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Abstract: This study estimates the impact of income remittances on poverty rates by estimating household income under the counter-factual scenario that migration does not occur. Estimation of the counter-factual is performed at the national level, as well as across two separate sub-national groupings of states, first according to historical migration patterns, then according to current migration intensity. Findings indicate that the ability of remittances to reduce poverty levels varies between groups, and across differing poverty thresholds. I find that remittances generally tend to reduce poverty in recipient communities. However, in some cases, I find that remittances lead to an increase in the poverty rate.

I. Introduction

Workers remittances to Mexico have grown from $3.7 billion in 1995 to $21 billion in 2010 (Banco de Mexico, 2012). Worldwide it is estimated that remittance flows to developing countries exceed $300 billion annually. Although some suggest income remittances might be superior to traditional forms of development finance (Toxopeus and Lensink, 2007; Ratha, 2003), researchers are still evaluating the true impact of remittances on recipient countries. Research into the impact of remittances on economic development has looked at how remittances affect growth through investment in physical capital, human capital, and financial development (Adams et al., 2005; Giuliano and Ruiz-Arranz, 2005), how remittances affect income distribution (Barham and Boucher, 1998) and how remittances affect exchange rates (Lartey et al., 2008). Several studies find that remittances reduce poverty in the recipient country (for example, Wouterse, 2010; Nguyen, 2008; Anyanwu & Erhijakpor, 2010). One particular study by Acosta et al. (2008) looks directly at the effect of remittances on poverty rates in Latin America by using nationally representative household survey data to predict household income under the counterfactual scenario of households choosing to not send a member abroad. In most instances they find remittances to have a positive impact on poverty reduction, with one interesting exception: Mexico. In the case of Mexico, they find remittances actually *increase* the poverty rates. This is of particular interest because of the fact that Mexico is by far the largest recipient of remittances in Latin America (World Bank, 2010). Given the size of remittance flows to Mexico, such a counterintuitive result merits further study.

The aim of this study is to further explore the relationship between remittances and poverty in Mexico. Acosta et al. (2008) note that the estimated increase in poverty may be due to overestimating the potential earnings of the migrant had they remained behind. That is, if migration was motivated by unobserved negative economic factors, such as persistent unemployment or crop failure, then the true "potential income" prior to migration would be lower than that predicted by the counterfactual scenario. Indeed, in 2002, the year of their data set, Mexico's economy was in recession for the second year in a row. However, it may well be that there are other factors that determine whether remittances decrease or increase the poverty rate. Mexico is a large and rather diverse country, both in terms of geography and demography, but also in terms of migratory history. Thus, it is likely that the aggregate approach employed by Acosta et al. (2008) misses the nuances created through this heterogeneity. This study exploits

that heterogeneity by dividing Mexican states across two different dimensions. First, I group states according to geographical regions as defined by the Mexican National Population Council (CONAPO). Then, I group states according to an index of migration intensity, also defined by CONAPO. I also examine the changes in poverty rates at six different poverty thresholds. Following Acosta, et al. (2008), I first measure the effects on the poverty rates using the two international lines of moderate and extreme poverty at $2 PPP and $1.25 PPP per day, respectively. Importantly, I also measure the effect on poverty at Mexico's nationally defined moderate and extreme poverty lines, for both rural and urban households. My findings indicate that remittances are an effective tool for reducing poverty in most cases. However, the poverty-reducing effect varies widely among regions and declines as the poverty threshold increases. Furthermore, at the highest threshold, the urban moderate poverty line, remittances actually increase poverty in the majority of cases. From a policy perspective, these results indicate that in order to effectively leverage migration and remittances as a tool for poverty reduction it may be beneficial to encourage migration among the populations where the marginal benefit is higher, and discourage migration where the benefit is low, or, in some cases, negative.

The rest of the paper is structured as follows. Section II describes the data used in the empirical procedure, and discusses the relationship between remittances, the income distribution, and the geographic regions examined in this study. Section III discusses the empirical methods used to estimate the counter-factual poverty rates. Section IV discusses the results, and Section V concludes.

II. Data

II.I. Household Survey

The data used for this analysis come from the 2010 Mexican National Survey of Household Income and Expenditures (Encuesta Nacional de Ingresos y Gastos de los Hogares, ENIGH 2010) and the National Population Council (Consejo Nacional de Poblacion, CONAPO). ENIGH is a nationally representative survey that collects information on numerous aspects pertaining to the household such as income and employment, education, health expenditures, living conditions, and demographics. Since 1992, ENIGH has been conducted at regular biennial intervals. Acosta et al. (2008) use the 2002 survey. At the time of writing, the 2010 survey is the most recent data available.

There are 26,833 observations in the 2010 survey for which complete data are available. The data are frequency weighted to represent over 28 million households. Table 1 provides summary statistics for the variables used in the empirical procedure. Approximately 4.8% of the households report receiving "income earned in another country," which is interpreted to be remittance income. It is also assumed that the person(s) sending the remittances is not included as a member of the household in the survey. This is due to the fact that although 4.8 percent of the households report receiving remittances, only 1.4 percent of the individuals surveyed reported living outside of Mexico within the last five years. The average remittance-receiving household reports receiving monthly remittances of 805 pesos (US$64)[2] per capita. For the average remittance-receiving household, remittances account for 35 percent of per capita income. The mean total reported income (including remittance income) among these households is 2793 pesos (US$221) per month. This is considerably lower than the mean income of 3889 pesos (US$308) reported by households not receiving remittances.

With the exception of income, migrant and non-migrant households are remarkably similar. Migrant households are slightly larger with an average of 4.05 members (excluding any members living abroad), compared to 3.90 members for non-migrant households. The primary contributors to this difference are children under the age of sixteen. The mean number of adult males and females are identical across both groups. Non-migrant households are slightly more educated, but the average adult education for both migrant households and non-migrant households is between 9 and 10 years. The two groups are also nearly identical in terms of ability to read and write in Spanish, and whether the household head speaks an indigenous language.

II.II. Remittance-receiving households by income, region, and migration intensity

The ability of remittances to affect poverty rates depends greatly on which households are receiving the remittances. Remittance-receiving households have, on average, lower incomes than their counterparts not receiving remittances. However, there is large variation in the incomes within the remittance-receiving population. Table 2 reports the share distribution of remittance receiving households by income. Ten percent of households receiving remittances are in the lowest income decile, with incomes below 499 pesos per month. The poverty line of $2

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[2] Pesos are converted using the average official exchange rate for 2010 of $1=12.636 pesos (World Bank, 2012). Estimation of the empirical model is conducted using pesos.

PPP per day is approximately 475 pesos per month. Thus, all households living below the international moderate and extreme poverty lines are in this income decile. Twelve percent of remittance-receiving households are in the second income decile, with incomes between 499 and 819 pesos (US$39-65) per month. Mexico's extreme poverty line for rural households falls in this income decile. The third income decile, with incomes between 819 and 1151 pesos (US$65-91) per month, contains 12.5 percent of the remittance receiving households. Mexico's extreme poverty line for urban households, 990.77 pesos (US$78), falls in this income decile. The moderate poverty line for rural households, 1348.62 pesos (US$107), falls in the fourth income decile, which also has 13.7 percent of remittance-receiving households. The highest poverty threshold used in this study, the moderate poverty line of 2140.05 pesos ($US169) for urban households, falls in the sixth income decile. The fifth and sixth income deciles, respectively, hold 10.4 percent and 10.9 percent of the remittance-receiving households. Collectively, sixty-one percent of remittance-receiving households live below the urban moderate poverty line. Beyond the sixth decile the share of remittance receiving households gradually declines to 5.63 percent in the tenth decile. This pattern of Mexican migrant households largely coming from the lower end of the income distribution is consistent with the pattern observed by Acosta et al. (2008) and Ibarraran and Lubotsky (2007). This pattern generally holds in the sub-national breakdown of states as well.

