

The Effect of Remittances on Youth Educational Attainment, Persistence, and Aspirations in Southern Mexico

I. Introduction

In the final decades of the 20th century and into the first years of the new millennium, migration across national borders has emerged as a truly global phenomenon. It is now estimated that nearly 200 million people—3% of the world's population—now live outside their country of origin while increasing number of nation-states in the Americas, Europe, Asia, Africa, and Oceania have transformed into both senders and receivers of international migrants (UNDP, 2006).

As international migration has grown in prominence in recent decades, it has received increasing amounts of attention from media, politicians, and scholars. While much of this attention has focused on the economic impact and integration of migrants within receiving countries, the effect migration is having on the economic, political, and social realities of the societies migrants leave behind has also begun to be noticed and studied by researchers and policy makers alike. While the first wave of this research exposed some of the negative consequences of migration for these communities such as human capital loss (brain drain), growing income inequality, family separations, and community breakdown (Bhaghati and Rodriguez, 1975; Kapur and McHale, 1995), recent studies have brought to light some of the potential benefits of migration for sending communities such as the increased social and financial capital harnessed through transnational communities, the enhanced human capital of return migrants, and the finely targeted development potential of remittances (Portés, 1996a; Levitt, 2001). As empirical studies have begun to proliferate in this area, it is clear that out-migration carries both costs and benefits for the communities sojourners leave behind.

Given the prominent role that schooling plays in shaping human capital formation, citizenship competencies, and in contributing to social equality, educational opportunity is a

domain increasingly studied by scholars in understanding the impact of outmigration for migrant sending communities of the developing world. A recent line of inquiry, conducted in Mexico due to that nation's large scale and sustained history of migration to the United States, has begun to measure the impact of family participation in migration to the United States on the educational aspirations and attainment of their school-age kin remaining in the sending country. As in other areas of inquiry on the effects of out-migration, no consensus has been presently reached on how it shapes educational opportunity in migrant sending communities as some studies have shown positive effects on related outcomes, others have shown this relationship to be negative, and yet others have yielded mixed findings.

The conflicting results of these studies have led to a pair of competing hypotheses. On one hand, scholars have hypothesized that children from migrant families benefit educationally from their family's receiving of remittance income, which in turn can be applied to educational expenses. Having such income, the thinking goes, allows these families and their children to both aspire and complete more schooling than would otherwise be possible. A counter-hypothesis holds that, despite the presence of remittance income available for educational expenses, youths from migrant families are more likely to forego schooling to join their kin in the unskilled sectors of the U.S. labor market where economic payoff to Mexican education is negligible. The purpose of this study will be to further disentangle the relationship between outmigration and educational opportunity by directly testing the effects of remittance income—the mechanism hypothesized by scholars to boost educational outcomes for migrant families--on a series of theoretically important educational outcomes in one Mexican migrant sending community.

Similar to its predecessors, this study will utilize the Mexico-U.S. migration case. Given the long established and large scale patterns of migration between Mexico and the United States, Mexico provides a unique laboratory in which to explore the dynamics of international migration within sending communities (Cornelius and Bustamante, 1989; Cornelius, 1990). This study is unique in a couple of different ways. First of all, it makes the original contribution of exploring

the direct effects of remittance income on educational outcomes.¹ Secondly, while most previous work in this area has utilized macro datasets with a nationally representative or multi-state sample, my study explores micro data from one single migrant sending community, thus allowing for a more in-depth look at how remittance receiving families and individuals differ from non-remittance receivers in terms of educational outcomes within a larger community greatly impacted by out-migration.

To achieve the aforementioned objectives, this paper will use the Mexican Migration Field Research and Training Project's 2007-2008 survey² administered in the major migrant sending community of San Miguel Tlacotepec, Oaxaca to examine the effects of remittance income on the educational attainment, participation, and aspirations of youths aged 15 to 19 who remain in the community. The focus of 15-19 is important for several reasons. As compulsory education in Mexico covers the ages of 4 to 15, this age group will allow me to assess whether these students completed the expected nine grades of education established in the Mexican constitution and, for those who have not, whether these youth are still in school. In addition, as the most serious equity divides in education take place at the upper secondary level and in college access, it is thus appropriate to establish whether migration relates to the aspirations and persistence in school at these post-compulsory levels.

To explore these questions, 15 to 19 year old youth who receive remittances will be compared to those who do not have access to such financial resources in terms of educational attainment, participation, compulsory schooling (ninth grade) completion, and aspirations. Descriptive statistics as well as OLS and logistic regression analysis will be used to determine whether remittance receiving youth have higher educational attainment, school enrollment, ninth grade completion rates, and aspirations than their non-remittance receiving counterparts. As

¹ For an exception see Sawyer, Keyes, Velásquez, Lima and Bautista, 2009.

² For more information on University of California, San Diego's Mexican Migration Field Research and Training Project (MMFRP), please see: <http://www.polisci.ucsd.edu/cornelius/>

previous literature has hypothesized that females are more likely to benefit from the positive effects of outmigration and less harmed by its negative byproducts, I will additionally examine whether there are differences in these effects by gender.

In Section II of this paper, I offer an introduction to the migration and educational context of San Miguel Tlacotepec, paying special attention to how this site compares to other migrant sending communities in Mexico, the constraint financial barriers pose for educational opportunity in Mexico in general and in this town in particular, and the prominent role remittances play in both the national and local economy. In Section III, I provide a conceptual overview which draws upon previous research on the relationship between out-migration and educational opportunity in the migrant sending communities of Mexico. In Section IV, I follow with a description of the research design, including data, analytic strategy, and threats to validity associated with potential limitations of the design and how I have addressed these issues. Section V describes the results of the estimated effects of remittances on the selected educational outcomes and discusses the range of additional checks to test the robustness of these results. In Section VII, I discuss these findings and their plausible explanations. Section VII concludes with implications and suggestions for future research and public policy.

II. The Migratory and Educational Context of San Miguel Tlacotepec

A Mature Second Generation Migrant Sending Community

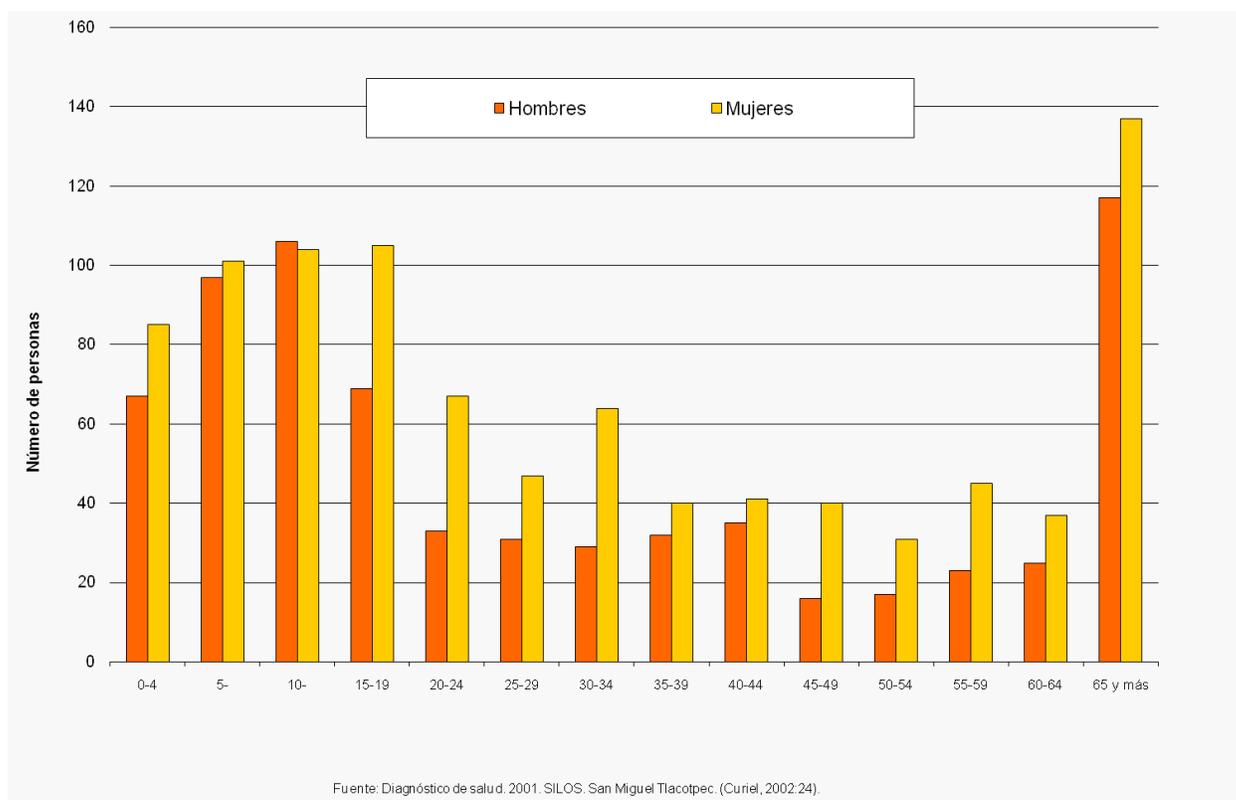
At its zenith from the mid 1990s to the mid 2000s, an estimated 400,000 Mexicans migrated annually to the United States for either permanent or temporary settlement and there are currently more than 10 million Mexican-born people presently residing in the United States (Pew Hispanic Center, 2007; U.S. Census Bureau, 2000). In terms of sheer number of migrants it sends to the United States, the southern Mexican state of Oaxaca stands in the middle of the pack nationally. In 2000, this impoverished entity ranked 16th out of Mexico's 32 states in terms of the percentage it comprises of overall Mexican migration to the United States (Cohen, 2004). Nevertheless, the flow of Oaxacan migrants has been growing rapidly since the 1980s and it

exploded in the 1990s. By the year 2000 34% of Oaxacan households had at least one migrant living across the border (Cohen, 2004). Oaxaca's great cultural diversity also reflects an emerging indigenous representation in overall Mexican migration (Cornelius, Fitzgerald, Lewin-Fischer and Borger, 2008). It is estimated that one million indigenous Mixtec, Zapotec, and Triqui Oaxacans currently live in the United States (Holmes, 2006). As with the traditional migrant sending states of Western Mexico, migration from Oaxaca has typically been dominated by small municipalities in the economically marginalized rural areas of the nation such as San Miguel Tlacotepec, the field site for this study (Cabrera, Hildreth, Rodríguez, and Zárate, 2009).

