Parental Migration and Children's Education in Mexico: How Important is Child Age at the Time of Parent's Migration?*

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June 2007

Abstract

What are the long-term effects of parental migration on child education? Does it matter how old the child was when the parent migrated? This paper uses a family fixed-effects regression model to get around the endogeneity of parental migration, thereby establishing a positive link between paternal U.S. migration and child's ultimate educational attainment. In particular, the evidence suggests that pushing father's U.S. migration earlier in a child's life, particularly before they are born, would lead to an increase in child educational attainment of about 2 years relative to delaying migration until after the child has turned 25. These results are consistent with a story in which U.S. migration enables families to save for their children's educations and/or a situation in which the experience of U.S. migration translates into parental willingness to increase investments in their children's educations. These findings also suggest that policies aimed at targeting migrant workers should generally promote migration before the birth of children over migration later in life.

Keywords: father absence, migration, education.

*I would like to thank Doug Bernheim, Luigi Pistaferri, Aprajit Mahajan, and participants of the public economics group, as well as the labor and development reading groups at Stanford University for helpful comments. This research was supported by the Leonard W. Ely and Shirley R. Ely Graduate Student Fund through a grant to the Stanford Institute for Economic Policy Research. All errors are mine alone.

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1 Introduction

The recent debate over immigration in the United States has focused largely on the image of immigrant families wishing to settle permanently in the U.S. Nevertheless, recent studies show that about 50% of Mexican migrants to the U.S. return to Mexico within two years.[1] In addition, new data sources on migrants to the U.S. and their families in Mexico show that nearly 85% of male heads of household that migrate to the United States with families in Mexico leave at least one minor child at home.[2] This paper addresses the consequences of these temporary separations for the children of Mexican migrants and specifically how these experiences affect their educational outcomes as a function of one critical factor: the age of the child during the parent's migration.

Theoretically, it is unclear whether migration should have a net positive or negative effect on children's education. On the one hand, the parent is likely to be earning more in the U.S. than at home in Mexico, and the remittances from these earnings are likely to enable the child to devote more time to schoolwork and attain a higher level of education. However, the parent's absence may impose a psychological cost on the child and/or may require the child to devote more time to the family to compensate for the father's absence. In addition, the father's migration may teach the child something particular about the viability of international migration as a possible career path and one in which the child's Mexican education may not be highly valued.

In response to this theoretical ambiguity, a growing body of economics literature has emerged to consider the empirical question of the effect of a family member's migration on the educational outcomes of children in Mexico. Hanson and Woodruff (2003) ask whether children in households with an external migrant obtain more or less education than children in households without a U.S. migrant.[3] They point out that an endogeneity problem arises due to the

[1] Reyes (1997).

[2] Author's own calculation from the Mexican Migration Project 107 (MMP107).

[3] In the analysis of Hanson and Woodruff (2003), the data restrict migrant classification to whether the subject migrated in the past five years.

fact that the migration of a household member may be influenced by the same things that influence schooling. For example, a household may suffer a negative economic shock that precipitates the migration of the household head and also forces a child to drop out of school and begin working. To address these simultaneity problems, Hanson and Woodruff (2003) instrument for whether a household has an external migrant with the interaction between household-level characteristics and historical migration rates. They find that 10-15 year-old children in migrant households complete significantly more schooling than their peers in non-migrant households. Following the same regression model and identification strategy as Hanson and Woodruff (2003), McKenzie and Rapoport (2005) also assess the educational consequences of having a household member migrate. They find that migration lowers schooling for 16-18 year-old boys who have less educated mothers and lowers it even more for boys with more educated mothers.

The main critiques of both Hanson and Woodruff (2003) and McKenzie and Rapoport (2005) lie in their common identification strategy.[4] The use of historical state migration rates is argued to be a significant determinant of the migration status of someone in the household, but exogenous to the schooling decision of the child. However, there are many reasons to believe that historical migration rates would directly affect the level of schooling acquired by the child. For instance, historical migration rates might also be indicators for the level of the development of the community and therefore the prevalence and quality of schools in the area. More importantly, if migration rates are indicators of the networks which lower the costs of migration, then they must do so for everyone in the area, not just the adults in the household. Assuming a child makes his decision on whether to drop out or stay in school based on his future earnings power, he must consider whether he plans on migrating and the costs and benefits associated with that as a function of schooling. Since the cost associated with migrating is a function of these established networks, if anything, the historical migration rates which proxy for established networks should en-

[4] McKenzie and Rapoport (2006) appears to be a later version of this paper.

ter directly into his schooling decision and thus fail the exclusion restriction requirement for instrumental variables.

Antman (2007) argues against the use of the historical migration instrumental variables and proposes a different identification strategy. Asking specifically about the effects of paternal migration on children's study hours, the strategy uses past U.S. economic data during the time in the father's life when the father was most likely to initiate his first migration as instruments for whether the father is currently in the U.S. While the author does find some evidence of a positive effect of migration on study hours and participation, the identification strategy is hindered by the other oft-cited problem with instrumental variables techniques–that of weak instruments. The author addresses this by implementing some of the conditional tests proposed by Moreira. Nevertheless, both sets of papers highlight the weaknesses associated with the use of instrumental variables to get around the problem of endogenous migration in the estimation. On the one hand, the exclusion restriction poses a problem that can not be tested, and on the other, weak instrumental variables can be tested, but also shed doubts on the results.

This paper proposes a creative yet simple solution to the endogeneity problem by relying on the differences in ages across siblings within the same family. The use of family fixed effects in the estimation then allows us to "control" for all of the unobserved heterogeneity at the family level that might have resulted in a non-causal correlation between the parent's migration and the child's educational outcome. Distinguishing effects based on the child's age at the time of the parent's migration also brings this paper into relation with the literature on child development which investigates the effects of "father absence" on children at different age groups in the context of divorce and separation. By bringing these two bodies of work together, this paper aims to tease out the effects of migration on children's educational outcomes.

The remainder of the paper is structured as follows: Section 2 considers the theoretical implications of age-at-departure within the context of literature on father absence in the United States. Section 3 discusses the data used for

this analysis and the empirical strategy. Section 4 reports the results of the estimation and Section 5 concludes.

2 Parental Absence and Child Development

One important factor to consider in the estimation of parental migration on child education is the effect of parent's absence from the home. The question of whether parental presence matters to the educational outcomes of children has long been the subject of research by social scientists studying the effects of family structure on children in the U.S.[5] The research has largely been focused on the aftermath of divorce and marital separation, and therefore primarily surrounds the consequences of the biological father's absence from the child's home. Empirically, the question is a difficult one to answer since estimating the effects of divorce and/or parental abandonment on children is plagued by endogeneity. For instance, if fathers who separate from their families were not primarily involved with their children while married, a negative effect of father absence in a cross-sectional least squares regression may be mistakenly credited to the change in family structure and would therefore be exaggerated in magnitude.

Nevertheless, several studies have adopted unique strategies to address this problem. In particular, Grogger and Ronan (1995) exploit the fact that siblings within families share the same family-specific unobserved heterogeneity but differ in the amount of time they spent without a father depending on the number of years they spend in the childhood home. Using data from the NLSY79, they find that fatherlessness reduces educational attainment for whites and Hispanics. Sandefur and Wells (1997) also use the sibling-pairs data from the NLSY79 to get around the endogeneity problem and find that living outside a two-parent family and changes to family structure are detrimental to children's education.

