	-0.035
District dummies	Yes	No	Yes	No	Yes	No	Yes	No
Hausman Test								
P-Value	0.0488		0.0414		0.0340		0.0421	

Note: RE = random effects, HFE = household fixed effects. Number of observations = 2,963, number of groups = 820. Standard errors clustered at district level (seven districts). * p < 0.10, ** p < 0.05, *** p < 0.01. Instrumented variables = *remittances * male*, *remittances * female*, *father absent * male*, *father absent * female*.
Source: Author's calculations.

Table A5: First-stage results of main specification with mother present interaction

	Random effects			Household fixed effects		
	Remittances	Father absent	Mother present * father absent	Remittances	Father absent	Mother present * father absent
Variable	(1)	(2)	(3)	(4)	(5)	(6)
Remittances biraderi IV	0.961***	-0.115*	0.064***	0.959***	-0.131**	0.068***
	(0.039)	(0.048)	(0.017)	(0.039)	(0.048)	(0.017)
Migrant biraderi IV	-0.067*	0.946***	-0.046***	-0.057	0.974***	-0.054**
	(0.031)	(0.038)	(0.013)	(0.030)	(0.037)	(0.013)
Mother present * migrant biraderi IV	0.113***	0.260***	0.996***	0.113***	0.256***	0.997***
	(0.010)	(0.012)	(0.004)	(0.010)	(0.012)	(0.004)
Child's age	0.018	-0.011	0.003	0.018	-0.011	0.004
	(0.011)	(0.014)	(0.005)	(0.011)	(0.014)	(0.005)
Child's age sq.	-0.001	0.000	-0.000	-0.001	0.000	-0.000
	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)
Child's gender	0.012	-0.009	-0.006	0.008	-0.008	-0.007
	(0.011)	(0.014)	(0.005)	(0.011)	(0.014)	(0.005)
Mother present	0.127**	0.006	-0.164**	-0.130**	-0.208**	-0.162**
	(0.015)	(0.004)	(0.007)	(0.017)	(0.021)	(0.017)
Mother's education	0.003	0.004	-0.002	0.003	0.004	-0.002
	(0.006)	(0.007)	(0.003)	(0.006)	(0.007)	(0.003)
Father's education	0.005	0.006	0.006***	0.002	0.006*	0.005***
	(0.003)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)
Size of HH	-0.008*	-0.213**	-0.004*			

	Random effects			Household fixed effects		
	Remittances	Father absent	Mother present * father absent	Remittances	Father absent	Mother present * father absent
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	(0.003)	(0.021)	(0.002)			
HH head's education	0.006***	0.007***	0.001			
	(0.001)	(0.002)	(0.001)			
Wealth	0.008**	0.006	-0.001			
	(0.003)	(0.004)	(0.001)			
Constant	-0.067*	0.946***	-0.046***	-0.057	0.974***	-0.054***
	(0.031)	(0.038)	(0.013)	(0.030)	(0.037)	(0.013)
District dummies	Yes	Yes	Yes	No	No	No
First-stage F-value of excluded instruments	109.6	168.0	42.3	140.8	218.7	104.7

Note: Number of observations = 2,963, number of groups = 820. Standard errors clustered at district level (seven districts). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.
Source: Author's calculations.

Table A6: Second-stage results of main specification with mother present interaction

	Schooling		Child labor		Household child labor		Nonhousehold child labor	
	RE	HFE	RE	HFE	RE	HFE	RE	HFE
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Remittance	0.165*	0.204**	-0.198***	-0.213***	-0.164***	-0.159**	-0.038	-0.072
	(0.079)	(0.095)	(0.036)	(0.043)	(0.043)	(0.053)	(0.034)	(0.045)
Father absent	-0.084	-0.165**	0.577***	0.594***	0.537***	0.540***	0.068*	0.105**
	(0.060)	(0.070)	(0.027)	(0.032)	(0.033)	(0.039)	(0.027)	(0.033)
Mother present * father absent	0.032	0.044*	-0.656***	-0.653***	-0.879***	-0.862***	-0.106***	-0.133***
	(0.023)	(0.025)	(0.011)	(0.012)	(0.013)	(0.014)	(0.011)	(0.012)
Child's age	0.183***	0.175***	-0.011	-0.015	-0.023*	-0.025*	0.016	0.015
	(0.019)	(0.020)	(0.009)	(0.009)	(0.010)	(0.011)	(0.009)	(0.009)
Child's age sq.	-0.009***	-0.009***	0.000	0.000	0.001	0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)	(0.000)	(0.000)
Child's gender	-0.007	0.015	0.022*	0.026**	0.033**	0.037***	-0.022*	-0.021*
	(0.019)	(0.020)	(0.009)	(0.009)	(0.010)	(0.011)	(0.009)	(0.010)
Mother present	0.389***	0.338***	-0.134***	-0.008*	-0.538***	0.032	-0.019	-0.423***
	(0.034)	(0.040)	(0.017)	(0.003)	(0.093)	(0.022)	(0.043)	(0.099)
Mother's education	0.002	0.006	0.002	0.001	0.013	0.011	-0.020***	-0.022***
	(0.010)	(0.010)	(0.004)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)
Father's education	0.001	0.005	0.006*	0.008**	0.010**	-0.015**	-0.008***	-0.012***

	Schooling		Child labor		Household child labor		Nonhousehold child labor	
	RE	HFE	RE	HFE	RE	HFE	RE	HFE
Variable	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
	(0.005)	(0.006)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)
Wealth	0.040***		0.002		0.002		-0.003	
	(0.006)		(0.003)		(0.003)		(0.003)	
HH size	0.002		0.008*		0.014**		0.100***	
	(0.003)		(0.004)		(0.004)		(0.018)	
HH head's education	0.021**		-0.002		-0.002		-0.001	
	(0.008)		(0.001)		(0.002)		(0.001)	
Constant	0.073***	0.090***	0.933***	0.967***	0.971***	1.011***	0.071***	-0.035
	(0.019)	(0.019)	(0.042)	(0.045)	(0.052)	(0.056)	(0.015)	(0.047)
District dummies	Yes	No	Yes	No	Yes	No	Yes	No
Hausman Test P-Value	0.0305		0.0411		0.0501		0.0469	

Note: RE = random effects, HFE = household fixed effects. Number of observations = 2,963, number of groups = 820. Standard errors clustered at district level (seven districts). * p < 0.10, ** p < 0.05, *** p < 0.01. Instrumented variables = *remittances*, *father absent*, *father absent * mother present*.
Source: Author's calculations.