Figure I. History of Migration from San Miguel Tlacotepec, Oaxaca



Figure II. Demographics of San Miguel Tlacotepec by Age and Gender (2001)



Located in the rugged highlands of Oaxaca's *Mixteca Baja*, San Miguel Tlacotepec is a county seat of 1,696 people. Now its second generation of international migration, the town lost 353 members of its population due to emigration between 1995-1999, and a further 712 between 2000 and 2004 (SIMO, 2008). It is increasingly a town of old men, women, and young children as most men between the ages of 20 and 50 are working in the United States (See Figure 2). As a result of this rapid exodus, 31% of the total housing stock (217 of 698) stood abandoned in December 2007, as families have increasingly migrated together to the United States. Although migration has greatly accelerated in the past two decades, out-migration is hardly a new phenomenon to San Miguel Tlacotepec. As seen in Figure 1, the first known migrations from Tlacotepec were seasonal internal migrations to the sugar cane plantations of the tropical eastern Mexican state of Veracruz during the 1950s and 1960s. In the 1960s and 1970s seasonal internal

migrants from Tlacotepec increasingly ventured to the large agricultural plots in the northern Mexican states of Sinaloa and Baja California. Over time, these seasonal internal migrants in northern Mexico began to learn of opportunities across the border in California, and in the late 1970s and early 1980s, the first Tlacotepense settlers arrived in the northern San Diego County communities of Vista, San Marcos, and Fallbrook, which to this day remain the primary destination points for Tlacotepense emigrants. In Vista, Calif. alone, there are an estimated 200-300 families from San Miguel Tlacotepec (López and Runsten, 2004). Tlacotepec, as its residents prefer to call it, is classified as a “highly intensive” migrant sending community by Mexico’s National Population Council (CONAPO), which gathers comprehensive data on emigration rates in all of the country’s municipalities. In terms of comparability to other Mexican migrant sending communities, San Miguel Tlacotepec is broadly representative of the “intermediate,” or “mature second generation” senders of migrants to the United States, in which the strong networks and migrant generated wealth are in the process of developing rather than being fully in place as they are in “traditional” migrant sending communities (Cornelius, 1990).

Similar to other rural Mexican migrant sending communities, the primary push factor for prospective migrants from San Miguel Tlacotepec is the dearth of employment opportunities. According to government statistics, 62% of Tlacotepense families work in agriculture or tending to livestock, ventures that tend to be at or barely surpassing that of subsistence due to the lack of irrigation in the community. 20% make palm products, which some sell for bargain basement prices at local markets. Another 13% work in small businesses of various types, many of which are located thirty minutes away in the city of Juchitán. As in other economically strained migrant sending communities in Mexico, international remittance income has emerged as an important supplement to the local economy. It is currently estimated that in the nation as a whole, 24 billion U.S. dollars were received from migrants living in the United States in 2008, representing nearly 3% of the nation’s Gross Domestic Product (Banamex, 2008). In Tlacotepec, nearly 50% of the town’s residents--and 89% of those with U.S. based family members-- report

receiving remittance income from the United States, while 72% of Tlacotepense migrants living in the United States report sending remittances to family members back in San Miguel Tlacotepec.

Educational Context of San Miguel Tlacotepec

Given Oaxaca’s place as one of Mexico’s poorest states, and San Miguel Tlacotepec’s relative deprivation of San Miguel Tlacotepec as compared to other parts of the state, the municipality’s educational indicators are unsurprisingly well below national and state averages (Sawyer, Keyes, Velásquez, Lima & Bautista, 2009; INEGI, 2005; CONAPO, 2005). According to government data, Tlacotepenses have lower rates of literacy, elementary school completion, educational attainment, and school attendance on average than their national and inter-state counterparts (see Table 1)

Table 1. Selected Educational Indicators, Population 15 Years and Older, 2005

Indicator	Mexico	Federal District	Oaxaca	San Miguel Tlacotepec
Literacy rate	90.5	97.0	80.6	68.2
Percent attended school	91.6	97.0	93.6	87.0
Percent incomplete primary	14.3	6.5	20.6	57.0
Average years of schooling attained	8.1	10.5	6.4	6.7

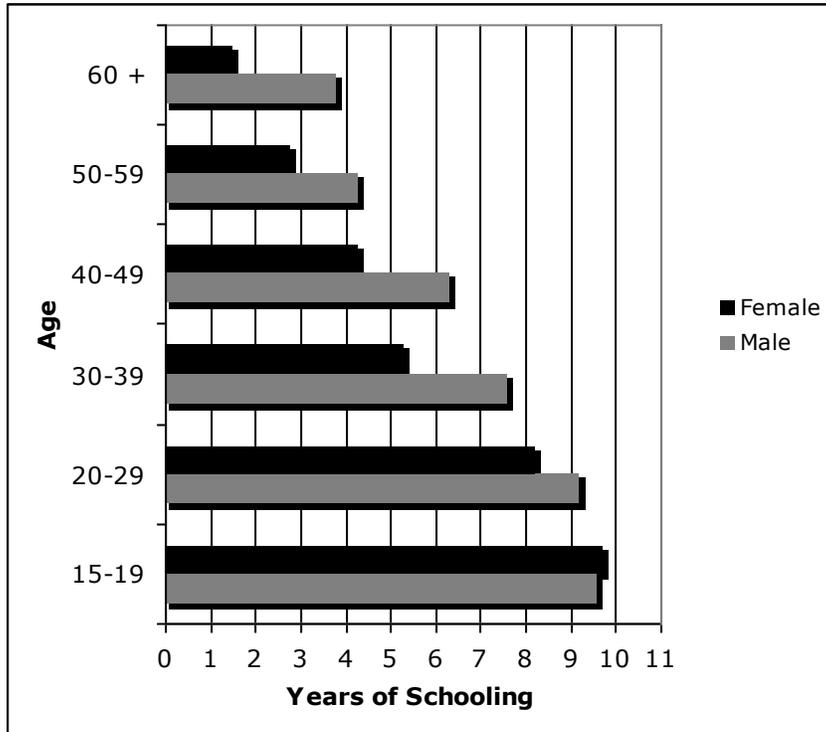
Sources: INEGI, CONAPO.

Despite these seemingly dismal statistics, Tlacotepec, as with the nation as a whole, has made great strides during the last five decades to expand educational access and close the gender gap in educational attainment. Educational attainment in the municipality has increased more than threefold between the 60+ and 15–19 cohorts.³ And as seen in Figure 2, although males in the 60+ category have attained nearly three times the amount of schooling found among females in

³ Though it bears mentioning that due to outmigration in the community, it is plausible that these disparities are inflated somewhat by the fact that the 15-19 year old age cohort is relatively intact, while older cohorts are negatively self-selected as non-migrants.

their age cohort, there is no significant difference in educational attainment between males and females in the 15–19 age cohort (Sawyer, Keyes, Velásquez, Lima & Bautista, 2009). Perhaps due to this apparent expansion in educational access, 73% of Tlacotepense youth now aspire to finish at least high school and 50% hope to go to college (Sawyer and Keyes, 2008)

Figure 3. Schooling Attainment by Age and Gender in San Miguel Tlacotepec.

