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**Preliminary Evidence on Internal Migration,  
Remittances, and Teen Schooling in India**

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## **ABSTRACT**

Migration can serve as an outlet for employment, higher earnings, and reduced income risk for households in developing countries. We use the 2004–2005 Human Development Profile of India survey to examine correlations between the receipt of remittances from internal migrants and human capital investment in rural areas. We employ a propensity score–matching approach to account for the selectivity of households into receiving remittances. We interpret the results conservatively due to the cross-sectional nature of the data. We find a positive correlation between remittances received from internal migrants and the schooling attendance of teens. The magnitude of the correlation is greater when focusing on low-caste households, and male schooling attendance in particular becomes more positive and statistically significant. Our findings provide a basis for establishing future research in the areas of migration and social protection in India.

**Keywords:** migration, transfers, human capital, labor supply

# 1. INTRODUCTION

The migration rate in India is on the rise (from 27.4 percent of the population in 1991 to 30.0 percent in 2001), and employment is secondary to marriage for reasons to migrate (Deshingkar 2006). While international remittance receipts are substantial (US\$17.4 billion in 2003), little is known regarding the amount of transfers received from internal migrants (World Bank 2009).<sup>1</sup> For households left behind, having a migrant leave can improve their welfare since migration frees up resources for the remaining household members. Remittances can additionally relax liquidity constraints. Moreover, internal migration offers an alternative for poor households to seek employment, seek higher earnings, and reduce income vulnerability relatively cheaply by migrating to areas with labor shortages or those facing different income distributions with respect to covariate shocks. In this paper, we examine the correlation of remittances received from internal migrants with teen and adult labor supply decisions, teen schooling enrollment, attendance, and absenteeism. We correlate remittances received and these outcomes to assess the potential effect of relaxing liquidity constraints on human capital accumulation. Moreover, we examine how the labor supply shifts with the increase in income to understand the interaction between teen and adult labor supply.

There is a vast literature that measures the returns to migration and remittances on investment (de Haan 1999). Migration and remittances generate investments in housing, consumer durables, and landholdings (de Brauw and Giles 2008); shift production to more capital-intensive crops (de Brauw, forthcoming); and increase time spent in capital-intensive enterprises (Yang 2008). Migration and remittances reduce household vulnerability to shocks through off-market access to employment (Yang and Choi 2007; Giles 2006). Migration can also reduce poverty (de Brauw and Giles 2008).<sup>2</sup>

The link between migration, remittances, and human capital investment is also being established in the literature. An increase in household income (through the resources made available by an absent household member or transfer receipts) enables households to substitute leisure for consumption. Such an increase in income should reduce overall labor efforts of household workers. We might also expect concomitant declines in child labor, as studies find associations between poor human capital investment and imperfect credit markets (Jacoby and Skoufias 1997; Jacoby 1994). Baland and Robinson (2000) develop a dynamic theoretical model that considers the allocation of child labor subject to borrowing constraints. A finding from the model is that Pareto inefficient levels of child labor can arise due to borrowing constraints. The empirical implications of their model are overall reductions in child labor, provided migration and remittances sufficiently relax liquidity constraints.

Recent studies support the theoretical predictions on child labor and schooling. Mansuri (2006) provides empirical evidence of increased schooling attendance, retention, and accumulated years of schooling, and decreased child labor among migrant households in rural Pakistan. Female headship can lead to the loss of accumulated schooling among girls, suggesting mothers are more protective of boys at the expense of girls in rural Pakistan. De Brauw and Giles (2006) demonstrate migration hinders high school enrollment in rural China, which is attributable to the lower return to high school education in migrant labor markets. They show that the opportunity cost to enroll in high school outweighs the returns to education above middle school by estimating the returns to education in migrant labor markets. Cox-Edwards and Ureta (2003) demonstrate remittances received positively affect school attendance and retention in El Salvador. Acosta (2006) shows the receipt of remittances in El Salvador encourages child enrollment; however, females aged 15 and over are more likely to increase their education and reduce their labor supply. Yang (2008) provides evidence that remittances increase educational expenditures and student statuses and reduce child labor efforts. It should be noted that most of these studies focus on the

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<sup>1</sup> Existing studies concentrate on the documentation of migration patterns in India and their determinants (Mitra and Murayama 2008; Rogaly 2003; de Haan 2002; Mosse et al. 2002; Bhattacharya 2000).