[5] Zoller Booth (2001) is one of a handful of papers that considers the effects of father absence on children outside of the U.S. While her study is insightful because it considers the effects of father's migration, the author does not consider the endogeneity of father's mgiration in the estimation.

Lang and Zagorsky (2001) find that while parental presence does positively affect educational attainment, the magnitudes of the estimates are modest once one controls for family background characteristics. To address unobserved heterogeneity that may underlie the endogeneity of family dissolution, they also include controls for an arguably more exogenous event–the death of a parent. They find that, at least for educational attainment, children who were separated from a parent by death did not appear to be significantly different from those who were separated by some other form of family dissolution.

Santrock (1972) also considers the effect of a death of a parent as one of several family structures he considers that may affect the educational attainment of children. His study is of particular interest because he also considers the timing of the parent's absence in the course of the child's life. Surveying the child development literature, he hypothesizes the effects that we would expect to see based on the age of the child when the father departed. In particular, he argues that children should be more negatively affected by father absence if their fathers depart earlier in life (before age six) as opposed to later in life since older children are able to compensate for the father's departure with peer attachments. He also argues that boys should be more negatively influenced by father absence than girls, except for when the father departs early in the child's life when a girl's attachment to her father may be the strongest.

Of course, Santrock's predictions hold for children who will likely never live with their biological fathers again. The permanence of family dissolution in these scenarios serves as the major distinction between the father absence literature and the case of father migration considered here. Much less is known about the effect of temporary parental absence since these cases are much less common in the United States. Nevertheless, the literature on father absence is an important jumping-off point because it stresses the role of parental presence in the educational outcomes of children as well as the importance of considering the age of children during the parental absence.

3 Data Description

3.1 Data

The data used for this project come from the Mexican Migration Project (MMP107), a collaborative research project between Princeton University and the University of Guadalajara covering the years 1982-83 and 1987-2004. The MMP is a publicly available data set containing information on the migration patterns and a wide variety of characteristics of households in Mexico. While these households are randomly selected within community, communities are not randomly selected, so the MMP is not intended to be representative of Mexico as a whole and instead is representative of the area sampled.[6] In its earliest period, the MMP focused mostly on rural communities in Western Mexico, an area which was a major point of origin for U.S. migrants. Since then, the MMP has expanded to include a broad range of communities from rural areas as well as small cities and major metropolitan areas and now covers communities in states throughout Mexico. The communities are typically sampled in the months of December and January when temporary migrants are more likely to be home with their families in Mexico.

The MMP is of particular interest because of its rich migration and labor life-long histories of the household head and his (her) spouse. For the purpose of investigating the importance of age of the child when the parent migrated, this is especially important because it can account for the timing of the migration trips taken by the head of household and his (her) spouse and therefore identify the ages of children when the migration was undertaken. The MMP is also quite useful in examining within-family effects because, unlike other household data

[6] The methodological report ("The Mexican Migration Project Weights") recommends against the use of the sampling weights in regression analysis. It references Winship and Radbill (1994) where it is argued that if the model is correctly specified and sampling weights are only functions of independent variables, it is preferrable not to include the weights in OLS analysis. Since the MMP sampling weights vary only at the level of the community and are fixed for the entire family, I do not use them in this analysis.

sets, information on all children of the household head is provided regardless of whether they currently coreside with the parents. While the information on U.S. migration for the head of household is extensive, the MMP only has limited information on the first and last migration trips of other members of the head's family, including the children of the head, so it is not possible to track the child's migration history.

One limitation of the survey is that it only identifies the relationship between the head of household and other members of the family and household. Since the focus of this paper is on children of migrants, I thus restrict the sample to children of the heads of household. By far, most of the heads of household are men (almost 80%), so most of the children are observed in the household of their father. For purposes of controlling for both parents' migration experiences, I make the assumption that the spouse of the head of the household, if present, is also the parent of the children. If incorrect, this assumption will mainly affect the estimates of mother's migration, which as I show below, is very limited in any case.

Another limitation of the survey is that it does not collect comprehensive information on the timing of domestic migration. However, if either U.S. migrant parents or parents with no U.S. migration experience have migrated domestically, including them with the sample of parents who have never left their children will likely bias results. Since the MMP only collects information on first and last domestic migration, I use the lifelong labor histories of the head and spouse to construct a domestic migration history based on whether the individual changed jobs into another state.

3.2 Descriptive Statistics

To estimate the effects of parental migration on ultimate educational attainment, I restrict the sample to children who are at least 25 years old at the time of the survey. This amounts to 30,194 individual child observations from 6,939 families. Table 1 describes the overall sample. The average age of children in

the sample is about 35 years old and the average level of educational attainment is about 7.5 years. I divide the child's life into six periods when the parent may have migrated: before the child was born, when the child was 0-6 years old, when the child was 7-12 years old, when the child was 13-18 years old, when the child was 18-24 years old, and when the child was at least 25 years old. The average number of periods when either the mother or father was absent is about 1.3.

On the issue of parental migration, about 30% of children have fathers that migrated to the U.S. at some point, but less than 5% have mothers who have done the same. About 20% have fathers who have migrated domestically, and about 8% have mothers who have migrated within Mexico. Conditional on having a father with U.S. migration experience, on average, the first trip began about two years before the birth of the child, while the first domestic migration experience was around the time of the child's birth. In contrast, those children with mothers who migrated within Mexico were on average about 4 years old at the time of the mother's first domestic migration while children with mothers who migrated to the U.S. were on average about 18 years old. This pattern of statistics confirms that it is mainly fathers in the households that have migration experience, and while this migration to the U.S. is more prominent than within Mexico, there is also a substantial fraction that have migrated within Mexico.

Since the survey does not collect a life-long history of migration for the children of heads of household, one possibility is that children accompany their parents on migration trips. While the data do not permit me to identify this, I do observe how many of the children have any migration experience by the time of the survey. Approximately 17% of children have migrated to the U.S. by the age of 25 and about 16% of children have migrated domestically by that time.[7] About 30% of children have migrated either to the U.S. or Mexico. While these numbers are not very high, we might be concerned that the estimated effects of parental migration on education are in fact the result of the child's own migration. To address this concern, below I also consider the effects for

[7] Note that for this calculation, I use the reported data on last domestic migration.

the limited sample of children who have no migration experience by the age of 25. Given that the child has migrated to the U.S. by the time of the survey, the average age at migration is about 23, while the average age at first domestic migration is about 18.

One of the most important factors distinguishing the effects of international versus domestic migration on education is the difference in remittances. A priori, I would expect the remittances to be much larger coming from the U.S. as the wage is much higher in the U.S. than in Mexico. While the MMP does not have information about domestic remittances, it does have information about earnings during the last domestic migration which I compare with earnings during last U.S. migration and earnings while at home in Table 2. Unfortunately, there is no information on time spent working in Mexico, so I base my estimate of daily earnings on an 8-hour workday, 40 hour-work week, and 50 weeks worked per year for those respondents who quote earnings in anything other than a daily rate. Both the last domestic wage and the home wage are both around $12 (2002 U.S. dollars) a day and the difference between them is not statistically significant. In contrast, the U.S. daily wage is estimated to be about $74 using the 8-hour per day conventions, and about $63 using the data reported on hours worked per week in the U.S. The reported level of U.S. remittances is about $275 per month, or about 4 times the estimated daily wage. While there is a huge variance in both U.S. and Mexican wages, these data support the hypothesis that the financial benefits of U.S. migration are likely to be much greater than those from Mexican migration.