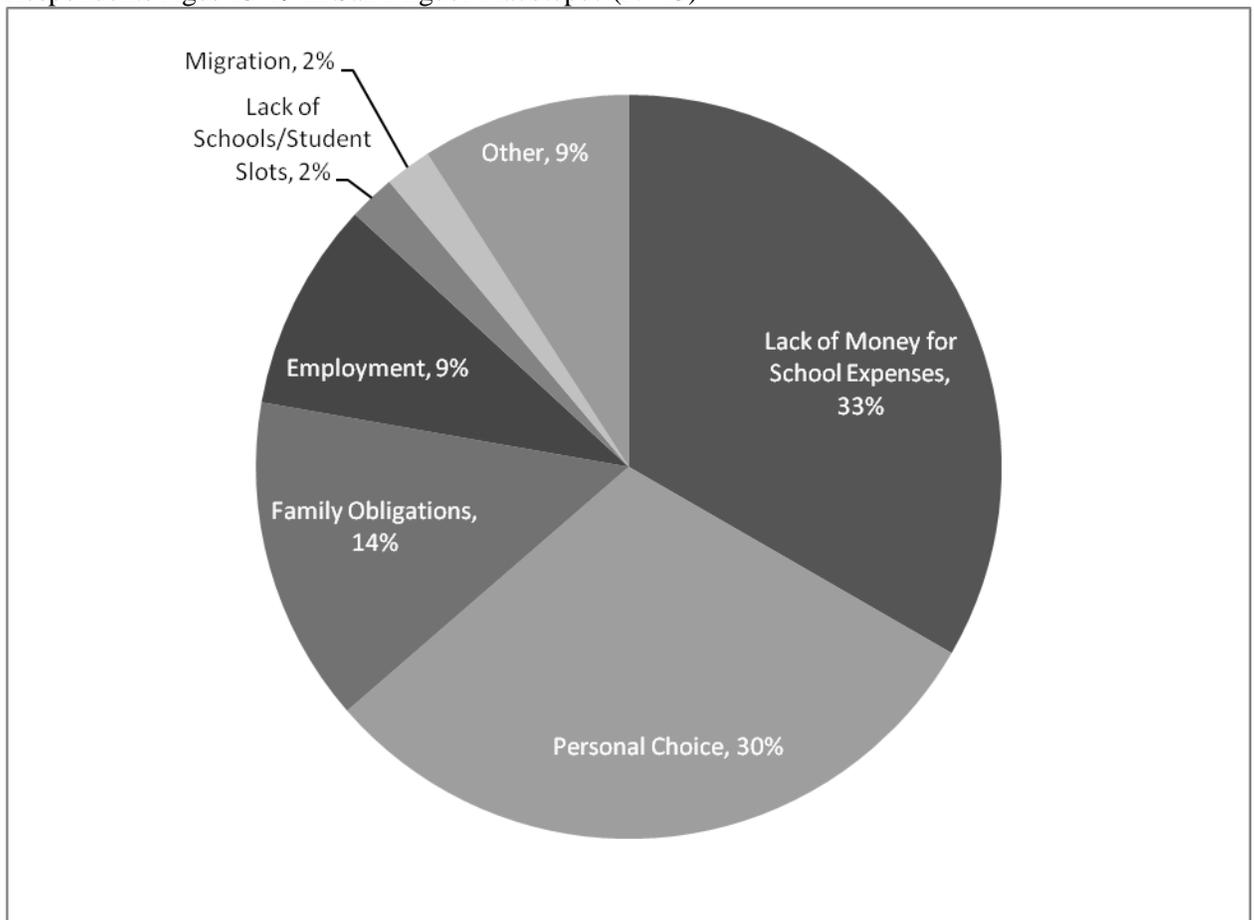


Educational Expenses

Amidst this story of notable educational progress in recent decades, considerable barriers remain in the way of Tlacotepense's young attaining their schooling aspirations. Perhaps the most stifling of these at the household level are the great costs residents must incur to attend school. Even at the compulsory levels of elementary and junior high school, in which students receive free textbooks and attendance is incentivized through government subsidies, parents must gather money for school uniforms, supplies, and parent association fees. These costs are more substantial for students at the high school level, who must pay tuition and purchase their own

books (Sawyer, Keyes, Velásquez, Lima & Bautista, 2009). Furthermore, at the higher grade levels, continued student attendance in school comes at the expense of labor market participation, an income source which many households in the community depend. Overall, Tlacotepec residents report spending US\$21 per month on educational expenses, a full eight percent of their monthly income (Sawyer, Keyes, Velásquez, Lima & Bautista, 2009). Given these economic factors, it is not surprising that more than half of out of school youth ages 15-19 in the town, as seen in Figure 4, report doing so for financial reasons (Cornelius and Sawyer, 2008).

Figure 4. Reasons Given for School Leaving Expressed in Percentages, Out of School Respondents Ages 15-19 in San Miguel Tlacotepec (N=43)



Due to the considerable expense schooling represents for families in San Miguel Tlacotepec, many households are forced to find creative ways to finance schooling. As many of

the costs of schooling are front loaded at the beginning of the school year, families oftentimes lack the cash flow to meet these costs as they arise. If unable to borrow from friends and family, some turn to the shady education loan businesses in the community, reputed at least anecdotally to open and close their operations at a moment's notice sometimes with the hard earned deposits of families attempting to save for educational expenses (Sawyer and Keyes, 2008). Another perhaps preferable option that has emerged for families is the use of international remittance income to meet these educational expenses. While our survey indicated that the majority of remittance income in Tlacotepec is used for basic subsistence costs such as food, shelter, and clothes, the second most cited use of this financial capital is for educational expenses. Indeed, 33 percent of remittance recipients in the town report using this income to pay for educational expenses (Sawyer, Keyes, Velásquez & Bautista, 2009). Hence there is reason to believe that remittances might make a difference for educational outcomes in San Miguel Talcotepec.

III. Review of the Literature

Transnational Communities and the Exchange of Financial Capital

Due in part to geographic proximity and persistent circular migration patterns between the nations, most Mexican immigrants maintain kin, social, cultural, and economic ties home upon arrival in the United States, forming what scholars have coined as “transnational communities” between the “sending” and “receiving” countries (Portés, 1996a; Smith, 2006). An important byproduct of these binational ties is the large amount of remittance income—the financial capital Mexican migrants send to family members in their community of origin—transferred from the United States to Mexico (Fitzgerald, 2009; Smith 2006).

Once considered inconsequential for the larger goals of international development, remittances have arisen within the academic and political discourse as potentially improving the economies and civil societies of the developing world. Recognized by economists and human

rights advocates⁴ alike for their finely targeted nature that allows this income to mostly land in their intended hands and for their desired purposes, great strides have been made in measuring the impact of this migrant generated and internationally transferred financial capital. In the case of Mexico, remittances represent a significant portion of the nation's total foreign exchange. In the year 2007, data from Mexico's Federal Reserve showed that remittances from Mexicans working in the United States reached 24 billion U.S. dollars and is predicted to reach 24.7 by the end of 2008, representing nearly 3% of the nation's Gross Domestic Product (Banamex, 2008).

Remittances, Educational Spending, and Schooling Persistence

Similar to other developing nations around the world, one of the great impediments facing the pursuit of schooling for the economically marginalized citizens of Mexico's rural areas are the high direct costs involved in paying for schooling, especially at the higher grade levels (Reimers, 2002; Bracho, 2002; Santibañez, 2005). In Mexico, while 93% of students finish elementary school (grades 1-6), a smaller 86% begin lower secondary school (grades 7-9)--with only a bit more than half finishing this school cycle--and only 51% of 15-18 year olds enroll in upper secondary school (grades 10-12) (Santibañez, 2005). It has thus been hypothesized that for Mexico's economically marginalized and mostly rural migrant sending communities, remittance income can serve as the financial boost needed to meet educational expenses, reduce opportunity costs of forgone child labor, and thus increase schooling enrollment and attainment (Hanson, 2002; Kandell and Kao, 2001).

Few empirical studies have directly examined whether families who receive remittances devote those to the education of school-aged children in the household. Exploratory survey research I have conducted with colleagues in San Miguel Tlacotepec, we found that 33 percent of remittance-receiving households designate some of their income for education remittances and

⁴ It bears mentioning that within academic and advocate circles, remittances are a contested topic. Critics charge that remittances can serve to exacerbate existing social inequalities in migrant sending communities and do not justify the family and community breakdown wrought by large scale migration.

we collected numerous testimonials from educators, parents, and students of how remittance income supported the pursuit of education. We also found modest evidence for a positive remittance effect on the likelihood of high school completion in the town, though not for educational attainment as a whole (Sawyer, Keyes, Velásquez, Lima & Bautista, 2009).

Though few studies have directly measured the effects of remittance income on educational outcomes, there is indirect evidence that supports the existence of such a relationship. In a 2002 study of Mexican census data, Hanson found that on a national level, youths from migrant households (those having one member living abroad) had accumulated more years of schooling on average than those from non-migrant households when controlling for contextual and demographic factors. Similarly, Kandell and Kao (2001) found, based upon a survey of 7600 Mexican school children from the prominent migrant sending state of Zacatecas, that students from migrant families had higher school performance—as measured by grades—than those from non-migrant families. It is important to note, however, that the authors found that these same children had lower aspirations of attending college than those from non-migrant families leading the authors to conclude that the financial benefits from international migration allow students to perform well and potentially attain greater amounts of schooling, while being from a migrant household also paradoxically provides a disincentive for pursuing higher levels of education (Kandell and Kao, 2001). While these studies establish the existence of a relationship between out-migration and educational outcomes, they do not explore the potential underlying mechanisms behind this relationship such as remittances, the social influence (or absence thereof) of family members living abroad, and school-based factors within migrant sending communities.

The “Culture of Migration” and School Desertion

Scholars are hardly uniform in endorsing the merits of outmigration for promoting educational opportunity in Mexican migrant sending communities. Several in fact have found evidence to suggest that the *contrary* may in fact be true. To explain these findings, researchers

have linked these empirical results to a larger theoretical argument on how outmigration transforms migrant sending communities known as the “culture of migration.”

