HELP FROM EL NORTE:
MEXICAN MIGRANT REMITTANCES AND
CHILDREN'S EDUCATIONAL ATTAINMENT

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By

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ABSTRACT

With millions of its citizens living abroad, Mexico is highly dependent on the money sent home by these migrants. This paper uses data from the 2006 national income and expenditures household survey (ENIGH) to examine the effects of family transfers known as remittances on the educational attainment of Mexican children. It finds that when child and household characteristics are taken into account, there is no difference in the probability of school enrollment and the years of schooling completed between children whose households report receiving remittances and those that do not. This somewhat surprising finding—consistent across genders and age groups—may be explained in part by the success of the conditional cash transfer program Oportunidades in providing incentives for poor families to keep their children in school. To make further progress, the Mexican government cannot rely solely on private transfers from abroad to finance human capital investment. Instead, it must expand access to secondary education throughout rural areas and improve the quality of education being delivered in its public schools.

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I.   Introduction

We live in an increasingly interconnected world characterized by greater flows of capital, goods and services, as well as people. As of 2005, nearly 200 million people lived in a country different from the one in which they were born, accounting for approximately 3 percent of the world's population (United Nations 2006). Many of these migrants choose to leave their homes and seek a better life elsewhere; others have little choice in the matter, often forced to cross borders to escape conflict or natural disaster, or as victims of trafficking. Those who are lucky enough to find work and start anew in a foreign land often continue to support relatives in their home countries by sending back a portion of their earnings. These intra-family transfers, known as migrant remittances, have the potential to spur consumption and investment among their recipients, ease liquidity constraints of poor households, and serve as insurance against adverse shocks in developing countries.

Because remittance flows are an easily quantifiable manifestation of migration, they have been a favorite tool of researchers interested in examining the effects of migration on the development of poor nations. The dollar amounts involved are staggering; in 2008, nearly $400 billion in remittances were transferred worldwide, with 77 percent of that going to the developing world (see Figure 1). Some countries—and even whole regions—have become greatly dependent on

remittance flows. Latin America, for example, received more than $60 billion in migrant remittances in 2008 (see Figure 2). In terms of the magnitude of capital flows, this was equivalent to 70 percent of all foreign direct investment in Latin America and 800 percent of official development assistance to the region. In the case of Mexico, one of the world's largest remittance destinations, the more than $25 billion in annual private transfers account for the second-largest source of foreign capital inflows into the country—second only to oil revenues (Fajnzylber & López 2008).

Mexico is a particularly interesting case. Although remittance inflows account for only 3 percent of the country's GDP, in absolute terms the country lags only China and India in terms of remittance receipts. With over 10 million of its citizens currently living and working in the United States, Mexico has seen a five-fold increase in remittance inflows over the past 10 years (see Figure 3). The question of interest to this study is whether these massive capital inflows translate into improved developmental outcomes south of the border. Specifically, this paper will address the issue of educational attainment by Mexican children as a result of remittance receipts, using micro-data to examine whether children in remittance-receiving households show improved educational outcomes compared to those in non-receiving households.

II.   Literature Review

Various branches of research exist in the migration literature. One line of research focuses on the legal frameworks governing the movement of people and the rights and privileges enjoyed by migrants in their respective host countries (Martin 2005). Another deals with immigrant integration and the impact of migration on social and cultural norms (Levitt 1998; Hugo 2005; Waldinger 2008). Yet another branch attempts to measure the potential fiscal and labor market effects of migrants on the host country (Smith & Edmonston 1997; Card 2001; Borjas 2003; Murray, Batalova & Fix 2006; Peri & Sparber 2007). The issue central to this thesis, however, is the interplay between immigration and economic development of the source country.

Migration has the potential to influence development in a number of ways. For example, cross-border knowledge transfer allows for improvements in productivity that benefit businesses and individuals. Conversely, outmigration of the most skilled and most talented can impede a source country's quest for competitiveness on the world stage through a phenomenon known as brain drain. More importantly, migrant earnings sent home in the form of remittances can have a profound impact on household consumption and investment decisions in the source country. The following section outlines some of the relevant literature regarding the macro- and microeconomic impacts of migrant remittances.

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Macroeconomic Impacts of Remittances

The scope of the effects of migration and remittances on Latin American development has been studied extensively. The impacts of remittances have been analyzed on the macro and micro levels. On the macroeconomic level, remittances have been linked to overall economic growth (Durand, Parrado & Massey 1996; Chami, Fullenkamp & Jahjah 2003), exchange rate appreciations (Amuedo-Dorantes & Pozo 2004; López, Molina & Bussolo 2007), and investment and entrepreneurship (Woodruff & Zenteno 2001).

Remittances have also been viewed as a mechanism of income smoothing and insurance against adverse shocks on the household level (Yang & Choi 2007) and as a potential source of moral hazard that negatively affects household labor supply (Chami, Fullenkamp & Jahjah 2003; López, Molina & Bussolo 2007).

Impacts of Remittances on Health and Education

At the household level, one of most interesting areas of research focuses on the impacts of migration and remittances on health and education outcomes of children in migrant households. Hildebrandt & McKenzie (2005), for example, look at the impact of Mexican migration on child mortality and birth weights and find that children in households with migrants have lower infant mortality rates and a lower

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probability of being underweight than do children in non-migrant households. However, they also conclude that children in households with migrants have a lower probability of being breast-fed, of having received all relevant vaccinations, and of having visited a doctor at least once during their first year of life. Examining household expenditures, Airola (2007) finds larger proportions of household income being spent on healthcare in remittance-receiving households.

On the education front, a number of outcome variables have been examined in relation to remittance income, yielding conflicting results. Cox Edwards & Ureta (2003) look at the levels of school enrollment and retention for children in remittance-receiving households of El Salvador. They find that, in addition to parental schooling serving as a key determinant of the child's enrollment, remittances have a positive effect on school retention for different age cohorts. A median remittance amount of 100 dollars, they conclude, reduces the hazard of leaving school by 25 to 54 percent. This effect is stronger than the impact on educational attainment of non-remittance income—2.6 times stronger in rural areas and 10 times stronger in urban areas—suggesting that "relaxing the budget constraint of poor households does have an effect on children's school attainment, even if parents have low levels of schooling" (Cox Edwards & Ureta 2003, p. 29). Yet Acosta (2006) re-examines the determinants of school attendance in El Salvador and finds that remittance receipts do not have a statistically significant impact on the

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probability of attendance for children 11 to 17 years of age after controlling for household assets.

Results are equally mixed in the case of Mexico. Airola (2007) finds no significant effect on the share of household income spent on education in households that receive remittances. McKenzie & Rapoport (2006) examine the effect of migration on the years of schooling of Mexican children aged 12 to 18 and find a negative relationship on the educational attainment of children living in migrant households, with the effect being strongest for boys and girls 16 to 18 years of age. Acosta, Fajnzylber & López (2008) find little to no significant effect of households receiving remittances on the accumulated schooling of children between the ages of 10 and 15. Remittance receipts, they conclude, have a greater impact on educational attainment for children whose parental education levels are low. Similarly, Hanson & Woodruff (2003) estimate that Mexican children in migrant households accumulate less schooling than children in non-migrant households if the child's mother has at least three years of education.

Finally, Kandel & Kao (2001) examine the school performance and college aspirations of school-age children in migrant households. Using an author-administered survey of 7,305 students in grades six through twelve from the Mexican state of Zacatecas, they find negative effects of parental migration on college aspirations but a positive impact on school performance. While the estimated

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relationship between having a migrant in one's household and completing—or aspiring to complete—less schooling is consistent with the findings of McKenzie & Rapoport (2006), the main shortcoming of this analysis lies in the difficult nature of modeling school performance. Comparing grades or test scores across individuals is tricky, given the unobserved and endogenous nature of many of the key determinants of academic performance.

Although these and other studies tackle the difficult questions surrounding the interplay of migration and human and economic development, no definitive answer emerges regarding the micro-level effects of migrant remittances on household decisions regarding human capital investment. In the case of Mexico, the influx of $25 billion in annual remittance income (see Figure 3) is essential for the county's development at the macro-level (Durand, Parrado & Massey 1996). However, the extent to which remittance transfers influence private investment decisions at the household level requires further study. This paper attempts to analyze the link between these sizable remittance flows and children's educational attainment using recent data from a nationally representative Mexican household survey.