<sup>2</sup> This finding is contrary to those found in earlier work. Barham and Boucher (1998) and Rodriguez (1998) show migration enhances inequality.

returns to international migration, which likely generates greater returns than internal migration due to the nature of the moving costs and skills required abroad (de Brauw and Carletto 2008).

In light of the numerous findings on migration, few have initiated work in India. In earlier work, Rosenzweig and Stark (1989) show marriage-driven migration helps smooth consumption in India. Twenty years later, the gap in the literature remains. One reason for the paucity of India studies is that the available data sets are not adequate for addressing the migration selectivity problem. Since migrants are unrepresentative of the general population either in ambition, skill, income, vulnerability, or other unobservable characteristics, they cannot be treated as a random sample. The nonrandom selection of households into migration can bias estimates of migration and remittance receipt impacts. Panel data can reduce the selection bias because behavior is observed over time for each household, allowing for the control of individual time-invariant idiosyncrasies. The potential for correlation between unobservable characteristics that vary over time and changes in migration remains an issue, however, and is often addressed through the use of instrumental variable and matching techniques (de Brauw and Carletto 2008). Existing panel studies in India are often a decade apart, which can produce substantial attrition bias in the estimates (Foster and Rosenzweig 2008). Another explanation for the absence of migration studies in India is its low incidence of migration for employment.<sup>3</sup> Although labor mobility in India has been low in the past 20 years, there are several recent cases of employment opportunities by region that attract migrants (Deshingkar 2006).

In this paper, we use the 2004–2005 Human Development Profile (HDP) of India survey to examine the correlation of remittances received from internal migrants with the intrahousehold allocation of labor and teen schooling. We employ a propensity score–matching (PSM) approach to account for the selectivity of households into receiving remittances. We interpret the estimates conservatively due to the cross-sectional nature of the data, although recently the PSM approach was shown to perform relatively well (McKenzie, Gibson, and Stillman 2006).<sup>4</sup> The 2004–2005 HDP was a national survey effort that collected a variety of information on household composition, employment, earnings, assets, consumption, education, and health at the household and individual levels. We are able to identify migrants’ demographic characteristics and remittance behavior in the last 12 months.<sup>5</sup> In exchange for the breadth of information gathered and scale of the survey, the questions on out-migration are quite limited. Specific details on the destinations of migrants (beyond international, same/other state in reference to the family’s location), migrants’ motivations for moving, and their departure years are excluded from the survey.

We find positive correlations between remittances received in the last 12 months and teen schooling attendance. We see concurrent overall reductions in male adult labor supply, and increases in female adult labor supply (on the farm). It is difficult to identify the mechanism behind increases in female adult labor supply due to inadequate data detailing auxiliary labor activities, such as time devoted to tending animals or domestic tasks.

We further restrict the sample to low-caste households for two reasons. First, remittances received by wealthier households may not be sufficient to change behavior. Second, we are ultimately interested in examining how migration may improve the livelihoods of the impoverished. Understanding this relationship is motivated by the insight of theoretical models that relate poor human capital investment to long-term poverty traps (e.g., Barham et al. 1995). We find the magnitude of the correlation between remittances received and schooling attendance of all teens is smaller and less significant than findings using the unrestricted sample; however, the correlation between remittances received and male

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<sup>3</sup> Munshi and Rosenzweig (2005) recently examine the role of caste networks in reducing incentives to migrate. Their explanation for the low mobility in India (particularly among the poor) is the informal credit and insurance offered by caste networks.