The “culture of migration refers to the community norm that emerges in Mexican communities long engaged in international migration by which leaving to work or reunite with family members in the United States becomes an expected part of the life-cycle, especially for young men (Cornelius, 1990). Given these community norms, the fact that Mexican educational credentials are of little use for securing the mostly unskilled work available to Mexican migrants in the United States, and that migration is facilitated by having existing networks in the receiving community, some scholars and observers have hypothesized that youths from prominent migrant sending communities—and especially those with existing migrant kinship networks—might be more likely to desert school prematurely (Kandell and Kao, 2001; Miranda, 2007; McKenzie and Rapoport, 2006).

Empirical support for this hypothesis has come from a handful of different studies. Kandell and Massey (2002), in a survey of 7,000 school-aged children and youth in Zacatecas found that the higher the respondent’s family’s involvement in migration, the higher their intent was to someday migrate themselves which in turn was associated with a diminished aspiration to pursue additional schooling. Similarly, McKenzie and Rappaport (2006), using the nationally representative Mexican Family Life Survey (MXLFS) found that living in a migrant household lowered the chances of boys completing junior high by 22% and boys and girls completing high school by 13-15%. In another recent study, Miranda (2007), using data from the Mexican Migration Project, found that possessing migrant family networks was associated with a decreased probability of having completed high school within Mexican migrant sending communities.

The Role of Gender

Throughout its roughly one hundred year history, Mexican migration to the United States has been dominated by sojourning males. While females have participated in migration in ever

greater numbers in recent decades--both to reunite with spouses and family members as well as on their own—they still emigrate in much smaller numbers and at later ages than their male counterparts (Cornelius, 1990; Massey, Durand, and Malone, 2002). For this reason, “Culture of Migration” theorists have long contended that the place of outmigration as an adolescent rite of passage in Mexico is one most applicable to males (Cornelius, 1990; Kandell and Massey, 2002). As such, any impact from outmigration on educational opportunity in sending communities—whether positive or negative—can be expected to be experienced differentially by gender.

There appears to be empirical support for this notion. In studies carried out by Kandell and Massey (2002), McKenzie and Rappoport (2006), and Miranda (2007), while both males and females from migrant families appeared to be negatively affected in terms of scholastic outcomes, females overall fared better than males. Possible explanations for this finding could lay in the fact that females are much less likely to join migrant family members in the United States during their schooling year, which in turn makes them much less likely to prematurely drop out to pursue international migration, and conceivably more able to benefit from any financial boost provided through remittances (Sawyer and Keyes, 2008). In any case, studies examining the relationship between out-migration and educational opportunity in Mexican migrant sending communities, must examine its impact differentially for females and males.

IV. Research Design

Data Collection

Data for my study was collected as part of a binational “ethno-survey” designed carried out by the 2007-2008 Mexican Migration Field Research and Training Project (MMFRP), a partnership between the University of California, San Diego’s Center for Comparative Immigration Studies and the Instituto de Investigaciones Sociológicas at the Universidad Autónoma Benito Juárez de Oaxaca. Part of a binational team of 30 researchers, I spent two weeks in San Miguel Tlacotepec , Oaxaca in December 2007 where I participated in the administration of a 158 item survey to all residents aged 15 to 65 in the community. I designed

the education module of the survey with authorization to include in this module the questions of most direct relevance to my study. The education related items on the questionnaire inquired into years of completed schooling; own and parental educational aspirations; reasons for school desertion; parental education levels; and perceptions of school quality (See Appendix I). In all, 636 surveys were completed in San Miguel Tlacotepec and an additional 184 were administered to Tlacotepense migrants living in Vista, California and its environs in January and February for an overall sample of 820. We subsequently entered survey data into a database where it was cleaned and coded for use with both the SPSS and STATA statistical software packages. In addition to the closed response surveys, our research team conducted semi-structured interviews with school administrators, teachers, parents, and students in both San Miguel Tlacotepec and San Diego County. This information has been helpful in developing working hypotheses, conceptual models, and for interpreting the study's findings.

Data Analysis

I explore the relationship between remittance income and the outcomes of school participation, total years of schooling, successful compulsory-level completion, and educational aspirations for a census of youth aged 15 to 19 San Miguel Tlacotepec and how this varies by gender. This allows me to test both the competing hypotheses in the research literature (that of migration boosting educational opportunity versus that of migration suppressing educational outcomes) as well as investigating the association of the possible underlying mechanism of remittances has with important educational outcomes for this sensitive age group in Mexican society.

I examine school participation as part of this larger notion of educational opportunity due to the fact that the ages of 15-19 are that in which many Mexican youth leave the formal education system, many times due to lack of economic resources. As such, this will allow me to see whether remittance income enables youth to persist in school longer than they otherwise

might. Though it is important to note that some individuals in this age group—the vast majority male—have which has created a slight over-representation of females in my sample.

I explore educational attainment in two separate ways: first as an overall measure of years of schooling completed; and secondly with regard to the specific educational transition of completing lower secondary school. As the final year of lower secondary school, ninth grade, is the last compulsory year required by the Mexican constitution—though not universally completed--specifying the outcome in this way will allow me to inquire as to whether remittances increase the likelihood of successful compulsory schooling completion. I include the outcome of youth educational aspirations as a way of exploring whether the perceptions youth themselves have in regard to schooling are altered at all by the presence of household remittance income. To carry these analyses out, I use OLS regression to estimate parameters for the continuous outcomes of educational attainment (total years of schooling completed) and educational aspirations (years of schooling desired) and logistic regression to estimate probabilities for the dichotomous outcomes school participation and completion of compulsory schooling. I will now describe the sample and the measures I have used to guide data analysis.

Sample

The full MMFRP sample of San Miguel Tlacotepec based 15-65 year olds contains 680 respondents from which I will focus on the 133 (74 females and 59 males) youths aged 15-19. This group is composed of 63 (47%) remittance receivers and 70 (53%) non-remittance receivers

Measures

Outcomes

School Participation:

I have created the dichotomous variable SCHOOLPART (0=not in school, 1=in school) to indicate whether the youth is still in school.

Educational Attainment:

I have created the continuous variable ATTAIN to indicate the number of years of schooling youth has completed.

Compulsory Schooling Completion:

I have created the dichotomous variable SECUNDARIA (0=did not complete 9th grade, 1=completed 9th grade) to indicate whether youth has completed the nine compulsory years of Mexican schooling.

Educational Aspirations:

I have created the continuous variable ASPIRE to indicate the number of years of schooling that youth hopes to complete.

Question Predictor

Reception of Remittances:

I have created the dummy variable REMITREC (0=not receiving remittances, 1=receiving remittances) to indicate whether youth's household receives remittance income. Though I considered creating a continuous measure of remittances-- to test whether educational outcomes varied as a function of remittance amount-- not enough respondents reported remittance amounts for such an analysis to be possible.

Control Variables

Demographic Attributes:

As is common in these types of analyses, I have created variables that allow me to control for basic demographic attributes of the youth in this study. These include:

- 1) Gender

I have created the dummy variable MALE (1=male, 0=female) to denote the gender of respondent.

2) Maternal Education

Given the importance of maternal education in predicting educational outcomes in Mexico and many other contexts (Rogoff, 2005; Jensen, 2009), I have created the continuous variable MATERNAL_ED to indicate the number of years of schooling completed by respondent's mother. This will enable me to examine whether remittances provide a scholastic boost beyond that attributable to differences in maternal education levels.

3) Household Wealth

I have created a household wealth index WEALTHMEX based upon reported household possessions. Controlling for household wealth allows me to determine the effect of remittances—an additional financial source—over and above any effect of household wealth.

4) Age

I have created the continuous variable AGE to indicate the age of respondent.

Interaction Terms

Remittances by Gender

As described in Section III, there is reason to believe that the effect of remittance income on educational outcomes might vary—perhaps greatly-- depending upon the gender of respondent. For this reason, I have created the interaction term MALE X REMIT to test how the effects of remittance income on educational outcomes vary as a function of gender.

Remittances by Maternal Education

Given the predictive power of maternal education levels seen in previous educational studies, and its salience within my exploratory analysis of the data, I have created the

interaction term REMIT X MATERNAL_ED to examine how the effects of remittance income might vary by this important background variable.

Threats to Validity and Robustness Checks

As access to remittance income is not randomly distributed among the households of San Miguel Tlacotepec, it is possible that such households are self-selected along a series of demographic attributes such as socioeconomic status and education levels. For example, literature on the demographic composition of Mexican immigrants to the United States suggests that migrants are modestly positively selected both in terms of wealth and educational attainment (Feliciano, 2005). Thus, one might expect the recipients of international remittance income in San Miguel Tlacotepec to enjoy a similar positive selection. Hence, given the possible non-comparability of remittance-receivers to non-remittance receivers, any positive effect on educational attainment or aspirations may be attributable to these other demographic advantages and not to remittances themselves, which could pose a significant limitation to my study's findings. To counter this validity threat, I have performed logistic regression by which I have estimated the likelihood of having remittance income for the population of households in San Miguel Tlacotepec controlling for several important demographic attributes. The results of this analysis shows that there are no significant differences between remittance receiving households and non-remittance receivers in terms of wealth, educational levels, and other important demographic attributes.

In addition, measuring school participation vis a vis remittance status for the 15-19 year old age group presents certain validity threats. As compulsory schooling in Mexico ends at grade nine (usually at age 15 or 16), those on the lower end of this age range are much more likely to still be in school regardless of remittance status than those at the upper end of this group. In order to account for this validity threat, I have compared the age distribution for the remittance and non-remittance groups (see Appendix II). Seeing that the age distributions are roughly equivalent

regardless of remittance status, I am satisfied that the findings for this outcome by remittance status are not biased dissimilar age distributions.

