The Impact of Mexico-U.S. Migration in the Family and the Community on Current Work and School Status of Mexican Youth

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Abstract

This paper analyzes the role of U.S. migration and remittances on school and work status of Mexican youth using the 10% sample of the 2000 Mexican Census. Human capital perspectives suggest migration has a positive impact on education due to increased household income; however, recent research suggests migration discourages education and creates an orientation towards U.S. labor markets. Preliminary results show the two processes may be at play. Remittances receipt reduces the odds that youth will be working instead of attending school. However, migration in the family is also associated with a higher likelihood of youth inactivity relative to school enrollment. Higher migration prevalence in the community is also related to a higher likelihood of working, combining school and work, and inactivity relative to school attendance. These effects are consistent with expectations of schooling discouragement in communities with higher migration prevalence.

Introduction

The impact of U.S. migration on household economy and socioeconomic status in Mexico is a relationship that has been well established and defined in the sociological and demographic literature. The use of remittances and migrant savings for the purchase of household assets, properties and land is a consistent finding. Expectations following human capital perspectives argue that given this positive impact of international migration on household income, migration at the family level should also translate in increased school enrollment and a lower probability of school drop-out. However, research findings have also found that migration may discourage education and is associated to early school dropout because it creates an orientation toward U.S. labor migration in contexts where education does not easily translate into socioeconomic mobility.

The main goal of this paper is to explore the impact of U.S. migration in the household and the community on the work and school status of Mexican young men and women. The main research questions guiding this research are: *Is U.S. migration in the family and the community associated to the activity status of youth in Mexico? And, is this relationship influenced by the level of development of the municipality of residence?* These questions are approached by analyzing microdata from the 2000 Mexican Census of Population and Housing as well as community level characteristics constructed by the Mexican National Council of Population (CONAPO). The mail goal is to integrate economic and social explanations of the impact of international migration on youth's activities. While previous work on the socioeconomic impact of U.S. migration in Mexico has often focused on the investment of remittances in household assets and property, not as much research is devoted to its impact on the work and school status

of the children of migrants in Mexico. From the few studies exploring educational attainment and migration we can take two competing theoretical explanations. On one side, human capital perspectives suggest migration may have a positive impact on education due to increased household income; and on the other side, sociological research suggests that migration also discourages education and creates an orientation towards U.S. labor markets. This paper brings together these two explanations to understand the role that international migration has on the work and school status of Mexican youth.

Background

The expansion of primary education accomplished in the second half of the twentieth century in Mexico resulted in an increase of school enrollment among school-age children to levels close to universal (INEGI, 2000b; Giorguli Saucedo, 2002). Despite challenges to bring education to every Mexican child, important progress was achieved in the last decades of the 20th Century. The average years of schooling among the population 15 years old and older went from three years in 1970 to seven in 1997 (INEGI, 2000b, Castro and Gandini, 2008; Camarena, 2000).

Moreover, in the early nineties, there was a change in the law that increased mandatory schooling from elementary school (6th grade) to middle school (9th grade). Thanks to this change, education policies were guided towards increasing secondary school supply in the country. By the Census of 2000 less than ten percent of the population was illiterate, and the mean years of schooling were almost eight; at this time, primary education enrollment was almost universal (Bracho, 2002; Giorguli Saucedo, 2004; Ariza, 2005).

Regardless of the important advances in elementary education attainment, school drop-out after sixth grade is still high. For instance, less than half of children who finished ninth grade continued attending school afterwards (Camarena, 2000; Giorguli Saucedo 2004). Furthermore, despite the advances in education policy, studies agree that parental socioeconomic status is still the most important determinant of school enrolment and attainment in Mexico (Giorguli Saucedo, *et al.*, 2009; Giorguli Saucedo, 2005; Bracho, 2002). Children from low income families are less likely to complete education beyond elementary school, whereas children at the top of the income distribution make educational transitions at the expected ages, finish secondary education and are more likely to attain post-secondary schooling (Bracho, 2002).

Successive economic crises in the past three decades had important consequences on the composition of the Mexican labor market. Moreover, economic liberalization policies decreased opportunities for skilled and manufacturing jobs, and increased the proportion of jobs in the services industry –which require little qualification. Furthermore, the informal economy grew consistently in recent years, as a result, despite the growth of educational opportunities, changes the labor market had a negative impact on the value placed on education, more specifically, the value of secondary education, as a mean for social mobility (Cortés and Escobar, 2005; Solís, 2002; Zenteno and Solís, 2006). Education no longer guarantees social mobility, and fares poorly when compared to alternatives such as U.S. labor migration; in sum, there is an important disparity between the rate of growth in education and the demand for skilled labor in the economy.

School Dropout

Leaving school in Mexico is closely associated with families' economic circumstances, studies suggest adolescents leave school to work, to help with household chores or take care of younger children in the household (Giorguli Saucedo, 2004). Other reason for early school dropout is the low returns of education. In a context where decent employment opportunities are not guaranteed for those who stay in school, employment opportunities are often below youth's expectations given their schooling. As a result, the motivation to study diminishes to a point that students see it more valuable to leave school and devote to other activities. In the case of women, in particular, many of them leave school because their families do not see value in their schooling given that they are expected to marry and have children (Giorguli Saucedo, *et al.*, 2009; Bracho, 2002; Castro and Gandini, 2008).

Socioeconomic status is also an important determinant of school dropout and entry into employment. Among families of low socioeconomic status, school dropout is closely related to the need to generate income for the household or to contribute to the family's economic activities. We can expect that among youth form higher socioeconomic status the reasons for leaving school would be different, and perhaps more related to academic performance, behavioral problems and family context, however, these expectations have not been specifically explored (Giorguli Saucedo, 2005).

Entry into Work

The law in Mexico limits the age at which children can start formal employment; children can begin working at age 14 for a maximum of six hours per day, only in work that does not interfere with secondary school and work that is not defined as dangerous. After age 16 children are

allowed to begin work as adults. However, it is important to acknowledge that children begin doing informal work at even earlier ages, and the law is not always enforced (Levison, *et al.*, 2001).

The types of work and rates of participation vary according to children's gender, age and place of residence. Children living in rural areas may be participating in agricultural activities, in urban areas they may work in informal service employment. Many times, the younger children work for no wages supporting their family's economic activities. With regard to sex, boys participate in paid employment at higher rates than girls, mostly because girls are more likely to be occupied doing housework and other chores (INEGI, 200b; Giorguli Saucedo, 2004).

Combination of school and work has been associated to lower income families which look at maximizing their resources through engaging more of their members into the labor force. In a context of economic uncertainty, where resources are scarce, and there is availability of paid jobs, adolescents are likely to engage in employment to contribute to their household. In addition, boys are more likely to start working at younger ages than girls, who are expected to devote to domestic activities, which makes them more likely to not work outside the home, but also more likely to not attend school either (Castro and Gandini, 2008; Mier y Teran and Rabell, 2003)

Youth Inactivity

A trend that has recently become more prevalent in Latin American –and other developing countries- is that of youth who do not attend school or work. Yet, there is not much research with regard to the background of the young people who fall into this category, and the reasons why they belong to this group of idle population. Some argue that increasing youth inactivity may be

a consequence of dismay labor opportunities or failure in school; moreover in many cases, these young people are likely to come from highly marginalized households. Additionally, yoouth idleness follows a particularly gendered pattern. Girls are more likely to leave school and forgo employment, some of this women clearly leave school to perform domestic work or help with the childrearing of younger siblings Giorguli Saucedo, 2005), however, there still is a large group of idle women who do not report performing domestic or childrearing activities. Reasons for boys' inactivity are not clear either.

It is estimated that in Mexico there are about 5 million youth between the ages of 12 and 29 who is not working or studying (Watcher, 2007). Further research is still needed to understand what it means to be idle, who is more likely to be inactive, and how does idleness relate to inequality and lack of opportunities. This is particularly interesting because it points toward higher dependence of youth on their parents, higher rates of coresidence with parents at older ages, low school and employment achievements, and overall downward mobility.