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III. Conceptual Framework

Theory suggests that remittances can act in two distinct ways to affect the educational attainment of children. First, additional income received through intra-family transfers can act to relax liquidity constraints of poor households. If children are thought to drop out of school because of insufficient resources at the household level, the effect of remittances as supplementary household income can be significant. Even in countries such as Mexico that have done away with school fees in public education, indirect costs associated with educating children—including outlays for uniforms, school supplies, transportation, and so forth—can inhibit school enrollment.

Perhaps a more important effect of remittance income is on the labor supply decisions of households. In poor rural and urban communities throughout the developing world, children often fail to attend school because of the high opportunity costs of their time. In much of Mexico, children are removed from school in order to increase the productive capacity of the household in the short run. Ultimately, this underinvestment in human capital tends to depress long-run returns. However, for households living at or below subsistence levels, the trade-off between current and future consumption leads to painful decisions. By receiving remittance income from abroad, households can choose to decrease the labor supply of children and keep them in school longer than they otherwise would have. (A separate literature focuses

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on the "moral hazard" aspect of decreasing adult labor supply as a result of remittances. (See, for example, Chami, Fullenkamp & Jahjah 2003 and López, Molina & Bussolo 2007).

The goal of this study is to examine the relationship between educational attainment (as measured by years of schooling completed and the probability of school enrollment) and household remittance receipts. Much of the previous work has focused on the effect of household migration in general and not specifically to the income received through remittance transfers. The estimation framework of this study will analyze the educational attainment of children as a function of household remittance receipts, while holding other factors constant. Because a number of demographic and socioeconomic factors play a key role in determining levels of education, it is important to take into account the levels of parental education and household income, the age and gender of the child, as well as household structure.

Two hypotheses will be tested for each of the two measures of schooling described above:

Hypothesis 1: Do children in remittance-receiving households have a higher probability of school attendance (or higher levels of accumulated schooling) than children in non-receiving households?

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Hypothesis 2: Among households that receive remittances, are higher levels of remittance income associated with a higher probability of school attendance (or higher levels of accumulated schooling)?

The first hypothesis—the one of primary interest in this paper—has been analyzed repeatedly with data from Mexico and other remittance-receiving countries throughout Latin America. However, disagreement persists in the economic literature regarding the effect of remittances on children's educational attainment. As outlined above, while some studies have identified a positive relationship between remittance receipts and children's propensity to stay in school (Cox Edwards & Ureta 2003), most have found results that vary substantially with the child's age and gender, as well as the level of schooling of the mother (Acosta 2006; Acosta, Fajnzylber & López 2008; Hanson & Woodruff 2003; McKenzie & Rapoport 2006).

The analytical framework applied in this paper will follow closely that used by Acosta (2006) in El Salvador. While similar to other approaches in the literature, this framework is one of few to examine specifically the effects of remittances on the differences in school attendance between children in remittance receiving and non-receiving households. The probit estimation technique will be used to model the probability of school enrollment as a function of remittance receipts, child

characteristics, household structure, and several household-level controls. Additionally, OLS estimation will be used to examine the relationship between the years of schooling accumulated by the child as a function of the same set of factors.

The secondary hypothesis will apply a similar empirical framework to the subsample of children living in households that receive remittances. Here, instead of comparing the determinants of schooling between remittance-receiving and non-receiving households through a remittance dummy, the analysis will attempt to isolate the effect of an additional dollar of remittances, conditional on the household's remittance-receiving status. The expectation is that if the act of receiving remittances is positively correlated with schooling, then larger remittance receipts will translate into higher amounts of accumulated schooling and higher probability of school attendance.

IV.   Data and Methods

Data

The dataset used here comes from the National Household Survey of Income and Expenditures (known by its Spanish-language acronym ENIGH).   Collected every two years by Mexico's national statistical agency INEGI, the ENIGH survey is designed to be nationally representative, as well as representative of Mexico's urban and rural populations.   The advantages of ENIGH lie in its regular and frequent

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administration, as well as its level of detail in terms of demographic and income and expenditure data. Begun in 1984, the ENIGH has been carried out on a biennial basis since 1992. At the time of this writing, the most recent available dataset is the ENIGH 2006, which was collected nationwide between August and November of that year.

The unit of observation of the ENIGH is the household, defined as a group of one or more people who typically live in the same place of residence and are supported by common expenditures, whether they are related or not. The unit of selection is the place of residence. Households were selected using probabilistic sampling techniques to obtain a sample that is:

- Nationally representative;
- Representative of localities of 2,500 or more inhabitants ("urban");
- Representative of localities of fewer than 2,500 inhabitants ("rural").

The survey was conducted between August and November 2006, covering a total of 25,443 residences (18,490 urban and 6,953 rural). The overall response rate of 89.8 percent yielded a final sample of 20,875 households. The majority of the 2,365 residences that failed to be interviewed were found uninhabited at the time of the survey. In only 298 cases did the residents refuse to provide information.

The ENIGH 2006 database is presented in six datasets, each covering a distinct set of individual and household characteristics:

Dataset Name	Dataset Description	Variables	Observations
HOGARES.DBF	Household characteristics, incl. physical characteristics of the place of residence	158	20,875
POBLACION.DBF	Sociodemographic characteristics and occupations of household members	92	83,624
INGRESOS.DBF	Incomes and capital receipts of household members	13	79,752
GASTOS.DBF	Expenditures of the household	13	1,348,530
EROGACIONES.DBF	Capital investments of the household	10	18,269
NOMONETARIO.DBF	Non-monetary income and expenditures of the household	10	174,490

In order to analyze the data, the datasets were merged and expanded according to the expansion factor sampling weight, which accounts for the number of Mexican households represented by each entry in the sample (INEGI 2006). Once expanded,

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the survey sample of 20,875 households corresponds to the national population of approximately 26.5 million households. The sample of interest includes all children between the ages of 10 and 18, the age bracket for which outside work opportunities are most likely to depress school enrollment (Acosta 2006, p. 24). Forty-six percent of all households in the dataset reported containing at least one child in this age range, yielding a sample of 16,614 children.

Analysis Plan

The primary analysis uses probit estimation to model the probability of school enrollment as a function of remittance-receiving status and a set of key controls. This relationship can be expressed as follows:

$$Pr\ (E_{ij} = 1) = \phi\ (\alpha\,R_j + \beta\,X'_{ij} + \gamma\,H'_j + \varepsilon_{ij}), \qquad \text{(Eq. 1)}$$

where E_{ij} is the dichotomous outcome of interest—school enrollment—for child i in household j; R_j is a household-level indicator of remittance receipts; X'_{ij} is a vector of child characteristics; and H'_j is a vector of household characteristics. Following the specification employed by Acosta (2006), the regression includes the following controls:

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Child Characteristics	Household Characteristics
• Age of Child • Age of Child Squared • Male Child (0,1) • Oldest Child (0,1)	• Rural Household (0,1) • Log of Per-Capita Total Income • State Indicators
Household Structure	Household Head Characteristics
• Number of Children 0-5 Years Old • Number of Boys 6-17 Years Old • Number of Girls 6-17 Years Old • Number of Males 18-65 Years Old • Number of Females 18-65 Years Old	• Household Head Female (0,1) • Household Head Married (0,1) • Household Head Age • Household Head Age Squared • Household Head Years of Education

An alternative measure of educational attainment—accumulated schooling—is modeled in a similar fashion using OLS estimation:

$$Y_{ij} = \alpha\, R_j + \beta\, X'_{ij} + \gamma\, H'_j + \varepsilon_{ij}, \qquad\qquad \text{(Eq. 2)}$$

where Y_{ij} is the continuous measure of number of years of schooling completed by child i in household j (as measured by the highest grade level completed, not the total number of years spent in school). Both sets of specifications described above control for household structure; demographic, geographic, and socioeconomic characteristics; and other key determinants of children's educational attainment in identical fashion.