V. Results

Demographic Attributes by Remittance Status and Correlations

Beginning my analysis, I first compare remittance and non-remittance receivers along the demographic attributes I specified in Section IV. As seen in Table 3, I see that remittance receivers (who make up 47% of the 15-19 year old sample) very much resemble their non-remittance receiving counterparts in terms of age, gender, maternal education levels, and wealth. There are only minor differences in these numbers, none of which are statistically significant.

Table 3. Demographic Background by Remittance Status for Youth Ages 15-19 (N=133)

	Remittance Receivers	Non-Remittance Receivers
Age	16.7	16.7
% Male	46	43
Maternal Education Level	4.7	4.9
Wealth Index	57.9	58.5

In Table 4, I present Pearson correlations coefficients for these independent variables to take an initial look at the relationship between remittance receiving and the other covariates of interest. I find that while remittance receiving is negatively correlated with maternal education and wealth, and positively correlated with age, none of these correlations are statistically significant. The finding on wealth is somewhat surprising given the boost one might expect for family finances from remittances. This could be due to the fact that migrants tend to hail from the middle of the income distribution and that the wealthiest and poorest Mexicans do not tend to migrate, which may balance relative wealth (Massey et. al, 2004; Feliciano, 2005). Also of note in this table is the strong correlation between maternal education and household wealth ($p < .001$). Due to this clear case of collinearity, and the predictive importance of maternal education for the

outcomes of interest in exploratory analysis, I have decided to drop the household wealth variable from the multivariate analysis to follow. This will ensure that my models are composed only of variables that vary independently of one another. I now turn to multivariate analysis of the four educational outcomes of interest to explore the relationship between remittance income and educational opportunity in the migrant sending community of San Miguel Talcotepec.

Table 4. *Pearson Correlation Coefficients for Selected Independent Variables of Youth Ages 15-19 (N=137)*

	REMITREC	MATERNAL_ED	WEALTHMEX
MATERNAL_ED	-0.0133		
WEALTHMEX	-0.0144	0.4352***	
AGE	0.0154	-0.0264	-0.0387

Key: ~ p<.10; * p<.05; ** p<.01; *** p<.001 ($\alpha=.05$)

Educational Attainment

I use ordinary least squares regression analysis to fit the model of whether youth ages 15-19 from remittance receiving households in San Miguel Talcotepec have completed more years of schooling (via the outcome “attain”) than those without such income. In the following tables, I first present a series of relevant descriptive statistics and then display coefficients and robust standard errors from the fitting of the regression model within the sample of all youth ages 15-19 in the town using the primary variable of interest (REMITREC), denoting a remittance receiving household, and (REMIT*MALE) , the interaction of household remittance income and gender.

Table 5 presents descriptive statistics for educational attainment by gender, remittance status, and remittance status disaggregated by gender. These results show that boys (9.6 years) and girls (9.7 years) have completed roughly the same amount of schooling, and that remittance receivers (10.1 years) have completed more years of schooling on average than non-remittance receivers (9.3), a difference that is statistically significant at the .05 probability level. When breaking the remittance and non-remittance groups by gender, we see that while girls who receive

remittance income (10 years) have attained a slightly higher amount of schooling on average than non-remittance receivers (9.5), this difference is not statistically significant. For boys, this difference (10.2 years for remittance-receivers and 8.9 years for non-remittance receivers) is much greater and is statistically significant.

Table 5. *Mean levels of educational attainment for children ages 15-19, by gender and remittance status (N=133)*

	Boys	Girls	Total
Remittance Receivers	10.2	10.0	10.1
Non-receivers	8.9	9.5	9.3
Total	9.6	9.7	9.7

Turning to the regression results (Table 6), the data shows that while the remittance receiving variable has a statistically significant positive relationship with youth educational attainment when placed into the model alone ($\beta=0.850$, $p=.04$), it loses statistical significance when controlling for gender and the remittance by gender interaction (see models 1-2). It bears mentioning, however, that the remittance variable retains a positive coefficient in this second model, suggesting at least a positive trend for remittance receivers. While the gender and remittance by gender interaction do not attain statistical significance in model 2, the coefficients suggest a trend of less educational attainment for males on average, but that they might benefit more from remittance income than females as was strongly suggested by the descriptive statistics. In Model 3, I include other basic demographic variables.⁵ While the trends for remittances, gender, and the remittance by gender interaction remain similar to previous models, maternal education emerges as statistically significant positive predictor of youth educational attainment. This suggests a possible interaction between remittance income and maternal education that might help me to better interpret these results. For this reason, in the full model (Model 4), I include an interaction term for remittances by maternal education. I find that the main effect of

⁵ As previously mentioned, a variable for household wealth was originally considered for inclusion in this analysis, but do to high degree of collinearity with maternal education, it has been omitted from the models reported here.

maternal education ($\beta=0.182$, $p=.01$) remains a statistically significant positive predictor of educational attainment as each additional year of mother's education is associated with an additional .18 years of youth educational attainment. The remittance by maternal education interaction fails to reach statistical significance, but its negative coefficient suggests that those with lower maternal educations *might* be helped more by remittance income than those with higher levels. The other three predictors of note (REMITREC, MALE, REMIT*MALE) once again fail to reach statistical significance, though their trends remain consistent (aside from a bit of a jump in the coefficient for REMITREC).

In sum, I can only conclusively infer that there is a statistically significant positive relationship between maternal education and youth educational attainment. While there is evidence from the descriptive statistics and coefficients that remittances *may* be helping two vulnerable groups—males and youth with lower levels of maternal education—to attain more schooling than otherwise might be the case, this assessment must still be considered speculative. I will now turn to the second of my educational attainment outcomes, compulsory schooling completion, to see if it sheds any lights on these present results or their underlying causal mechanisms.

Table 6. *Estimated parameters (standard errors) and approximate p-values from fitted OLS regression models describing the relationship between educational attainment and household remittance income controlling for selected demographic attributes and interactions for youth ages 15-19. (n=133).*

Predictor	Model 1	Model 2	Model 3	Model 4
CONSTANT	9.261*** (0.344)	9.525*** (0.500)	9.383** (2.770)	9.262** (2.731)
REMITREC	0.850* (0.344)	0.475 (0.605)	0.370 (0.589)	0.782 (0.848)
MALE		-0.628 (0.669)	-0.450 (0.686)	-0.360 (0.702)
REMIT*MALE		0.870 (0.814)	0.796 (0.830)	0.677 (0.851)
AGE			-0.031 (0.185)	-0.037 (0.188)
MATERNAL_ED			0.144** (0.041)	0.182* (0.073)
REMIT*MAT_ED				-0.753 (0.887)
R-squared	0.03	0.04	0.09	0.11

Key: ~ p<.10; * p<.05; ** p<.01; *** p<.001 ($\alpha=.05$); standard errors in parentheses

Completion of Compulsory Schooling

Ninth grade is the final year of compulsory schooling required by the Mexican constitution. Though mandatory, it is not yet universal, as only 68% of the relevant age cohort completed this level in 2003 (Santibañez, 2005). Given its importance as a milestone and the fact that it tends to be completed at roughly age 15, it is of substantive interest whether remittance income increases the odds that youth will complete ninth grade. To explore this relationship I use logistic regression analysis to fit the model of whether youth ages 15-19 from remittance receiving households in San Miguel Tlacotepec are more likely to have completed ninth grade than those without such income.

Table 7 presents descriptive statistics for ninth grade completion by gender, remittance status, and remittance status disaggregated by gender. These results show that identical percentages of boys and girls in this age group have completed their compulsory schooling (82% each) and that a considerably higher percentage of remittance receivers (89%) than non-

remittance receivers (75%) have done so. Interestingly, when breaking the remittance and non-remittance groups by gender, we see that while girls complete 9th grade at similar percentages regardless of remittance status (remittance receivers 85%, non-remittance receivers 80%), a much higher percentage of remittance-receiving boys (97%) than their non-remittance receiving counterparts (69%) finish compulsory schooling, a finding consistent with the results for educational attainment and counter to what is suggested by “culture of Migration” theory.

Table 7. *Ninth Grade Completion Percentages for youth ages 15-19, by gender and remittance status (N=133)*

	Boys	Girls	Total
Remittance Receivers	97	85	89
Non-receivers	69	80	75
Total	82	82	71

Table 8 displays odds ratios and robust standard errors from the fitting of the relevant logistic regression models. The results shows that similar to what was found with education attainment, while the remittance receiving variable is a statistically significant positive predictor of the likelihood to complete ninth grade when placed in the model alone, it loses its significance when the gender variable and remittance by gender interaction are included (see models 1-2). Also similar to the previous analyses, remittance income remains a positive—albeit not statistically significant—predictor of the likelihood to complete ninth grade. Also consistent with the trend seen with educational attainment, while not reaching statistical significance, being male is a negative predictor (odds ratio<1), but the remittance by male interaction is a positive predictor (odds ratio>1), indicating that males are less likely to complete lower secondary school, but those with household remittance income have improved odds of completing this level compared to non-remittance receivers.