The positions of remittance-receiving households in the income distribution raise several issues relating to poverty that must be addressed. First, the fact that sixty-one percent of households receiving remittances are in some form of poverty (i.e. below the moderate urban poverty line) suggests that the bulk of remittances are flowing toward those households that need them the most. However, this breakdown only reports that households are receiving remittances, not the size of the remittances. In fact, the average remittance-receiving household in poverty receives a per capita remittance of 378 pesos (US$30) per month. The average for households above the urban moderate poverty line is 1470 pesos (US$116) per month. Thus, although more households below the poverty line receive remittances, the aggregate flow of remittances to poor households is less than half the flow to households above the poverty line.

Second, the income distribution is based on total income, including remittances. Therefore, while sixty-one percent of impoverished households receive remittances—they are still in poverty! However, this ignores the counter-factual scenario, which is estimated below.

That is, it fails to account for the number of households above the poverty line that would be impoverished without remittance income. More than 23,000 remittance-receiving households have incomes less than 126 pesos (US$10) per month above the poverty line. Furthermore, it ignores the relative well being of households receiving remittances. That is, while households may still be in poverty, remittance income could mean the difference between extreme and moderate poverty.

Finally, while the majority of households receiving remittances are in the lower end of the income distribution, these households represent a very small share of the whole population. For example, as reported in Table 2, the ten percent of remittance-receiving households in the first income decile only account for five percent of the total households in that decile. Thus, any benefit received by the poor from remittances will only accrue to a small share of poor households.

Just as remittance patterns vary across income ranges, they also vary across geographical ranges. In the empirical section below I disaggregate the population across two dimensions. The first is a regional grouping of states defined by CONAPO according to migratory history (CEFP, 2004). Figure 1 presents a map of the regional groupings. The Traditional region consists of the states of Aguascalientes, Colima, Durango, Guanajuato, Jalisco, Michoacán, Nayarit, San Luis Potosi, and Zacatecas. The Traditional region has the longest history of migration to the US due to the national railroad line which ran through these states and connected to US railroads at the border. As shown in Table 2, states in the Traditional region make up 22 percent of the population, but account for 45 percent of remittance-receiving households. Nearly ten percent of households in these states receive remittances.

The Northern region consists of the states of Baja California, Baja California Sur, Coahuila, Chihuahua, Nuevo León, Sinaloa, Sonora, and Tamaulipas. Six of these eight states share a border with the US. Somewhat surprisingly, only three percent of households in the Northern region receive remittances. One possible reason for seeing fewer remittances in the Northern region is that these states have higher incomes relative to most other Mexican states (INEGI, 2012). Therefore, although these states are closer to the US there is less of a "push factor" driving households to seek employment opportunities in the US. As such, the Northern region's 22 percent of Mexican households account for only 15 percent of remittance-receivers.

The Central region, which consists of the states of Distrito Federal, Hidalgo, México, Morelos, Puebla, Querétaro, and Tlaxcala, accounts for 33 percent of the Mexico's population. Twenty-one percent of remittance-receiving households reside in the Central region. The Central region has traditionally been less a source of out-migration, and more a destination of internal migrants heading to Mexico City. Hence, it is not quite as surprising to see that only three percent of households in the Central region receive remittances.

The final region is the South/Southeast (SSE) region, which consists of the states of Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Veracruz, and Yucatán. Historically, the SSE region has not been a major source of migration to the US because its rugged mountain and jungle terrain is not very accommodating to ground transportation. Today, however, 19 percent of remittance-receiving households reside in the SSE region.

Dividing the states up along these regional lines allows for a more detailed analysis of the poverty effects of remittances that may be overlooked in the aggregate. For instance, since the Traditional region accounts for such a large share of remittance-receiving households it is likely that any effects occurring in this region could be overshadowing the effects occurring in other regions. Also, remittances are also likely to affect households in the SSE region differently than in other regions since the states in this region contains Mexico's poorest states and 70 percent of remittance-receiving households are considered to be in poverty.

In addition to grouping states according to geographic regions, I also disaggregate states according to migration intensity. The grouping follows an ordinal ranking of five categories, as defined by CONAPO, ranging from Very Low to Very High migration intensity. The categorization is based on an index of migration intensity between Mexico and the US, constructed in 2010, which is comprised of 1) the share of households that received remittances between 2005 and 2010, 2) share of households with members who emigrated to US since 2005, 3) members who have returned to US since 2005, but emigrated prior to 2005, and 4) households with circular migrants, who emigrated and returned between 2005 and 2010 (CONAPO, 2012). Figure 2 presents a map of states grouped according to migration intensity.

Table 3 gives a listing of states by region and their migration intensity ranking. All of the Very High intensity states are in the Traditional region with the remaining Traditional region states being ranked as High intensity. Of the five remaining High intensity states, three are in the Central region and two are in the SSE region. The SSE region has five other states that are

ranked as Very Low and one that is ranked Average intensity. The Central region also has two states ranked as Average, one ranked Low, and one state ranked Very Low intensity. The Northern region has five states ranked as Average intensity, one ranked Low, and two ranked Very Low. Thus, grouping by migration intensity provides a significantly different view than grouping by geographical regions. The key difference between the two groupings is that the geographic regions group states according to historical migration patterns, whereas the grouping by migration intensity divides states according to the current state of Mexican migration.

III. Empirical Methodology

Estimating the poverty effects of remittances can be done, generally, in two ways. The first and most basic way is to simply calculate poverty rates based on total household income, then on non-remittance income only and compare the two. This calculation, which estimates the scenario of migration taking place without remittances, is tantamount to reducing the income of remittance recipient households, which would most certainly result in increasing poverty by pushing borderline income households below the poverty threshold.

While the above technique may be attractive due to its simplicity, it fails to account for the opportunity costs associated with receiving remittances, in particular foregone wages that would have been earned by the migrant. To account for the poverty effects of remittances while controlling for lost income, it is necessary to estimate household income under the scenario that not only have remittances not taken place, as in the above method, but that migration also has not taken place. However, without information on household income prior to migration, it is necessary to infer these incomes from the available data.

The basic framework follows Acosta et al. (2008), and estimates a model in the form:

$$\log Y_i = \alpha + \beta X_i + \gamma H_i + \varepsilon_i, \tag{1}$$

where Y_i is per capita income of household i, X_i is a vector of variables for the demographic characteristics of the household, H_i is a vector of characteristics of the household head, and ε_i is an error term. Equation (1) can be estimated using the sub-set of non-remittance receiving households and then the coefficient estimates can be used to predict income for remittance-receiving households under the counterfactual scenario. This method, however, presents two additional problems. First, there is no information in the survey regarding the characteristics of the person sending the remittances, which causes a problem when trying to predict his income as

if he had not migrated. Second, unless the households receiving remittances are randomly selected from the pool of households surveyed, estimates of ε will not be independent and identically distributed (i.i.d.), and estimates of earnings will be biased.

To correct for these problems, I follow Acosta et al. (2008) and assume that remittances come from a single male adult with the same education level as other adult members of the household[3]. This assumption can be supported by the fact that CONAPO reports 93% of migrants to the US are male with a mean age of 34 years old (CEFP, 2004). To correct for the potential bias in equation (1), it is estimated using the sample selection correction proposed by Heckman (1979).

Since there is no evidence to support the idea that households in the subset of non-remittance recipients, whose earnings are to be evaluated by equation (1), are randomly selected into that group, it is necessary to add to equation (1) a variable that accounts for a household's propensity to not receive remittances, (M_i^*). This is achieved by using the following model:

(Selection equation)

$$M_i^* = \alpha_1 + \beta_1 X_i + \gamma_1 H_i + \omega Z_i + v_i \tag{2}$$

(Earnings equation)

$$\log Y_i = \alpha_2 + \beta_2 X_i + \gamma_2 H_i + \theta \lambda_i + \mu_i, \tag{3}$$

where M_i^* is an indicator equal to one if a household does not receive remittances, and zero if the household does receive remittances. Z_i is a vector of variables that influence one's decision to migrate, but that have no effect on earnings. To make the results comparable, the elements of Z_i are the same as those in Acosta et al. (2008) and include the percentage of households receiving remittances in the community (as a proxy for existence of migrant networks, and therefore a measure of ease of resettling), an index of household assets, and their interaction term. Both equations also include state dummy variables to control for state-level fixed effects. The term λ_i is the inverse Mills' ratio, defined as

$$\lambda_i = \frac{\phi(\alpha + \beta_1 X_i + \gamma_1 H_i + \omega Z_i)}{1 - \Phi(\alpha + \beta_1 X_i + \gamma_1 H_i + \omega Z_i)} \tag{4}$$

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[3] Acosta et al. (2008) note that this may be a conservative estimate for the number of migrants since Haitian and Nicaraguan households report having, respectively, 2.2 and 1.8 adult migrants living abroad (p. 99).

where $\phi(\bullet)$ and $\Phi(\bullet)$ are, respectively, the probability density function and cumulative density function of the argument $(\alpha + \beta X_i + \gamma H_i + \omega Z_i)$. If λ_i is a significant predictor of earnings, it would suggest that there is indeed a correlation between the decision to migrate and earnings and, thus, estimates of equation (1) would be biased. Controlling for λ_i allows the error term in (2), μ_i, to have the desirable i.i.d properties.