Theoretical Framework

The link between migration and school enrollment

Educational outcomes of youth are closely associated to several factors that interact at different levels of analysis. Family background, social norms and expected behavior, the influence of peers, and the socioeconomic context where youth live all play a role in whether youth will continue their studies or drop-out of school to engage in work or other activities. International migration may have an impact on adolescent school enrollment through these different realms; in this study I identify three specific ways in which migration affects schooling:

(i) Family economic resources are known to be a key determinant of children's educational outcomes. By increasing economic resources through improved family income and remittances, migration would have a positive impact on children's school enrollment.

(ii) Children's educational aspirations are influenced by perceived returns to schooling which are based on expected earnings. Migration among members of the family links youth to U.S. labor markets and provides a demonstration effect of income returns on education.

(iii) Peers and the social context where children grow up have an important role in defining expectations and aspirations regarding the value of education for future employment. In addition, the community of residence plays an important role in children's schooling by defining the context of local employment and international migration opportunities available to children.

The study presented on this paper will focus on these three mechanisms. Below I define them in more detail and elaborate on their relationship to youth's school and work status.

Schooling and Family Income

Sociologists have long established the positive relationship between household income and children's school enrollment and educational attainment. Several studies in the United States have found a highly significant relationship between parents' income and assets on the educational attainment and future earnings of youth (Sewell and Hauser, 1975; Alwing and Thornton, 1984; Corcoran and Datcher, 1981; Jencks, *et al.*, 1983; McLanahan, 1985; Shaw 1982; Teachman 1987; Hill and Duncan; 1987; Binder, 1998 Namand Huang, 2009). Studies in

the developing world also agree that the family has important impacts on the outcomes of adolescents (Giorguli Saucedo, 2002; Mier y Terán and Rabell, 2003; Cerrutti and Binstock, 2004; Buchmann and Hannum, 2001). For instance, parents with higher education or higher income will provide human, cultural, and material resources which will positively impact children's educational attainment (Binder, 1998; Teachman, 1987), and more specifically, these effects are stronger on the education of girls (Teachman 1987; Mier y Terán and Rabell, 2003). With regard to the school and work status of youth, the basic argument is that with increased income and economic resources in the family children will be able to stay in school longer and to delay their entry into the labor force, which in turn will increase their overall educational attainment (Camarena, 2000).

Recent studies on the impact of migration on children's schooling outcomes argue that in the same way as income has a positive effect on education, remittances from international migration would increase educational attainment by increasing economic resources in the household and allowing families to invest in the education of their children. Since those children who drop out of school to work may do it in an effort to help their families make ends meet, remittances would protect children from leaving school to work (Borraz, 2005; McKenzie and Rapoport, 2006; Hanson and Woodruff, 2003). The hypothesis associated with this argument is that migration and remittances in the household may delay school exit and entry into employment, which will in turn, result in higher educational attainment.

Studies on the impact of migration on the education of youth in Mexico have mostly been conducted on limited samples (i.e. only including males, rural areas, or high migration areas). Some of these studies have found positive effects of migration on the schooling of children, particularly for children living in small towns and those whose mothers have low levels of

schooling (Hanson and Woodruff, 2003; Borraz, 2005). While others have actually found that migration has a negative effect on the educational attainment of adolescents (McKenzie and Rapoport, 2006). Given that the work completed so far is not generalizable to the country as a whole and has not accounted for variation in the characteristics of places of origin, the impact of migration at the household level on education merits further empirical exploration. Further studies should also incorporate McKenzie and Rapoport's (2006) findings which challenge the assumption that economic resources are the only connection between migration and education.

Educational Aspirations and the Perceived Returns of Schooling

The aspirations of youth regarding schooling are greatly influenced by what they perceived as the returns of their effort and time spent in school. In developing countries like Mexico, higher education does not necessarily guarantee a higher earning job so schooling is not seen as an important element of social mobility and adult success. Migrants from Mexico to the United States learn that low-skilled jobs are better paid in the U.S., and their earnings in dollars will also give them greater purchasing power in Mexico. On one hand, children in Mexico may be discouraged from schooling because of the low returns they perceive in education. As a result, Mexican children may desire to leave school and start working at earlier ages. On the other hand, the possibilities for upward socioeconomic mobility provided by international migration make it more appealing for Mexican children to migrate internationally. Moreover, migration in the family is what creates the link between Mexican adolescents and the U.S. labor market which makes migration not only desirable, but also attainable (McKenzie and Rapoport, 2006; Miranda, 2007; Meza and Pederzini, 2007).

In more general ways, the family plays an important role in shaping children's aspirations and expectations for the future. For instance, socialization theory states that the impact of family on the educational outcomes of children goes beyond the impact through economic resources. In fact, parents influence their children's expectations through the examples they set as role models. Adult role models help children characterize what the successful routes to adulthood are and they help them define acceptable choices for schooling and employment (Hill and Duncan, 1987). So, for instance, more educated parents or parents with higher incomes will set higher expectations for success in their children, these children will be expected to achieve as much or more than their parents did (Hill and Duncan, 1987).

Additionally, one could argue that expectations for future migration can also be a result of role modeling; so that children of international migrants will regard migration as an accepted choice of employment and will likely have a more limited knowledge of the local labor market opportunities (Miranda, 2007). Access to labor markets also has an important impact in youth's choices. Migration not only changes children's expectations, it also creates the social capital and networks necessary to make additional migration possible (Massey, *et al.*, 1998). The expectation associated with this argument is that children of families with migrants may be discouraged to stay in school for longer, and their transition to employment may occur earlier.

Community level influences on Migration and Schooling

Additionally, we can argue that the family is not the only defining influence in children's expectations. As children grow up and begin having contact with peers and other adults in the community they are able to find other role models in the community. The third mechanism tying

migration and education is at the community level, and argues that opportunities for migration and employment in the community are also important determinants of educational outcomes.

The study of the social consequences of international migration in the communities of origin of migrants are devoted to understanding the changes in social norms and expectations which root migration in the local culture and eventually make it an expected rite of passage (Massey, *et al.*, 1998; Massey, *et al.*, 1987). The establishment of a "culture of migration" results in the discouragement of education among youth people who see migration as a more viable route to social and economic success. In communities with high migration prevalence, young people expect to work in the U.S. at least once throughout their lives and they feel deterred from putting their efforts in attaining schooling. The expectation is that children who live in municipalities where migration is high are more likely to desire to live and work in the United States, as a result they are also more likely to drop out of school at younger ages (Kandel and Massey, 2002).

In addition to the effect of the culture of migration, youth's expectations are also shaped by the context of economic opportunity in their locality. The economy of the community will determine how much value is placed on education to obtain better employment. For instance, living in a place where opportunities for skilled jobs are low would discourage education. While more dynamic economies will provide more options for skilled or even professional employment. Context level influences have not been fully addressed in previous studies on migration and education, particularly because many of them rely on samples of only rural areas, or on small samples from places with high migration, as a result, variation in the characteristics of the place of residence have not been fully accounted for. In this study, one of the main goals is to conduct a nationally representative study that addresses both household level and community

level effects. The following section will describe the specific questions guiding this analysis, as well as specific expectations arising from this theoretical framework.