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A secondary hypothesis is subsequently considered. By limiting the sample to the 1,322 children living in remittance-receiving households ($R_j = 1$), the marginal effect of additional remittance income on a child's educational outcomes is estimated. More formally, the probability of school attendance is modeled as a function of the amount of remittances received (conditional on remittance-receiving status of the household):

$$Pr\,(E_{ij} = 1) = \phi\,(\alpha\,Q_j + \beta\,X'_{ij} + \gamma\,H'_j + \varepsilon_{ij}), \qquad \text{(Eq. 3)}$$

where Q_j is the log of per-capita remittance income reported by the household. The accumulated level of schooling is similarly estimated:

$$Y_{ij} = \alpha\,Q_j + \beta\,X'_{ij} + \gamma\,H'_j + \varepsilon_{ij}, \qquad \text{(Eq. 4)}$$

While the baseline specifications are estimated over the entire sample of 16,614 children between the ages of 10 and 18, there is reason to believe that educational outcomes of boys and girls in different age groups may be determined differently (see, e.g., Hanson & Woodruff 2003; McKenzie & Rapoport 2006). To allow for this possibility, additional analyses are performed separately for the following six groups: boys ages 10-12, girls ages 10-12, boys ages 13-15, girls ages 13-15, boys

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ages 16-18, girls ages 16-18. Results from these disaggregate regressions are then compared to the baseline case for the two dependent variables (probability of school enrollment and accumulated schooling) and for both sample definitions (all households and remittance-receiving households).

Data Limitations

Though ENIGH survey data is typically of high quality and is often relied upon by researchers studying various aspects of Mexican households, a number of concerns have been raised regarding its measurement of remittance incomes. The two main areas of concern have to do with the definition of remittance income and its potential underreporting. For the purpose of this study, remittance income is defined as the income reported by the household as being derived from "transfers from abroad." Though the term "remittances" is not used in the data documentation, this category of household income has been used by researchers as a close proxy for cross-border family remittances (see, e.g., Díaz 2005; Airola 2007). However, the distinction between the concepts of "transfers from abroad" and "family remittances" can introduce some degree of measurement error in independent variable of interest.

Another source of concern is the potential underreporting of remittance income by responding households. Though it has been shown that nationally aggregated remittance amounts derived from the ENIGH are consistently below

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those estimated by the Bank of Mexico (Airola 2007), it is unclear whether this underreporting is intentional or is simply the result of recall bias (Acosta 2006). In either case, while a significant limitation, this type of underreporting should have a minor impact on the analysis of the primary research hypothesis—that is, whether the fact that a household receives remittances (and not the amount of remittance income) influences children's educational attainment.

V. Results

Descriptive Statistics

As can be seen in Table 1, the 1,322 children in remittance-receiving households and the 15,292 in households that do not receive remittances are strikingly similar according to a number of observable measures. The two groups, on average, are the same age (13.91 and 14.01 years old, respectively), have completed roughly the same amount of schooling (6.80 and 7.10 years) and have similar proportions of male children (53 to 51 percent) and of children who are oldest in their household (56 to 61 percent). More importantly, though, the two groups of children have nearly identical likelihood of being in school (79 percent).

However, the two groups differ dramatically with respect to a number of other characteristics. Children in remittance-receiving households are twice as likely to live in rural areas (51 percent versus 25 percent for those in non-receiving

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households) and nearly three times as likely to reside in female-headed households (58 percent to 21 percent). This breakdown is to be expected because households that receive remittances are predominantly located in rural Mexico and typically send a male migrant abroad to supplement the family's meager farm income. Remittance-receiving households also have more children (3.19 versus 2.78) and fewer working-age adults (2.24 versus 2.65), largely due to the fact that at least one member of the household is living and working in the United States. Moreover, while both sets of households are headed by individuals who are roughly the same age and are equally likely to be married, heads of households with remittance income are, on average, less well educated. Finally, the total monthly income reported by non-remittance receiving households is substantially higher (9,700 pesos, or $880, on average) than that of remittance-receiving households (7,500 pesos, $680, of which 3,000 pesos, $270, per month comes from remittances).

Estimation Results

In order to test the primary hypothesis of interest, multivariate regression analysis is used to examine whether the educational outcomes of children in remittance-receiving households differs from those in non-receiving households. Prior to performing appropriate regressions, mean-comparison t-tests indicate that there is no difference in enrollment rates between children in these two groups (see

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Table 2). On average, 98 percent of boys and girls between the ages of 10 and 12 are enrolled in school in both groups. The enrollment rate drops to 84 percent for 13 to 15 year old boys; 86 percent for 13 to 15 year old girls; and 53-54 percent for 16 to 18 year old boys. In none of these cases is the enrollment rate statistically different across the two types of households. Only in the case of 16 to 18 year old girls do the two rates differ; older girls in remittance-receiving households are actually less likely to be in school than those in non-receiving households (45 percent to 56 percent).

Because these t-tests do not control for any relevant determinants of educational attainment, regression analysis is used to study the effect of remittance receipts on two separate dependent variables of interest. First, probit estimation is used to predict the probability of enrollment for children across the two groups; then, an OLS model is used to compare the effect of remittance receipts on accumulated schooling. In each case a set of four specifications is first estimated for the complete sample of children ages 10 to 18, followed by the complete model applied to each of the six age-gender groupings described in part IV.

The results are surprisingly consistent: the coefficient on the remittance receipt indicator is not statistically different from zero. Neither the inclusion of a control for household income nor of state-level dummies alters the fact that remittances have no impact on the probability of school enrollment or completion (see Tables 3 and 5). For subsample regressions across the six age-gender

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groupings, the remittance receipt coefficient is only marginally significant (positive, in this case, at 10 percent) for predicting accumulated schooling for boys ages 13 to 15. In no other case is this coefficient indicative of any non-zero association between remittance receipts and schooling attainment (see Tables 4 and 6).

For the most part, the remaining control variables have coefficients in the expected direction. For example, the oldest child in the household is consistently more likely to be enrolled and complete more years of schooling. The presence of small children under the age of 5 in the household universally depresses school attendance and completion; this effect is particularly strong for older girls who may be expected to serve as primary child care providers within the household. Though the gender of the household head is only shown to play a significant role in determining educational outcomes in a few specifications, households headed by older, married, or better educated individuals tend to keep their children in school longer. Moreover, children in rural and low-income households are much less likely to stay in school, even when other relevant factors are taken into account. These conclusions are largely consistent with previous literature on remittances and educational attainment in Mexico and El Salvador (in particular, Acosta 2006; and Acosta, Fajnzylber, López 2008).

The story is similar when the sample is limited to households that report receiving remittances. In this analysis, the amount of remittance income received by

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the household does not significantly influence the likelihood of school enrollment or completed years of schooling. Conditional on remittance receiving status, the level of education of the household head remains the most consistent predictor of children's educational attainment (see Tables 7 through 10). For regressions disaggregated by child's age and gender, only accumulated schooling of girls ages 13 to 15 exhibits a marginally significant (negative) relationship between the amount of household remittances and educational attainment.

VI.   Discussion

Policy Implications

Why is remittance income estimated to have no relationship with children's schooling in the case of Mexico? And what, if anything, does this imply for government policy? Though earlier studies also fail to find a definitive positive relationship between remittances and schooling, this paper differs from those analyses in one key respect: it relies on more recent data to study educational patterns in Mexico. The ENIGH survey, despite its limitations, samples a nationally representative collection of Mexican households every two years. Unlike earlier studies that rely on data from the 2000 Census or the 1997 National Demographic Dynamics Survey (ENADID), this paper examines the Mexican educational landscape in 2006. This is important because of one crucial change in Mexican

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education policy that took place in the late 1990s: PROGRESA.

In 1997, approximately 300,000 rural households were selected to participate in Mexico's newest anti-poverty program. The PROGRESA initiative differed from past attempts to provide social services to the poor by virtue of its design as a conditional cash transfer (CCT) program. Instead of inefficient subsidies and in-kind benefits, the government provided cash payments to eligible households that rewarded them for meeting certain conditions. One of these was a requirement that school-aged children stay enrolled in school and maintain a minimum attendance rate of at least 85 percent. Judged successful in meeting its objectives via early randomized evaluation trials, PROGRESA was rolled out nationally and renamed Oportunidades in 2001. Today Oportunidades covers 5 million Mexican families—a quarter of the country's population—in targeted poor (urban and rural) areas. To say that it has been successful in keeping children in school would be an understatement. (Testing for this would require going beyond the empirical framework of this paper. A more comprehensive and authoritative overview of Oportunidades and other CCT programs can be found in Fiszbein & Schady 2009.)