Once coefficient estimates are obtained for (3), I calculate predicted values of λ_i for the remittance receiving households, then estimate the predicted income, $\hat{Y}_i$, for the entire sample. To account for the migrant that is absent from remittance-receiving households, I increase the total household size by one member by adding one male aged 16 to 65. However, as noted by Acosta et al. (2008), these calculations fail to account for unobserved determinants of income, and therefore a random error term is added to each observation. Predicted income is then estimated, and poverty rates are calculated at the six different income thresholds. The process is repeated 1,000 times to allow for calculation of 95% confidence intervals.

Whereas Acosta et al. (2008) estimate the model only at the national level, this study also estimates the model on all nine of the sub-national groupings. Additionally, this study differs from Acosta et al. (2008) by using the Maximum Likelihood method to estimate the model, which is a more efficient estimator than the Two-step method. This study also utilizes the frequency weights in estimating the poverty rates, whereas the previous study did not.

IV. Results

For comparison purposes, Tables 4a and 4b present coefficient estimates of the income equation using both the OLS estimator in (1) and the Heckman estimator in (3) for different geogrpahical locations. In general, the coefficient estimates are quite similar; in many cases they are identical. Only in a few cases do coefficients switch signs. However, the estimates of $\hat{\theta}$, the coefficient of the selection variable λ_i, are significant for all models, with the exception of the SSE region. Furthermore, a likelihood ratio test for correlation between the error terms of (2) and (3) rejects the null hypothesis of independent equations for all cases, with the exception of the SSE region. This indicates that there is indeed a correlation between income and the decision to migrate, thus controlling for λ_i provides consistent estimators of the income equation parameters.

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Although the Heckman estimates are very similar to the OLS estimates, they do differ across regions and migration intensities. For instance, in the Central and SSE regions, and Low and Very High Migration intensity regions, an increase in the number of adolescent males in the household decreases per capita income, but in all other regions and at the national level they increase per capita household income. Differences across regions and intensities can also be found in other ages and genders, education levels, and whether the household head speaks an indigenous language.

Perhaps the more interesting differences across regions and migration intensities are the differences in the coefficients for the selection variable λ_i. A positive coefficient for λ_i indicates that an increase in the propensity to select into the group that does not migrate is associated with an increase in income. In other words, households that do not choose to send a member abroad may do so because they can earn higher incomes in their home community. This is the case in all but three regressions: Low, High, and Very High migration intensity regions. In these three cases, the negative coefficient indicates that a lower propensity to migrate is associated with a *decrease* in income.

Table 5 presents estimates of the non-migration selection equation estimates. There is considerable variation in the coefficients of the predictors of whether a household chooses to migrate or not, across the geographic regions and migration intensities. The variables that seem to make up most of the heterogeneity between regions are the number of adults in the household and the education levels of the household members. In states with lower migration intensity, a higher number of adults in the household is associated with a lower propensity to migrate, whereas in states with higher migration intensities the opposite appears to be true. In the Northern and SSE regions, households with higher average education levels are more likely to migrate. In the Central and Traditional regions, households with higher average education levels are less likely to migrate.

Poverty Effects

Tables 6a and 6b report the results of the poverty rate estimates under the simplified counter-factual scenario of migration, but no remittances, i.e. the poverty rates if households relied on non-remittance income only. Each panel corresponds to a different definition of the

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poverty line. The first column of each panel presents the observed poverty rate at the national and sub-national levels. The first column in the first panel of Table 6a, shows that the 4.62% of households, at the national level, have incomes that are below the international extreme poverty line of $1.25 PPP per day. The second column reports the poverty rates under the simplified counter-factual scenario of migration, but no remittances. The third and fourth columns report the difference between the observed and counterfactual, both in level terms and as a percentage change. As expected, the negative signs indicate that remittances reduce the poverty rates in all cases. This should not come as a surprise, since this counterfactual scenario is essentially nothing more than a loss of income. However, this measure does provide some insight into the importance of remittances to households, particularly at the very low end of the income distribution. For instance, if remittance flows were cut off, the share of households in poverty in the Northern region would more than double from 3% to 7.9%.

Tables 7a and 7b report the key results of the poverty rate estimates utilizing the imputed income under the counter-factual scenario that the migrant remains in his home community and contributes to household income. The columns of 7a and 7b are structured the same as the columns in 6a and 6b, with the exception that the column reporting the estimated poverty rate also reports the 95% confidence intervals of the estimates. At the national level, the first panel shows that the estimated share of households living on less than $1.25 (USD PPP) per day, if migration had not occurred, is 5.35%. Since this is higher than the observed rate of 4.62%, it can be concluded that remittances reduce the extreme poverty rate by 0.73 percentage points. This is equivalent to a 14% reduction in the number of households living below the international extreme poverty line. Thus, remittances help to lift nearly 200,000 households out of extreme poverty. At the international moderate poverty line of $2 (USD PPP), the estimated counter-factual poverty rate, at the national level, is 10.96%, which is 1.63 percentage points above the observed poverty rate at that level. This indicates that remittances lead to a 15% reduction in the number of households living with incomes below $2 (USD PPP) per day, nationwide.

These two results are opposite of the findings reported by Acosta et al. (2008). As noted earlier, the previous study suggests that the poverty-enhancing effect of remittances in the Mexican case may be due to overestimation of potential income resulting from negative selection. The findings presented in this study lend support to that hypothesis, given the fact that the data used in the present study were collected in a year in which the Mexican economy grew

by 4.2% per capita. However, the preceding year saw Mexico's per capita GDP decline by 7.4%, the largest contraction in more than a decade (World Bank, 2012). Thus, any inferences made between the growth rate and poverty effects of remittances are made with extreme caution.

The remaining portions of Tables 7a and 7b report estimates beyond the scope of those reported by Acosta et al. (2008). The effects of remittances on poverty rates vary widely across state groupings and poverty lines. At the $2 per day poverty threshold, the Traditional region's results closely resemble the national results, with a 1.66 percentage point reduction in the poverty rate, which results in a 15% reduction in the number of households living below the poverty line. The largest reductions in poverty across geographic regions occur in the Central region, where it is estimated that the poverty rate falls from 9.18% to 7.19%, or 1.99 percentage points. The Northern region's 1.67 percentage point drop is the next largest reduction in poverty. Notably, the reductions in poverty are smallest in the most impoverished of the four regions, the SSE region, where the observed poverty rate is just over 15%. When broken down by migration intensity, the states in the Very High category fare the best at the $2 poverty line, with remittances reducing poverty by 3 percentage points. This represents a 24% decline in the number of households living on less than $2 per day. The smallest reduction occurs among states in the High migration intensity category, with a 3% reduction in the number of households living on less than $2 per day.

At the international extreme poverty line of $1.25 per day, the Central region, again, fares the best, with a 24% reduction in the number of households living below the poverty line. The Traditional region has the smallest reduction in poverty with a decrease of 0.23 percentage points. States in the Very Low and Low migration intensity categories have the largest poverty reductions among the migration intensity groupings. By contrast, in the High migration intensity category, it is estimated that remittances lead to a 7% *increase* in poverty. This result is suggestive of diminishing marginal returns to migration.