4 Empirical Strategy

4.1 Education and Child Age During Parental Migration

I begin by discussing the effect of parental migration on child educational attainment based on the age of the child during the parent's absence. In addition, I also consider the effects of initial parental migration experience by including a

set of dummies that describe when the parent first began migrating internationally and domestically. This will allow us to determine whether past knowledge of the returns to migration may influence educational attainment of children years later. The regression model can be described as:

$$\begin{aligned} edu_{if} \quad = \quad & dad\_mig\_US_{if}\beta_1 + mom\_mig\_US_{if}\beta_2 + \\ & dad\_mig\_MX_{if}\beta_3 + mom\_mig\_MX_{if}\beta_4 + \\ & dad's\_1st\_mig\_US_{if}\beta_1 + mom's\_1st\_mig\_US_{if}\beta_2 + \\ & dad's\_1st\_mig\_MX_{if}\beta_1 + mom's\_1st\_mig\_MX_{if}\beta_2 + \\ & X_{if}\gamma + u_f + \upsilon_{if} \end{aligned} \tag{1}$$

where edu_{if} is the number of years of education of child i in family f, $dad\_mig\_US_{if}$ represents a vector of dummies indicating that the father was gone in any of the following periods: before the child was born, when the child was 0-6 years of age, when the child was between 7 and 12 years old, when the child was between 13 and 18, when the child was between 19 and 24, and with the base group equal to one if the father migrated sometime after the child had turned 25. The Mexican analogue of this vector is $dad\_mig\_MX_{if}$ which describes the intervals when the father was migrating domestically. Note that the groups are not mutually exclusive as a father may have migrated more than once in the lifetime of the child. The variables describing the father's migration history are contained in $dad's\_1st\_mig\_US_{if}$ and $dad's\_1st\_mig\_MX_{if}$. For example, $dad's\_1st\_mig\_US_{if}$ is a vector of dummies indicating in which of the aforementioned periods the father made his first migration trip to the U.S., with the base group equal to one if the father migrated for the first time after the child had turned 25. The maternal analogues of the paternal migration vectors are $mom\_mig\_US_{if}$, $mom\_mig\_MX_{if}$, $mom's\_1st\_mig\_US_{if}$, and $mom's\_1st\_mig\_MX_{if}$. X_{if} is a vector of control variables such as a dummy variable equal to one if the child is female (in the specifications that are not run separately by gender), a dummy indicator for the oldest child, and a dummy

variable equal to one if the child is the youngest of the siblings.[8] The family fixed effect, u_f, captures any unobserved heterogeneity common to the siblings in family f, including characteristics of the parents. The final variable, v_{if}, is assumed to be an i.i.d. disturbance term with zero mean.

I estimate equation 1 allowing for the family fixed effect to capture all observable and non-observable heterogeneity at the family level. This could include any family-level characteristics and shocks that affect both parental migration patterns and child education. Since u_f is likely to be correlated with the father's migration pattern, controlling for it presents a significant step forward in estimating the effects of parental migration patterns on education. The identifying assumption is that after including the fixed effect, there is no correlation between the error term and the variables describing parental migration.

Table 3 shows the distribution of children with paternal migration experience across the six groups based on age at time of migration. About 60% of the children have a father who began migrating before the child was born (5391 out of 8895 whose fathers migrate at any point in their lives). Still, there are 346 children whose fathers begin migrating after they are at least 25. While the largest fraction of children with migrant fathers have their fathers migrate to the U.S. before they are born, a substantial fraction experience their father's U.S. migration at later points in their lives. For instance, about 30% of children of U.S. migrant fathers experience paternal migration while they are between 7 and 12 years-old.

Since the variation in ages of siblings at the time of their parent's migration is critical for this analysis, some might question whether there is sufficient variation within families to rely on the fixed effect estimation. Table 4 shows the variation in siblings' age groups at the time of the father's first departure for the U.S. As the table shows, there are many families with children in different, not necessarily adjoining age groups. For instance, 58 families have at least one child that was in the 7-12 age group and at least one child in the 19-24 age

[8] I have also done this estimation including a set of dummy variables accounting for the birth cohort of the child. The results are virtually identical to those presented here.

group at the time of the father's first departure to the U.S.

4.2 The effect of parental migration on schooling

Of course, it is not possible to exploit fixed effects to get around the endogeneity problem *and* estimate the main effect of having a parent with migration experience, since the latter variable would be common to all children in the household. Instead, I propose a strategy that relies on the assumption that having a parent migrate for the first time when the child is beyond the age of 24 is like never having had a parent migrate at all. Using the fixed effects, however, allows us to compare the child to his siblings who may have been at a more formative age when the parent undertook migration. This amounts to estimating the following regression model:

$$\begin{aligned} edu_{if} &= dad\_mig\_US_{if}\beta_1 + mom\_mig\_US_{if}\beta_2 + \\ &\quad dad\_mig\_MX_{if}\beta_3 + mom\_mig\_MX_{if}\beta_4 + X_{if}\gamma + u_f + \upsilon_{if} \end{aligned} \tag{2}$$

where $dad\_mig\_US_{if}$ is a dummy equal to one if the father migrated to the U.S. before the child was 25 and zero otherwise, $dad\_mig\_US_{if}$ is a dummy equal to one if the mother migrated to the U.S. before the child was 25 and zero otherwise, $dad\_mig\_MX_{if}$ is equal to one if the father migrated within Mexico before the child was 25 and zero otherwise, and $mom\_mig\_MX_{if}$ is equal to one if the mother migrated within Mexico before the child was 25 and zero otherwise, and the remaining variables are as stated above.

Another possibility is to separate children into three groups: (1) children whose parents only migrated before they were born, (2) children whose parents migrated any time during the years when they may have pursued further education (0-24 years), and (3) children whose parents migrated only after the child had turned 25 years old. This allows us to determine whether there are any pure effects from learning about the returns to migration for group (1) that might influence education that we can separate from the muddled effects

of learning about migration and having a parent absence which are experienced by group (2). For example, could it be that parents migrate to the U.S. and learn that Mexican education is not well-rewarded in the U.S. and therefore do not emphasize its importance for their own children? The regression model is as follows:

$$\begin{aligned} edu_{if} = {} & dad\_migUS\_before\_born_{if}\beta_1 + dad\_migUS\_childhood_{if}\beta_2 + \\ & mom\_migUS\_before\_born_{if}\beta_3 + mom\_migUS\_childhood_{if}\beta_4 + \\ & dad\_migMX\_before\_born_{if}\beta_5 + dad\_migMX\_childhood_{if}\beta_6 + \\ & mom\_migMX\_before\_born_{if}\beta_7 + mom\_migMX\_childhood_{if}\beta_8 \\ & + X_{if}\gamma + u_f + \upsilon_{if} \end{aligned} \tag{3}$$

where *dad_migUS_before_born* equals one if the father's U.S. migration experience is limited to before the birth of the child, *dadmigUS_childhood* equals one if the father migrated to the U.S. at anytime while the child was 0-24 years-old, and the base group includes children whose father's U.S. migration experience is limited to the period after the child was 25 years-old. The maternal variables are analagous, as are the Mexican variables which describe domestic migration.