In model 3 (in which I control for baseline demographic factors), the odds ratios for these first three variables remain relatively constant, and as was in the case in predicting overall

educational attainment, maternal education emerges as a statistically significant positive predictor of the likelihood to complete ninth grade. In Model 4, I once again include the remittances by maternal education interaction. Here, the main effect of maternal education remains positive and statistically significant and each year of additional mother's education is associated with 1.2 greater odds of a youth completing ninth grade. In other words, for each additional year of mother's schooling youth are 20% more likely to have completed their compulsory schooling than youth whose mother's have had less schooling. The remittance by maternal education interaction on the other hand fails to reach statistical significance, but its odds ratio indicates that at least in terms of trends, it is a positive predictor of likelihood to complete lower secondary suggesting that the possible effect of remittances in improving these odds increases with additional years of maternal education.

Table 8. *Estimated odds-ratios (standard errors) and approximate p-values from fitted logistic regression models describing the relationship between compulsory schooling completion and household remittance income controlling for selected demographic attributes and interactions for youth ages 15-19. (n=132).*

Predictor	Model 1	Model 2	Model 3	Model 4
REMITREC	2.615* (1.283)	1.450 (0.910)	1.633 (1.221)	1.165 (0.848)
MALE		0.556 (0.314)	0.507 (0.326)	0.493 (0.318)
REMIT*MALE		4.190 (4.389)	3.447 (4.034)	3.384 (4.049)
AGE			0.796 (0.162)	0.800 (0.164)
MATERNAL_ED			1.226** (0.100)	1.195* (0.108)
REMIT*MAT_ED				1.121 (0.247)
-2LL	-60.50	-59.45	-47.37	-47.25

Key: ~ p<.10; * p<.05; ** p<.01; *** p<.001 ($\alpha=.05$); standard errors in parentheses

School Participation

The 15-19 year old age group is one which is very sensitive to school desertion in Mexico. While persistence in school until the completion of lower secondary school (roughly age 15) is becoming more common, remaining in school past this point is much less so. The reasons for this are numerous, but include the fact that upper secondary schooling is non-compulsory, not always available and involves the paying of tuition and other direct costs (Santibañez, 2005). Due in part to these factors, many youths in this age group enter both the domestic and international (through migration to the United States) labor markets (Kandell and Massey, 2002; Fitzgerald, 2009). It is for this reason that I examine whether access to household remittance income increases the odds these youth have of persisting in school. Given the availability of upper secondary facilities that require the paying of tuition in the town of San Miguel Tlacotepec makes it a compelling site to test this proposition.

I use logistic regression analysis to fit the model of whether youth ages 15-19 from remittance receiving households in San Miguel Tlacotepec are more likely to still be enrolled in school (via the outcome “school participation”) than those without such income. In the following tables, I first present a series of relevant descriptive statistics and then display odds ratios and robust standard errors from the fitting of the regression model within the sample of all youth ages 15-19 in the town using the primary variable of interest (REMITREC), denoting a remittance receiving household, and (REMIT*MALE), the interaction of household remittance income and gender.

Table 9 presents descriptive statistics for school participation (those who were enrolled in school at the time of the survey) by gender, remittance status, and remittance status disaggregated by gender. These results show that higher percentages of girls and non-remittance receivers are currently enrolled in school than boys and remittance receivers. Interestingly, when breaking the remittance and non-remittance groups by gender, we see that while girls are enrolled in school at about the same percentages regardless of remittance status (remittance receivers 74%, non-

remittance receivers 73%), a much higher percentage of remittance-receiving boys (79%) than non-remittance receiving boys (59%) are still in school.

Table 9. *School Participation Percentages for youth ages 15-19, by gender and remittance status (N=132)*

	Boys	Girls	Total
Remittance Receivers	79	74	76
Non-receivers	59	73	67
Total	68	74	71

Table 10 presents estimated odds ratios and robust standard errors for youth ages 15-19 in San Miguel Tlacotepec. In Models 1 and 2, neither the main effect of remittances nor the gender-by-remittance interaction reaches statistical significance, though they both possess positive odds ratios. This echoes the trend within the descriptive statistics (and also for the previous two outcomes) of remittances relating to a higher likelihood of school participation, and being an income source which aids males (who are less likely to still be in school on average) more than females. In model three, the inclusion of baseline demographic factors shows age to be a statistically significant negative predictor of school participation. Hence, as might be expected, older youth are less likely to still be in school. There is also a modest positive relationship between maternal education and school participation, and this predictor is statistically significant at the $p < .10$ probability level. In the full model (Model 4) I have once again included a remittance-by-maternal-education interaction. Interestingly, the main effect of maternal education (OR=1.16; $p=.05$) attains statistical significance in this model, as each year of additional maternal education is associated with 16% greater odds of still being in school. The remittances by maternal education interaction (OR=1.03; $p=0.24$) fails to reach statistical significance, though its positive odds-ratio (indicating that those with higher levels of maternal education get slightly more of a positive benefit from remittances than their counterparts) is consistent with the data for lower secondary completion. Youth age remains a statistically significant negative predictor of

school participation (each additional year of age is associated with 32% lower odds of still being in school), and the odds-ratios and probability levels for other predictors remain relatively constant (though the odds-ratios for remittance by gender takes a big dip between models 2 and 3 when demographic control variables are included).

In sum, the advantage granted by maternal education for scholastic outcomes in this migrant sending community is becoming more and more evident. This is not surprising given the importance this variable has shown in educational research in numerous other contexts (Rogoff, 2005; Jensen, 2009. Evidence from the field, demographic figures, and descriptive statistics for the outcomes in question would suggest that remittance income helps youth—especially males—to stay in school longer and eventually complete more schooling than would otherwise be the case. Indeed, despite their lack of statistical significance, the main effect of remittances and the remittance by gender (with males being the referent) have positive coefficients and odds ratios in the regression analyses, which provide some evidence for these notions.

Table 10. *Estimated odds-ratios (standard errors) and approximate p-values from fitted logistic regression models describing the relationship between school participation and household remittance income controlling for selected demographic attributes and interactions for youth ages 15-19. (n=128).*

Predictor	Model 1	Model 2	Model 3	Model 4
REMITREC	1.567 (0.621)	0.988 (0.534)	1.531 (0.990)	1.388 (1.311)
MALE		0.525 (0.278)	0.676 (0.437)	0.665 (0.431)
REMIT*MALE		2.740 (2.204)	1.473 (1.457)	1.487 (1.447)
AGE			0.675* (0.110)	0.676* (0.111)
MATERNAL_ED			1.167~ (0.102)	1.157* (0.087)
REMIT*MAT_ED				1.025 (0.239)
-2LL	-76.31	-75.38	-60.62	-60.61

Key: ~ p<.10; * p<.05; ** p<.01; *** p<.001 ($\alpha=.05$); standard errors in parentheses

Educational Aspirations

As noted in the literature review, there is evidence in several research studies to suggest a relationship between educational aspirations and educational outcomes. Aspirations can be hypothesized to be a causal mechanism in the possible relationship between household remittance income and educational persistence and attainment. That is, the availability of remittance income allows for youths to aspire to higher levels of schooling than otherwise might be the case, which in turn leads to a greater persistence and attainment in school than counterparts without access to this financial source. Given the findings to this point of no statistically significant remittance effect (despite positive coefficients and odds-ratios) on total educational attainment, lower secondary completion, or school participation, perhaps an explanation can be found in noting the effect remittances and its associated interactions have (or not) on the educational aspirations of youth.

I used ordinary least squares regression analysis to fit the model of whether youth ages 15-19 from remittance receiving households in San Miguel Tlacotepec aspire to complete more years of schooling than those without such income. In the following tables, I present a series of relevant descriptive statistics and then display coefficients and robust standard errors from the fitting of the regression model within the sample of all youth ages 15-19 in the town using the primary variable of interest (REMITREC), denoting a remittance receiving household, and (REMIT*MALE), the interaction of household remittance income and gender.

Table 11 presents descriptive statistics for youth educational aspirations by gender, remittance status, and remittance status disaggregated by gender. These results show that boys (15.1 years) and girls (15.6 years) aspire to complete roughly the same amount of schooling, and that remittance-receivers (15.3years) and non-remittance receivers aspire to complete an identical number of years of schooling. When disaggregating the remittance and non-remittance groups by gender, we see no difference between these groups in educational aspirations. Aside from a seeming lack of variation, what stands out in these descriptive statistics is the quite high level of

educational aspirations (15 years is the equivalent of completing three years of higher education), that do not seem to reflect the actual educational opportunities available to youth in San Miguel Tlacotepec (youth in San Miguel Tlacotepec complete on average only slightly more than a ninth grade education). This might lead one to believe that aspirations have very little connection to actual scholastic outcomes in the town.

Table 11. *Mean levels of educational aspirations (years of schooling attainment desired) for youth ages 15-19, by gender and remittance status (N=133)*

	Boys	Girls	Total
Remittance Receivers	15	15.5	15.3
Non-receivers	15	15.5	15.3
Total	15	15.5	15.3

Turning to the regression findings (Table 11), the results show no statistically significant effect between the remittance variable and the remit*male interaction and youth educational aspirations even in the pared down models (see models 1-2). Similar to the other outcomes, the coefficient for the remittance variable in these models is positive, while MALE and REMIT*MALE are negative and positive respectively. In Model 3, with the inclusion of base demographic controls, maternal education emerges once more as a statistically significant positive predictor of youth educational aspirations. Interestingly, the coefficients for both the gender and remittance by gender interaction change signs in this model, which suggests a trend of males having higher aspirations, but those with remittance income having less. In examining the interaction, while this stands in contrast to how males with remittances fared in the other educational outcomes, it may support a “culture of migration” theory. If we consider remittance income to be a proxy for the presence of a kin network in the U.S., then males (who are on average more likely to migrate than females) may consider it more desirable to migrate than continue with their Mexican-based schooling (Cornelius, 1990; Kandell and Massey, 2001).