As the poverty threshold increases to the nationally defined extreme poverty lines, for rural and urban households, the percentage point changes typically increase. The largest single reduction in poverty occurs in the Low migration intensity states at the rural extreme poverty line. It is estimated that remittances reduce poverty by 2.86 percentage points. The second largest reduction occurs in the Northern region at the urban extreme poverty line, with a 2.8 percentage point decrease. Nationally, it is estimated that remittances lead to a 9.73 percent decrease in the

number of households living below the rural extreme poverty line, and a 7.94 percent reduction in the number of households living below the urban extreme poverty line. Remittances have the smallest effect on households in the SSE region and in states designated as high migration intensity, at both measures of the national extreme poverty line.

At the nationally defined rural moderate poverty line, remittances reduce poverty by 2.78 percent, nationwide. Once again, remittances have the largest impact among households in the Northern region, with a seven percent reduction in households living below the poverty line. However, it appears that the effectiveness of remittances is diminishing, as no other regions or intensity groupings have a reduction in poverty that exceeds five percent. Furthermore, in the SSE region it is now estimated that poverty rates would be 2.64% *lower* under the counter-factual scenario that migration had not occurred, i.e. migration is increasing poverty.

At the highest poverty threshold, the urban moderate poverty line, the estimates indicate that poverty rate slightly increases with remittances at the national level, from 51.79% before migration to 51.98% after migration. This result varies, however, across regions. Poverty decreases in the Traditional and Northern regions. Poverty increases in the Central and SSE regions. Poverty also increases in states ranked as very low, low, and very high migration intensity. The largest increases in poverty occur in the low migration intensity and very high migration intensity groups, each with poverty increasing by over two percent.

V. Conclusion

Contrary to the results found by Acosta et al. (2008), the results of this study indicate that, in general, remittances tend to have a poverty-reducing effect among Mexican households. The size of this effect, however, varies greatly depending on the subset of households being examined, as well as which measure of poverty is being used. Remittances appear to have the largest impact on households at the lowest levels of the income distribution. There are, however, other patterns that emerge, which indicate the ability of remittances to lift households out of poverty may be limited. First, the overall poverty reduction of households in the Traditional region is low compared to the Northern and Central regions. Since nearly half of all remittances flow to the Traditional region, a benevolent planner might consider this to be a misallocation of resources. Thus, it may be desirable to try to encourage more migration from areas where the

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poverty reducing effects are high, and discourage migration from areas where the poverty reduction is low and/or negative.

Second, poverty rates are affected least in the SSE region, which is the region where poverty is highest. It should be noted, however, that this region was the only area where the coefficient on the selection variable was insignificant, which suggests that the choice to migrate is unrelated to the household's earnings potential.

It is also important to mention that there does not seem to be any indication that states with higher migration intensities fare any better than states with lower migration intensities, and vice-versa. However, there does appear to be evidence that remittances lose effectiveness at reducing poverty at higher poverty thresholds. In fact, in some cases remittances leave households worse off than they otherwise would be. There appear to be two key facts contributing to this effect. First, the majority of remittance-receiving households are in the lower end of the income distribution. Thus, that is where the largest impact is likely to be found. Second, as the poverty thresholds increase, the gap between thresholds also increases. Thus, to move a household from the edge of extreme poverty beyond the moderate poverty line requires a much larger contribution to income at the nationally defined poverty line than it does at the international poverty line. Furthermore, there may be opposing incentives between the remittance sender and the receiver. It could be the case that remittance income is being used to subsidize leisure. If remittance receivers are using the extra income to work fewer hours, the sender may be unwilling to send anything beyond the minimum amount necessary to ensure basic survival.

Although this study finds that remittances fall short of moving households beyond the nationally defined moderate poverty line, it does present evidence that remittances are effective at moving households up the income ladder. While the majority of remittance-receiving households still remain in some level of poverty, the fact remains that remittances raise the incomes of millions of households. Therefore, it can be reasoned that most of these households are better off with remittances than without. The key hurdle to get over will be getting households over the final poverty threshold. While this has yet to occur at the national level, it does appear to be happening in a number of states. By understanding what separates these states from the others, policies can be developed which may assist in utilizing remittances as a tool in the fight against poverty.

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Tables and Figures

Table 1: Descriptive Statistics

Variable	Description	All Households (N = 28,295,193)		Migrant Households (N = 1,357,999)		Non-Migrant Households (N = 26,937,194)	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
loginc	Log of HH per capita quarterly income (Pesos)	8.71	1.14	8.51	1.00	8.72	1.15
pesomonth	Per capita monthly income (Pesos)	3835.80	6864.64	2792.63	3979.76	3888.39	6974.44
nomig	Dummy variable = 1 if HH does not receive remittances	0.95	0.21	0.00	0.00	1.00	0.00
hhsize	Size of HH	3.91	2.02	4.05	2.10	3.90	2.02
child05	# of children aged 0-5	0.42	0.71	0.45	0.72	0.42	0.71
male615	# of males aged 6-15	0.40	0.68	0.46	0.77	0.40	0.68
female615	# of females aged 6-15	0.38	0.69	0.43	0.71	0.38	0.69
male1665	# of males aged 16-65	1.17	0.88	1.17	0.88	1.17	0.88
female1665	# of females aged 16-65	1.28	0.87	1.28	0.86	1.28	0.87
avged	Average education of adults in HH (years)	9.57	5.33	9.22	5.47	9.59	5.33
age	Age of HH head	48.76	15.81	48.75	15.50	48.76	15.83
edyrs	Years of education of HH head	8.79	6.35	8.53	6.40	8.80	6.35
hablaind	Dummy variable =1 if HH head speaks indigenous language	0.13	0.33	0.11	0.32	0.13	0.33
alfabe	Dummy variable =1 if HH head can read and write Spanish	0.90	0.30	0.88	0.33	0.90	0.30
assets	Principal components asset index	0.06	0.76	0.05	0.77	0.06	0.76
remshrco	Share of households in Municipio receiving remittances	3.46	4.15	5.11	4.99	3.38	4.08
remshrxassets	Assets x Share of households receiving remittances	-0.11	4.50	-0.40	6.27	-0.10	4.40

Table 2: Remittances by Income Distribution and Region

	Population		Total			1st Income Decile (0-499 pesos)			2nd Income Decile (499-819 pesos)		
	# of Households	Share of Households	# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)	# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)	# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)
National	28295193	100%	1357999	100	4.8	140844	10.37	4.97	164915	12.14	5.82
Traditional Region	6184226	22%	613020	45	9.91	56858	9.28	9.31	72696	11.86	10.95
Northern Region	6333645	22%	204485	15	3.23	17227	8.42	3.58	25415	12.43	4.68
Central Region	9262573	33%	282004	21	3.04	28122	9.97	3.96	40753	14.45	4.88
SSE Region	6514749	23%	258490	19	3.97	38637	14.95	3.76	26051	10.08	3.29
Very Low Intensity	6663589	24%	139296	10	2.09	15638	11.23	2.4	23071	16.56	3.91
Low Intensity	4331450	15%	76101	6	1.76	9715	12.77	2.84	10295	13.53	2.62
Average Intensity	7870651	28%	321980	24	4.09	29489	9.16	4	33940	10.54	4.25
High Intensity	6588967	23%	505226	37	7.67	55130	10.91	6.99	65178	12.90	9.19
Very High Intensity	2840536	10%	315396	23	11.1	30872	9.79	9.91	32431	10.28	9.47

Table 2 cont'd.