<sup>4</sup> The HDP survey does have a first round held in 1993–1994. Unfortunately, the high attrition rate precludes its use.

<sup>5</sup> The most frequently used surveys in India collected by the National Sample Survey Organization have excluded remittance questions from their survey until recently. The last survey round, which includes remittance information, has not yet been released.



teen schooling becomes larger and more significant. Such preliminary evidence offers support for future panel studies exploring the role of private transfers in social protection policies in India.

## 2. DATA

We use the 2004–2005 HDP of India survey.<sup>6</sup> It has information from 41,554 households (26,734 living in rural areas and 14,820 households living in urban areas). We focus on rural households in all states excluding the northeastern region and the Assam and Delhi states.<sup>7</sup> Table A.1 compares the composition, socioeconomic characteristics, and location of households by remittance recipient status. Remittance receipts average 18,215.30 rupees, or US\$413.05, in the last 12 months prior to the survey.<sup>8</sup> Households that receive remittances tend to be wealthier in terms of owned land per capita and also have household heads in the Brahman and other high castes. Households that receive remittances also live in quite different locations on average than those who do not receive remittances. In particular, a greater number of recipients of remittances tend to live in Uttar Pradesh, Bihar, and Rajasthan than elsewhere. These figures highlight the importance of controlling for location to isolate within-state differences in the outcomes of remittance recipient and nonrecipient households.

Table A.2 compares the individual education outcomes of teens living in remittance recipient and nonrecipient households. Approximately 66 percent of the teens in our sample are enrolled in school. On average, the teens in our sample missed three days of school in the last month and spent 31 hours in school per week. The only statistical difference in the schooling practices of teens in remittance recipient households is that they spend more hours per week in school. We also compare the labor supply outcomes of individual teens in remittance recipient and nonrecipient households in Table A.3.<sup>9</sup> The figures indicate that there is no statistically significant difference in labor supply outcomes between these two groups of teens except for the number of hours spent doing wage/salary work. When comparing all teenagers, the figures indicate that teens living in recipient households work more; however, the statistical significance disappears when comparing hours worked by gender.

Table A.3 also presents differences in individual adult labor supply outcomes by remittance recipient status. Adult males that receive remittances actually work more days on the farm and more hours in a usual day; however, they are employed for fewer days in wage/salary jobs. The number of fewer days that males living in households that receive remittances work in wage/salary jobs exceeds the number of additional days they are employed in farm labor, suggesting that overall, males work less. The only change in female employment by remittance recipient status is a slight reduction in their hours worked per day. These results are likely confounded by variables underlying the selection of households receiving remittances. Thus, we next discuss our empirical strategy for estimating correlations between teen education and teen and adult labor outcomes and remittance receipts accounting for the nonrandom assignment of remittance recipient households.

### Empirical Strategy

The selectivity of households receiving remittances poses challenges for identifying the effect of remittances received on education and labor supply outcomes. Evaluating a remittance effect is particularly difficult because the variables that influence economic outcomes simultaneously affect the receipt of remittances. PSM has been used in other contexts to address sample selectivity (Dehejia 2005;

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<sup>6</sup> This survey was jointly organized by University of Maryland and the National Council of Applied Economic Research (NCAER). The data collection was funded by grants R01HD041455 and R01HD046166 of the National Institute of Health and Human Development, Bethesda, MD, USA. Part of the sample represents a resurvey of households initially conducted in the 1993–1994 Human Development Profile of India conducted by NCAER.

<sup>7</sup> We exclude households from these areas because few or no rural households received remittances in the last 12 months from internal migrants.

<sup>8</sup> We use the exchange rate of 44.10 rupees per U.S. dollar provided by the Central Intelligence Agency's *World Factbook* (2009).

<sup>9</sup> Edmonds (2008) provides evidence that a substantive amount of child labor involves domestic work or tasks associated with household production. Since the survey does not provide data on time employed in such activities, our measurement of teen labor is limited.