How, then, does the success of PROGRESA/Oportunidades relate to the findings of this paper? By 2006, the time of data collection for this analysis, several million of Mexico's poorest families were receiving government transfers to send their children to school. It should be questioned, therefore, whether liquidity

constraints or the need for child labor—two factors identified in part III above as being central to household schooling decisions—still pose a significant obstacle to school enrollment in Mexico. The ENIGH data shows that by 2006, nine years after PROGRESA was first implemented, the overwhelming majority of Mexican children attend school: 98 percent of 10 to 12 year olds and 85 percent of 13 to 15 year olds. It can be argued, therefore, that the Mexican government has come a long way in achieving higher levels of primary and secondary school enrollment. Under this interpretation, even if migrant remittances had once played a significant role in allowing children from poor households to remain in school, they no longer do so. The remaining 15 percent of 13 to 15 year olds, for example, may be unable to go to school because of a lack of secondary education facilities in rural areas. The effectiveness of CCT programs in keeping children in school, therefore, is constrained by the availability of adequate and accessible educational facilities. The same holds true for the effect of income derived from migrant remittances. If the Mexican government wishes to further increase the enrollment rates of teenaged students, it must expand access to secondary school across the remote areas of the country.

Additionally, teenagers in Mexico and throughout the developing world often drop out of school as a result of a rational calculation. In areas where returns to secondary and post-secondary education are low, students may choose to enter the

labor market at a younger age (Kandel & Kao 2001; McKenzie & Rapoport 2006). If the government makes keeping these children in school a priority, the best way to achieve it would be through ensuring higher rates of return to secondary education for residents of Mexico's rural areas. To achieve this goal, the government must facilitate broad-based economic development that reaches the country's rural poor.

It is also important to remember that measures of school enrollment and completion imply nothing about the quality of education received by children. As discussed by Fiszbein & Schady (2009), increasing the uptake of public services—in the case of education, getting children into schools—does not automatically translate into improvements in final outcomes: quality of learning, test scores, or labor market outcomes later in life. If the government forces children to pursue formal schooling but teaches them nothing, it is doing these children a disservice. Now that Mexico has largely succeeded in bringing the majority of its students into the classroom, it must improve the quality of instruction these students are receiving.

Suggestions for Further Research

As discussed above, migrant remittances and cash transfer programs like Oportunidades can have the potential to achieve development goals through similar mechanisms—by increasing the levels of household disposable income and encouraging investments in human capital. However, the interplay between the two

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types of transfers has not been adequately studied (see Angelucci 2005 for some cursory work on PROGRESA and migration behavior). The interaction between CCTs and migrant remittances needs to be studied extensively in the areas of child health, nutrition, and schooling. This work can start by asking the question of whether public or private transfers are most efficient at generating the desired developmental outcomes for children.

Furthermore, the analyses performed in this paper can greatly benefit from being updated with new Census data (Mexico's next census is due to be conducted in 2010). The main drawback of ENIGH survey data is that it is not representative at the state level. By using Census data to focus on high-migration states and municipalities, the effects of remittance income on education outcomes can be studied more precisely within communities with large numbers of remittance recipients. Future research may also be warranted on how the current global economic crisis is affecting the developmental impacts of migrant remittances. Remittance flows to Mexico have stagnated and dropped off slightly from their peak in 2006 and 2007 (see Figure 3); further declines appear likely. Though it is still too early to examine the long-term impacts of the current downturn on migration patterns, remittance flows, and their developmental impacts, additional efforts to study these phenomena with new data must be pursued.

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The main take-away message for policymakers, however, has to do with expanding secondary school access in Mexico's rural areas and improving the quality of education. Because private remittances have not been shown to significantly influence the amount of schooling received by children, additional improvements in education must be gained through public policy. The main constraint to school attendance for teenagers in Mexico's rural areas is no longer the inability to finance their education—private remittance income, public transfers through the Oportunidades program, and the abolition of school fees have all played a role in this—rather, it is the lack of accessible schooling in their villages that keeps many children from completing secondary education. In addition to expanding access, the government must ensure that those children who are in school receive a high-quality education—after all, a child who attends school but learns nothing will do no better in the labor market than a child who dropped out of school at a younger age.

Appendix

Figure 1a. Annual Global Remittance Inflows, 1970-2008
By Country Income Level
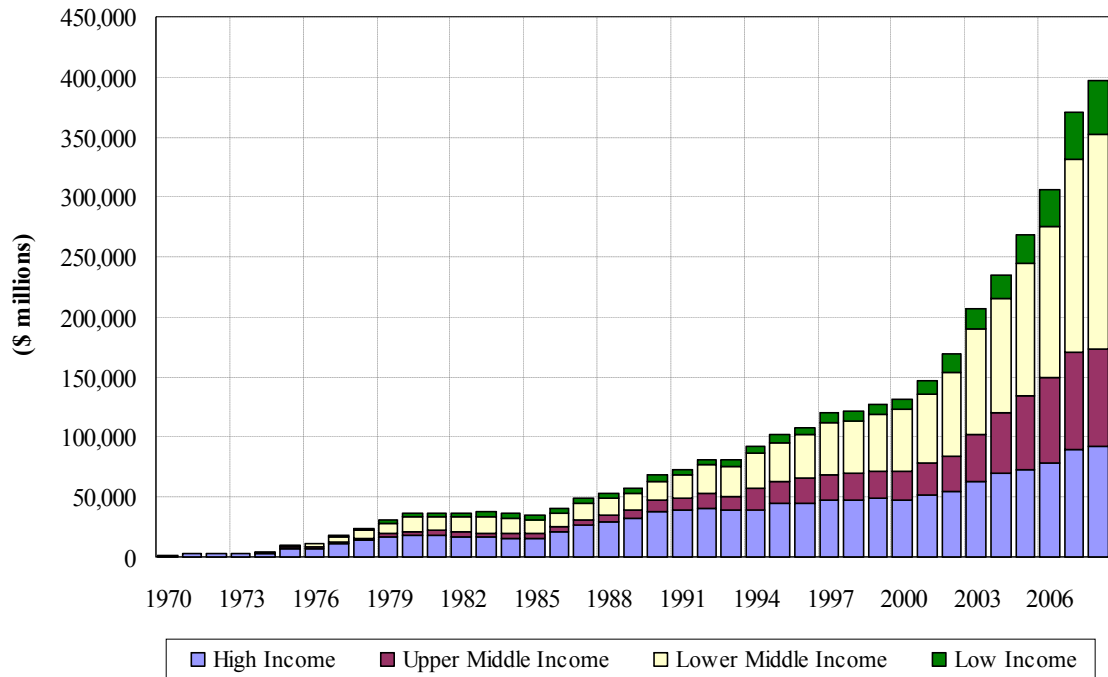
Figure 1b. Annual Global Remittance Inflows, 2008
By Country Income Level

Source: World Bank (2009).

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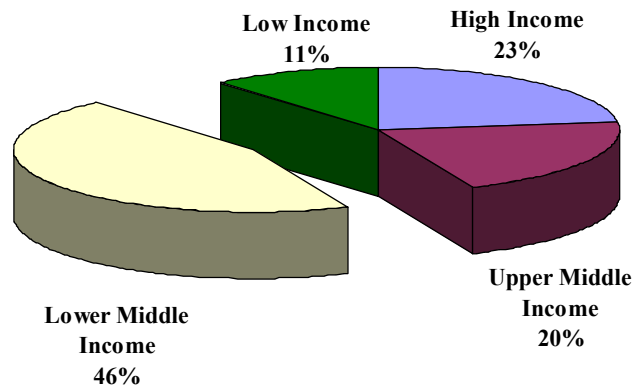
*Figure 2a. Annual Remittance Inflows to Developing Countries, 1970-2008*
By Region