3rd Income Decile (819-1151 pesos)			4th Income Decile (1151-1550 pesos)			5th Income Decile (1550-2035 pesos)			6th Income Decile (2035-2647 pesos)		
# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)	# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)	# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)	# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)
169952	12.51	6.02	185478	13.66	6.55	141102	10.39	4.99	148021	10.90	5.23
68409	11.16	11.76	84162	13.73	13.17	69204	11.29	10.92	71994	11.74	12.37
24527	11.99	4.65	27913	13.65	4.53	16067	7.86	2.48	28248	13.81	3.9
28652	10.16	3.14	36873	13.08	3.88	26509	9.40	2.89	28713	10.18	3.09
48364	18.71	6.01	36530	14.13	5.86	29322	11.34	4.65	19066	7.38	3.21
13870	9.96	2.42	20536	14.74	3.24	14380	10.32	2.26	14804	10.63	2.26
10470	13.76	2.34	5985	7.86	1.29	6369	8.37	1.34	5560	7.31	1.27
46101	14.32	5.59	51463	15.98	6.74	32606	10.13	4.22	30811	9.57	3.57
59245	11.73	8.77	66805	13.22	10.83	50511	10.00	7.91	62587	12.39	10.19
40266	12.77	13.26	40689	12.90	11.6	37236	11.81	12.07	34259	10.86	13.13

Table 2 cont'd.

7th Income Decile (2647-3579 pesos)			8th Income Decile (3579-5072 pesos)			9th Income Decile (5072-8492 pesos)			10th Income Decile (8492-322438 pesos)		
# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)	# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)	# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)	# of HH Receiving Remittances	Share of Remittance Receivers (%)	Share of HH Receiving Remittances (%)
127665	9.40	4.51	116591	8.59	4.12	86911	6.40	3.07	76520	5.63	2.7
57486	9.38	8.93	49965	8.15	7.79	45377	7.40	7.37	36869	6.01	9.91
16346	7.99	2.41	21001	10.27	2.94	8422	4.12	1.25	19319	9.45	2.67
28643	10.16	2.89	29467	10.45	3.02	24431	8.66	2.44	9841	3.49	0.95
25190	9.75	4.89	16158	6.25	3.25	8681	3.36	1.62	10491	4.06	2.13
8351	6.00	1.23	8587	6.16	1.33	10361	7.44	1.37	9698	6.96	1.15
7640	10.04	1.69	16502	21.68	3.61	0	0.00	0	3565	4.68	0.89
31422	9.76	4.06	24667	7.66	3.05	22021	6.84	2.91	19469	6.05	2.52
53910	10.67	8	30802	6.10	4.72	33290	6.59	5.36	27768	5.50	4.64
26342	8.35	10.4	36033	11.42	13.73	21239	6.73	8.98	16029	5.08	7.61

Table 3: Regional Groupings and Migration Intensity

Traditional Region		Northern Region		Central Region		South/Southeast Region	
State	Migration Intensity	State	Migration Intensity	State	Migration Intensity	State	Migration Intensity
Aguascalientes	High	Baja California	Medium	Distrito Federal	Very Low	Campeche	Very Low
Colima	High	Baja California Sur	Very Low	Hidalgo	High	Chiapas	Very Low
Durango	High	Coahuila	Low	México	Low	Guerrero	High
Guanajuato	Very High	Chihuahua	Medium	Morelos	High	Oaxaca	High
Jalisco	High	Nuevo Leon	Very Low	Puebla	Medium	Quintana Roo	Very Low
Michoacán	Very High	Sinaloa	Medium	Querétaro	High	Tabasco	Very Low
Nayarit	Very High	Sonora	Medium	Tlaxcala	Medium	Veracruz	Medium
San Luis Potosi	High	Tamaulipas	Medium			Yucatan	Very Low
Zacatecas	Very High						

Note: Migration Intensity categories from CONAPO (2012).

Table 4a: OLS and Heckman ML Estimates of Income Equation, National and Regional; Dependent Variable: log(per capita hh income)

	OLS National	Heck National	OLS Traditional	Heck Traditional	OLS Northern	Heck Northern	OLS Northern	Heck Northern	OLS SSE	Heck SSE
loginc										
hhsize	-0.3135***	-0.3136***	-0.3016***	-0.3000***	-0.4054***	-0.4072***	-0.2954***	-0.2955***	-0.2735***	-0.2735***
	(0.0005)	(0.0005)	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0009)	(0.0009)	(0.0010)	(0.0010)
child05	0.0941***	0.0940***	0.1082***	0.1070***	0.1770***	0.1781***	0.0827***	0.0827***	0.0255***	0.0254***
	(0.0006)	(0.0006)	(0.0014)	(0.0014)	(0.0012)	(0.0013)	(0.0010)	(0.0010)	(0.0012)	(0.0012)
male615	0.0288***	0.0287***	0.0644***	0.0618***	0.1330***	0.1338***	-0.0272***	-0.0266***	-0.0155***	-0.0156***
	(0.0006)	(0.0006)	(0.0013)	(0.0013)	(0.0012)	(0.0012)	(0.0010)	(0.0010)	(0.0012)	(0.0012)
female615	0.0878***	0.0877***	0.1002***	0.0984***	0.1527***	0.1542***	0.0778***	0.0778***	0.0335***	0.0334***
	(0.0006)	(0.0006)	(0.0013)	(0.0013)	(0.0013)	(0.0013)	(0.0010)	(0.0010)	(0.0012)	(0.0012)
male1665	0.0463***	0.0463***	0.0178***	0.0167***	0.1119***	0.1136***	0.0458***	0.0456***	0.0225***	0.0226***
	(0.0005)	(0.0005)	(0.0012)	(0.0012)	(0.0011)	(0.0011)	(0.0009)	(0.0009)	(0.0011)	(0.0011)
female1665	0.0338***	0.0339***	0.0704***	0.0686***	0.1000***	0.1022***	-0.0009	-0.0006	0.0022*	0.0022*
	(0.0005)	(0.0005)	(0.0012)	(0.0012)	(0.0012)	(0.0012)	(0.0009)	(0.0009)	(0.0011)	(0.0011)
avged	-0.0058***	-0.0058***	0.0036***	0.0041***	0.0012***	0.0008***	-0.0147***	-0.0147***	-0.0082***	-0.0082***
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
age	-0.0037***	-0.0037***	-0.0033***	-0.0036***	-0.0106***	-0.0107***	-0.0051***	-0.0051***	0.0031***	0.0031***
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
agesq100	7.80e-7***	7.84e-7***	6.63e-7***	6.86e-7***	1.60e-6***	1.62e-6***	8.73e-7***	8.79e-7***	9.79e-8***	9.89e-8***
	(7.82e-9)	(7.84e-9)	(1.73e-8)	(1.73e-8)	(1.58e-8)	(1.58e-8)	(1.35e-8)	(1.36e-8)	(1.78e-8)	(1.68e-8)
edyrs	0.0066***	0.0066***	0.0028***	0.0024***	0.0009***	0.0011***	0.0124***	0.0124***	0.0063***	0.0063***
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
hablaind	0.0341***	0.0345***	0.0784***	0.0779***	0.0430***	0.0447***	0.1082***	0.1091***	-0.0478***	-0.0477***
	(0.0006)	(0.0006)	(0.0021)	(0.0021)	(0.0014)	(0.0014)	(0.0011)	(0.0011)	(0.0011)	(0.0011)
alfabe	-0.0681***	-0.0676***	-0.0698***	-0.0700***	-0.0020	0.0056***	-0.1296***	-0.1284***	-0.0245***	-0.0245***
	(0.0007)	(0.0007)	(0.0017)	(0.0017)	(0.0016)	(0.0016)	(0.0012)	(0.0012)	(0.0014)	(0.0014)
constant	10.1006***	10.0982***	9.9570***	9.9553***	10.1235***	10.2554***	9.7759***	9.7715***	9.5618***	9.4997***
	(0.0027)	(0.0027)	(0.0048)	(0.0048)	(0.0042)	(0.0047)	(0.0038)	(0.0038)	(0.0047)	(0.0045)
lambda		0.0258***		0.0828***		0.0907***		0.0686***		0.0060
		0.0025		0.0043		0.0044		0.0034		0.0080
N	26931171	26931171	5571206	5571206	6129160	6129160	8980569	8980569	6250236	6250236
r2	0.2767		0.2179		0.2722		0.3014		0.2571	
F	2.396e+05		77601.3429		1.206e+05		2.153e+05		1.139e+05	
LR Test Chi^2		92.82		203.52		306.02		278.06		0.54
Prob(x>Chi^2)		0.0000		0.0000		0.0000		0.0000		0.4609