Dehejia and Wahba 2002; Dehejia and Wahba 1999). While a good instrumental variable is the preferred identification strategy, studies show that PSM performs relatively well to their experimental measures (McKenzie, Gibson, and Stillman 2006; Dehejia 2005; Dehejia and Wahba 2002). We apply PSM to observe the correlations between remittances received and a suite of outcomes.<sup>10</sup>

We define the remittance recipient indicator  $R$ , which holds the value 1 for households that received remittances in the last 12 months prior to the survey and 0 otherwise, with remittance recipient and nonrecipient households' outcomes represented by  $Y^1$  and  $Y^0$ . The average impact of the treatment on the treated (ATT) is

$$ATT = E(Y^1 | X, R = 1) - E(Y^0 | X, R = 1), \quad (1)$$

where  $X$  is a vector of variables that characterizes differences between remittance recipient and nonrecipient households and explains variation in economic outcomes. Matching remittance recipient and nonrecipient households first involves estimating a probit regression representing the receipt of remittances. The regression produces predicted probabilities of receiving remittances for each household. These probabilities, or propensity scores, are used to match remittance recipient with nonrecipient households sharing similar propensity scores. We use the kernel smoothing algorithm to match a single recipient household with all nonrecipient households, where similar nonrecipients households' are given more weight via a kernel function (Smith and Todd 2005).<sup>11</sup> We also impose a common support restriction, which only includes the treatment cases whose scores lie between the minimum and maximum propensity scores in the control group.<sup>12</sup> We use bootstrapping to estimate the standard errors after kernel smoothing.<sup>13</sup> Matching is used to remove the bias caused by unobservables that affect the receipt of remittances. The effectiveness of PSM rests on the conditional independence assumption: The propensity score used to match households is independent of the outcomes and conditional on the vector of observables  $X$ .

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<sup>10</sup> Smith and Todd (2005) show that difference-in-difference (DID) matching estimators outperform matching estimators that use cross-sectional data. We therefore remain conservative in the interpretation of our results since they may be biased by the omission of time-invariant characteristics.

<sup>11</sup> Our estimates are computed using the *psmatch2* procedure in Stata (Leuven and Sianesi 2003).

<sup>12</sup> Smith and Todd (2005) note that for some samples the common support restriction can substantially reduce the bias of the estimate.

<sup>13</sup> Multiple algorithms are available to match recipient with nonrecipient households. Abadie and Imbens (2008) show that many of these algorithms yield inaccurate standard errors. Bootstrapping standard errors following the use of the kernel smoothing algorithm remains an exception.

### 3. RESULTS

#### Determinants of Receipt of Remittances

We estimate a probit model to evaluate the determinants of remittance receipts. We include the following variables in the model: household composition (the number of children, the number of adults, the number of married males and females); socioeconomic characteristics (the highest education level completed among adults; the head of household's age; whether the head of household is of the Brahman or other high caste, Dalit, Adivasi, Muslim, Christian, or Sikh caste/religion category, omitting the obc [other backward castes] category; and owned land per capita); and state dummy variables omitting the Karnataka dummy variable. The state variables facilitate within-state comparisons of the probability of receiving remittances. Table A.4 presents the estimated parameters and standard errors from the probit model. The results are consistent with the insurance and bequest motives to remit supported by the literature (Amuedo-Dorantes and Pozo 2006; De la Briere et al. 2002; Hoddinott 1994). If married women are considered a liability, then a positive coefficient on the number of married women and a negative coefficient on the number of married men in the probit regression are consistent with the insurance motive to remit. Observing a positive effect of owned land per capita on the probability of receiving remittances provides evidence for the bequest motive (Hoddinott 1994). Household members may be more inclined to remit to wealthier households as a form of investment in their future, such as receiving an inheritance. Finally, the coefficients on the religious/caste dummy variables suggest that households with heads in the Brahman or other high castes are more likely to receive remittances than the obc, and households from all other religious/caste categories are less likely to receive remittances. The former shows that the role of ethnic social networks may facilitate sending remittances or reduce costs associated with migration (Azam and Gubert 2006). The latter corresponds to the literature on migration in India, which observes a stronger propensity of lower caste households to migrate (Rogaly 2003; Bhattacharya 2000).