In the full model (model 4), I have again included the remittances by maternal education interaction. Here, the main effect of maternal education ($\beta=0.320$, $p=.003$) remains a statistically

significant positive predictor of educational aspirations, and each additional year of mother's education is associated with 0.32 years of additional aspirations. In contrast to previous outcomes, the remittance-by- maternal-education interaction emerges as a statistically significant *negative* predictor of aspirations. Thus, the data suggests that the effect of remittances may be a bit larger on the families where there are lower levels of maternal education. Given the many advantages of higher maternal education (note its strong correlation with household wealth) that can translate to higher scholastic aspirations and success, these findings suggest that remittances might be an equalizer for relatively disadvantaged youth at least in terms of their perception of what is possible with their education. Though I have no conclusive evidence of this translating to such a relationship with educational outcomes, this finding on aspirations could help explain the positive coefficients and odds ratios across the board for the main effect of remittances and the indications (at least in terms of total educational attainment) that remittances may help those with lower maternal education levels.

Table 12. *Estimated parameters (standard errors) and approximate p-values from fitted OLS regression models describing the relationship between educational aspirations and household remittance income controlling for selected demographic attributes and interactions for youth ages 15-19. (n=92).*

Predictor	Model 1	Model 2	Model 3	Model 4
CONSTANT	15.333** * (0.426)	15.536*** (0.555)	16.618*** (4.160)	17.077*** (4.210)
REMITREC	0.035 (0.569)	0.006 (0.778)	0.270 (0.815)	1.814 (1.413)
MALE		-0.536 (0.874)	0.445 (0.898)	0.992 (0.975)
REMIT*MALE		0.038 (1.158)	-0.898 (1.185)	-1.448 (1.262)
AGE			-0.138 (0.273)	-0.191 (0.282)
MATERNAL_ED			0.169** (0.053)	0.320** (0.102)
REMIT*MAT_ED				-0.248* (0.117)
R –squared	0.00	0.01	0.08	0.11

Key: ~ p<.10; * p<.05; ** p<.01; *** p<.001 ($\alpha=.05$); standard errors in parentheses

VI. Discussion

This paper has probed the question of whether youth aged 15-19 in a prominent Mexican migrant sending community benefit academically from the presence of international remittance income in their household. In this study, youths with household remittance income have been compared to those without this financial source in terms of educational attainment, compulsory schooling completion, school participation, and aspirations. While multivariate analysis yielded no statistically significant relationship between the main effect of remittance income and these outcomes, the descriptive statistics and the positive signs of coefficients and odds-ratios for this variable and its related interactions provide some evidence that remittance income *might* be aiding two underachieving subgroups, males and those families with lower levels of maternal education.

While this final point certainly merits future study, the most robust finding I have made in this paper is the clear advantage of higher maternal education for youth scholastic outcomes. This finding on the advantages of maternal education in many ways is unsurprising. Educational studies in numerous contexts have shown this background variable to consistently be one of the most salient predictors of educational outcomes (Rogoff, 2005; Jensen, 2009).

Within the migrant sending community of San Miguel Tlacotepec, the maternal education advantage may manifest itself in numerous ways conducive to academic aspirations, persistence, and attainment. For one, maternal education in this community is highly correlated with household wealth and as such, having a mother with more education is also a proxy for a household having greater resources to devote to the schooling of dependent children. As in many other parts of the world, mothers are the primary care-givers in Tlacotepec households, and those with higher education levels are more likely have higher aspirations and expectations for their children's' education and a greater ability to aid them in school-related tasks. For youth, having a higher bar set at home coupled with greater support for school work (both materially and operationally) might increase schooling success and aspirations. Such students are more likely to

have the desire, ability, and wherewithal to choose continued schooling over the popular alternate path of migration to the United States.

Returning to the main question posed by this study--whether remittance income can aid youth to persist, attain, and aspire to more schooling—the lack of a statistically significant remittance effect on these outcomes would seem to be counterintuitive. In a community in which most out of school youth attribute the decision to leave school to the lack of financial resources it would seem that having this additional income source would aid such youth to remain in school longer. Furthermore, in the field work I conducted in the community, remittance receiving families by and large perceived that this financial source allowed their children to aspire to and complete more schooling than otherwise might be the case. Why is it then, that I have not found conclusive evidence to support a positive remittances effect? I devote the next section to examining this puzzle. I divide this discussion into two parts: explanations attributable to the measurement limitations of this study, and those related to the contextual characteristics of the field site.

Measurement Limitations

Cross-Sectional Data

This study has provided a snapshot of a migrant sending community at one place in time. Thus, the remittance income variable has been constructed based upon whether a respondent was receiving remittances at the time of survey administration. A shortcoming to this method is the fact that receipt of remittance income is an unstable condition sensitive to economic conditions in both the sending and receiving community as well as the length of time migrant kin have settled in the United States (Orozco, 2007) Thus, it is not known whether the youth's family was receiving this income consistently throughout their schooling, and similarly, whether “non-remittance respondents” received them in the past. As a result, my finding that the main effect of remittances does not have an effect on the educational outcomes of youth (despite the great deal

of evidence to the contrary) could be a reflection of imperfections in the measurement of remittances.

Dichotomous vs. Continuous Remittance Variable

In my data, I have information on whether or not a youth currently receives household remittance income, but not the amount received. As educational expenses are typically prioritized by families after basic subsistence and medical expenses in the targeting of remittance income (Orozco, 2007; Sawyer, Keyes, Velásquez, Lima, and Bautista, 2009), it is only logical that remittances are used for educational expenses only if the remittances received are large enough that the family has excess income after meeting these other needs. Hence, it may be that remittances matter for youth educational outcomes as a function of the *amount* of remittance income received, and not just whether one has access or not to this financial source. Thus, my inconclusive findings on the remittance effect could be a result of this measurement imprecision.

Outcomes and Sample Specified

A separate measurement limitation may relate to the outcome variables I have chosen to explore. For one, it is plausible that the most concrete and easiest to measure impact of remittances on potential enhancement of educational opportunity would be on actual household expenditures targeted to education. Similarly, as parents are presumably the ones with most intimate knowledge of household finances, another detectable effect might be on the aspirations that they have for the education of their children. Thus, in focusing solely on student outcomes, it is possible that I have not captured the full extent of possibilities as to how remittances might contribute to improved educational opportunity.

In regards to student outcomes, there is reason to believe that remittances might have a more pronounced effect on outcomes further on in the education pipeline than the ones I have explored here. Specifically, student persistence to the non-compulsory schooling cycles of upper secondary can be financially prohibitive in Mexico as these levels involve tuition expenses, more expensive supplies, and the household's loss of potential labor market income (Sawyer, Keyes,

Velásquez, Lima, and Bautista, 2009). Given these factors, it could be that outcomes in high school and university might be those most sensitive to the infusion of household remittance income.

Contextual Characteristics:

Rural, Two Generation Sender of Migrants

My findings on the effect of remittance income on educational outcomes may be attributable to the characteristics of the San Miguel Tlacotepec field site. San Miguel Tlacotepec is a rural, two generation sender of migrants to the United States (Cabrera, Hildreth, Rodríguez, and Zárate, 2009). Throughout Mexico, rural communities have less access to school facilities and less resources available at school sites, thus increasing the direct costs of school attendance for students and families (Reimers, 2002). Had I conducted this study in an urban migrant sending community, it is possible that remittance income would go farther towards improving educational outcomes as students and families would likely be able to take advantage of the decreased barriers to school attendance in such sites. Similarly, San Miguel Tlacotepec as a only a two generation sender of migrants, is one in which the strong networks and migrant generated wealth are in the process of unfolding rather than being fully in place as they are in “traditional” migrant sending communities (Cornelius, 1990). For example, the longer a community is involved in migration, the greater the labor market mobility achieved for its diaspora in the United States-i.e. they earn higher wages and have more disposable income to send home. More mature migrant-sending communities may also have a high level of organization among their U.S.-based migrants such as Home Town Associations (HTAs), which have the capacity to pool the resources of US-based migrants for public projects in their home community (Smith, 2006; Fitzgerald, 2009). Thus, it is plausible that the absence of a remittance effect in San Miguel Tlacotepec at this point in time, is a by-product of it being a relatively new community of emigration.

Weak External Efficiency and Quality of Education System

When considering the merits of higher educational attainment in a community such as San Miguel Tlacotepec, a reasonable question to ponder is higher educational attainment for what? The high levels of out-migration from San Miguel Tlacotepec result in great part from the lack of labor market opportunities in the local economy (Cabrera, Hildreth, Rodríguez, and Zárate, 2009). Thus, even if a youth is to persist in school long enough to complete high school and attend college, it is quite likely that there will not be a job available to them commensurate to their educational credentials. Similarly, should a youth choose to enter the US labor market, the low-skilled jobs available to them require very little in the way of formal education.⁶ In either case, the incentives for youth to remain in school—and benefit from remittance income in such a way-- are weak as there is very little payoff in the labor market of either country for such persistence.