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4b: OLS and Heckman ML Estimates of Income Equation, by Migration Intensity; Dependent Variable: log(per capita hh income)

	OLS V Low Intensity	Heck V Low Intensity	OLS Low Intensity	Heck Low Intensity	OLS Med. Intensity	Heck Med. Intensity	OLS High Intensity	Heck High Intensity	OLS V High Intensity	Heck V High Intensity
loginc										
hhsize	-0.3820***	-0.3839***	-0.2427***	-0.2350***	-0.3164***	-0.3164***	-0.3157***	-0.3207***	-0.2478***	-0.2643***
	(0.0011)	(0.0011)	(0.0013)	(0.0013)	(0.0009)	(0.0009)	(0.0012)	(0.0013)	(0.0015)	(0.0015)
child05	0.1242***	0.1231***	0.0264***	0.0215***	0.1196***	0.1196***	0.0969***	0.1076***	0.0503***	0.0531***
	(0.0012)	(0.0012)	(0.0015)	(0.0015)	(0.0011)	(0.0011)	(0.0014)	(0.0015)	(0.0018)	(0.0019)
male615	0.0578***	0.0581***	-0.0414***	-0.0538***	0.0345***	0.0344***	0.0637***	0.0799***	-0.0228***	-0.0059***
	(0.0012)	(0.0012)	(0.0015)	(0.0015)	(0.0011)	(0.0011)	(0.0014)	(0.0015)	(0.0017)	(0.0018)
female615	0.1302***	0.1321***	-0.0022	-0.0114***	0.1013***	0.1010***	0.1126***	0.1273***	0.0314***	0.0362***
	(0.0012)	(0.0012)	(0.0015)	(0.0015)	(0.0011)	(0.0011)	(0.0014)	(0.0015)	(0.0017)	(0.0018)
male1665	0.0884***	0.0897***	-0.0077***	-0.0169***	0.0527***	0.0527***	0.0458***	0.0609***	0.0275***	0.0186***
	(0.0011)	(0.0011)	(0.0014)	(0.0014)	(0.0010)	(0.0010)	(0.0013)	(0.0014)	(0.0016)	(0.0017)
female1665	0.1050***	0.1072***	-0.0489***	-0.0568***	0.0110***	0.0111***	0.0611***	0.0669***	-0.0031**	0.0162***
	(0.0011)	(0.0011)	(0.0014)	(0.0014)	(0.0010)	(0.0010)	(0.0013)	(0.0014)	(0.0016)	(0.0017)
avged	0.0025***	0.0026***	-0.0015***	-0.0005***	-0.0215***	-0.0215***	-0.0011***	-0.0060***	-0.0021***	-0.0042***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0003)
age	-0.0064***	-0.0068***	0.0010***	0.0036***	-0.0046***	-0.0046***	-0.0029***	-0.0046***	-0.0051***	0.0025***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)	(0.0003)
agesq100	1.03e-6***	1.07e-6***	1.76e-7***	-5.56e-8***	1.04e-6***	1.04e-6***	6.45e-7***	8.97e-7***	7.07e-7***	8.49e-9
	(1.61e-8)	(1.62e-8)	(1.93e-8)	(1.96e-8)	(1.42e-8)	(1.42e-8)	(1.82e-8)	(1.93e-8)	(2.35e-8)	(2.51e-8)
edyrs	0.0025***	0.0024***	-0.0027***	-0.0029***	0.0196***	0.0196***	0.0004***	0.0058***	0.0099***	0.0113***
	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)	(0.0002)
hablaind	0.0076***	0.0109***	-0.1412***	-0.1225***	0.0341***	0.0344***	0.1357***	0.1163***	0.0539***	0.0722***
	(0.0014)	(0.0014)	(0.0020)	(0.0020)	(0.0010)	(0.0010)	(0.0015)	(0.0016)	(0.0023)	(0.0024)
alfabe	-0.0701***	-0.0657***	-0.1616***	0.1698***	-0.0179***	0.0173***	-0.0462***	0.0450***	-0.0880***	-0.1000***
	(0.0015)	(0.0015)	(0.0017)	(0.0017)	(0.0014)	(0.0014)	(0.0016)	(0.0017)	(0.0022)	(0.0023)
constant	10.2309***	9.7853***	9.8948***	9.5180***	9.6621***	9.6259***	10.0292***	10.0525***	9.2763***	9.6170***
	(0.0047)	(0.0044)	(0.0046)	(0.0052)	(0.0041)	(0.0043)	(0.0048)	(0.0055)	(0.0067)	(0.0070)
lambda		0.1596***		-.5360***		0.0122***		-0.9190***		-0.7346***
		(0.0043)		(0.0029)		(0.0052)		(0.0010)		(0.0021)
N	6518270	6518270	4255349	4255349	7548671	7548671	6083741	6083741	2525140	2525140
r2	0.3374		0.2587		0.2721		0.2401		0.2292	
F	1.747e+05		1.142e+05		1.485e+05		91546.0917		50055.8506	
LR Test Chi²		1000.12		4664.35		4.92		92615.96		13480.80
Prob(x>Chi²)		0.0000		0.0000		0.0265		0.0000		0.0000

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Heckman Selection Equation Results; Dependent Variable: Household Does Not Receive Remittances Indicator

	National	Traditional	Northern	Central	SSE	V Low	Low	Medium	High	V High
hhsize	-0.0078***	0.0709***	-0.1482***	-0.0145***	-0.0087***	-0.1216***	-0.1831***	-0.0024	0.0362***	0.0617***
	(0.0011)	(0.0019)	(0.0026)	(0.0023)	(0.0025)	(0.0030)	(0.0041)	(0.0022)	(0.0020)	(0.0024)
child05	-0.0196***	-0.0540***	0.0891***	-0.0035	-0.0695***	-0.0403***	0.1174***	-0.0108***	-0.0516***	-0.0056*
	(0.0013)	(0.0023)	(0.0030)	(0.0027)	(0.0029)	(0.0034)	(0.0047)	(0.0026)	(0.0023)	(0.0030)
male615	-0.0264***	-0.1142***	0.0764***	0.0771***	-0.0610***	0.0265***	0.2877***	-0.0181***	-0.0724***	-0.0782***
	(0.0013)	(0.0022)	(0.0030)	(0.0027)	(0.0028)	(0.0034)	(0.0049)	(0.0026)	(0.0023)	(0.0028)
female615	-0.0205***	-0.0773***	0.1121***	-0.0094***	-0.0561***	0.1151***	0.2143***	-0.0987***	-0.0642***	-0.0119***
	(0.0013)	(0.0022)	(0.0030)	(0.0027)	(0.0028)	(0.0034)	(0.0047)	(0.0026)	(0.0023)	(0.0028)
male1665	0.0096***	-0.0477***	0.1295***	-0.0246***	0.0399***	0.0827***	0.1834***	0.0067***	-0.0790***	0.0501***
	(0.0012)	(0.0020)	(0.0027)	(0.0025)	(0.0027)	(0.0031)	(0.0043)	(0.0024)	(0.0021)	(0.0026)
female1665	0.0186***	-0.0772***	0.1765***	0.0352***	0.0229***	0.1440***	0.1740***	0.0405***	-0.0161***	-0.0667***
	(0.0012)	(0.0020)	(0.0028)	(0.0025)	(0.0027)	(0.0032)	(0.0042)	(0.0025)	(0.0022)	(0.0026)
avged	0.0028***	0.0217***	-0.0248***	0.0014***	-0.0021***	0.0092***	-0.0244***	-0.0241***	0.0239***	-0.0020***
	(0.0002)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0006)	(0.0003)	(0.0003)	(0.0004)
age	-0.0121***	-0.0146***	-0.0112***	-0.0079***	-0.0120***	-0.0263***	-0.0607***	0.0007*	0.0040***	-0.0378***
	(0.0002)	(0.0003)	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0008)	(0.0003)	(0.0003)	(0.0004)
agesq100	1.11e-6***	1.06e-6***	1.34e-6***	7.59e-7***	1.26e-6***	2.57e-6***	5.60e-6***	2.87e-7***	-6.29e-7***	3.61e-6***
	(1.79e-8)	(2.88e-8)	(4.34e-8)	(3.66e-8)	(4.12e-8)	(5.26e-8)	(7.83e-8)	(3.50e-8)	(2.92e-8)	(4.23e-8)
edyrs	-0.0065***	-0.0200***	0.0158***	-0.0021***	-0.0064***	-0.0059***	0.0105***	0.0139***	-0.0194***	-0.0008**
	(0.0002)	(0.0003)	(0.0004)	(0.0003)	(0.0003)	(0.0004)	(0.0005)	(0.0003)	(0.0002)	(0.0004)
hablaind	0.0901***	-0.0164***	0.1355***	0.0854***	0.1334***	0.1683***	-0.2153***	0.1564***	0.1264***	-0.1305***
	(0.0015)	(0.0034)	(0.0037)	(0.0028)	(0.0026)	(0.0041)	(0.0058)	(0.0025)	(0.0027)	(0.0038)
alfabe	0.1201***	-0.0154***	0.4780***	0.1061***	-0.0084**	0.2151***	0.0700***	0.2690***	-0.0762***	0.0822***
	(0.0015)	(0.0028)	(0.0035)	(0.0029)	(0.0033)	(0.0039)	(0.0054)	(0.0030)	(0.0027)	(0.0034)
assets	-0.0490***	-0.0893***	-0.1603***	-0.0254***	0.0108***	-0.1566***	-0.2716***	0.0239***	-0.0613***	0.0557***
	(0.0008)	(0.0018)	(0.0031)	(0.0017)	(0.0013)	(0.0025)	(0.0037)	(0.0016)	(0.0012)	(0.0021)
remshrco	-0.0005***	0.0006***	0.0201***	-0.0168***	-0.0027***	-0.0386***	-0.0556***	-0.0072***	0.0069***	-0.0100***
	(0.0001)	(0.0001)	(0.0006)	(0.0003)	(0.0004)	(0.0011)	(0.0014)	(0.0003)	(0.0001)	(0.0002)
remshrxassets	0.0067***	0.0119***	0.0081***	-0.0049***	0.0027***	0.0278***	0.0345***	-0.0035***	-0.0003**	0.0070***
	(0.0001)	(0.0002)	(0.0009)	(0.0003)	(0.0002)	(0.0011)	(0.0014)	(0.0004)	(0.0001)	(0.0002)
constant	1.7939***	1.9528***	2.4134***	1.9249***	2.5013***	2.6064***	3.8277***	1.6157***	1.5192***	2.0308***
	(0.0059)	(0.0086)	(0.0151)	(0.0098)	(0.0119)	(0.0140)	(0.0188)	(0.0099)	(0.0083)	(0.0116)