#### Remittances, Schooling, and Labor Supply

Table A.5 presents the differences in the teen schooling and labor supply outcomes. The results indicate that there are no statistical differences in outcomes, with the exception of the hours spent per week in school. We find that teens in households that receive remittances tend to spend more hours per week in school. It is likely that remittances cause a reduction in teen domestic employment; however, our survey does not provide data on the time spent on these activities. When differentiating outcomes by gender, we find weak empirical evidence (the difference is statistically significant from zero at the 15 percent critical level) that the effect is stronger for male teens.

We present differences in the labor supply outcomes of adults living in remittance recipient and nonrecipient households in Table A.6. Both men and women tend to increase their efforts on the farm when their households receive remittances. Men overall work less upon considering the reduction in days spent in wage and salary work. There are a few possible interpretations of the overall results. First, remittances may be affecting investments in complementary inputs that would increase the profitability of working on the farm, and thus cause increases in adult labor allocated to the farm. Existing studies, however, provide evidence of either the opposite effect, where migration increases capital investment substituting out labor (Rozelle, Taylor, and de Brauw 1999), or no effect on inputs (de Brauw, forthcoming). Second, it is possible that we would observe greater reductions in women employed in household work that receive remittances if the data were collected. Third, there also may be child-parent substitution patterns. Skoufias (1993) finds evidence of children-women labor substitution in domestic activities. Katz (1995) and Hazarika and Sarangi (2005) find girls spend more time engaged in domestic activities as mothers work outside of the household. Our results are consistent with child-parent substitution patterns. As remittances allow men to spend less days working, the demand for teen labor (in particular male teens) is also reduced, allowing more time to attend school. However, these results are weakly significant. Finally, it is also possible that the average effects are dampened by the households

without borrowing constraints. We further explore this possibility by correlating remittance recipient status with the human capital and labor supply outcomes of low-caste households in the next section.

### **Heterogeneous Impact of Remittances: The Role of Credit Constraints**

We reflect on whether the correlations between remittance recipient status and schooling and labor supply depend on the degree households are income-constrained by restricting the analysis to low-caste households. Low-caste households include members of the obc, the Dalit (formerly known as the untouchables), and the Adivasi (tribal groups or the indigenous population of India). We find the magnitudes of the correlations between remittance receipts and the labor supply and teen schooling of more credit-constrained households are greater in Tables A.7 and A.8. In particular, the magnitude of schooling attendance of all teens is smaller and weaker in significance than previously; however, the correlation between remittance receipts and male teen schooling attendance is stronger in significance and larger in magnitude. We also see a smaller reduction in overall adult male work and a greater increase in days spent working on the farm for female workers in low-caste households that receive remittances than in the previous section.

#### **4. CONCLUSION**

There is potential for internal migration in India to improve human capital investment, particularly among the impoverished. The evidence suggests that male teens, in particular, may benefit from private transfers. Further investigation into what motivates internal migration and remittances and the characteristics of these households using a panel survey can elucidate the criteria necessary for successful social protection programs in India. Moreover, the identification of barriers to mobility across states, particularly with respect to the poor and low-caste households, may be relevant for the design of future poverty-reducing policies.