5 Results

Column (1) of Table 5 shows the results from estimating the family fixed-effects regression in equation 1 for the entire sample of children. The effects of the individual control variables on educational attainment are as expected, with a negative effect of being female (-.26), positive effect of birth order (.27) indicating younger children reach higher levels of education, and a significant positive effect of being the oldest child (.38). For the most part, the estimated coefficients on the parental migration variables describing all of the periods when

the parent migrated do not appear to be statistically significant.[9] Instead, the main effects of parental migration on education appear to come from the parent's first migration experience. Having a father migrate to the U.S. before the child is born results in an increase of 1.4 years of education relative to the base group where the father migrates to the U.S. after the child is at least 25. The effect falls to an increase of about 1.2 years of education if the father migrates to the U.S. for the first time when the child is between zero and six years-old, and to an increase of .86 years if the father migrates for the first time when the child is 7-12 and to only .77 years if the father migrates for the first time when the child is between 13 and 18. It is not possible to distinguish an effect for children whose fathers migrate to the U.S. for the first time when they are 19-24 years-old.

This pattern of a rising educational return to U.S. migration as the father pushes his migration experience earlier and earlier in relation to the child's life has two interpretations: (1) earning higher wages from migrating earlier in life could make savings for future education possible and/or (2) the migration experience inspired the father to encourage the educational attainment of his children. For instance, under the latter interpretation, after returning from his U.S. migration, a father may have decided that his children would be better off in Mexico and therefore should put their efforts into studying. If this change occurred earlier in the child's life, the child would then be more likely to continue with his education. Alternatively, interpretation (2) would also be consistent with a father who had learned from his migration experience that the child would do better in the U.S. if he attained a higher level of education in Mexico, perhaps because of a perceived importance of the acquisition of English language skills. More importantly, this pattern rules out a story in which paternal migration discourages the child's educational investments as conjectured in the introduction.

As for the other significant results from the fixed-effects regression, there

[9] One exception is that the mother's migration to the U.S. when the child was between 7 and 12 is associated with an increase in educational attainment of about 1.3 years.

is also a positive effect of migration on education when the father migrates domestically for the first time when the child is 0-6 years old. There is also some evidence that mother's first domestic migration experience is associated with a negative effect on child educational attainment, ranging from -1.6 years if the mother's first domestic migration is taken when the child is 7-12 to -1.1 years if it is taken when the child is 19-24. If the main effect of maternal domestic migration is in fact parental absence, the fact that the magnitude of the effect increases as the experience is undertaken earlier in the child's life would be consistent with a story in which the mother's presence is more important earlier in the child's life.

One lesson from the child development literature on father absence, in particular Santrock (1972), is that the effects of parental absence will likely differ by gender. To address this, columns (2) and (3) of Table 5 present the results from the fixed-effects regression of equation 1 for boys and girls, respectively. The significant effect observed in column (1) for mothers who migrated when the child was between 7 and 12 is now observed only as significantly positive for the education of girls. This could indicate that maternal migrants may allocate more remittances toward girls than when the father migrates.[10] More interesting is that the effects of the father's first U.S. migration now show up as mainly significant for girls. Again, the pattern of increasing as the migration experience is pushed earlier in life is mostly held up, ranging from an increase of about 1.3 years if the father migrates to the U.S. for the first time when his daughter is 19-24 to almost 2 years if the father migrates before the birth of his daughter. In contrast, the father's first U.S. migration is only statistically significant for boys if it occurred before they were born (equivalent to an increase of 1.6 years relative to the base group where the father migrated after the boy had turned 25.)

A possible critique of these results is that since we have no data on the migration history of the children, it is possible that the children were co-migrating

[10] This would be consistent with some of the findings from the literature on intrahousehold allocations.

with parents and thus the effects seen in Table 5 are actually the effects of the children's own migration, rather than simply the experiences of their parents. To address this, I limit the sample to children who had no migration experience (international or domestic) by the age of 25. This restriction limits the sample to 9,259 boys and 11,334 girls. The results from the fixed-effects estimation of equation 1 with this sample limitation are presented in Table 6.

The importance of this robustness check can be seen in a comparison of Tables 5 and 6. One peculiarity of the results in Table 5 is that there are statistically significant negative effects of father's U.S. migration on girls in the 7-12 and 19-24 age groups while there are no similar effects from father's domestic migration. Once we restrict the sample to children with no childhood migration experience in Table 6, the statistical significance of those effects disappears. At the same time, Table 6 shows the same pattern of an increasing educational returns to father's first U.S. migration as the migration is pushed earlier in the child's life. Thus, the results for first paternal U.S. migration are robust to the concern about child co-migration.

Using this limited sample, I also estimate the regression model in equation 2 to determine the effect of parental migration by grouping children based on whether their parents migrated before or after the age of 25. As shown in column (3) of Table 7, using this approach, we can isolate a positive effect of paternal U.S. migration for girls, equivalent to about 1.1 years of education. While there does appear to be a negative effect of maternal domestic migration in the full sample (boys and girls), this effect is not statistically distinguishable from zero in the regressions where boys and girls are considered separately.

As discussed above, separating children into three groups based on whether the parent had migration experience (1) solely before the birth of the child, (2) anytime while the child was between 0-24, or (3) solely after the child was 25 would allow for some separation of the effect of parental migration from parental absence whose impact on education can only be felt for group (2). Table 8 shows that, at least for girls, there is a positive effect of paternal U.S. migration on education when the migration occurs before the child is born (equivalent to

an increase in 1.4 years of education) as well as during the formative years of the child (about 1.1 years). While it is tempting to infer that the drop in the magnitude of the effect might be due to a countervailing effect of parental absence, we can not reject the hypothesis that the two coefficients are equal to one another at conventional levels (p-value=.12).

The results for the boys' regression in column (2) yield no corresponding results for paternal migration. While there are some statistically significant results for the effects of maternal migration, the very small number of observations of mothers with international or domestic migration experience, makes it difficult to validate the estimates.[11]

5.1 Robustness

Besides the valid concern regarding the co-migration of children already addressed above, one critique might be that parents' migration can both determine and be determined by children's education. Since I have included family fixed-effects in the estimation, this type of endogeneity would have to act at the individual level. For example, a parent might plan his migration around the completion of schooling of a particular child, say the eldest, so that he/she would be able to compensate for the father's absence. While it may be true that idiosyncrasies across families may change the identity of this child, I think the most likely candidate for this type of reverse causation is the eldest child. To address this concern, I restrict the sample to non-eldest children and reestimate equation (1), again with the sample limited to children with no childhood migration experience.[12] Table 9 presents the results.

Eliminating the eldest children and those children who have had childhood

[11] For example, only 7 boys have a mother who migrated domestically solely before his birth.

[12] Another strategy would be to limit the sample to children who had not finished their educations by the time of their parent's migration. However, note that reverse causality would still be possible in this case if parents were migrating in order to keep selected children in school. This strategy also greatly reduces the number of observations (by about two-thirds) as well as the number of observations per household.

migration experience limits the sample to 15,923 observations comprised of 7,117 boys and 8,806 girls. As in prior results, column (3) of Table 9 shows that there is some negative effect of paternal U.S. migration on girls in the 0-6 and 7-12 periods of life, each amounting to a decrease in educational attainment of about half a year. Other than that, it appears that the results for father's U.S. migration operate mainly through the same pattern I've emphasized above, that is, the effect of the father's first U.S. migration largely on girls' educational attainment. Again, it appears that the positive effect is greater when this migration is experienced earlier in life, suggesting that paternal migration either triggers savings of remittances for later education and/or paternal migration encourages the education of children either because they expect it to pay off in the U.S. or Mexico. This effect ranges from an additional 2.5 years of education if the father's first migration occurs when the daughter is 0-6 years old to about 2 years if the migration begins when the daughter is 7-12 years old. The only statistically significant effect for sons is a 2.8 year increase in education for boys whose fathers first migrated before they were born.