Note: Standard errors in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6a: Observed Poverty Rates: Total Income vs. Non-Remittance Income Only

	International Extreme Poverty Line $1.25 per day (USD PPP)				International Poverty Line $2.00 per day (USD PPP)				National Extreme Poverty Line (Rural) MX$ 697.93 per month			
	Observed Poverty Rate	Poverty Rate w/o Remittances	Difference	% Change	Observed Poverty Rate	Poverty Rate w/o Remittances	Difference	% Change	Observed Poverty Rate	Poverty Rate w/o Remittances	Difference	% Change
National	0.0462	0.0542	-0.0080	-14.69	0.0933	0.1042	-0.0109	-10.46	0.1640	0.1735189	-0.0095	-5.47
Traditional Region	0.0484	0.0644	-0.0160	-24.83	0.0908	0.1132	-0.0224	-19.79	0.1689	0.1857529	-0.0168	-9.07
Northern Region	0.0300	0.0791	-0.0491	-62.11	0.0688	0.0791	-0.0103	-13.02	0.1285	0.1369752	-0.0085	-6.21
Central Region	0.0370	0.0417	-0.0047	-11.24	0.0719	0.0784	-0.0065	-8.29	0.1334	0.1400616	-0.0067	-4.78
SSE Region	0.0730	0.0802	-0.0072	-8.92	0.1501	0.1566	-0.0065	-4.15	0.2376	0.2450027	-0.0074	-3.04
Very Low Intensity	0.0422	0.0458	-0.0036	-7.93	0.0904	0.0968	-0.0064	-6.61	0.1532	0.1588738	-0.0057	-3.59
Low Intensity	0.0355	0.0381	-0.0026	-6.70	0.0739	0.077	-0.0031	-4.03	0.1352	0.1376747	-0.0025	-1.82
Average Intensity	0.0416	0.0487	-0.0071	-14.63	0.0888	0.099	-0.0102	-10.30	0.1570	0.1681226	-0.0111	-6.61
High Intensity	0.0590	0.072	-0.0130	-18.08	0.1127	0.1265	-0.0138	-10.91	0.1928	0.2045437	-0.0117	-5.74
Very High Intensity	0.0549	0.0725	-0.0176	-24.26	0.0965	0.1255	-0.0290	-23.11	0.1852	0.2055193	-0.0204	-9.91

Table 6b: Observed Poverty Rates: Total Income vs. Non-Remittance Income Only

	National Extreme Poverty Line (Urban) MX$ 990.77 per month				National Poverty Line (Rural) MX$ 1348.62 per month				National Poverty Line (Urban) MX$ 2140.05 per month			
	Observed Poverty Rate	Poverty Rate w/o Remittances	Difference	% Change	Observed Poverty Rate	Poverty Rate w/o Remittances	Difference	% Change	Observed Poverty Rate	Poverty Rate w/o Remittances	Difference	% Change
National	0.2485	0.2583	-0.0098	-3.80	0.3528	0.3617	-0.0089	-2.47	0.5198	0.5260	-0.0062	-1.18
Traditional Region	0.2542	0.2725	-0.0183	-6.71	0.3536	0.3710	-0.0174	-4.68	0.5260	0.5372	-0.0112	-2.09
Northern Region	0.2011	0.2103	-0.0091	-4.33	0.2954	0.3028	-0.0074	-2.46	0.4631	0.4681	-0.0050	-1.07
Central Region	0.2148	0.2201	-0.0052	-2.38	0.3182	0.3222	-0.0040	-1.24	0.4872	0.4913	-0.0040	-0.82
SSE Region	0.3367	0.3458	-0.0091	-2.63	0.4569	0.4663	-0.0094	-2.02	0.6154	0.6212	-0.0058	-0.93
Very Low Intensity	0.2282	0.2347	-0.0065	-2.78	0.3248	0.3290	-0.0042	-1.28	0.4818	0.4840	-0.0022	-0.45
Low Intensity	0.2260	0.2267	-0.0007	-0.32	0.3300	0.3299	0.0001	0.04	0.5119	0.5127	-0.0009	-0.17
Average Intensity	0.2410	0.2522	-0.0111	-4.42	0.3502	0.3617	-0.0115	-3.17	0.5125	0.5197	-0.0072	-1.39
High Intensity	0.2769	0.2891	-0.0122	-4.22	0.3773	0.3908	-0.0135	-3.46	0.5426	0.5528	-0.0102	-1.85
Very High Intensity	0.2834	0.3070	-0.0237	-7.71	0.4020	0.4194	-0.0174	-4.15	0.5869	0.6003	-0.0134	-2.23