## APPENDIX: SUPPLEMENTARY TABLES

**Table A.1. Descriptive statistics by remittance recipient and nonrecipient households**

	Remittances				Difference in Means T-statistic
	Nonrecipients		Recipients		
	Mean	Std. Dev.	Mean	Std. Dev.	
Number of children (ages 0–14)	1.811	1.643	1.728	1.887	2.054**
Number of adults (ages >21)	2.849	1.414	2.669	1.501	5.245***
Household size	5.420	2.629	5.146	3.095	4.256***
Number of married females	1.264	0.733	1.409	0.926	-7.975***
Number of married males	1.244	0.728	0.920	0.791	18.268***
Head of household's age	47.009	13.466	47.103	13.637	-0.288
Highest education level completed by adult	0.640	0.480	0.586	0.493	4.579***
Owned land per capita (acres)	0.409	1.006	0.513	1.079	-4.264***
Caste/religion of household head					
Brahmin	0.040	0.196	0.070	0.256	-6.282***
High caste	0.146	0.353	0.185	0.389	-4.549***
Dalit	0.233	0.423	0.196	0.397	3.621***
Adivasi	0.099	0.298	0.051	0.220	6.753***
Muslim	0.086	0.280	0.089	0.285	-0.496
Sikh, Jai	0.016	0.125	0.002	0.046	4.673***
Christian	0.016	0.127	0.013	0.113	1.079
Remittances (rupees)			18215.30	24925.23	
States					
Jammu and Kashmir	0.016	0.127	0.008	0.090	2.725***
Himachal Pradesh	0.040	0.195	0.069	0.254	-6.134***
Uttarakhand	0.012	0.107	0.022	0.146	-3.813***
Punjab	0.043	0.204	0.010	0.101	6.902***
Haryana	0.056	0.230	0.023	0.151	5.991***
Uttar Pradesh	0.088	0.283	0.174	0.379	-12.177***
Bihar	0.032	0.175	0.119	0.324	-19.070***
Jharkhand	0.021	0.144	0.011	0.106	2.880***
Rajasthan	0.059	0.236	0.111	0.314	-8.870***
Chhattisgarh	0.037	0.189	0.022	0.146	3.405***
Madhya Pradesh	0.091	0.287	0.029	0.167	9.164***
West Bengal	0.049	0.216	0.052	0.222	-0.565
Orissa	0.058	0.234	0.054	0.225	0.834
Gujarat	0.053	0.223	0.030	0.172	4.195***
Maharashtra and Goa	0.089	0.285	0.053	0.223	5.368***
Andhra Pradesh	0.062	0.242	0.038	0.192	4.127***
Kerala	0.044	0.204	0.038	0.191	1.506
Tamil Nadu	0.036	0.187	0.039	0.194	-0.236
Observations	23357		1847		

Notes: The caste/religion and state categories omitted are obc (other backward castes) and Karnataka.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.10.

**Table A.2. Education outcomes by remittance recipient and nonrecipient Status**

	Days work on the farm last year			Days wage/salary work last year			Hours work in a usual day		
	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N
All teens (nonrecipients)	16.247	44.152	8255	14.683	52.265	8255	1.618	3.355	8254
All teens (recipients)	18.448	47.110	692	17.759	58.510	692	1.932	3.584	692
Difference in means (t-statistic)	-1.253			-1.473			-2.356**		
Male teens (nonrecipients)	19.383	49.760	4251	21.133	63.863	4251	2.006	3.717	4250
Male teens (recipients)	21.083	51.718	361	26.526	72.595	361	2.249	3.741	361
Difference in means (t-statistic)	-0.621			-1.523			-1.195		
Female teens (nonrecipients)	12.918	37.003	4004	7.835	34.802	4004	1.206	2.866	4004
Female teens (recipients)	331	15.574	331	8.196	35.265	331	1.586	3.377	331
Difference in means (t-statistic)	-1.243			-0.181			-2.287**		
Male adults (nonrecipients)	49.361	83.605	30981	125.35	125.347	30981	6.648	4.884	30847
Male adults (recipients)	54.632	85.968	2412	116.483	116.483	2412	6.824	4.912	2402
Difference in means (t-statistic)	-2.976***			3.180***			-3.106***		
Female adults (nonrecipients)	29.040	60.425	30317	26.428	71.608	30317	2.619	4.066	30303
Female adults (recipients)	34.917	65.461	2341	27.345	73.284	2341	2.890	4.137	2338
Difference in means (t-statistic)	-4.103			-0.596			-3.106***		