While there are other surprising results for the migration patterns of women influencing the educational attainment of children, I do not stress them here because, as noted above, the number of children with mothers who migrate is quite small. Also, as discussed in the Data section, because the survey does not identify the relationship between spouses of the head and children, it is not for certain that the spouses of the head are in fact the mothers of these grown children.

6 Interpretation

Overall, these results indicate that paternal U.S. migration is on the whole a positive determinant of child educational attainment, particularly for girls. In addition, the evidence suggests that the earlier a father migrates in the life of his child, even undertaking migration before the child is born, the higher are the returns to migration. The use of family fixed-effects in the regression analysis

rules out a story where men who migrate earlier in life are positively selected and thus are associated with increases in educational attainment.

There are several interpretations of these results. First, it could be possible that children experience a negative effect of parental absence later in life, and as a result, mitigate the positive influence of remittances. This could account for why there is no significant effect of paternal migration on boys after the child is born and would be consistent with findings from the child development literature in which boys are more adversely affected by their father's absence relative to their sisters.

An alternative explanation for these results would be that men who migrate before the birth of their children have the opportunity to save and invest for a longer period of time before later spending on the education of their children. It could also be that the father's first migration experience teaches him about the value of a Mexican education either for staying home in Mexico and avoiding migration or for migrating to the U.S. perhaps because of the benefits of English language skills. He then passes on this information to his children which results in an increase in their educational attainment. The main story ruled out by these results is one in which the children learn not to invest in education as a result of the father's migration. If this were the case, we would expect to see the magnitude of the effect falling as the migration experience is pushed earlier in the child's life because the child would know at an earlier age that Mexican education was not worth the investment. Instead the magnitude of the effect rises.[13]

[13] Of course, it is possible that families are using savings from U.S. migration and treating education as a consumption good even though they do not see it as valuable for the future earnings of the child. To be consistent with the empirical evidence, the early remittances would have to crowd out the negative effect of learning about the returns to education in the U.S. Without additional evidence, however, there is no reason to believe that this is the case.

7 Conclusion

By using a family fixed-effects regression model to get around the endogeneity of parental migration, this paper has established a positive link between paternal U.S. migration and child educational attainment. In particular, the evidence suggests that pushing father's U.S. migration earlier in a child's life, even before they are born, would lead to an increase in educational attainment of about 2.4 years for girls and 2.3 years for boys relative to delaying migration until after the child has turned 25. Under the assumption that children whose parents migrate after the child has turned 25 are akin to having a parent who never migrated, the within family approach yields estimates that having a migrant father increases educational attainment by about one year for girls, with no significant effect for boys. Separating the children into three groups based on whether the parent migrated solely before the child was born, while the child was between the ages of 0 and 24, and after the child was 25 suggests that girls whose fathers migrate to the U.S. before they are born and girls whose father migrate while they are alive both increase their educational attainment by about 1 year.

These results are consistent with a story in which U.S. migration enables families to save for their children's educations and thus earlier migration has a greater effect on educational attainment. It is also possible that the experience of U.S. migration translates into encouraging children in their educations, either because they believe it will be valued in Mexico or in the U.S., perhaps via English language skills. At the same time, these findings cast doubt on the notion that children of U.S. migrants learn that Mexican education is not as valued in the U.S. and reduce their investment in education as a result. Moreover, the finding that moving migration earlier in children's lives can make an appreciable difference in their educational attainment suggests that policies aimed at targeting migrant workers should generally promote migration before the birth of children over migration later in life.

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Table 1: Descriptive Statistics of Child Sample

	Mean	Std. Dev.	25%	75%	N
Age	35.290	8.410	29	40	30194
Female	0.496	0.500	0	1	30194
Education (Years)	7.550	4.339	5	9	30194
Sibship Size	7.788	2.964	6	10	30194
No. of Periods when Mom or Dad is Absent	1.284	1.793	0	2	30194
Child's Parental Migration Experience					
Father Migrated to US at Some Point	0.293	0.455	0	1	30194
Father Migrated to MX at Some Point	0.190	0.392	0	0	30194
Mother Migrated to US at Some Point	0.045	0.208	0	0	30194
Mother Migrated to MX at Some Point	0.079	0.270	0	0	30194
Age at Father's First US Departure*	-1.946	12.565	-11	5	8859
Age at Father's First Domestic Departure	0.129	13.254	-9	8	5734
Age at Mother's First US Departure	17.458	15.738	8	28	1370
Age at Mother's First Domestic Departure	3.754	13.118	-5	12	2390
Child's Own Migration Experience					
Migrated to US Before 25	0.169	0.375	0	0	30194
Migrated within Mexico Before 25	0.164	0.370	0	0	30194
Migrated to Either US or Within MX Before 25	0.312	0.463	0	1	30194
Age at Child's First US Migration	23.197	7.689	18	27	7963
Age at Child's First Domestic Migration	18.258	9.454	13	24	6441

*Note that this is allowed to be negative in order to reflect migration before birth of child

Table 2: Comparison of U.S. and Mexican Migrant Wages

	Mean	Std. Dev.	25%	75%	N
Daily Earnings During Last Domestic Migration	12.939	320.607	0.011	10.836	4923
Daily Earnings During Last Mexican Job (1)	11.349	22.759	0	14.983	10056
Daily Earnings During Last US Migration (2)	74.033	1651.106	29.464	60.949	6049
Daily Earnings During Last US Migration (3)	62.840	269.755	24.776	68.822	3870
Average Monthly Remittances During Last US Migration	274.857	506.325	14.165	357.873	4771
Hourly Wage	6.716	21.412	3.047	7.223	3930
Usual Hours Worked Per Week	46.384	15.410	40	54	4671
Months Worked Per Year	7.288	3.811	4	12	4822

Notes:
All values in 2002 US dollars
(1) Only for communities 1-52
(2) Based on 40 hours per week, 50 wks/yr
(3) Based on US hours data, 5 days per week

Table 3: How Many Children Experience Paternal Migration?
Distinguished by child's age during father's departure

Panel A: How many children FIRST experienced paternal migration during the specified period?

	Dad's 1st US trip	Dad's 1st MX trip	Mom's 1st US trip	Mom's 1st MX trip
Before Child's Birth	5391	3075	222	1011
Child 0-6 Years-old	1538	1104	107	554
Child 7-12 Years-old	769	566	122	272
Child 13-18 Years-old	480	393	179	218
Child 19-24 Years-old	335	300	248	146
Child At Least 25 Years-old	346	296	492	189
Total	8859	5734	1370	2390

Panel B: How many children experienced paternal migration during specified period?

	Dad's US Trip	Dad's MX Trip	Mom's US Trip	Mom's MX Trip
Before Child's Birth	5391	3075	222	1011
Child 0-6 Years-old	3607	2042	155	762
Child 7-12 Years-old	2740	1480	174	474
Child 13-18 Years-old	2227	1178	243	395
Child 19-24 Years-old	1849	957	376	296
Child At Least 25 Years-old	2356	4566	868	2311

Table 4: Variation in Child's Age at Father's 1st US Departure Within Family

Q: How many families have children who were in different age categories when the father first left for the U.S.?
Each cell gives number of families in sample with at least one child in given age categories.