Research Questions and Expected Relationships

This paper examines the impact of U.S. migration on the current status of activity of youth men and women in Mexico and answers three specific questions:

(1) *Is U.S. migration in the family associated with a higher likelihood of being in school compared to being at work among Mexican youth?*

(2) *Is migration at the community level associated with school dropout and a higher likelihood of youth work?*

(3) *What are the determinants of school enrollment and work status? Which children are more likely to be combining school and work? And which children are more likely to be idle?*

This set of questions aims at understanding the role that family and community level U.S. migration has on children's probability of being enrolled in school and on the likelihood that children have incorporated into the labor force. This section of the research is particularly interested in understanding children's engagement in work and education during the critical time of adolescence, this section will also incorporate the determinants of work and school combination and, on the opposite end, of idleness among youth. We can expect that,

- By increasing household income, parental migration has a "protective effect" that prevents children from dropping out of school, and thus from entering the labor force at early ages.
- In a context where there are low returns to education in the local labor market and the economic opportunities are scarce, younger children will be more likely to be working.
- In a similar way, where there is high prevalence of migration in addition to lack of economic opportunities, children will be more likely to have dropped out of school, possibly to migrate to the U.S. for work.
- In contexts where local opportunities are greater and children have more options to pick from, choosing to migrate could be a result of peer influence. For instance, in more economically developed places with higher prevalence of migration, migrating may be a more common strategy for economic advancement, opposed to staying in school.

Data

The research presented in this paper uses data from the 10 percent sample of the 2000 Mexican Census of Population and Housing available through IPUMS-International. This data source contains information on over 10 million individuals corresponding to 2.3 million households. The census data includes pertinent education, work and migration information for each individual in the household, as well as characteristics of the household and the dwelling of residence. Moreover, through the data extract system of IPUMS-I was able to attach information on the education, work and migration characteristics of the mother and father of each individual whenever they were members of the same household.

This analysis is limited to children ages 13 to 20, and only includes children with at least one parent living in the household, regardless of their relationship to the household head. Whenever parental information and migration information were missing, the observation was excluded from the sample. This selection resulted in the loss of approximately 5% of the initial sample of children.[1] There is potential selectivity bias associated with selecting an age group what includes children over the age of 18. Since older children are more likely to have left the parental household to form their own, one would expect that our sample of 18 to 20 years-olds is highly selective of those who would attain higher schooling and would underrepresent those who became independent younger and dropped out of school at younger ages. However, since this analysis requires parental and household information I cannot include independent youth in the sample. I conducted preliminary analyses where I only included youth up to 17 years old and the results were not significantly different from those with the whole sample, including youth ages 18 to 20 do not significantly change the findings presented. More importantly the effects of migration characteristics were not different in direction, magnitude and significance.

In addition to the individual and household level characteristics, this study incorporates municipality level characteristics. These include two indices, created by the Mexican Council of Population (Consejo Nacional de Población, CONAPO). The first one is an Index of Marginalization (Índice de Marginación) which measures the degree of socioeconomic exclusion of a municipality in Mexico. In the multivariate analyses presented in this paper the direction of this indicator is reversed for ease of interpretation. So, this recode will allow interpreting negative scores as lower degree of socioeconomic development and positive scores as a higher degree of socioeconomic development. Additionally, the second index included in the

[1] The final sample size of children 13 to 20 is 1,357,169. Where 52.22% (708,769) are boys and 47.78% (648,400) are girls.

multivariate analysis is an Index of Migration Intensity (Índice de Intensidad Migratoria) which measures the prevalence of migration and remittances receipt in each municipality in the country.

The two indices discussed above allow for the understanding of the specific effects of local U.S. migration prevalence and socioeconomic marginalization on the school enrollment and work status of children. But, more importantly, they bring important insight on the interactive effect of these two contextual characteristics, in addition to the individual's own characteristics.

Methods

The outcome of interest in this analysis classifies youth in four categories denoting their activity status at the time of the census: 1) school only, 2) work[2] only, 3) combining school and work, and 4) neither school nor work. I use multinomial logistic regressions to estimate the probability of being in each of these states controlling for individual characteristics of the child, family background, U.S. migration and remittances receipt at the household level and characteristics of the community of residence.

The independent variables[3] used in the analysis include individual level characteristics like age, sex, and ethnicity of the adolescents; family background characteristics such as parents' education, father's status, whether the household received remittances in the year prior to the Census and whether the household had international migrants in the five years prior to 2000. Father's status is defined according to three categories combining migration status and household membership: 1) the father is a member of the household and did not migrate to the U.S. in the

[2] For the purpose of this study, the "work" category only includes non-domestic work.
[3] Table 1 presents variable descriptions and codes.

five years prior to the Census; 2) the father is a member of the household and has migrated to the U.S. in the five years before the Census; and 3) the father is not a member of the household, which captures both the individuals who do not have a father or whose father is not a household member. Lastly, the models control for community level characteristics of the municipality of residence of the child.

In this analysis I will estimate different models for females and males in order to understand the way in which each covariate affects the probability of being in school or work differently by sex. Previous studies in Latin America argue that although educational attainment gaps by sex are narrowing, it is still possible to observe differences by sex at higher levels of schooling and at older ages. In addition, males are more likely to drop out of school at a higher rate and at earlier ages in order to engage in paid employment; in addition, women are more likely to not attend school and not work (Mier y Terán and Rabell, 2003; Giorguli Saucedo, 2004; Parker and Pederzini, 2000; Castro and Gandini, 2008).

Models also control for ethnicity, which is an important characteristic to consider given historic and ingrained discrimination against the indigenous population in favor of the *mestizo*[4] population. Indigenous-language speakers are at a disadvantage by all socioeconomic indicators; moreover, most indigenous-language speakers live in small isolated areas of the country with limited access to major services and in municipalities with higher levels of social and economic marginalization (Giorguli Saucedo, 2004; Mier y Terán and Rabell, 2003; CONAPO, 2000). Given all this I would expect indigenous youth to be more likely to not attend school and more likely to be at work only.

[4] The term *mestizo* denotes the population of mixed European and Amerindian ancestry in former Spanish colonies in Latin America. In Mexico *mestizos* comprise the majority of the population.

Parental education is used as a measure of family's socioeconomic status. It has been well established that in developing countries using occupation and education as measures of household's status measures are a better estimate than direct measures of income (Mier y Terán and Rabell, 2003). In preliminary analyses I used different covariates such as a household assets index, parents' occupation, and parents' occupational prestige, as well as parental educational attainment. Results from these different analyses showed similar and consistent results. Education is thus used for ease of interpretation and model parsimony. This variable takes the value of the years of schooling for the parent with the highest education. We should expect that the more educated their parents are, children will be more likely to be enrolled in school instead of working, and also will be less likely to be inactive.

The measure of household remittances is simply an indicator variable that equals one if the household has received remittances in the 12 months prior to the Census. Prior studies support using an indicator variable instead of the amount of remittances when we question the accuracy of reports of remittances received, one can argue that people are likely to misreport the exact amount of money, but they are likely to report correctly whether they received remittances at all (Borraz, 2005). With regard to the number of migrants in the household, I will also use an indicator variable instead of the number of international migrants in the family that is reported in the Census. I do this in order to avoid biases due to the fact that larger families would potentially have more international migrants than smaller families. Given what has been found in previous studies, we can expect a positive impact of migration at the household level on school enrollment due to increased economic resources in the family. However, previous findings may also lead us to expect that the social impact of migration in the family can be related to a higher probability of school dropout (McKenzie and Rapoport, 2006).

The last set of covariates are measures at the municipality level, first, I use a constructed index for the level of socioeconomic development in the *municipio* of residence. With regard to this variable one can expect that the impact of migration and remittances may vary depending on the economic opportunities available to youth in their place of residence. For instance, we can hypothesize a stronger impact of migration at the family level on less developed communities where economic opportunities are more limited. Second, I include a measure of the intensity of international migration in each *municipio,* expectations would be that youth living in places with higher migration prevalence would be more likely to have dropped out of school to work, or even to be idle, due to a negative impact of migration on educational attainment aspirations.

All descriptive statistics presented below were calculated using the sampling weights provided with the IPUMS data. In addition, all multivariate models presented here use the Huber-White correction of standard errors to account for clustering at the municipality level.