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10. Teens include individuals between the ages of 15 and 17. Adults include individuals between the ages of 22 and 65

**Table A.3. Labor supply outcomes by remittance recipient and nonrecipient status**

	Enrollment indicator			Days absent from school in last month			Hours spend per week in school		
	Mean	Std.Dev.	N	month	Std.Dev.	N	Mean	Std.Dev.	N
All teens (nonrecipients)	0.660	0.474	7183	3.219	6.157	4258	30.373	10.078	4112
All teens (recipients)	0.644	0.479	593	3.562	6.892	338	32.147	8.998	333
Difference in means (t-statistic)	0.803			0.328			-3.114***		
Male teens (nonrecipients)	0.684	0.465	3853	3.364	6.244	2390	30.371	10.127	2313
Male teens (recipients)	0.661	0.474	327	3.647	7.005	190	32.207	9.470	188
Difference in means (t-statistic)	0.860			-0.596			-2.403**		
Female teens (nonrecipients)	0.634	0.482	3330	3.033	6.040	1868	30.375	10.017	1799
Female teens (recipients)	0.624	0.485	266	3.453	6.765	148	32.069	8.377	145
Difference in means (t-statistic)	0.312			-0.807			-1.981**		

Notes: \*\*\* p<0.01, \*\* p<0.05, \* p<0.10. Teens include individuals between the ages of 15 and 17. Adults include individuals between the ages of 22 and 65.



**Table A.4. Remittances received: Probit regression results (household level)**

	Parameter	Std. Error
Intercept	-1.390***	0.072
Head of household's age	0.001	0.001
Highest education level completed by adult	-0.098***	0.030
Number of children (ages 0–14)	-0.094***	0.010
Number of adults (ages >21)	0.015	0.016
Number of married females	1.313***	0.049
Number of married males	-1.434***	0.056
Owned land per capita	0.043**	0.017
Brahmin dummy	0.227***	0.063
High caste dummy	0.159***	0.041
Dalit dummy	-0.100***	0.036
Adivasi dummy	-0.239***	0.059
Muslim dummy	-0.137**	0.055
Sikh, Jai dummy	-0.381*	0.227
Christian dummy	0.092	0.128
Jammu and Kashmir dummy	-0.347**	0.141
Himachal Pradesh dummy	0.126*	0.068
Uttarakhand dummy	0.075	0.102
Punjab dummy	-0.487***	0.120
Haryana dummy	-0.379***	0.083
Uttar Pradesh dummy	0.0293***	0.057
Bihar dummy	0.637***	0.066
Jharkhand dummy	-0.028	0.115
Rajasthan dummy	0.270	0.060
Chhattisgarh dummy	-0.082	0.091
Madhya Pradesh dummy	-0.368***	0.074
West Bengal dummy	0.123*	0.070
Orissa dummy	0.051	0.069
Gujarat dummy	-0.171**	0.077
Maharashtra and Goa dummy	-0.251***	0.065
Andhra Pradesh dummy	-0.185**	0.072
Kerala dummy	-0.309***	0.096
Tamil Nadu dummy	0.094	0.076
Pseudo R-squared	0.217	
Observations	25204	

Notes: The caste/religion and state categories omitted are obc and Karnataka. \*\*\* p<0.01, \*\* p<0.05, \* p<0.10. Heteroskedasticity-robust standard errors reported.

