

**International Migration and Schooling as  
alternative means of social mobility in Mexico**

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**Extended abstract**

Migration and education are both considered investments in human capital in the sense that the return to observable characteristics increases when an individual either spends more time in the school, or moves to a place where the price of his/her characteristics is higher.

In the economic literature there is currently a debate about how migration can affect the amount of resources families spend in education. On one hand, scholars expect formal education to increase within families where monetary and liquidity constraints are relaxed due to remittances but, on the other hand, migration can create family disruption and scarcity of labor that can lead families to value schooling less. Our hypothesis goes beyond these two arguments and states that the migration experience at the household and the community level can change family preferences, increasing the value of migration as a more efficient means for family social mobility, and decreasing the value attributed to formal education. In this case, the relaxation of monetary constraints may not increase the amounts families spent in schooling, and can even decrease them as families invest more in trying to get another member into the international labor market.

The flow of labor migrants from Mexico to the US has increased sharply in recent years. The number of people moving from Mexico to the US each year is close to 500,000 people and it is expected to continue in these high numbers if Mexico does not create the number of jobs the population requires to stay in the country. This phenomenon can have positive and negative effects on economic development, and these can be observed either in the short or in the long run. There are a number of studies that report the short term benefits migration brings to rural and poor families in developing countries. Hildebrandt and McKenzie (2006), for example, find that children in migrant households in Mexico have lower rates of mortality and a lower likelihood of

malnutrition relative to their counterparts in non migrant households. Mora (2006), on the other hand, finds that poverty in rural Mexican families significantly decreases when families receive a higher proportion of income from remittances, suggesting migration flows have helped reducing the poverty indices in the country. The same author analyzes the relationship between migration, remittances and inequality and finds that migration is positively correlated with income inequality in early stages of migration tradition at the community level, but that inequality is lower in communities with a deep migration tradition, suggesting remittances and migration reduce income inequality. Other authors, like Woodruff and Zenteno (2001) suggest that remittances promote entrepreneurship in migrant families, and Lucas (1987) finds that migration creates labor scarcity and less agricultural production in the short run, which is compensated with a higher productivity in the long term. Finally, as migration implies a decrease in labor supply, it might be considered a factor promoting wage increases for the remaining labor force in the source country.

Regarding education, there are a number of studies that analyze the effect of migration and remittances on school attendance and levels of schooling, but the results are controversial [see Hanson and Woodruff (2003), McKenzie and Rapoport (2006), López-Córdoba (2006) and Borraz (2005), among others]. There is no consensus about the relationship migration and education keep, and our paper contributes to this literature taking into account variables that have not been included in other studies. First, we include in the statistical analysis the effect the social transfer public program *Oportunidades* has on the schooling decision of families. This is relevant because the transfers families receive from *Oportunidades* are conditioned to the number of days children below 21 attend a public school. We also include in our schooling regressions the effect of the economic activity at the community level, and the effect of other education characteristics of the community. Not to include these variables can lead to biases that deceive the real relationship migration and remittances have with schooling at a family level.

The topic we approach in this paper faces important econometric challenges. First, the family variables that might affect schooling can also affect the migration and the

remittances decisions<sup>1</sup>. This causes an endogeneity problem we try to solve by using as instrumental variables the probabilities of migration and remittances we calculate at a household level. Second, the group of individuals attending schools in rural Mexico might not be selected randomly, at least for certain groups of age, which means that we need to correct self selection biases in the equations. Finally, our dependent variables can be censored, and this implies that the econometric technique has to be adapted to the nature of the data.

Our paper includes a comprehensive literature review about the determinants of the migration decision at a family level, of the decision to remit and of the schooling decision. We start explaining how the schooling level of individual  $i$ , in family  $j$  and community  $g$ , is determined through a family maximization process expressed in equation 1:

$$s_i^* = \max_{s \in (0,1,2,\dots,N)} \sum_{j=1}^n (r_{ij} - c_{ij} - k_{ij}) \quad \text{s. a.} \quad \sum_{j=1}^n c_{ij} \leq A_i \dots\dots\dots(1)$$

where  $r_{ij}$  represents the discounted present value of the return individual  $i$  obtains if he/she completes an additional school year  $s$ .  $c_{is}$  denotes the direct financial additional cost individual  $i$  has to pay if another school year  $s$  is completed. Finally,  $k_{ij}$  represents the non-direct costs individual  $i$  has to incur if another school year  $s$  is completed. Non direct costs are, for example, the efforts associated with schooling and the foregone salaries. The relevant constraint says that the sum of all direct costs of schooling has to be lower or equal to the amount needed for individual  $i$  subsistence  $A_i$ .

Our paper sketches a theoretical framework in which migration increases the non-direct costs of schooling through foregone salaries, while decreases the present value of the returns to education in Mexico given the difficulties associated with, for example, the language barriers Mexican migration to the US brings about. For Mexicans it is difficult to signal their skills through schooling in Mexico, which may decrease the value people with migration expectations give to education.

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<sup>1</sup> Our theoretical framework is the New Economics of Labor Migration; therefore, migration and remittances decisions are supposed to be made at the household level rather than at an individual level.