Descriptive Analysis Results

School and Work Status by Age

Figure 1 depicts the proportion of males in each activity status category by age. As we can observe, about 83% of boys age 13 are attending school only, however, the percentage declines rapidly and steadily among older children so that by age 20 only 21 percent said school was their only activity. In contrast, the percentage of boys who work only increases importantly between the ages of 13 and 20, going from 5% to 57%. Among males, only a small group combines school and work, and about 8 percent of these boys both attend school and work. The share of

those who neither go to school nor work is about 6% for the 13 year olds and increases to 13% for those men age 16 and 14% for the 20 year olds.

With regard to girls, about 85 percent of girls age 13 are attending school exclusively, but only 27 percent of the 20 year olds still do so. The proportion of those who are only working increases steadily from 2% among those age 13, to 15% among the 16 year-olds and to 34 percent for the 20 year olds. As in the case of boys, a small proportion of girls combine school and work, in total about 5 percent of all girls. However, in an important distinction from the boys, a much larger share of girls is inactive; among the 13 year olds 11 percent do not go to school nor engage in non-domestic work. The proportion grows steadily so that among those aged 17, 27% are inactive and among those 20 years old 31 percent are also inactive.

Regarding inactive youth, it is important to note that the vast majority of the young people in this category have no children and have never been married. When asked about their activity status, a large share of the males in the category of "not in school and not at work" reported simply being inactive (83%) or unemployed (8%). When asked why they left school, this group of men cited two main reasons, first, that they did not want to study anymore (43%) and second, financial considerations (28%). In contrast, about 58 percent of the inactive females reported housework as their activity, and almost a 38% of them simply reported being inactive or unemployed. In addition, among the inactive females, the two main reasons cited for not attending school anymore were: not wanting to study (36%) and financial considerations (30%), while only four percent said they stopped attending school because they entered a marital or cohabiting union.

School and Work Status by Father's Status

Beside sex and age differences in status of activity, there are important differences by the migration and household membership status of the children's father, figures 3 and 4 present school and work status for boys and girls by father's migration and household membership status.[5] As we can observe in figure 3, the highest percentage of boys attending school exclusively (51%) is among those whose father is not a migrant, followed closely by those whose father is a migrant (50%). The lowest percentage comes from the boys whose father is not a household member (46%). Furthermore, the highest percentage (32 percent) of boys who work only is also of those whose father is not a household member; interestingly, the lowest percentage of boys at work only (26%) is of those who have a U.S. migrant father. However, the higher percentage of inactive boys is among the sons of U.S. migrants (16 percent), followed by those boys whose father is not a member of the household (13 percent).

Among girls, we observe a similar pattern than that of boys, however, it is clear that a larger proportion of girls are inactive overall, and the group with the highest share of inactive girls is the daughters of U.S. migrants (29%) followed by those whose father is not a migrant (23%), and those whose father is not a member of the household (22%).

Sample Characteristics

Table 2 presents selected characteristics of the youth in this sample. First of all, almost six percent of them are of indigenous origin, their parents' highest educational attainment is on average 7 years. About 0.3% of them have a father who migrated to the U.S. between 1995 and 2000. Additionally 16 percent of boys and 17 percent of girls do not live in the same household as their fathers. And almost seven percent of boys and 7.5 percent of girls live in a household

[5] All differences between categories are statistically significant ($p < 0.001$).

with at least one international migrant in the five years before the Census, moreover, about four percent of boys and almost five percent of girls live in households that received remittances in the 12 months prior to the Census.

Multivariate Analysis Results

Results for Males

Table 3 presents the results for the multinomial logistic regression models to predict school and work status for boys ages 13 to 20. The four possible outcomes are: being in school only, being at work only, combining school and work, and performing neither of these activities. The multinomial model is estimated using the category "in school only" as the reference, so that the log odds for the three other outcomes are expressed relative to this one outcome. In the following paragraphs I present results for the models in table 3.

At Work Only: First, according to the results in table 3, older children have increased log odds of being at work only compared to being in school only, which is consistent with expectations regarding the effect of age. Additionally, indigenous children have a 23% lower risk (exp(-0.256)=0.774) of being at work only relative to being in school only. Regarding parents' education, every year of increased schooling is associated to a 0.24 decrease in the log odds of being at work only compared to being in school only.

Both father's U.S. migration and having international migrants in the household have no significant effects on the log odds of being at work. However, children whose fathers do not live in the same household have decreased log odds of being only working. The one household migration characteristic that has a significant impact, albeit a modest one, is remittances receipt;

boys living in households that receive remittances have decreased log odds of working exclusively compared to only attending school, this finding is consistent with expectations that economic resources form migration will have a positive impact on school enrollment and will decrease the likelihood of working.

Regarding the characteristics of the municipality of residence, we can observe that living in a more developed place is associated with decreased probabilities of working only; this finding is consistent with the hypothesis that in places with more economic opportunities, children will invest in their schooling in preparation for skilled or professional jobs. Additionally, as expected, higher migration prevalence in the community is related to higher log odds of being only at work, relative to being in school. This result is consistent with expectations that in places with high migration youth would be less likely to be enrolled in school exclusively.

In addition to the full model, I estimated additional models including interaction terms between household migration characteristics and community level of socioeconomic development, while a last model included an interaction between parental education and community development. The idea behind these interactions is the expectation that migration at the household level, and the socioeconomic status of the family would have a stronger impact in less economically developed places. The interaction terms and their main effects for males are presented in table 4.

The three household migration interactions are of similar magnitude and significance. Figure 5 graphs the log odds of being at work only relative to being in school only for boys by father's status characteristics. As we can see in the graph, having a father with U.S. migration experience has a stronger effect on decreasing the odds of being only working relative to being in school only in places with lower levels of development. The graph shows that even though the

effects of having a father with migration experience and having migrants in the household were not significant on their own, they do have a positive impact on the school enrollment of children who live in poorer areas of the country, this finding is consistent with my expectations that migration income would matter more in more economically depressed municipalities. This finding is quite robust, and although one could question this interpretation and argue that perhaps the impacts of migration are stronger in less developed places because more migrants may be concentrated in those areas. In my analysis I confirmed that is not the case, U.S. migrants are more concentrated in areas with mid to high levels of development and not as much at the bottom of the economic development distribution.

With regard to the interaction term for parental education and level of development, the effect follows the opposite direction and we can interpret this interaction saying that higher parental education –i.e. parental socioeconomic status- decreases the odds of only working instead of only attending school in places with higher levels of development. However, since highly educated parents concentrate in highly developed areas of the country this effect may be a result of composition, if we graph average education in municipality by level of development we would see a positive correlation between higher parental education and higher level of economic development in the municipality.

Combining School and Work: The next outcome in the multinomial regression presented in table 3 is the probability of combining school and work relative to only being in school. As we can see, older children have increased log odds of activity combination, while indigenous children are less likely to combine school and work compared to only attending school. Moreover, every additional year of parental education is associated to lower log odds of school and work combination vs. exclusive school attendance. Prior research suggests that activity

combination is a way in which children from lower socioeconomic backgrounds afford to stay in school for longer (Castro and Gandini, 2008), so it is to be expected that children from a higher socioeconomic background –i.e. with more educated parents- would be more likely to stay in school exclusively.

Father's migration to the U.S. again has no significant effect –apart from the interaction effect presented in table 4- though not having their father in the household decreases the log odds of boys combining school and work, relative to school enrollment only. Interestingly, having international migrants and receiving remittances in the household modestly increase the log odds of school and work combination. In the same way, living in more developed places is associated with increased log odds of performing both activities, which may be evidence that in more economically dynamic places youth are able to continue attending school even when they engage in employment. In the same way, higher migration intensity in the community is related to increased log odds of activity combination, relative to only attending school. Just as in the previous outcome, the interactions of migration characteristics and development presented in table 4 are positive and significant, albeit with a more modest magnitude. While the interaction between community development and parental education remains negative and significant.