**Table A.5. Effect of remittances received on teen schooling and labor supply**

Variable	Teen Labor (Ages 15–17)					
	All		Male		Female	
	ATT	Std. Error	ATT	Std. Error	ATT	Std. Error
Days worked on the farm last year	2.839 (8947)	2.130	3.190 (4612)	3.181	2.262 (4335)	2.999
Days wage/salary work last year	2.949 (8947)	2.680	5.920 (4612)	4.534	-0.160 (4335)	2.477
Hours worked in a usual day	0.235 (8946)	0.171	0.283 (4611)	0.258	0.211 (4335)	0.229
Enrollment indicator	-0.014 (7776)	0.024	-0.028 (4180)	0.033	0.002 (3596)	0.039
Days absent from school in last month	0.240 (4545)	0.439	0.340 (2367)	0.591	0.409 (1941)	0.745
Hours spent per week in school	1.493** (4394)	0.615	1.384† (2284)	0.925	0.798 (1869)	0.975

Notes: Bootstrapped standard errors reported with 1,000 replications. Number of observations is reported in parentheses below the average treatment on the treated (ATT) effect. \*\*\* p<0.01, \*\* p<0.05, \*<0.10, † p<0.15.

**Table A.6. Effect of remittances received on adult labor supply**

Variable	Adult Labor (22–65)			
	Male		Female	
	ATT	Std. Error	ATT	Std. Error
Days worked on the farm last year	4.659** (33,393)	2.071	3.480** (32,658)	1.741
Days wage/salary work last year	-9.693*** (33,393)	3.331	0.847 (32,658)	1.981
Hours worked in a usual day	0.072 (33,249)	0.127	0.020 (32,641)	0.105

Notes: Bootstrapped standard errors reported with 500 replications. Number of observations is reported in parentheses below the average treatment on the treated (ATT) effect. \*\*\* p<0.01, \*\* p<0.05, \*<0.10.

**Table A.7. Effect of remittances received on teen schooling and labor supply among low-caste households**

Variable	Teen Labor (Ages 15–17) in Low-Caste Household					
	All		Male		Female	
	ATT	Std. Error	ATT	Std. Error	ATT	Std. Error
Days worked on the farm last year	5.059* (6081)	2.718	6.238 <sup>a</sup> (3117)	6.238	3.201 (2942)	4.088
Days wage/salary work last year	3.671 (6081)	3.193	8.148 <sup>a</sup> (3117)	5.208	-0.935 (2942)	3.170
Hours worked in a usual day	0.357* (6080)	0.212	0.421 <sup>a</sup> (3116)	0.299	0.298 (2942)	0.297
Enrollment indicator	-0.024 (5279)	0.031	-0.006 <sup>a</sup> (2821)	0.041	-0.512 <sup>c</sup> (2428)	0.054
Days absent from school in last month	0.667 (3062)	0.598	1.497 <sup>a,b</sup> (1590)	0.745	1.240 <sup>c</sup> (1322)	1.017
Hours spent per week in school	1.316* (2972)	0.758	1.659 <sup>a,b</sup> (1542)	1.072	0.085 <sup>c</sup> (1276)	1.430

Notes: Bootstrapped standard errors reported with 1,000 replications. Number of observations is reported in parentheses below the average treatment on the treated (ATT) effect. \*\*\* p<0.01, \*\* p<0.05, \*<0.10.

<sup>a</sup> Uttarkhand sample omitted since there are no treated observations.

<sup>b</sup> Madhya Pradesh sample omitted since there are no treated observations.

<sup>c</sup> Jammu and Kashmir sample omitted since there are no treated observations.

**Table A.8. Effect of remittances received on adult labor supply among low-caste households**

Variable	Adult Labor (22–65)			
	Male		Female	
	ATT	Std. Error	ATT	Std. Error
Days worked on the farm last year	8.012*** (22,985)	2.838	4.771** (22,424)	2.359
Days wage/salary work last year	-11.524*** (22,985)	4.305	-2.451 (22,424)	2.730
Hours worked in a usual day	0.093 (22,880)	0.156	-0.115 (22,411)	0.144

Notes: Bootstrapped standard errors reported with 500 replications. Number of observations is reported in parentheses below the average treatment on the treated (ATT) effect. \*\*\* p<0.01, \*\* p<0.05, \*<0.10.

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