	Period in Child's Life when Father First Migrated to U.S.					
	Before Born	0-6 Years-old	7-12 Years-old	13-18 Years-old	19-24 Years-old	At Least 25
Before Born	1301	518	131	36	10	7
0-6 Years-old		764	249	82	30	7
7-12 Years-old			412	153	58	20
13-18 Years-old				261	92	34
19-24 Years-old					192	82
At Least 25						134

For example,the number of families with at least one child who was 0-6 when father migrated
and at least one child who was 7-12 when father first migrated is 249.
1924 families have a father with US migration experience in this sample (out of 6939 families total).

Note: Rows do not sum to entries on diagonal because (1) not every group is represented here and
(2) there is some overcounting between columns

Table 5: The Effect of Child's Age During Parent's Migration on Education

	(1)	(2)	(3)
	Boys & Girls	Boys	Girls
Dependent Variable:	Edu (Yrs)	Edu (Yrs)	Edu (Yrs)
Female	-0.2647		
	[0.0329]**		
Birth order	0.2772	0.259	0.2947
	[0.0098]**	[0.0158]**	[0.0138]**
Oldest	0.3798	0.4991	0.2102
	[0.0457]**	[0.0768]**	[0.0691]**
Youngest	0.0597	0.0462	0.1104
	[0.0636]	[0.1077]	[0.0921]
Dad Migrated to US When…			
Child 0-6 Years-old	-0.1425	0.1273	-0.2933
	[0.1084]	[0.1721]	[0.1564]
Child 7-12 Years-old	-0.2464	-0.0782	-0.4699
	[0.1106]*	[0.1823]	[0.1569]**
Child 13-18 Years-old	-0.1255	-0.1905	-0.1543
	[0.1167]	[0.1946]	[0.1619]
Child 19-24 Years-old	-0.2038	-0.0406	-0.4882
	[0.1253]	[0.2032]	[0.1782]**
Dad Migrated Within MX When…			
Child 0-6 Years-old	0.0666	0.0223	0.0751
	[0.1473]	[0.2474]	[0.2079]
Child 7-12 Years-old	0.1605	0.2089	0.0059
	[0.1560]	[0.2583]	[0.2231]
Child 13-18 Years-old	-0.0374	-0.0667	-0.2899
	[0.1639]	[0.2643]	[0.2426]
Child 19-24 Years-old	0.1832	0.2046	0.1107
	[0.1665]	[0.2745]	[0.2447]
Mom Migrated to US When…			
Child 0-6 Years-old	0.2093	0.3987	0.9525
	[0.6140]	[1.0699]	[0.8569]
Child 7-12 Years-old	1.289	-0.4174	2.1191
	[0.5930]*	[1.1039]	[0.8158]**
Child 13-18 Years-old	-0.6361	-1.0504	-0.4774
	[0.5256]	[0.9158]	[0.8586]
Child 19-24 Years-old	-0.0797	-0.3218	-0.6492
	[0.3793]	[0.6161]	[0.5461]
Mom Migrated Within MX When…			
Child 0-6 Years-old	-0.0216	0.9845	-0.4625
	[0.2998]	[0.4885]*	[0.4534]
Child 7-12 Years-old	0.5469	0.5392	0.9038
	[0.3062]	[0.4788]	[0.4889]
Child 13-18 Years-old	0.5203	0.3798	0.6584
	[0.3125]	[0.4744]	[0.5214]
Child 19-24 Years-old	-0.2615	-0.2537	-0.338
	[0.3124]	[0.4893]	[0.4838]

(continued)

Standard errors in brackets

* significant at 5%; ** significant at 1%

Table 5 Continued

	(1)	(2)	(3)
	Boys & Girls	Boys	Girls
	Edu (Yrs)	Edu (Yrs)	Edu (Yrs)
Dad's 1st US Trip Was When…			
Before Child Born	1.4363	1.5965	1.945
	[0.3596]**	[0.5799]**	[0.5279]**
Child 0-6 Years-old	1.2247	1.0261	2.1207
	[0.3691]**	[0.5944]	[0.5419]**
Child 7-12 Years-old	0.8566	0.8841	1.7514
	[0.3545]*	[0.5726]	[0.5275]**
Child 13-18 Years-old	0.773	0.8478	1.5738
	[0.3394]*	[0.5519]	[0.4976]**
Child 19-24 Years-old	0.4518	0.5477	1.2903
	[0.2965]	[0.4863]	[0.4347]**
Mom's 1st US Trip Was When…			
Before Child Born	-0.7848	-0.9129	0.9786
	[0.7509]	[1.2340]	[1.0737]
Child 0-6 Years-old	-0.0216	-0.3791	-0.0014
	[0.9062]	[1.5210]	[1.2930]
Child 7-12 Years-old	-0.9441	0.0843	-1.1676
	[0.8193]	[1.4479]	[1.1407]
Child 13-18 Years-old	0.9058	0.8265	1.5437
	[0.6811]	[1.1390]	[1.0621]
Child 19-24 Years-old	0.2781	0.7604	0.9085
	[0.4582]	[0.7530]	[0.6475]
Dad's 1st Trip Within MX Was When…			
Before Child Born	0.5345	0.7056	0.6659
	[0.3937]	[0.6674]	[0.5509]
Child 0-6 Years-old	0.871	0.7652	1.1248
	[0.4113]*	[0.6938]	[0.5808]
Child 7-12 Years-old	0.6189	0.5979	0.9065
	[0.3937]	[0.6626]	[0.5601]
Child 13-18 Years-old	0.3337	0.4302	0.5079
	[0.3714]	[0.6244]	[0.5243]
Child 19-24 Years-old	0.3418	0.0292	0.5968
	[0.3215]	[0.5590]	[0.4564]
Mom's 1st Trip Within MX Was When…			
Before Child Born	-0.2309	-0.8091	0.1985
	[0.5396]	[0.8979]	[0.7976]
Child 0-6 Years-old	-0.4936	-1.3647	0.0489
	[0.6001]	[0.9895]	[0.8911]
Child 7-12 Years-old	-1.5965	-1.468	-1.526
	[0.5859]**	[0.9582]	[0.8889]
Child 13-18 Years-old	-1.4487	-0.8963	-1.2236
	[0.5601]**	[0.9051]	[0.8595]
Child 19-24 Years-old	-1.1136	-1.5367	-0.3902
	[0.4982]*	[0.8419]	[0.7195]
Constant	6.1965	6.1683	5.7148
	[0.1128]**	[0.1821]**	[0.1633]**
Observations	30194	15221	14973
Number of hhid	6939	5953	5802
R-squared	0.06	0.05	0.1