Legend:
- ☐ East Asia and Pacific
- ☐ Europe and Central Asia
- ☐ Latin America and Caribbean
- ☐ Middle-East and North Africa
- ☐ South Asia
- ☐ Sub-Saharan Africa
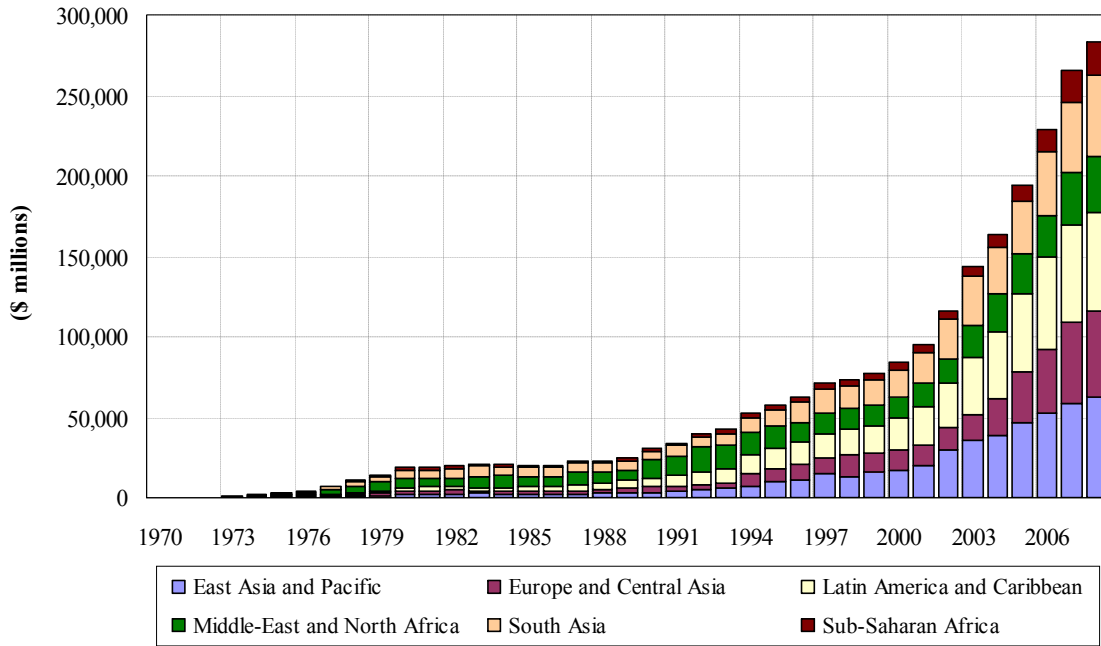
Figure 2b. Annual Remittance Inflows to Developing Countries, 2008
By Region

Sub-Saharan Africa 7%
East Asia and Pacific 22%
South Asia 18%
Europe and Central Asia 19%
Middle-East and North Africa 12%
Latin America and Caribbean 22%
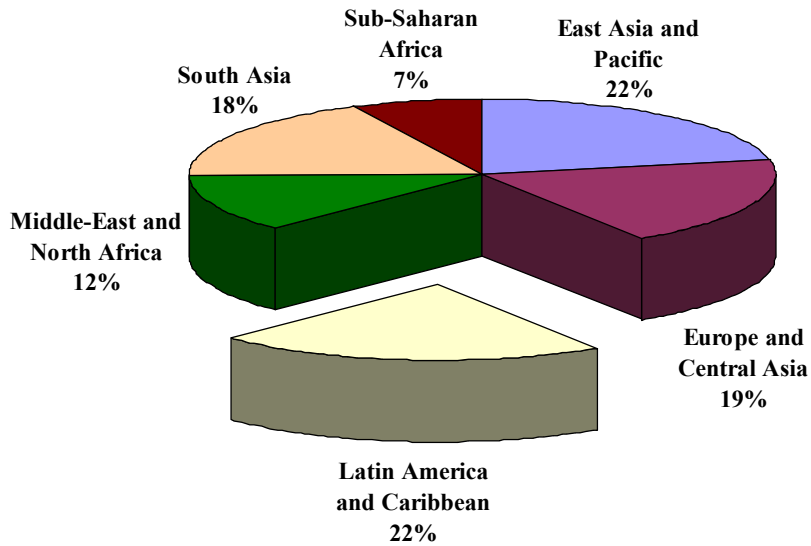
Source: World Bank (2009).

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Figure 3. Mexico: Quarterly National Remittance Income, Mexico, 1996-2008
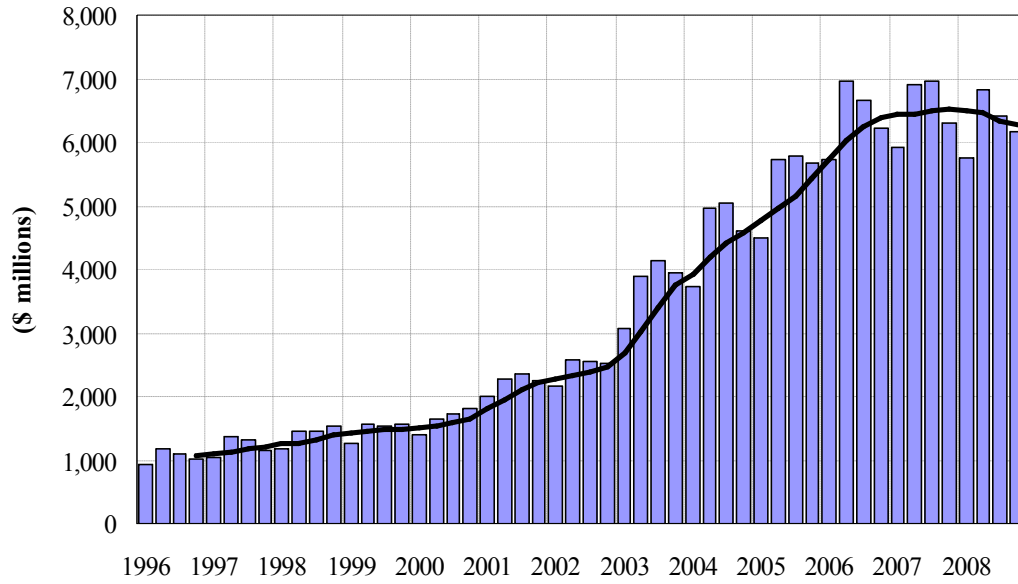
Note: Solid black line represents one-year moving average.

Source: Banco de México (2009).

	Remittance Receiving Households		Non Receiving Households		All Households	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Education Variables						
Child in School (0,1)	0.79	0.41	0.79	0.40	0.79	0.40
Years of Education Completed	6.80	2.56	7.10	2.58	7.07	2.58
Remittances Variables						
Remittance Receiving Household (0,1)	1.00	0.00	0.00	0.00	0.08	0.27
Total Remittance Income	3,031.53	2,939.11	0.00	0.00	238.78	1,160.72
Child Characteristics						
Age of Child	13.91	2.48	14.01	2.56	14.00	2.55
Age of Child Squared	199.63	69.79	202.75	71.82	202.50	71.67
Male Child (0,1)	0.53	0.50	0.51	0.50	0.52	0.50
Oldest Child (0,1)	0.56	0.50	0.61	0.49	0.60	0.49
Household Structure						
Number of Children 0-5 Years Old	0.67	0.90	0.44	0.75	0.46	0.77
Number of Boys 6-17 Years Old	1.29	0.99	1.21	1.04	1.22	1.03
Number of Girls 6-17 Years Old	1.23	1.05	1.13	1.00	1.13	1.00
Number of Males 18-65 Years Old	0.72	0.84	1.24	0.81	1.20	0.82
Number of Females 18-65 Years Old	1.52	0.85	1.41	0.78	1.42	0.78
Household Head Characteristics						
Household Head Female (0,1)	0.58	0.49	0.21	0.41	0.24	0.43
Household Head Married (0,1)	0.65	0.48	0.64	0.48	0.64	0.48
Household Head Age	45.67	12.68	44.59	11.04	44.68	11.18
Household Head Age Squared	2,246.58	1,257.21	2,110.21	1,117.73	2,120.95	1,129.94
Household Head Years of Education	5.38	4.27	7.60	4.93	7.43	4.92
Household Characteristics						
Rural Household (0,1)	0.51	0.50	0.25	0.43	0.27	0.44
Total Household Income	7,491.84	6,871.44	9,725.65	13,501.46	9,549.70	13,115.35
Sample Size	1,322	7.96%	15,292	92.04%	16,614	100.00%
Expanded Population	1,580,861	7.88%	18,489,498	92.12%	20,070,359	100.00%

Notes:

The table reports descriptive statistics weighted by the expansion factor.

Income variables report average household monthly income in pesos over the last 6 months.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

	Remittance Receiving Households		Non Receiving Households	All Households
Table 2. School Enrollment Rates *By Child's Age and Gender*				
All Children	78.84%		79.37%	79.33%
Boys Ages 10-12	98.38%		97.84%	97.88%
Girls Ages 10-12	97.32%		98.19%	98.14%
Boys Ages 13-15	84.83%		83.82%	83.91%
Girls Ages 13-15	86.35%		86.30%	86.30%
Boys Ages 16-18	54.31%		53.40%	53.46%
Girls Ages 16-18	45.00%	*	55.81%	54.97%

Notes:

The table reports descriptive statistics weighted by the expansion factor.