Using the National Survey of Mexican Rural Households (ENHRUM) for 2003, this paper then tries to understand the role migration and remittances have played in the schooling decisions of rural households in Mexico. We analyze two different dimensions of education: school attendance and levels of schooling, for two different groups of population classified by gender: 11 to 15 years old and 16 to 19 years old. We calculate descriptive statistics for individuals in migrant and in non-migrant households and communities, and show that migrant households generally perform better in terms of education. Migrant communities also seem to give more importance to education, which suggests that migration is good for human capital, at least in the short run.

To compare the effect of migration and remittances on schooling along time, we assume communities with more migration tradition show the long term effect we are trying to analyze, while communities with none or very low migration tradition show the short term effect. The methodology we use is the estimation of a system equation. The equations estimated simultaneously are three: a migration equation, a remittances equation and the schooling equations, one for each group of population. The equations are explained below.

### Methodology

If families in the Mexican rural sector choose to send a member to work abroad in order to relax monetary and liquidity constraints, and we expect this to affect the schooling decisions, we should then estimate a migration decision equation and a remittances reception equation, in reduced form and at a household level, or to approximate these variables in the schooling equation through instrumental variables. We choose to estimate migration and remittances equations in reduced form, and to include the estimated probabilities as regressors in the schooling equations.

Our characterization of the schooling decision of family  $j$ , regarding the education of child  $i$  in community  $g$  is the following:

$$S_{ijg} = \alpha + \beta \mathbf{M}_{jg} + \phi R_j + \theta \mathbf{X}_i + \delta \mathbf{Z}_j + \gamma \mathbf{Y}_g + \varepsilon_{ijg} \dots \dots \dots (2)$$

where  $\mathbf{M}_{jg}$  is a vector of migration variables at a household and community levels;  $R_j$  denotes if the household does receive remittances from abroad;  $\mathbf{X}_i$  is a vector of individual characteristics;  $\mathbf{Z}_j$  is a vector of household characteristics;  $\mathbf{Y}_g$  is a vector of community characteristics, and  $\varepsilon_{ijg}$  is the error term. The schooling equations are only estimated for the children of the head of the household aged between 11 and 19.

The null hypothesis in our paper is that both  $\beta$  and  $\phi$  in equation (2) are equal to zero; i.e., that migration and remittances do not affect the schooling decisions in rural Mexico. Now, despite not all migrant household receive remittances, remittances are obtained through migration. This means that the remittances equation is conditioned to the existence of migrants at a household level  $M_j$ ; so, given migration, remittances vary according to certain household and community characteristics:

$$[R_j/M_j] = \lambda + \xi \mathbf{Z}_j + \psi \mathbf{Y}_g + \mu_{jg} \dots \dots \dots (3)$$

where  $R_j$  says if the household receive remittances or not;  $M_j$  is the migration variable at a household level;  $\mathbf{Z}_j$  is a vector of household characteristics;  $\mathbf{Y}_g$  is a vector of community characteristics, and  $\mu_{jg}$  is the error term. This remittances equation is estimated in a reduced form, so the migration variable is *proxied* through an instrumental variable.  $M_j$  is instrumented with the bracero experience of the household.

Finally, migration is also estimated in a reduced form in the following way:

$$M_j = \varphi + \pi \mathbf{Z}_j + \rho \mathbf{Y}_g + \eta_{jg} \dots \dots \dots (4)$$

where  $M_j$  is the migration variable at a household level;  $\mathbf{Z}_j$  is a vector of household characteristics;  $\mathbf{Y}_g$  is a vector of community characteristics, and  $\eta_{jg}$  is the error term.

Estimating the equation system (2)-(4) we sort out the endogeneity problem.

Our main results are the following:

- Households with less human capital seem to prefer migration as a means of social mobility over education. They are more prone to receive remittances.
- *Oportunidades* seems to deter migration at a household level, but other government transfer programs seem to promote it among rural families.
- Families receiving transfer from *Oportunidades* are more likely to receive remittances, suggesting these are the poorest families of the sample.
- Households in communities with more income inequality are more prone to use migration and remittances as means for social mobility.
- Migration tradition at a community level seems to benefit girls in terms of school attendance, but to harm them in terms of levels of schooling.
- Migration tradition at a community level seems to harm boys in terms of school attendance, but to benefit them in terms of levels of schooling.
- Girls might be emotionally affected by the migration experience in the family, while migrant boys seem to be negatively selected.
- *Oportunidades* may not be covering the opportunity cost of boys in migrant communities, where foregone salaries for them are very high.

The main policy recommendations that can be drawn from the analysis are:

- It is important to acknowledge the importance the migration experience at a community and family level is acquiring in the schooling decision of families, so social transfer programs should treat differently boys and girls in these communities. Transfers should be equalized among gender in these communities, or should be even higher for boys.
- Temporary and legal migration might be promoted under certain conditions, making sure families can be reunited when required.
- Education in rural Mexico should be improved, given that our study suggests it is not considered an efficient means for male social mobility.
- Economic activity should match the skills of the population, but also skills should be adapted to the kind of investment the community receives.