Similarly, San Miguel Tlacotepec is not immune from the low instructional quality that plagues the Mexican system of basic education as a whole. As indicated by both national and international student assessments, students in economically disadvantaged rural communities such as San Miguel Tlacotepec, typically do not learn to adequately read in primary school and such deficiencies only multiply in the later grades (INEE, 2007; OECD, 2008). Thus, even if such students have the money to pay for post-compulsory schooling, this financial resource does not make the subject matter more comprehensible should they lack basic literacy skills. Hence, even should such a youth enroll in high school, they may not be able to keep up with instruction and be forced to drop out.

Culture of Migration and Parent-Child Separation

Yet another plausible explanation for the lack of a positive remittance effect in my findings is the contribution remittances might be making to the “culture of migration.” As theorists have hypothesized, the potential material rewards of life in “el norte” coupled with

⁶ Though it bears mentioning that in the long term, low educational attainment in the US labor market can severely hinder economic mobility for such migrants and their offspring.

transnational family networks makes outmigration a common rite of passage for youths in such contexts (Cornelius, 1990; Kandell and Massey, 2001). Thus, remittances, while having the potential to help youth stay in school longer (and even helping in the short term in this regard), are also a concrete example of the money such youth can make should they also migrate. As such, they may ironically provide a disincentive for schooling persistence and encourage international migration. Furthermore, the fact that remittances typically come from family members (usually parents) in the United States, also makes it easier for these youth to migrate themselves, which may also put a downward pressure on educational attainment.

On a similar note, the financial benefits of remittances for children and youth are not without a very painful trade-off : separation from parents and other family members. Ethnographic studies of migrant sending communities in Latin America have shown separation from parents due to migration to negatively impact student engagement and achievement (Menjivar and Abrego, 2009; Sawyer, Keyes, Velásquez, Lima and Bautista, 2009). Thus, another plausible explanation for my findings on remittances is that their byproduct—parent-child separation—hinders the pursuit of educational goals. Separation from parents may also lead youth to drop out of school prematurely to reunite with absent parents in the United States.

VII. Conclusion: Future Research and Policy Implications

While it is clear that remittances are used by some to access educational opportunities, and possess a viable potential towards making a difference for youth schooling aspirations and attainment, I have found no conclusive evidence that they actually do. In fact, my findings suggest that there may be complexities at work in determining the educational trajectories of youth that are equally--or more--salient than this financial source. These include factors such as the advantages bestowed by maternal education, the quality of schooling offered, and the sometimes pernicious by products of outmigration such as parent child separation and “the culture of migration.”

Though I did not find conclusive evidence suggestive of a direct remittance effect on educational outcomes for youth in the migrant sending community of San Miguel Tlacotepec, they do emerge as factor that merits additional attention. For example, there is evidence of an interesting interaction between this financial source and the maternal education level of individuals, especially in terms of youth educational aspirations. Furthermore, the aforementioned limitations of the present study may have hindered my ability to fully flesh out the extent of the possible relationship between remittances and other educational outcomes. For these reasons, I contend that remittances are a phenomenon worthy of continued exploration in educational studies.

Suggestions for Future Research

Future research on the relationship between remittances and educational opportunity in Mexican migrant sending communities should include the following components:

1) *Examination of Household Education Spending and Parent Educational Aspirations*

While I have been able to explore the relationship between remittances and youth educational aspirations, schooling transitions, and attainment, I have not seen whether remittance income spurs an actual increase in household education spending—the mechanism by which remittances could help improve educational outcomes—and the aspirations parents (who presumably control the purse strings in regards to schooling expenditures) have for their children’s education. Such an exploration would provide a fuller picture of the potential remittances have to enhance educational opportunity.

2) *Study of the Effect on Post Compulsory Schooling outcomes*

In this present study, I was able to examine the effects of remittances on overall youth educational attainment, current school enrollment, completion of lower secondary (the final year of compulsory schooling), and schooling aspirations. Given the age of my sample, it was not possible to explore this relationship for specific

post-compulsory educational outcomes. It is plausible that given the greater costs involved with schooling at these higher grade levels (including forsaken youth employment income), and the fact that it is less customary to attend schooling after 9th grade in these communities, that a positive remittance effect would be most likely at the post-compulsory levels. Future research should inquire into the relationship between remittances and student outcomes in upper secondary and higher education.

3) *Qualitative Studies of Community, Household, and Schooling Dynamics*

As mentioned, this study has generated as many new questions as answers. Part of this complexity lies in the fact that quantitative studies are not able to fully capture the complex dynamics present in communities, households, and schools. Qualitative studies into such phenomena in communities such as San Miguel Tlacotepec might yield important clues in understanding the processes by which remittances do or do not contribute to educational opportunity and how such mechanisms vary across individuals, households, and schooling context.

4) *Examination of Phenomenon within Different Sending Communities by Region, Urbanicity, and Length of Involvement in International Migration*

As previously discussed, the effect of remittances on educational opportunity in migrant sending communities may vary greatly depending upon contextual characteristics. For example, urban areas tend to have more numerous and better funded educational facilities, while older migrant sending communities—such as those in the states of Jalisco and Michoacán—usually have more developed and lucrative remittance networks than that found in the relatively young sender of Oaxaca. For these reasons, studies of this phenomenon into multiple Mexican migrant sending communities would provide important information on how the relationship between remittances and educational opportunity varies by context.

5) *Initiation of Longitudinal Research Capturing the Flow (and amount) of Remittances to Households Over Time and Relationship to Long Range Educational Outcomes*

As described in Section VI., remittance flows are an unstable condition that can fluctuate greatly as a result of binational economic conditions and other factors.

Furthermore, the impact of this financial source on educational outcomes may vary greatly as a function of financial amount received by households and communities.

Longitudinal research initiatives would provide a more precise measurement of the effect of remittances on educational opportunity.

Policy Recommendations

In addition to opening up new and potentially fruitful lines of research inquiry, this paper's findings also have important implications for public policy in the Mexico and the United States. As I have found no conclusive evidence of a remittance benefit for educational outcomes in a migrant sending community, this paper's finding should give caution to those in the development who view remittances as a cure all, or those in the U.S. and Mexican governments content to let migrant communities fend for themselves without the active involvement of the state in expanding educational access and economic opportunities. This notion is made even more poignant by the fact that my findings suggest the greatest effect from remittances—albeit one mediated by maternal education level—is on youth aspirations, but one that does not translate to actual youth educational attainment or successful completion of school cycles. This finding indicates that even if remittances can help to provide a boost in terms of student perceptions of the possible, there nevertheless remain significant barriers in the way of realizing these aspirations.

In terms of reducing the barriers to educational mobility in migrant sending communities that might provide an alternative to migration, I recommend that the Mexican government—with direct economic and technical support from the United States and international Non Government

Organizations—take the following steps to increase both compulsory and post-compulsory schooling opportunities and attainment:

1) *Prioritize The Expansion of Upper Secondary and University Facilities in Rural Areas*

While the Mexican government has done an adequate job expanding the availability of compulsory schooling facilities in rural areas (Kindergarten, Elementary, and Lower Secondary schools), post compulsory (eg. Upper Secondary and University) facilities still remain lacking in communities such as San Miguel Tlacotepec, Oaxaca.

2) *Ameliorate the Direct Costs Involved with Attending Public School*

Parent Association fees, school supplies, and tuition expenses (in the case of upper secondary schooling) remain burdensome schooling expenses for families in rural communities such as San Miguel Tlacotepec, and represent a true barrier to schooling persistence at the higher grade levels. Amelioration of these expenses through the granting of increased discretionary funds to rural schools and the expansion of school attendance contingent cash transfer programs to families should be undertaken to reduce these financial barriers.

3) *Continue Investments in School Quality*

An important implication of my research findings, are that money alone is not enough to stimulate improved educational opportunities in rural Mexico. For example, income from remittances or any other source will not make up for a student not learning the school material adequately enough—a condition all too common in rural Mexico-- to persist to and succeed within higher and more demanding grade levels. Furthermore, my findings on the advantages bestowed by maternal education suggest that schools have not been successful in providing social and cultural capital

to disadvantaged students. The Mexican government must continue to make targeted investments in improving teacher and school administration quality; increasing instructional time; and taking on the curricular reforms necessary to providing rural students with 21st century skills.

4) *Address Migration More Directly in the School Curriculum*

Mexico has a national curriculum which possesses numerous strengths in putting forth a core set of knowledge and skills to be learned across the republic.

Nevertheless, in a community such as San Miguel Tlacotepec where migration to the United States is an unavoidable fact of life, the phenomenon is not addressed in the school curriculum in such a way that resonates with the real experiences of the community's youth and families. A systematic exploration of the realities of migration such as life in the United States, the experience of parent-child separation, and the promoting of alternatives to international migration would help youth to better cope with the direct impact of migration on their lives, and make better decisions themselves regarding schooling and migration.

Final Thought

The findings of this study on the effect of remittances on youth educational opportunity suggest a complex reality in the migrant sending community of San Miguel Tlacotepec. While this paper indicates that the remittance phenomenon merits additional research, it also provides evidence that the international development community must consider interventions other than remittances to stimulate educational opportunity and stem the tide of outmigration in rural Mexico. Thus, even in the seeming global “deterritorialization” of the early 21st century, actions by the state and international community remain essential for helping the world's youth to realize their human potential.

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