Asterisks denote statistical significance of means comparison t-tests between remittance receiving and non-receiving households:
   * significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

	Model 1	Model 2	Model 3	Model 4
Remittance-Receiving Household (0,1)	-0.020	0.001	-0.006	-0.003
	[0.012]	[0.010]	[0.010]	[0.010]
Child Characteristics				
Age of Child		-0.085	-0.088	-0.088
		[0.017]***	[0.017]***	[0.017]***
Age of Child Squared		0.000	0.000	0.000
		[0.001]	[0.001]	[0.001]
Male Child (0,1)		-0.011	-0.011	-0.010
		[0.006]*	[0.006]*	[0.006]
Oldest Child (0,1)		0.034	0.034	0.034
		[0.007]***	[0.007]***	[0.007]***
Household Structure				
Number of Children 0-5 Years Old		-0.027	-0.022	-0.020
		[0.003]***	[0.003]***	[0.003]***
Number of Boys 6-17 Years Old		-0.006	-0.003	-0.003
		[0.003]**	[0.003]	[0.003]
Number of Girls 6-17 Years Old		-0.003	0.001	0.002
		[0.003]	[0.003]	[0.003]
Number of Males 18-65 Years Old		-0.024	-0.026	-0.024
		[0.004]***	[0.004]***	[0.004]***
Number of Females 18-65 Years Old		0.007	0.007	0.007
		[0.004]*	[0.004]*	[0.004]*
Household Head Characteristics				
Household Head Female (0,1)		0.015	0.014	0.014
		[0.007]**	[0.007]*	[0.007]*
Household Head Married (0,1)		0.037	0.036	0.044
		[0.007]***	[0.007]***	[0.007]***
Household Head Age		0.009	0.009	0.009
		[0.001]***	[0.001]***	[0.001]***
Household Head Age Squared		0.000	0.000	0.000
		[0.000]***	[0.000]***	[0.000]***
Household Head Years of Education		0.020	0.018	0.018
		[0.001]***	[0.001]***	[0.001]***
Household Characteristics				
Rural Household (0,1)		-0.034	-0.022	-0.032
		[0.006]***	[0.006]***	[0.007]***
Log of Total Income Per Capita			0.025	0.029
			[0.004]***	[0.004]***
State Indicators	No	No	No	Yes
Observations	16,614	16,614	16,611	16,611
Pseudo R-squared	0.0002	0.3321	0.3345	0.3453

Notes:
The table reports marginal effects from a probit estimation with robust standard errors reported in brackets.
Asterisks denote statistical significance: * significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

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	Boys, Ages 10-12	Girls Ages 10-12	Boys, Ages 13-15	Girls Ages 13-15	Boys, Ages 16-18	Girls Ages 16-18
			Table 4. Probability of School Enrollment			
			All Households, By Child's Age and Gender			
Remittance-Receiving Household (0,1)	0.002	-0.004	0.028	-0.030	0.043	-0.049
	[0.005]	[0.010]	[0.021]	[0.024]	[0.043]	[0.042]
Child Characteristics						
Age of Child	0.103	-0.041	0.102	0.125	1.881	1.759
	[0.020]***	[0.125]	[0.385]	[0.346]	[0.824]**	[0.850]**
Age of Child Squared	-0.005	0.002	-0.007	-0.008	-0.059	-0.056
	[0.001]***	[0.005]	[0.014]	[0.012]	[0.024]**	[0.025]**
Male Child (0,1)	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a
Oldest Child (0,1)	0.006	0.000	0.035	0.044	0.027	0.065
	[0.005]	[0.004]	[0.014]**	[0.013]***	[0.034]	[0.035]*
Household Structure						
Number of Children 0-5 Years Old	-0.002	-0.002	-0.014	-0.016	-0.033	-0.086
	[0.002]	[0.003]	[0.009]*	[0.008]**	[0.017]*	[0.016]***
Number of Boys 6-17 Years Old	-0.002	0.000	-0.011	0.011	-0.008	-0.005
	[0.003]	[0.002]	[0.007]	[0.007]	[0.012]	[0.013]
Number of Girls 6-17 Years Old	-0.001	0.000	-0.009	0.004	-0.034	0.043
	[0.002]	[0.002]	[0.008]	[0.007]	[0.013]***	[0.013]***
Number of Males 18-65 Years Old	0.000	-0.005	-0.022	-0.032	-0.042	-0.057
	[0.002]	[0.006]	[0.009]**	[0.008]***	[0.016]***	[0.015]***
Number of Females 18-65 Years Old	0.002	0.003	-0.009	0.002	0.000	0.056
	[0.003]	[0.005]	[0.009]	[0.009]	[0.015]	[0.017]***
Household Head Characteristics						
Household Head Female (0,1)	0.002	0.003	0.023	0.020	-0.001	0.022
	[0.004]	[0.005]	[0.018]	[0.016]	[0.033]	[0.032]
Household Head Married (0,1)	0.007	0.017	0.073	0.000	0.090	0.087
	[0.006]	[0.018]	[0.018]***	[0.014]	[0.029]***	[0.029]***
Household Head Age	0.001	-0.001	0.009	0.011	0.017	0.016
	[0.001]	[0.001]	[0.004]**	[0.003]***	[0.005]***	[0.005]***
Household Head Age Squared	0.000	0.000	0.000	0.000	0.000	0.000
	[0.000]	[0.000]	[0.000]*	[0.000]***	[0.000]**	[0.000]*
Household Head Years of Education	0.002	0.001	0.019	0.016	0.047	0.037
	[0.001]	[0.001]	[0.002]***	[0.002]***	[0.003]***	[0.003]***
Household Characteristics						
Rural Household (0,1)	-0.002	-0.009	-0.032	-0.011	-0.106	-0.059
	[0.003]	[0.010]	[0.016]**	[0.013]	[0.026]***	[0.026]**
Log of Total Income Per Capita	0.003	0.006	0.011	0.034	0.049	0.086
	[0.003]	[0.008]	[0.010]	[0.010]***	[0.017]***	[0.017]***
State Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,798	2,068	2,893	2,808	2,696	2,611
Pseudo R-squared	0.1957	0.2120	0.1749	0.1983	0.2124	0.2065

Notes:

The table reports marginal effects from a probit estimation with robust standard errors reported in brackets.

Asterisks denote statistical significance: * significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

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Table 5. Years of Education Completed
All Households, Boys and Girls Ages 10-18

	Model 1	Model 2	Model 3	Model 4
Remittance-Receiving Household (0,1)	-0.153	0.059	0.019	0.030
	[0.072]**	[0.050]	[0.050]	[0.050]
Child Characteristics				
Age of Child		2.045	2.033	2.021
		[0.061]***	[0.060]***	[0.060]***
Age of Child Squared		-0.047	-0.046	-0.046
		[0.002]***	[0.002]***	[0.002]***
Male Child (0,1)		-0.165	-0.165	-0.163
		[0.032]***	[0.032]***	[0.031]***
Oldest Child (0,1)		0.092	0.092	0.090
		[0.028]***	[0.028]***	[0.028]***
Household Structure				
Number of Children 0-5 Years Old		-0.198	-0.167	-0.172
		[0.019]***	[0.019]***	[0.019]***
Number of Boys 6-17 Years Old		-0.096	-0.072	-0.074
		[0.016]***	[0.017]***	[0.017]***
Number of Girls 6-17 Years Old		-0.074	-0.046	-0.046
		[0.016]***	[0.016]***	[0.016]***
Number of Males 18-65 Years Old		-0.134	-0.145	-0.144
		[0.020]***	[0.020]***	[0.020]***
Number of Females 18-65 Years Old		0.026	0.023	0.023
		[0.022]	[0.022]	[0.022]
Household Head Characteristics				
Household Head Female (0,1)		0.025	0.021	0.031
		[0.040]	[0.040]	[0.040]
Household Head Married (0,1)		0.293	0.288	0.303
		[0.032]***	[0.032]***	[0.033]***
Household Head Age		0.053	0.050	0.049
		[0.009]***	[0.009]***	[0.009]***
Household Head Age Squared		0.000	0.000	0.000
		[0.000]***	[0.000]***	[0.000]***
Household Head Years of Education		0.093	0.080	0.078
		[0.003]***	[0.003]***	[0.003]***
Household Characteristics				
Rural Household (0,1)		-0.145	-0.079	-0.092
		[0.030]***	[0.030]***	[0.031]***
Log of Total Income Per Capita			0.164	0.136
			[0.021]***	[0.021]***
State Indicators	No	No	No	Yes
Observations	16,614	16,614	16,611	16,611
Adjusted R-squared	0.0002	0.6316	0.6334	0.6375