No in School and Not Working: Just like the previous outcomes, older boys have increased likelihood to not attend school nor work versus only attending school. The same effect occurs with indigenous boys. Regarding parental education, results show that every additional year of parental schooling results in a decrease in the log odds of inactivity, relative to school enrollment only.

Concerning father's status characteristics, having a father who is a U.S. migrant has no significant effect on the odds of being inactive, while those boys whose father is not a member of

the household are less likely to be inactive, relative to only attending school. While living in a household with international migrants increases the log odds of not being at work and not being in school, remittances decrease the likelihood if it. These are interesting findings because although in some cases migration at the household level seems to be positively related to school enrollment, there are cases where they are associated to a higher likelihood of being idle. The boys in this category reported that they did not work and did not go to school, but only very few reported their activity to be housework, most of these children were classified as unemployed or in unspecified activities.

The level of development in the community has no significant effect; however, higher migration prevalence in the municipality is associated with increased log odds of youth idleness. Regarding the coefficients in table 4, the interaction effects for this outcome follow similar magnitude, direction and significance than those discussed for the other three outcomes.

Results for Females

Table 5 presents the results for the multinomial logistic regression models to predict school and work status for girls ages 13 to 20. Like in the models estimated for boys, the four possible outcomes are: being in school only, being at work only, combining school and work, and performing neither of these activities. The reference category for the multinomial model is "in school only." In addition, models with interaction terms were also estimated and coefficients for the main effects and the interactions are presented in table 6. The subsequent paragraphs present results for these models.

At Work Only: Older girls and indigenous girls have a higher likelihood of being at work only compared to being only at school. Every year increase in parental education results in a

decrease in the log odds of being only at work relative to being exclusively enrolled in school; which is consistent with the expectation that a higher socioeconomic status is associated with higher likelihood of school enrollment.

Father's U.S. migration experience and having international migrants in the household do not have any significant effect on the odds of being at work only. While not living in the same household as their fathers is associated with a decrease of 0.103 in the log odds of being only working. Remittances receipt also decreases the log odds of working exclusively relative to only attending school, this last finding is consistent with the hypothesis that economic resources from migration are associated with school enrollment and a lower likelihood being at work.

Living in a community with a higher level of development is associated with increased odds of working compared to being in school, this finding goes against our expectation that in more economically developed places, children would be more likely to stay in school. Migration intensity in the community is also associated with increased odds of being at work and not in school, this effect is consistent with my hypothesis that in high migration places, children are less likely to attend school, and more likely to work. Finally, the interaction effects in table 6 follow the same direction, magnitude and significance than those observed for males and illustrated by Figure 5.

Combining School and Work: Older ad indigenous girls have increased log odds of combining school and work, consistent with what we have observed for males. Higher parental education is related to a decrease in the likelihood of combining school with work relative to only school enrollment, so the daughters of parents with better socioeconomic status –measured by parental education- are less likely to combine school with work. Migration characteristics of

the father and household of origin are associated with a decrease in the log odds of status combination.

For girls whose father is not a member of the same household, we can observe an increase in the odds of school and work combination, which may be related to a need to diversify household income when there is no father present in the household. We can also hypothesize that youth who only live with their mothers may feel more pressure to do continue in school and complement household income with part-time work, since they may see themselves as an important source of support for their mothers and siblings. With regard to community characteristics, the level of socioeconomic development in the community is associated with increased odds of school combination, which may be connected to greater economic opportunities, which allow youth to engage in part time work but that does not result in them dropping out of school. Additionally, migration intensity in the community is also associated with increased log odds of work and school combination. Except for the interaction between father's U.S, migration status and development –which is not statistically significant-, the other interactions tested follow the same trend as the ones observed before, though their magnitude and significance are more modest.

Not in School and not working: consistent with what was observed for boys, older and indigenous girls have increased log odds of being inactive, relative to being in school only. As expected, parental education decreases the log odds of inactivity, while not being in the same household as their fathers also decreases the log odds of not working and not going to school for girls. Father's U.S. migration and household remittances receipt have no significant effect, while having international migrants in the household marginally increases the log odds of girls' idleness. The level of socioeconomic development in the community decreases the likelihood of

inactivity, while higher migration intensity increases the log odds that a girl would be inactive, relative to her attending school only. These community level findings are consistent with the expectations that places with higher economic opportunities will discourage inactivity, and the hypothesis migration prevalence is also associated with a discouragement of schooling. Lastly, again, the interactions follow the same trend as the results presented above for the other outcomes.

Conclusions

Improving educational attainment and schooling attendance, especially among teenagers and youth has been a constant concern in Mexico. Unfortunately, the country still experiences major issues such as school dropout and low attainment, even as elementary education is almost universal. It has become clear that there is a big disconnect between the educational system and the structure of the labor market. The significance of these findings goes beyond the scope of understanding school attendance and entry into work; rather they enhance our understanding of social mobility and models of status attainment as they apply to the young in Mexico. These findings also highlight the importance of learning about the connection between education and social mobility in a context of high migration.

With the high prevalence of international migration in many regions of the country, it is important to explore the change in values among the young and the way they perceive opportunities and rewards. The main goal of this paper is to contribute to the understanding the impact of U.S. migration on the work and school status of Mexican youth, and to construct an innovative argument to explain this relationship, going beyond economic explanations and

introducing potential social explanations, as well as exploring determinants at the household and community level.

There are two main arguments that aim to explain the relationship between education and migration. According to the first of them, migration should have a positive effect on children's school enrollment due to increased family income. The second argument states that migration may also have a negative impact on school enrollment due to role modeling and educational aspirations derived from migration, so that children of families with migrants will be more likely to drop out of school. Results from these models show the interplay between these two arguments, and this study provides evidence of both positive and negative effects of migration at the household level. This analysis finds that there is a lower probability of being at work compared to attending school for children in households that receive remittances. However, we have also seen a higher likelihood of idleness among children living in households with migrants.

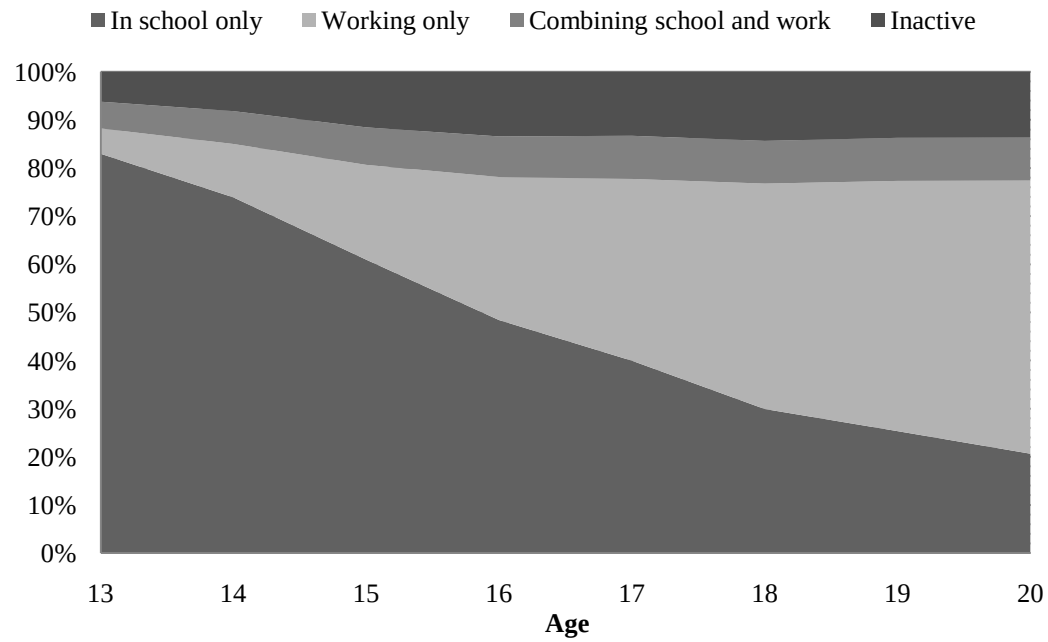
This paper also improves the understanding of the impact of community level characteristics. My main expectation that higher migration prevalence in the community would be associated with a lower likelihood to be enrolled in school is supported by the findings. Young Mexicans living in a municipality with higher migration prevalence were more likely to be at work and not in school, and they were more likely to be inactive.