Table 7a: Estimated Changes in Poverty Rates: Observed Income vs. Imputed Income

	International Extreme Poverty Line $1.25 per day (USD PPP)				International Poverty Line $2.00 per day (USD PPP)				National Extreme Poverty Line (Rural) MX$ 697.93 per month			
	Observed Poverty Rate	Estimated Poverty Rate w/o Remittances	Difference	% Change	Observed Poverty Rate	Estimated Poverty Rate w/o Remittances	Difference	% Change	Observed Poverty Rate	Estimated Poverty Rate w/o Remittances	Difference	% Change
National	0.0462	0.0535 (.0533863 .0536074)	-0.0073	-13.57	0.0933	0.1096 (.1094215 .1097255)	-0.0163	-14.85	0.1640	0.1817 (.1815288 .18191)	-0.0177	-9.73
Traditional Region	0.0484	0.0507 (.0504247 .0509086)	-0.0023	-4.45	0.0908	0.1074 (.1070235 .1076951)	-0.0166	-15.42	0.1689	0.1817 (.1812841 .1821262)	-0.0128	-7.04
Northern Region	0.0300	0.0393 (.0390441 .0394856)	-0.0093	-23.67	0.0688	0.0855 (.0851896 .0858291)	-0.0167	-19.54	0.1285	0.1485 (.1481459 .1489391)	-0.0201	-13.51
Central Region	0.0370	0.0436 (.0434443 .0437583)	-0.0066	-15.11	0.0719	0.0918 (.0916237 .092076)	-0.0199	-21.72	0.1334	0.1562 (.1558717 .1564537)	-0.0228	-14.60
SSE Region	0.0730	0.0774 (.0771639 .0777304)	-0.0044	-5.68	0.1501	0.1509 (.1505391 .1512686)	-0.0008	-0.53	0.2376	0.2400 (.2396031 .2404596)	-0.0025	-1.03
Very Low Intensity	0.0422	0.0518 (.0516528 .052017)	-0.0097	-18.65	0.0904	0.1016 (.1013747 .1018764)	-0.0112	-11.05	0.1532	0.1656 (.1652874 .1658909)	-0.0124	-7.50
Low Intensity	0.0355	0.0444 (.0441511 .0446208)	-0.0088	-19.91	0.0739	0.0953 (.0949157 .0955934)	-0.0214	-22.42	0.1352	0.1638 (.1633372 .1641701)	-0.0286	-17.46
Average Intensity	0.0416	0.0498 (.0495597 .0500119)	-0.0082	-16.49	0.0888	0.1046 (.1042577 .1049167)	-0.0158	-15.09	0.1570	0.1764 (.1759994 .1768225)	-0.0194	-11.00
High Intensity	0.0590	0.0552 (.0549141 .0554331)	0.0038	6.90	0.1127	0.1161 (.1157193 .116441)	-0.0034	-2.91	0.1928	0.1948 (.1943064 .1951976)	-0.0020	-1.00
Very High Intensity	0.0549	0.0617 (.0613459 .0619727)	-0.0067	-10.95	0.0965	0.1268 (.1263602 .127242)	-0.0303	-23.90	0.1852	0.2090 (.2084861 .2095375)	-0.0239	-11.41

Note: 95% confidence intervals in parentheses

Table 7b: Estimated Changes in Poverty Rates: Observed Income vs. Imputed Income

|	National Extreme Poverty Line (Urban) MX$ 990.77 per month				National Poverty Line (Rural) MX$ 1348.62 per month				National Poverty Line (Urban) MX$ 2140.05 per month			
	Observed Poverty Rate	Estimated Poverty Rate w/o Remittances	Difference	% Change	Observed Poverty Rate	Estimated Poverty Rate w/o Remittances	Difference	% Change	Observed Poverty Rate	Estimated Poverty Rate w/o Remittances	Difference	% Change
National	0.2485	0.2699 (.269686 .2701205)	-0.0214	-7.94	0.3528	0.3629 (.3626334 .3630918)	-0.0101	-2.78	0.5198	0.5179 (.5177006 .5181818)	0.0019	0.37
Traditional Region	0.2542	0.2735 (.2730372 .2740015)	-0.0193	-7.05	0.3536	0.3708 (.3702619 .3713184)	-0.0172	-4.63	0.5260	0.5316 (.5310185 .5321286)	-0.0056	-1.05
Northern Region	0.2011	0.2291 (.2286409 .2295799)	-0.0280	-12.20	0.2954	0.3176 (.317116 .3181216)	-0.0223	-7.01	0.4631	0.4717 (.4711696 .4722617)	-0.0087	-1.84
Central Region	0.2148	0.2375 (.2371549 .2378262)	-0.0227	-9.54	0.3182	0.3259 (.325547 .3262849)	-0.0078	-2.38	0.4872	0.4795 (.4791018 .4798621)	0.0078	1.62
SSE Region	0.3367	0.3428 (.3423334 .3432813)	-0.0061	-1.78	0.4569	0.4451 (.444629 .4456237)	0.0118	2.64	0.6154	0.6049 (.6043775 .6053657)	0.0105	1.74
Very Low Intensity	0.2282	0.2448 (.2443812 .2451352)	-0.0165	-6.76	0.3248	0.3294 (.3290025 .329818)	-0.0046	-1.41	0.4818	0.4756 (.4751856 .4760519)	0.0062	1.30
Low Intensity	0.2260	0.2494 (.2489115 .2498751)	-0.0234	-9.38	0.3300	0.3420 (.3414239 .3425323)	-0.0119	-3.49	0.5119	0.4997 (.4990865 .500262)	0.0122	2.44
Average Intensity	0.2410	0.2651 (.2645802 .2655295)	-0.0240	-9.06	0.3502	0.3591 (.3585643 .3595471)	-0.0088	-2.46	0.5125	0.5169 (.5163466 .5173697)	-0.0043	-0.84
High Intensity	0.2769	0.2904 (.2899454 .2909408)	-0.0135	-4.65	0.3773	0.3899 (.3893424 .3904)	-0.0126	-3.23	0.5426	0.5527 (.5521683 .5532648)	-0.0101	-1.83
Very High Intensity	0.2834	0.3076 (.3070645 .3082172)	-0.0243	-7.89	0.4020	0.4099 (.4092353 .4104865)	-0.0079	-1.92	0.5869	0.5742 (.5735414 .5748202)	0.0127	2.22

Note: 95% confidence intervals in parentheses

Figure 1

States by Region
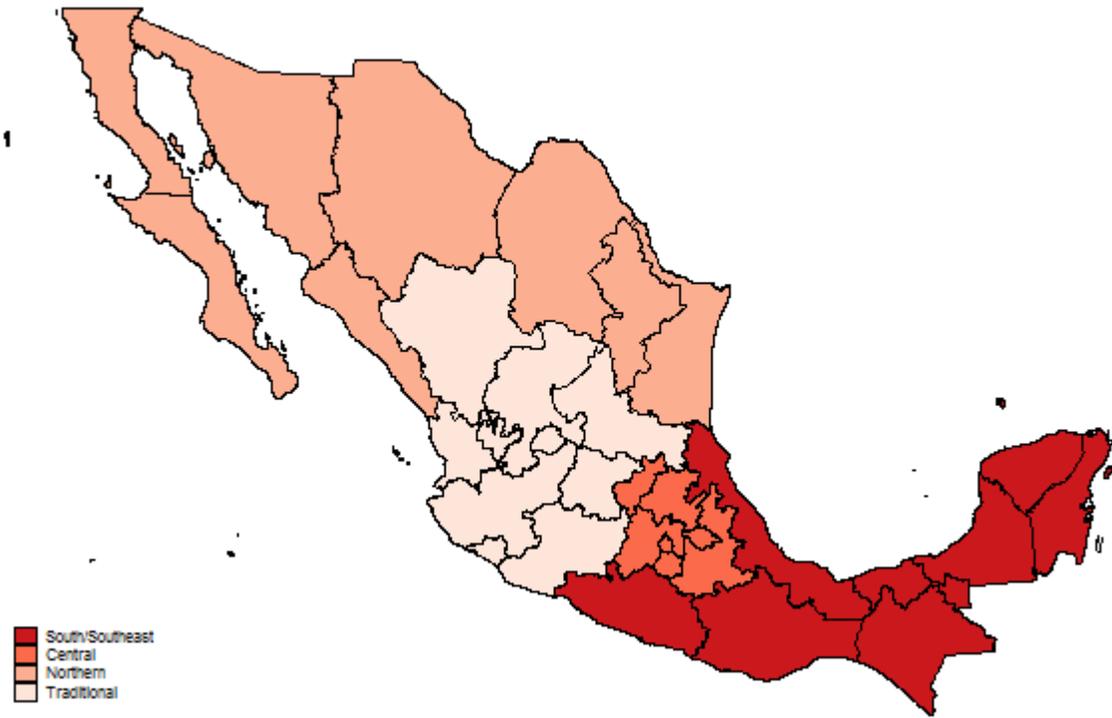
Figure 2

States by Migration Intensity