Standard errors in brackets, * significant at 5%; ** significant at 1%

Table 6: The Effect of Child's Age During Parent's Migration on Education

Limit Sample to Non-migrant Children

	(1)	(2)	(3)
	Boys & Girls	Boys	Girls
Dependent Variable:	Edu (Yrs)	Edu (Yrs)	Edu (Yrs)
Female	-0.3324		
	[0.0414]**		
Birth order	0.2743	0.2576	0.2813
	[0.0119]**	[0.0212]**	[0.0159]**
Oldest	0.2877	0.4294	0.155
	[0.0565]**	[0.1046]**	[0.0791]
Youngest	0.0399	-0.1033	0.1396
	[0.0777]	[0.1436]	[0.1061]
Dad Migrated to US When…			
Child 0-6 Years-old	-0.0707	0.1799	-0.2156
	[0.1466]	[0.2861]	[0.1843]
Child 7-12 Years-old	-0.2308	-0.1753	-0.3457
	[0.1558]	[0.3377]	[0.1872]
Child 13-18 Years-old	-0.0497	-0.0554	-0.0111
	[0.1678]	[0.3445]	[0.2041]
Child 19-24 Years-old	-0.1338	-0.3854	-0.1408
	[0.1931]	[0.3809]	[0.2395]
Dad Migrated Within MX When…			
Child 0-6 Years-old	0.1879	0.4702	0.1882
	[0.1933]	[0.3707]	[0.2500]
Child 7-12 Years-old	0.3318	0.4429	0.0071
	[0.2092]	[0.4109]	[0.2668]
Child 13-18 Years-old	0.1326	0.2828	-0.2842
	[0.2215]	[0.3954]	[0.3063]
Child 19-24 Years-old	0.4635	0.5509	0.0598
	[0.2263]*	[0.4232]	[0.3124]
Mom Migrated to US When…			
Child 0-6 Years-old	0.7294	-7.5588	0.8516
	[0.8555]	[2.8544]**	[1.0421]
Child 7-12 Years-old	2.5193	-4.3257	3.7404
	[1.0278]*	[2.9656]	[1.2366]**
Child 13-18 Years-old	-0.5939	-0.3859	-2.5883
	[0.9694]	[2.0097]	[1.8403]
Child 19-24 Years-old	-1.7882	-2.104	-1.6855
	[0.7637]*	[1.5168]	[1.0964]
Mom Migrated Within MX When…			
Child 0-6 Years-old	-0.066	2.3627	-0.9421
	[0.4984]	[0.9714]*	[0.6784]
Child 7-12 Years-old	0.1745	0.5747	-0.3087
	[0.5348]	[0.9754]	[0.7643]
Child 13-18 Years-old	-0.9022	-1.2325	-0.6801
	[0.4943]	[0.8153]	[0.8603]
Child 19-24 Years-old	-0.7232	0.3058	-1.1208
	[0.5075]	[0.8695]	[0.7441]

(continued)

Standard errors in brackets

* significant at 5%; ** significant at 1%

Table 6 Continued

	(1)	(2)	(3)
	Boys & Girls	Boys	Girls
Dependent Variable:	Edu (Yrs)	Edu (Yrs)	Edu (Yrs)
Dad's 1st US Trip Was When…			
Before Child Born	1.7148	2.2618	2.3519
	[0.4769]**	[0.9505]*	[0.6422]**
Child 0-6 Years-old	1.3325	1.0835	2.4606
	[0.4956]**	[0.9892]	[0.6623]**
Child 7-12 Years-old	1.0416	0.9343	2.1668
	[0.4832]*	[0.9766]	[0.6500]**
Child 13-18 Years-old	1.0231	1.3816	1.6748
	[0.4699]*	[0.9299]	[0.6273]**
Child 19-24 Years-old	0.3467	0.7128	1.1512
	[0.4149]	[0.8247]	[0.5570]*
Mom's 1st US Trip Was When…			
Before Child Born	1.3946	2.3625	2.5122
	[1.1850]	[2.5222]	[1.6647]
Child 0-6 Years-old	1.3645	11.8081	0.5323
	[1.3963]	[4.1009]**	[1.8179]
Child 7-12 Years-old	-1.0361	4.041	-2.0788
	[1.4474]	[3.9580]	[1.8655]
Child 13-18 Years-old	1.813	0.3381	4.4266
	[1.2538]	[2.8102]	[2.0822]*
Child 19-24 Years-old	1.6485	2.305	1.9381
	[0.9265]	[2.0500]	[1.2518]
Dad's 1st Trip Within MX Was When…			
Before Child Born	-0.0823	-0.2737	0.4501
	[0.5466]	[1.0923]	[0.7012]
Child 0-6 Years-old	0.086	-0.7338	0.6563
	[0.5744]	[1.1341]	[0.7441]
Child 7-12 Years-old	0.0029	-0.5891	0.5588
	[0.5508]	[1.0872]	[0.7147]
Child 13-18 Years-old	-0.2773	-1.1495	0.2393
	[0.5238]	[1.0275]	[0.6802]
Child 19-24 Years-old	-0.2353	-1.7996	0.6166
	[0.4414]	[0.8791]*	[0.5813]
Mom's 1st Trip Within MX Was When…			
Before Child Born	0.4007	-0.8716	-0.271
	[0.8422]	[1.3573]	[1.3456]
Child 0-6 Years-old	0.3377	-2.7121	0.2649
	[0.9582]	[1.5801]	[1.4819]
Child 7-12 Years-old	-0.3721	-1.3642	-0.5728
	[0.9388]	[1.5055]	[1.4645]
Child 13-18 Years-old	0.1879	0.9378	-0.7002
	[0.8539]	[1.3475]	[1.3698]
Child 19-24 Years-old	-0.6706	-2.1705	-0.0617
	[0.7489]	[1.2884]	[1.0582]
Constant	6.2174	6.4218	5.5394
	[0.1353]**	[0.2434]**	[0.1900]**
Observations	20593	9259	11334
Number of hhid	5932	4368	4921
R-squared	0.06	0.06	0.09

Standard errors in brackets, * significant at 5%; ** significant at 1%

Table 7: The Effect of Parental Migration on Child Education

Two-group regression with sample of non-migrant children

	(1)	(2)	(3)
	Boys & Girls Education (Yrs)	Boys Education (Yrs)	Girls Education (Yrs)
Female	-0.3324		
	[0.0414]**		
Birth Order	0.2876	0.2816	0.2923
	[0.0114]**	[0.0202]**	[0.0150]**
Oldest	0.2737	0.4137	0.1501
	[0.0563]**	[0.1045]**	[0.0786]
Youngest	0.038	-0.0988	0.1428
	[0.0776]	[0.1434]	[0.1058]
Father Migrated to US Before Child Was 25	0.4483	0.5892	1.0982
	[0.3475]	[0.7056]	[0.4807]*
Mother Migrated to US Before Child Was 25	0.1026	0.041	0.4542
	[0.5187]	[1.5708]	[0.5818]
Father Migrated Within MX Before Child Was 25	0.2382	-1.1816	0.6997
	[0.3708]	[0.7494]	[0.4769]
Mother Migrated Witihn MX Before Child Was 25	-1.1438	-1.0971	-1.1986
	[0.5397]*	[0.8694]	[0.7441]
Constant	6.4681	6.7854	5.7751
	[0.1141]**	[0.2064]**	[0.1587]**
Observations	20593	9259	11334
Number of Families	5932	4368	4921
R-squared	0.06	0.05	0.09

Standard errors in brackets

* significant at 5%; ** significant at 1%

Table 8: The Effect of Parental Migration on Child Education
Three-group regression with sample of non-migrant children