Overall, the results for females are particularly telling. Within the household level migration characteristics, only two coefficients were statistically significant. First, a negative impact of remittances receipt on the probability of working relative to attending school, and second, a positive impact on the likelihood of inactivity among girls who live in households with migrants. These findings, point at impacts in two directions, on one side, remittances from

migration may be associated with school attendance, while on the other hand, they are also related to a higher likelihood of youth idleness, particularly among girls. The high proportion of women not performing any activity along with the greater likelihood that these idle women are the daughters of migrants is a troublesome finding. We can speculate that higher household income through migration may translate in idleness because women's education may not be seen as important since their work is not required to improve the household's income. This result points at a potential return to traditional gender roles among households with remittances. Further analysis is needed to uncover the true nature of this relationship. I expect that my analysis on educational attainment and intergenerational mobility presented ahead will shed more light on the nature of this relationship.

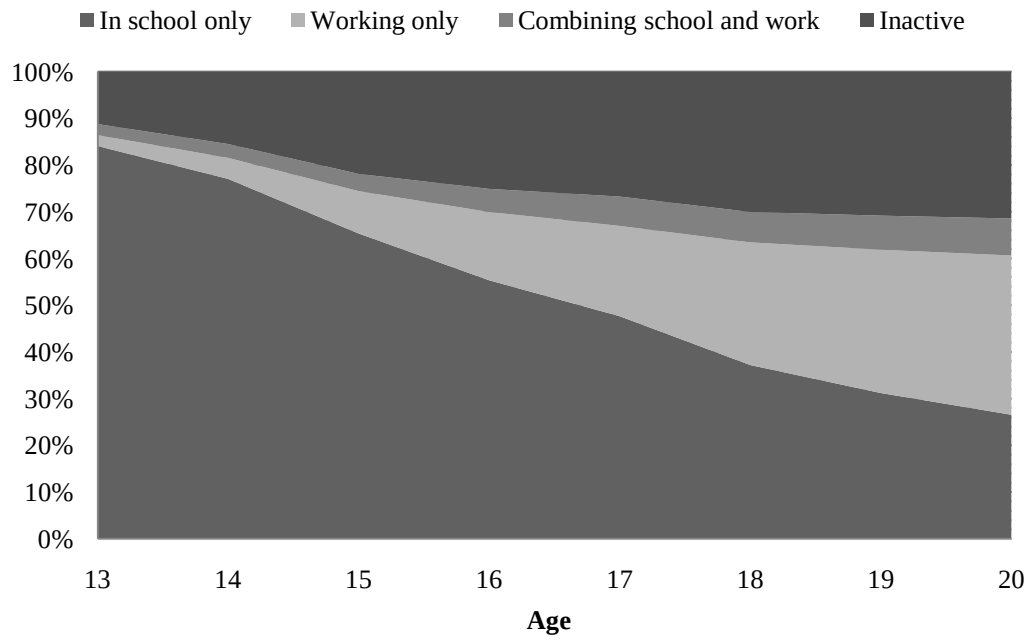
Tables and Figures

Figure 1. Boys' School and Work Status by Age, Mexico 2000



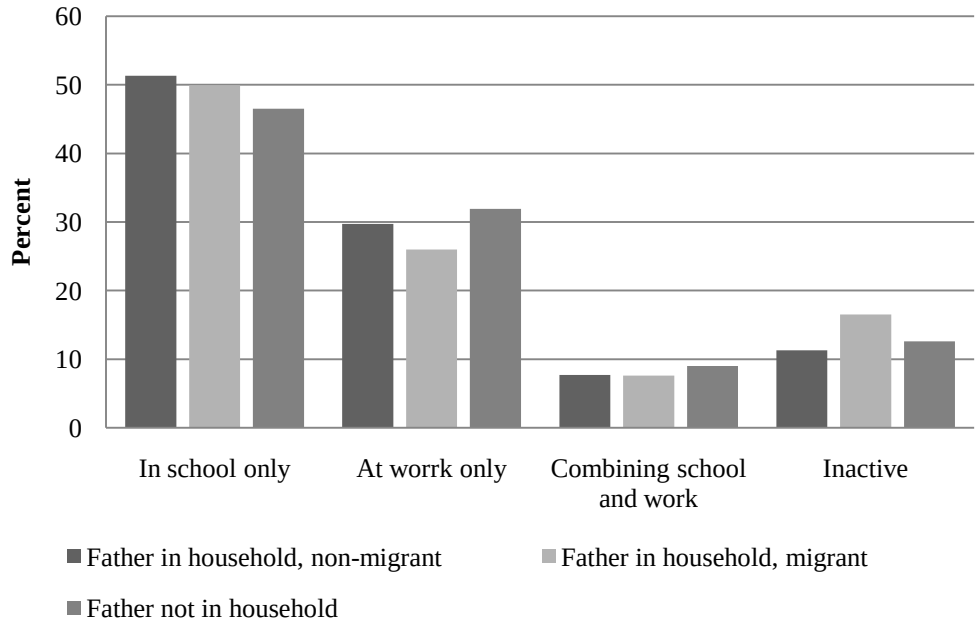
Source: 2000 Mexican Census Subsample, IPUMS International

Figure 2. Girls' School and Work Status by Age, Mexico 2000



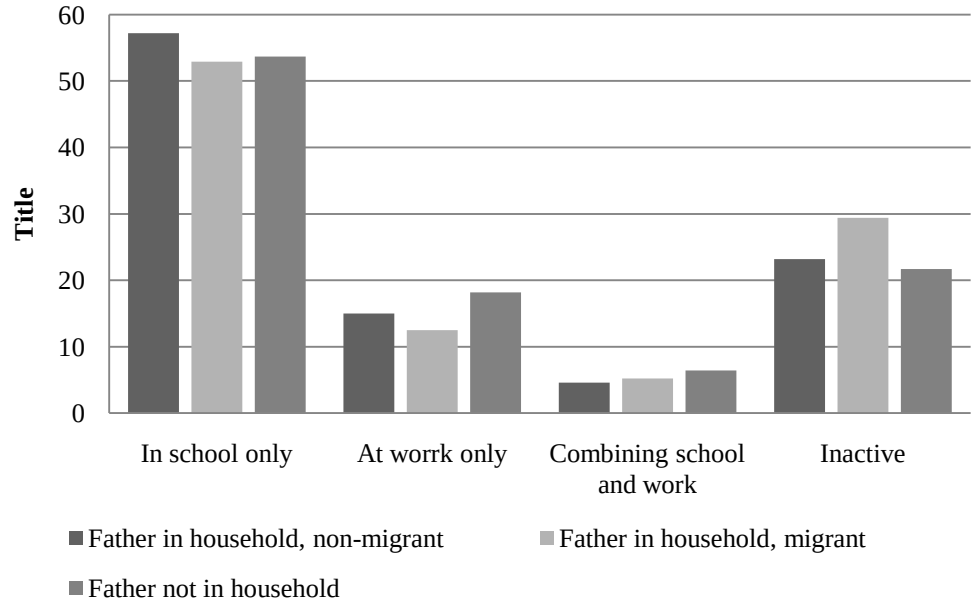
Source: 2000 Mexican Census Subsample, IPUMS International