Notes:
The table reports OLS regression coefficients with robust standard errors reported in brackets.
Asterisks denote statistical significance: * significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

Table 6. Years of Education Completed
All Households, By Child's Age and Gender

	Boys, Ages 10-12	Girls Ages 10-12	Boys, Ages 13-15	Girls Ages 13-15	Boys, Ages 16-18	Girls Ages 16-18
Remittance-Receiving Household (0,1)	-0.005	-0.028	0.152	0.034	0.058	0.070
	[0.069]	[0.082]	[0.091]*	[0.087]	[0.191]	[0.174]
Child Characteristics						
Age of Child	1.967	0.323	-0.763	3.708	3.458	8.233
	[0.846]**	[0.838]	[1.597]	[1.407]***	[3.059]	[3.167]***
Age of Child Squared	-0.045	0.029	0.056	-0.103	-0.090	-0.234
	[0.039]	[0.038]	[0.057]	[0.051]**	[0.091]	[0.094]**
Male Child (0,1)	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a
Oldest Child (0,1)	-0.044	0.110	0.115	0.185	0.204	0.053
	[0.047]	[0.043]***	[0.057]**	[0.054]***	[0.123]*	[0.124]
Household Structure						
Number of Children 0-5 Years Old	-0.041	-0.048	-0.033	-0.141	-0.298	-0.499
	[0.028]	[0.025]*	[0.049]	[0.039]***	[0.067]***	[0.063]***
Number of Boys 6-17 Years Old	-0.109	-0.019	-0.114	-0.084	-0.079	-0.075
	[0.029]***	[0.024]	[0.033]***	[0.034]**	[0.053]	[0.055]
Number of Girls 6-17 Years Old	-0.105	-0.007	-0.051	-0.054	-0.142	0.017
	[0.027]***	[0.025]	[0.034]	[0.034]	[0.053]***	[0.052]
Number of Males 18-65 Years Old	-0.062	-0.156	-0.134	-0.073	-0.142	-0.157
	[0.035]*	[0.034]***	[0.041]***	[0.038]*	[0.058]**	[0.058]***
Number of Females 18-65 Years Old	0.027	0.038	-0.049	0.036	-0.095	0.247
	[0.036]	[0.029]	[0.059]	[0.038]	[0.062]	[0.064]***
Household Head Characteristics						
Household Head Female (0,1)	0.154	-0.017	-0.043	-0.006	0.001	0.130
	[0.063]**	[0.062]	[0.092]	[0.080]	[0.129]	[0.126]
Household Head Married (0,1)	0.264	0.241	0.416	0.194	0.339	0.383
	[0.051]***	[0.054]***	[0.074]***	[0.066]***	[0.110]***	[0.113]***
Household Head Age	-0.001	0.019	0.048	0.031	0.037	0.082
	[0.014]	[0.011]*	[0.020]**	[0.019]	[0.020]*	[0.023]***
Household Head Age Squared	0.000	0.000	0.000	0.000	0.000	-0.001
	[0.000]	[0.000]	[0.000]*	[0.000]	[0.000]	[0.000]***
Household Head Years of Education	0.044	0.025	0.062	0.053	0.157	0.121
	[0.005]***	[0.005]***	[0.007]***	[0.007]***	[0.010]***	[0.011]***
Household Characteristics						
Rural Household (0,1)	-0.008	-0.023	-0.128	-0.017	-0.225	-0.247
	[0.047]	[0.047]	[0.069]*	[0.064]	[0.102]**	[0.105]**
Log of Total Income Per Capita	0.098	0.114	0.119	0.171	0.141	0.245
	[0.031]***	[0.033]***	[0.046]***	[0.046]***	[0.066]**	[0.070]***
State Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,888	2,715	2,893	2,808	2,696	2,611
Adjusted R-squared	0.4492	0.4610	0.2826	0.3132	0.2325	0.2426

Notes:
The table reports OLS regression coefficients with robust standard errors reported in brackets.
Asterisks denote statistical significance: * significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

Table 7. Probability of School Enrollment
Remittance Receiving Households, Boys and Girls Ages 10-18

	Model 1	Model 2	Model 3	Model 4
Log of Remittance Income Per Capita	0.028	0.009	-0.001	-0.004
	[0.009]***	[0.009]	[0.011]	[0.010]
Child Characteristics				
Age of Child		-0.068	-0.073	-0.097
		[0.064]	[0.064]	[0.060]
Age of Child Squared		-0.001	0.000	0.000
		[0.002]	[0.002]	[0.002]
Male Child (0,1)		0.046	0.045	0.044
		[0.024]*	[0.024]*	[0.023]*
Oldest Child (0,1)		-0.033	-0.033	-0.042
		[0.026]	[0.026]	[0.025]*
Household Structure				
Number of Children 0-5 Years Old		-0.022	-0.016	-0.011
		[0.012]*	[0.012]	[0.012]
Number of Boys 6-17 Years Old		-0.039	-0.036	-0.038
		[0.011]***	[0.011]***	[0.011]***
Number of Girls 6-17 Years Old		0.004	0.006	0.005
		[0.012]	[0.012]	[0.012]
Number of Males 18-65 Years Old		-0.014	-0.019	-0.018
		[0.015]	[0.015]	[0.015]
Number of Females 18-65 Years Old		0.007	0.006	0.012
		[0.013]	[0.013]	[0.013]
Household Head Characteristics				
Household Head Female (0,1)		0.048	0.048	0.061
		[0.029]*	[0.029]*	[0.028]**
Household Head Married (0,1)		0.039	0.045	0.056
		[0.025]	[0.026]*	[0.027]**
Household Head Age		0.002	0.002	0.003
		[0.005]	[0.005]	[0.005]
Household Head Age Squared		0.000	0.000	0.000
		[0.000]	[0.000]	[0.000]
Household Head Years of Education		0.019	0.018	0.017
		[0.003]***	[0.003]***	[0.003]***
Household Characteristics				
Rural Household (0,1)		-0.066	-0.055	-0.072
		[0.021]***	[0.022]**	[0.023]***
Log of Total Income Per Capita			0.034	0.041
			[0.018]*	[0.018]**
State Indicators	No	No	No	Yes
Observations	1,322	1,322	1,322	1,298
Pseudo R-squared	0.0071	0.3371	0.3395	0.3786

Notes:
The table reports marginal effects from a probit estimation with robust standard errors reported in brackets.
Asterisks denote statistical significance: * significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