	(1)	(2)	(3)
	Boys & Girls	Boys	Girls
	Education (Yrs)	Education (Yrs)	Education (Yrs)
Female	-0.3329		
	[0.0414]**		
Birth Order	0.2825	0.2702	0.2889
	[0.0116]**	[0.0206]**	[0.0153]**
Oldest	0.2724	0.3944	0.1516
	[0.0563]**	[0.1044]**	[0.0786]
Youngest	0.0374	-0.1043	0.1386
	[0.0776]	[0.1431]	[0.1059]
Dad's US Migration Experience Limited to Before Child Was Born	0.7357	0.9281	1.411
	[0.3802]	[0.7594]	[0.5214]**
Dad Migrated to US When Child Was Between 0 & 24 Years-old	0.4619	0.6216	1.1116
	[0.3475]	[0.7043]	[0.4809]*
Mom's US Migration Experience Limited to Before Child Was Born	0.6047	5.7625	0.2488
	[1.0224]	[2.6442]*	[1.2322]
Mom Migrated to US When Child Was Between 0 & 24 Years-old	0.0999	0.0637	0.4565
	[0.5185]	[1.5676]	[0.5818]
Dad's MX Migration Experience Limited to Before Child Was Born	0.5909	1.5348	0.3293
	[0.5480]	[1.0994]	[0.7023]
Dad Migrated Within MX When Child Was Between 0 & 24 Years-old	0.3532	-0.7904	0.6946
	[0.3728]	[0.7643]	[0.4770]
Mom's MX Migration Experience Limited to Before Child Was Born	-11.0902	-9.781	
	[3.5410]**	[3.8343]*	
Mom Migrated Within MX When Child Was Between 0 & 24 Years-old	-1.1619	-1.1552	-1.1839
	[0.5398]*	[0.8684]	[0.7442]
Constant	6.4453	6.7073	5.7644
	[0.1143]**	[0.2071]**	[0.1590]**
Observations	20593	9259	11334
Number of Families	5932	4368	4921
R-squared	0.06	0.05	0.09

Standard errors in brackets
* significant at 5%; ** significant at 1%

Table 9: The Effect of Child's Age During Parent's Migration on Education
Limit Sample to Non-migrant, Non-eldest Children

	(1)	(2)	(3)
	Boys & Girls	Boys	Girls
Dependent Variable:	Edu (Yrs)	Edu (Yrs)	Edu (Yrs)
Female	-0.2782		
	[0.0476]**		
Birth order	0.267	0.2503	0.2889
	[0.0130]**	[0.0231]**	[0.0177]**
Oldest	0.0651	-0.0342	0.1164
	[0.0840]	[0.1570]	[0.1165]
Dad Migrated to US When…			
Child 0-6 Years-old	-0.1825	0.3369	-0.4491
	[0.1684]	[0.3305]	[0.2157]*
Child 7-12 Years-old	-0.3079	-0.0171	-0.4813
	[0.1857]	[0.4037]	[0.2280]*
Child 13-18 Years-old	-0.0913	0.0515	-0.013
	[0.2050]	[0.4301]	[0.2492]
Child 19-24 Years-old	-0.1137	-0.3866	-0.205
	[0.2315]	[0.4665]	[0.2915]
Dad Migrated Within MX When…			
Child 0-6 Years-old	0.2347	0.9148	0.1686
	[0.2255]	[0.4400]*	[0.3010]
Child 7-12 Years-old	0.3006	0.6977	-0.1134
	[0.2489]	[0.4754]	[0.3255]
Child 13-18 Years-old	0.0978	0.4004	-0.5357
	[0.2658]	[0.4840]	[0.3698]
Child 19-24 Years-old	0.7571	0.6701	0.0924
	[0.2764]**	[0.5129]	[0.3912]
Mom Migrated to US When…			
Child 0-6 Years-old	0.63	-11.0518	1.7231
	[1.0806]	[3.4150]**	[1.3126]
Child 7-12 Years-old	2.4214	-1.173	3.6018
	[1.1801]*	[3.7596]	[1.3616]**
Child 13-18 Years-old	0.6235	2.4101	-1.7548
	[1.1201]	[2.8363]	[1.9411]
Child 19-24 Years-old	-1.4601	-1.769	-0.9652
	[0.9195]	[2.4610]	[1.1700]
Mom Migrated Within MX When…			
Child 0-6 Years-old	-0.3654	1.1272	-0.9734
	[0.6096]	[1.2271]	[0.7838]
Child 7-12 Years-old	-0.0262	0.2893	-0.6235
	[0.6099]	[1.0532]	[0.8990]
Child 13-18 Years-old	-0.8129	-1.8331	-0.2324
	[0.6106]	[0.9422]	[1.1885]
Child 19-24 Years-old	-1.1605	-0.9379	-1.0056
	[0.6176]	[0.9888]	[1.0434]

(continued)

Standard errors in brackets
* significant at 5%; ** significant at 1%

Table 9 Continued

	(1)	(2)	(3)
	Boys & Girls	Boys	Girls
Dependent Variable:	Edu (Yrs)	Edu (Yrs)	Edu (Yrs)
Dad's 1st US Trip Was When…			
Before Child Born	1.5007	2.8039	1.9186
	[0.6631]*	[1.2564]*	[0.9121]*
Child 0-6 Years-old	1.234	1.2994	2.4917
	[0.6728]	[1.2971]	[0.9145]**
Child 7-12 Years-old	0.8958	1.2982	2.0211
	[0.6544]	[1.2584]	[0.8952]*
Child 13-18 Years-old	0.7494	1.5858	1.5786
	[0.6154]	[1.1798]	[0.8290]
Child 19-24 Years-old	0.2737	0.9192	1.3746
	[0.5194]	[0.9909]	[0.7027]
Mom's 1st US Trip Was When…			
Before Child Born	3.101	9.6111	2.7201
	[1.4436]*	[3.1394]**	[1.9361]
Child 0-6 Years-old	2.7095	19.3071	0.1003
	[1.7337]	[4.8194]**	[2.1598]
Child 7-12 Years-old	-0.2803	3.5959	-2.5153
	[1.6860]	[4.9507]	[2.0672]
Child 13-18 Years-old	1.5647	2.2361	3.2695
	[1.4263]	[3.5034]	[2.1818]
Child 19-24 Years-old	1.8331	2.9613	1.6236
	[1.0878]	[2.7692]	[1.3139]
Dad's 1st Trip Within MX Was When…			
Before Child Born	0.1404	-0.8104	1.0445
	[0.7191]	[1.3657]	[0.9610]
Child 0-6 Years-old	0.2472	-1.6263	1.3614
	[0.7395]	[1.3909]	[0.9949]
Child 7-12 Years-old	0.3577	-0.6042	1.4247
	[0.7052]	[1.3308]	[0.9510]
Child 13-18 Years-old	0.0755	-1.1187	0.8224
	[0.6670]	[1.2735]	[0.8956]
Child 19-24 Years-old	-0.3302	-1.2092	0.8134
	[0.5575]	[1.0398]	[0.7611]
Mom's 1st Trip Within MX Was When…			
Before Child Born	0.6257	-0.7236	-0.5266
	[1.0733]	[1.8541]	[1.8001]
Child 0-6 Years-old	0.7431	-1.8701	0.5297
	[1.2088]	[2.1224]	[1.8834]
Child 7-12 Years-old	-0.1444	-1.0962	-0.3832
	[1.1398]	[1.9554]	[1.8445]
Child 13-18 Years-old	0.1373	0.779	-1.3057
	[1.0911]	[1.8218]	[1.7789]
Child 19-24 Years-old	-0.4303	-1.4466	-0.082
	[0.9152]	[1.7486]	[1.3243]
Constant	6.0191	6.1203	5.3296
	[0.1820]**	[0.3170]**	[0.2645]**
Observations	4923	3519	4053
Number of hhid	0.07	0.07	0.09

Standard errors in brackets, * significant at 5%; ** significant at 1%