Figure 3. School and Work Status by Father's Status, Boys, Mexico, 2000



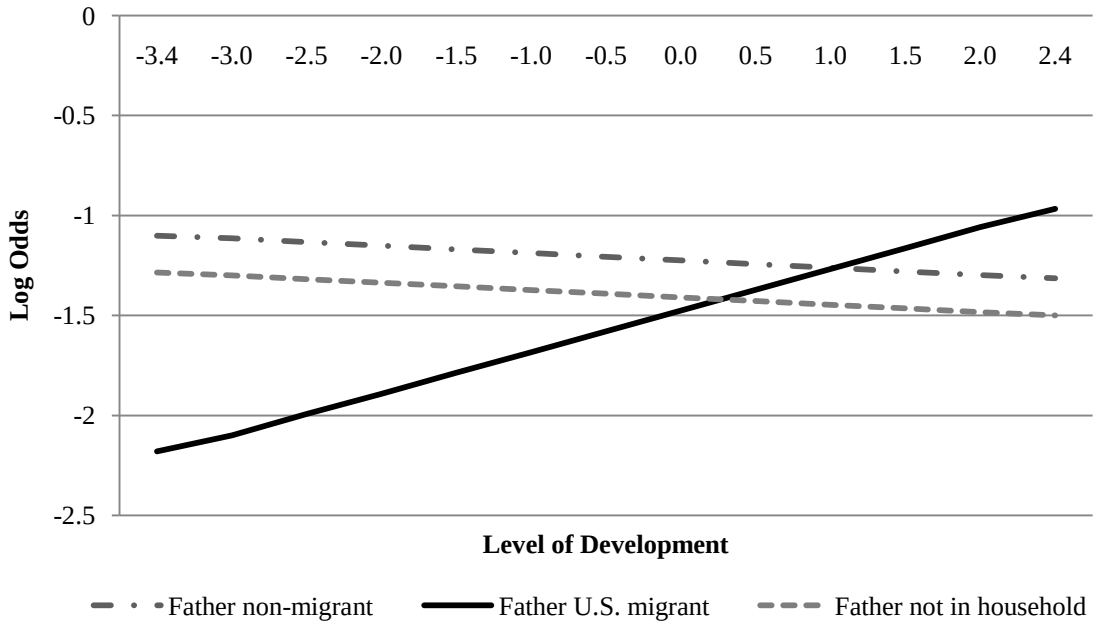
Source: 2000 Mexican Census Subsample, IPUMS International

Figure 4. School and Work Status by Father's Status, Girls, Mexico, 2000



Source: 2000 Mexican Census Subsample, IPUMS International

Figure 5. Log Odds of Being at Work Only, Compared to Being in School Only, by Father's Status. Boys, Mexico 2000



Source: 2000 Mexican Census Subsample, IPUMS International

Table 1. Variable Definitions

Dependent Variables	
In School Only	=1 if child is enrolled in school in the current year and not working, 0 otherwise
At Work	=1 if child is currently working and in school, 0 otherwise
Combining School and Work	=1 if child is currently in school and working, 0 otherwise
Inactive	=1 if child is neither at school or work, 0 otherwise
Independent Variables	
Age	Children's age in years
Indigenous	=1 if child belongs to an indigenous group, as identified by the parents
Parents' Education	Years of schooling, takes the highest value among mother's and father's
Father migrated to the U.S.	=1 if the child's father is a member of the household and migrated to the U.S. in the 5 years prior to the Census
Father is not a household member	=1 if the child's father is not a member of the household
Household has international migrants	=1 if there are any current or former household members who, in the past 5 years went to live in another country
Household received remittances	=1 if the household receives remittances
Household assets index	Household assets' ownership index
Development level	Constructed variable for the level of development in the municipality of residence
Migration intensity	Constructed variable for the migration prevalence in the municipality of residence

Table 2. Sample Characteristics, Youth Ages 13 to 20, Mexico, 2000

	Boys	Girls
Indigenous	5.9%	5.5%
Parents' education (years) [b]	7.0(4.59)	6.9(4.58)
Father is U.S. migrant [a]	0.3%	0.3%
Father not in household	16.3%	17.1%
Household has international migrants [a]	6.7%	7.5%
Household receives remittances [a]	4.1%	4.7%

[a] In the five years prior to the Census
[b] Mean, standard deviation in parentheses
Source: 2000 Mexican Census Subsample, IPUMS International
Weighted frequencies

Table 3. Multinomial Logistic Regression Models to Predict School and Work Status among Boys ages 13 to 20

	Work only		Combining school and work		Not in school and not at work	
Relative to Being in School Only	**β**		**β**		**β**	
Individual Characteristics						
Age						
(13 Years) [a]						
14 Years	0.859	***	0.292	***	0.424	***
15 Years	1.725	***	0.617	***	1.071	***
16 Years	2.481	***	0.917	***	1.590	***
17 Years	3.011	***	1.173	***	1.888	***
18 Years	3.582	***	1.445	***	2.324	***
19 Years	3.956	***	1.661	***	2.572	***
20 Years	4.253	***	1.838	***	2.803	***
Ethnicity						
(*Mestizo*)						
Indigenous	-0.256	***	-0.075		-0.383	***
Parents' Education (in years)	-0.240	***	-0.061	***	-0.198	***
Father's Status						
(Father in the household, non migrant)						
Father migrated to the U.S.	-0.105		-0.077		0.075	
Father is not in a household member	-0.185	***	0.101	***	-0.092	***
Household's Migration Characteristics						
Household has international migrants	0.001		0.065	**	0.056	**
Household received remittances	-0.111	†	0.076	*	-0.075	***
Context Characteristics						
Development level in municipality	-0.036	***	0.066	*	-0.018	
Migration intensity in municipality	0.268	***	0.160	***	0.423	***
Constant	-1.225	***	-2.244	***	-1.352	***
Log pseudo-likelihood	-687242		-687242		-687242	
N	706,815		706,815		706,815	

† $p < 0.05$ * $p < 0.01$ ** $p < 0.005$ *** $p < 0.001$
Source: 2000 Mexican Census Subsample, IPUMS International
Standard Errors adjusted for clustering at the municipality level
[a] Reference categories in parentheses

Table 4. Interaction Effects from the Multinomial Logistic Regression Models to Predict School and Work Status among Boys ages 13 to 20

	Work only		Combining school and work		Not in school and not at work	
Relative to being in school only	**β**		**β**		**β**	
Main effects						
Father migrated to the U.S.	-0.250	**	-0.259		-0.054	
Development level in municipality	-0.037	**	0.066	**	-0.019	
Interaction effect						
Father migrated * Development level	0.244	**	0.251	†	0.224	†
Constant	-1.225	***	-2.244	***	-1.352	***
Log pseudo-likelihood					-687232	
N					706815	
Main effects						
Household has international migrants	-0.107	***	0.013		0.006	
Development level in municipality	-0.050	**	0.061	*	-0.023	
Interaction effect						
Migrants in household * Development level	0.227	***	0.098	***	0.094	***
Constant	-1.219	***	-2.241	***	-1.349	***
Log pseudo-likelihood					-687092	
N					706815	
Main effects						
Household received remittances	-0.218	***	0.034		-0.135	***
Development level in municipality	-0.044	*	0.064	*	-0.022	
Interaction effect						
Remittances * Development level	0.213	***	0.076	**	0.113	***
Constant	-1.222	***	-2.243	***	-1.350	***
Log pseudo-likelihood					-687163	
N					706815	
Main effects						
Parents' education (in years)	-0.211	***	-0.050	***	-0.180	***
Development level in municipality	0.124	***	0.134	***	0.091	***
Interaction effect						
Parents education * Development level	-0.034	***	-0.011	***	-0.021	***
Constant	-1.312	***	-2.292	***	-1.416	***
Log pseudo-likelihood					-686423	
N					706815	

† $p < 0.05$ * $p < 0.01$ ** $p < 0.005$ *** $p < 0.001$
Source: 2000 Mexican Census Subsample, IPUMS International
Standard Errors adjusted for clustering at the municipality level

Table 5. Multinomial Logistic Regression Models to Predict School and Work Status among Girls ages 13 to 20