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	Boys, Ages 10-12	Girls Ages 10-12	Boys, Ages 13-15	Girls Ages 13-15	Boys, Ages 16-18	Girls Ages 16-18
Log of Remittance Income Per Capita	n/a	n/a	-0.035	0.038	-0.014	0.050
	n/a	n/a	[0.028]	[0.032]	[0.050]	[0.077]
Child Characteristics						
Age of Child	n/a	n/a	-0.104	3.071	-3.972	3.491
	n/a	n/a	[1.453]	[1.845]*	[3.615]	[7.640]
Age of Child Squared	n/a	n/a	0.000	-0.113	0.116	-0.110
	n/a	n/a	[0.052]	[0.066]*	[0.107]	[0.234]
Male Child (0,1)	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a
Oldest Child (0,1)	n/a	n/a	0.013	-0.016	-0.366	0.119
	n/a	n/a	[0.057]	[0.062]	[0.117]***	[0.248]
Household Structure						
Number of Children 0-5 Years Old	n/a	n/a	-0.009	-0.011	-0.029	-0.082
	n/a	n/a	[0.034]	[0.036]	[0.053]	[0.109]
Number of Boys 6-17 Years Old	n/a	n/a	-0.056	-0.026	0.044	-0.123
	n/a	n/a	[0.027]**	[0.026]	[0.053]	[0.151]
Number of Girls 6-17 Years Old	n/a	n/a	-0.024	-0.006	-0.018	-0.006
	n/a	n/a	[0.029]	[0.039]	[0.061]	[0.061]
Number of Males 18-65 Years Old	n/a	n/a	-0.086	0.065	0.029	-0.065
	n/a	n/a	[0.039]**	[0.053]	[0.056]	[0.104]
Number of Females 18-65 Years Old	n/a	n/a	-0.001	0.050	-0.012	0.163
	n/a	n/a	[0.035]	[0.037]	[0.055]	[0.216]
Household Head Characteristics						
Household Head Female (0,1)	n/a	n/a	0.005	0.211	0.323	0.064
	n/a	n/a	[0.071]	[0.104]**	[0.119]***	[0.139]
Household Head Married (0,1)	n/a	n/a	0.078	0.051	0.147	0.071
	n/a	n/a	[0.068]	[0.080]	[0.115]	[0.127]
Household Head Age	n/a	n/a	0.024	-0.058	0.006	0.016
	n/a	n/a	[0.014]*	[0.024]**	[0.027]	[0.029]
Household Head Age Squared	n/a	n/a	0.000	0.001	0.000	0.000
	n/a	n/a	[0.000]**	[0.000]***	[0.000]	[0.000]
Household Head Years of Education	n/a	n/a	0.003	0.028	0.047	0.038
	n/a	n/a	[0.007]	[0.012]**	[0.016]***	[0.048]
Household Characteristics						
Rural Household (0,1)	n/a	n/a	-0.109	-0.134	-0.291	-0.104
	n/a	n/a	[0.052]**	[0.067]**	[0.106]***	[0.151]
Log of Total Income Per Capita	n/a	n/a	0.059	-0.017	0.115	0.068
	n/a	n/a	[0.049]	[0.052]	[0.084]	[0.101]
State Indicators	n/a	n/a	Yes	Yes	Yes	Yes
Observations	64	33	217	176	182	188
Pseudo R-squared	n/a	n/a	0.2310	0.3252	0.2950	0.3336

Notes:
The table reports marginal effects from a probit estimation with robust standard errors reported in brackets.
Asterisks denote statistical significance: * significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

Table 9. Years of Education Completed

Table 9. Years of Education Completed
Remittance Receiving Households, Boys and Girls Ages 10-18

	Model 1	Model 2	Model 3	Model 4
Log of Remittance Income Per Capita	0.113	-0.003	-0.042	-0.036
	[0.050]**	[0.041]	[0.046]	[0.047]
Child Characteristics				
Age of Child		2.070	2.043	2.035
		[0.212]***	[0.213]***	[0.216]***
Age of Child Squared		-0.048	-0.047	-0.047
		[0.008]***	[0.008]***	[0.008]***
Male Child (0,1)		-0.087	-0.090	-0.078
		[0.105]	[0.105]	[0.106]
Oldest Child (0,1)		-0.008	-0.007	-0.008
		[0.102]	[0.102]	[0.103]
Household Structure				
Number of Children 0-5 Years Old		-0.149	-0.129	-0.138
		[0.051]***	[0.053]**	[0.057]**
Number of Boys 6-17 Years Old		-0.209	-0.200	-0.207
		[0.058]***	[0.057]***	[0.060]***
Number of Girls 6-17 Years Old		-0.071	-0.060	-0.062
		[0.060]	[0.062]	[0.063]
Number of Males 18-65 Years Old		-0.123	-0.146	-0.123
		[0.070]*	[0.072]**	[0.074]*
Number of Females 18-65 Years Old		-0.127	-0.132	-0.097
		[0.066]*	[0.066]**	[0.067]
Household Head Characteristics				
Household Head Female (0,1)		0.092	0.091	0.085
		[0.126]	[0.126]	[0.132]
Household Head Married (0,1)		0.188	0.204	0.227
		[0.106]*	[0.106]*	[0.114]**
Household Head Age		0.017	0.015	-0.001
		[0.025]	[0.025]	[0.026]
Household Head Age Squared		0.000	0.000	0.000
		[0.000]	[0.000]	[0.000]
Household Head Years of Education		0.099	0.092	0.082
		[0.013]***	[0.014]***	[0.014]***
Household Characteristics				
Rural Household (0,1)		0.020	0.061	0.097
		[0.094]	[0.097]	[0.100]
Log of Total Income Per Capita			0.133	0.141
			[0.083]	[0.085]*
State Indicators	No	No	No	Yes
Observations	1,322	1,322	1,322	1,322
Pseudo R-squared	0.0029	0.5829	0.5834	0.5856

Notes:
The table reports marginal effects from a probit estimation with robust standard errors reported in brackets.
Asterisks denote statistical significance: * significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

	Boys, Ages 10-12	Girls Ages 10-12	Boys, Ages 13-15	Girls Ages 13-15	Boys, Ages 16-18	Girls Ages 16-18
Table 10. Years of Education Completed						
Remittance Receving Households, By Child's Age and Gender						
Log of Remittance Income Per Capita	0.055	0.017	-0.021	-0.143	0.052	-0.207
	[0.082]	[0.110]	[0.076]	[0.080]*	[0.189]	[0.168]
Child Characteristics						
Age of Child	4.955	-1.468	6.996	1.313	-5.578	16.673
	[2.701]*	[4.591]	[5.316]	[4.641]	[15.050]	[13.183]
Age of Child Squared	-0.177	0.105	-0.224	-0.010	0.196	-0.481
	[0.123]	[0.209]	[0.190]	[0.165]	[0.444]	[0.388]
Male Child (0,1)	n/a	n/a	n/a	n/a	n/a	n/a
	n/a	n/a	n/a	n/a	n/a	n/a
Oldest Child (0,1)	0.018	0.148	0.372	0.122	-1.502	0.156
	[0.174]	[0.208]	[0.207]*	[0.180]	[0.547]***	[0.667]
Household Structure						
Number of Children 0-5 Years Old	-0.099	-0.089	-0.017	-0.075	-0.254	-0.127
	[0.068]	[0.097]	[0.146]	[0.111]	[0.231]	[0.182]
Number of Boys 6-17 Years Old	-0.098	-0.026	-0.206	-0.159	-0.313	-0.447
	[0.075]	[0.113]	[0.102]**	[0.117]	[0.262]	[0.211]**
Number of Girls 6-17 Years Old	-0.108	-0.054	0.023	-0.066	0.035	-0.104
	[0.073]	[0.117]	[0.116]	[0.112]	[0.286]	[0.233]
Number of Males 18-65 Years Old	-0.264	-0.172	-0.103	-0.015	-0.310	-0.421
	[0.124]**	[0.204]	[0.140]	[0.141]	[0.234]	[0.219]*
Number of Females 18-65 Years Old	0.032	-0.001	-0.067	-0.141	-0.699	0.194
	[0.083]	[0.138]	[0.155]	[0.094]	[0.263]***	[0.185]
Household Head Characteristics						
Household Head Female (0,1)	-0.066	-0.065	0.097	-0.017	-0.122	0.790
	[0.197]	[0.374]	[0.222]	[0.268]	[0.505]	[0.457]*
Household Head Married (0,1)	-0.042	0.050	0.531	0.240	-0.500	0.996
	[0.145]	[0.225]	[0.231]**	[0.243]	[0.478]	[0.396]**
Household Head Age	0.001	0.047	0.000	-0.037	-0.019	0.125
	[0.047]	[0.052]	[0.040]	[0.044]	[0.096]	[0.077]
Household Head Age Squared	0.000	0.000	0.000	0.000	0.000	-0.001
	[0.000]	[0.001]	[0.000]	[0.000]	[0.001]	[0.001]
Household Head Years of Education	0.037	0.025	0.079	0.027	0.237	0.181
	[0.024]	[0.020]	[0.023]***	[0.025]	[0.064]***	[0.062]***
Household Characteristics						
Rural Household (0,1)	0.075	0.065	0.002	0.102	0.569	-0.215
	[0.167]	[0.202]	[0.201]	[0.183]	[0.428]	[0.352]
Log of Total Income Per Capita	-0.013	-0.122	0.159	0.246	0.451	-0.053
	[0.137]	[0.197]	[0.175]	[0.147]*	[0.335]	[0.280]
State Indicators	Yes	Yes	Yes	Yes	Yes	Yes
Observations	245	195	248	236	194	204
Pseudo R-squared	0.4838	0.3296	0.2870	0.4004	0.2644	0.2014

Notes:

The table reports marginal effects from a probit estimation with robust standard errors reported in brackets.

Asterisks denote statistical significance: * significant at 10%, ** significant at 5%, *** significant at 1%.

Source: Instituto Nacional de Estadística y Geografía (INEGI), ENIGH 2006.

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