	Work only		Combining school and work		Not in school and not at work	
Relative to Being in School Only	**β**		**β**		**β**	
Individual Characteristics						
Age						
(13 Years) [a]						
14 Years	0.752	***	0.248	***	0.450	***
15 Years	1.655	***	0.642	***	1.083	***
16 Years	2.372	***	1.096	***	1.529	***
17 Years	2.836	***	1.460	***	1.827	***
18 Years	3.464	***	1.765	***	2.299	***
19 Years	3.868	***	2.078	***	2.601	***
20 Years	4.128	***	2.305	***	2.809	***
Ethnicity						
(*Mestizo*)						
Indigenous	0.120	**	0.130	†	-0.105	**
Parents' Education (in years)	-0.231	***	-0.056	***	-0.226	***
Father's Status						
(Father in the household, non migrant)						
Father migrated to the U.S.	-0.115		0.143		0.063	
Father is not in a household member	-0.103	***	0.240	***	-0.312	***
Household's Migration Characteristics						
Household has international migrants	-0.017		0.054		0.036	†
Household received remittances	-0.169	***	0.002		-0.030	
Context Characteristics						
Development level in municipality	0.100	***	0.189	***	-0.202	***
Migration intensity in municipality	0.183	***	0.111	***	0.265	***
Constant	-2.163	***	-3.308	***	-0.521	***
Log pseudo-likelihood	-601417		-601417		-601417	
N	647,577		647,577		647,577	

† $p < 0.05$ * $p < 0.01$ ** $p < 0.005$ *** $p < 0.001$
Source: 2000 Mexican Census Subsample, IPUMS International
Standard Errors adjusted for clustering at the municipality level
[a] Reference categories in parentheses

Table 6. Interaction Effects from the Multinomial Logistic Regression Models to Predict School and Work Status among Girls ages 13 to 20

	Work only		Combining school and work		Not in school and not at work	
Relative to being in school only	**β**		**β**		**B**	
Main effects						
Father migrated to the U.S.	-0.295	**	0.021		-0.029	
Development level in municipality	0.100	***	0.189	***	-0.203	***
Interaction effect						
Father migrated * Development level	0.274	**	0.162		0.165	†
Constant	-2.163	***	-3.308	***	-0.521	***
Log pseudo-likelihood					-601411	
N					647577	
Main effects						
Household has international migrants	-0.156	***	-0.007		-0.031	
Development level in municipality	0.083	***	0.183	***	-0.212	***
Interaction effect						
Migrants in household * Development level	0.256	***	0.107	**	0.145	***
Constant	-2.154	***	-3.304	***	-0.516	***
Log pseudo-likelihood					-601274	
N					647577	
Main effects						
Household received remittances	-0.308	***	-0.064		-0.095	***
Development level in municipality	0.090	***	0.185	***	-0.208	***
Interaction effect						
Remittances * Development level	0.251	***	0.112	**	0.137	***
Constant	-2.159	***	-3.306	***	-0.519	***
Log pseudo-likelihood					-601333	
N					647577	
Main effects						
Parents' education (in years)	-0.196	***	-0.040	***	-0.205	***
Development level in municipality	0.277	***	0.282	***	-0.075	***
Interaction effect						
Parents education * Development level	-0.037	***	-0.016	***	-0.025	***
Constant	-2.279	***	-3.383	***	-0.582	***
Log pseudo-likelihood					-600678	
N					647577	

† p < 0.05 * p < 0.01 ** p < 0.005 *** p < 0.001
Source: 2000 Mexican Census Subsample, IPUMS International
Standard Errors adjusted for clustering at the municipality level

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Appendix I:

Construction of Indices of Marginalization and Migration Intensity

The models in this analysis use two indices of contextual information created by the Mexican National Council of Population (Consejo Nacional de Población, CONAPO) with information of the 2000 Mexican Census of Population and Housing. These two indices are calculated at both the state and municipality levels; however, for the multivariate analyses presented in this paper I used the municipality level scores.

Construction of the Mexico-U.S. Migration Intensity Index[6]

The first of the two indices used for this analysis is the Migration Intensity index. This indicator was constructed using the principal components technique with the purpose of differentiating states and municipalities according with the global intensity of their migration flux to the United States. For the estimation o the index of Migration Intensity CONAPO used household data from the 10% sample of the 2000 Mexican Census which yields information on 2.2 million households.

The index was created with four measures of migration to the U. S.:

- Households that receive remittances: This variable is the percent of households where at least one of their members declared receiving money transfers from family living abroad. The variable was calculated by dividing the number of households where at least one of its members receives remittances by the total number of households within the same municipality times 100.
- Households with emigrants to the U.S. in the past five years: this is the percentage of households where some of its members left the country in the last 5 years to establish residence in the U.S. This indicator is created by dividing the households with U.S. emigrants by the total of households in the municipality, times 100.
- Households with circular migrants in the past five years: the percent of household members who went to the U.S. in the past five years and returned by the time of the Census.
- Households with return migrants: the percent of households with some member, born in Mexico, who lived in the U.S. in 1995 but came back to live in the country before the time of the Census.

These four indicators were reduced into an index using the Principal Components technique. The resulting index was then divided through Optimal Stratification Technique into five categories of migration intensity for each municipality: very low, low, medium, high and very high. This classification identified 93 municipalities with no evidence of migration, 863 with very low, 593 with low 392 of medium migration intensity, 330 with high, and 162 with very high migration intensity. In the models presented in this paper I used the Migration intensity index as a continuous variable and not these five categories. However, the categories are useful to summarize and map the data.

[6] For more information see: Consejo Nacional de Población. 2000. Metodología del Índice de Intensidad Migratoria México-Estados Unidos. México, Available online: http://conapo.gob.mx/publicaciones/intensidadmig/anexoC.pdf

Construction of the Index of Marginalization[7]

Like the index of Migration Intensity, this index was also constructed using the 10% sample of the 2000 Mexican Census, and data was reduced used Principal Components analysis. The variables that constitute the Index of Marginalization aim at measuring diverse forms of exclusion and are the following:

- Percent of people 15 years old and older who are illiterate
- Percent of people 15 years old and older who did not complete elementary school
- Percent of people who live in dwellings without sewage or toilet service
- Percent of people residing in dwellings without electricity
- Percent of people living in dwellings without piped water
- Percent of people living in crowded quarters. Crowding was defined as 3 or more people living in a 1 bedroom house, 5 and more residents in 2 bedroom houses, 7 or more residents for 3 bedroom houses, and last for houses with 4 bedrooms those where 9 or more people live
- Percent of people living in households with dirt floors
- Percent of people in localities with less than 5,000 inhabitants
- Percent of working people with no income, or with income less or equal than two minimum wages

The idea behind the creation of this index is to come up with an indicator that measures the global impact of social exclusion and allows for geographic comparison. CONAPO created an index using principal components analysis in order to synthesize the complexity of the different dimensions of marginalization into a measure that allows to order and differentiate states and municipalities according to the intensity of exclusion and deprivation affection their population. This index has a standard normal distribution where positive scores indicate a high degree of marginalization and negative scores indicate a lower degree of marginalization.

Using an optimal stratification technique the municipalities were classified into five groups according to their degree of marginalization: very low, low, medium, high and very high. Again, the multivariate analysis models presented in this paper use the index as a continuous variable, but the classification into groups is useful for descriptive purposes. As a result of this categories' distribution we have 247 municipalities with very low degree of marginalization, 417 with low, 486 with medium, 906 with high, and 386 with very high level of marginalization.

In the multivariate analyses presented in this paper I used this index as a continuous variable and reversed the direction of this indicator in order to interpret negative scores as lower degree of socioeconomic development and positive scores as a higher degree of socioeconomic development.

[7] For more detail see: Consejo Nacional de Población. 2000. Metodología de Estimación del Índice de Marginación, México. Available online: http://conapo.gob.mx/publicaciones/indices/pdfs/006.pdf