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INTERNATIONAL MIGRATION AND THE EDUCATIONAL ATTAINMENT OF THE

NEXT GENERATION

How Mexican migration to the U.S. shapes the educational attainment of the next

generation has been a topic of heated debates among scholars and policy analysts in the U.S. and

Mexico. In the U.S., some observers argue that Mexican migration depresses aggregate levels of

education by introducing large numbers of individuals with low levels of education, who

experience limited educational mobility across and within generations (Grogger and Trejo 2002;

Telles and Ortiz 2008). Their opponents, however, contend that these concerns are ill founded as

Mexican immigrants experience educational mobility at virtually equal rates as earlier waves of

immigrants despite the unique challenges that contemporary immigrants face (Smith 2003). In

Mexico, some fear that migration will give rise to "brain drain" as it selects individuals with

higher levels of education (Feliciano 2005; McKenzie and Rapoport 2006; Ozden 2005). In

contrast, others contend that migration enhances aggregate levels of education by increasing the

availability of educational resources and promoting economic development, which generates an

internal demand for higher levels of education (Antman 2007; Hanson and Woodruff 2003).

Yet, all these conclusions rest on country-specific research that use simple regression

models investigating the impact of parental migration affects the educational mobility across

generations. Generalizing findings from these studies to the aggregate level is problematic

because of two reasons. First, it focuses solely on the effects of migration that accrues due to

differences in the ability and willingness of migrant and non-migrant parents to invest in their

children's educational futures. In the process, it ignores that the aggregate effects of migration

also accrues through a complex set of demographic processes, including the selectivity of the

migration process that encourage the cross-national move of individuals with certain

demographic profiles as well as the fertility differentials between non-migrants in the country of origin, immigrants, and the native born in destination countries. These interdependencies not only determine the number and types of individuals who remain or move across national boundaries, but also the relative number of offspring that the different types of parents contribute to the populations of the countries of origin and destination. Country-specific analysis also renders an incomplete assessment by ignoring processes that occur outside the scope of the country in observation. Specifically, studies examining how immigrants fare in the destination country ignore the role of migrant selectivity despite the fact that it has been identified as a key determinant of the extent and speed to which immigrants adapt educationally (Feliciano 2006). Studies on the impact of migration on sending communities cannot accurately ascertain the size of the impact of migration because they are forced to exclude migrants who are residing in destination countries. To accurately estimate the impact of migration on educational mobility, studies should explore how socio-demographic processes in the countries of origin and destination influence the size and characteristics of migratory flows. Simultaneously, they should also consider how migration affects the educational composition of the next generation by redistributing individuals with distinct fertility behaviors across the two countries and altering the availability of educational opportunities as well as their incentives for childbearing.

The paper evaluates how Mexican migration to the U.S. affects the educational attainment of the next generation in Mexico and the U.S. To accomplish this goal, we apply alternative models that allows us to assess how various socio-demographic processes in the country of origin and destination country fit together to determine the educational attainment of the next generation in both countries. We begin the construction of these models by describing how women's education and marriage shape decisions to migrate and investigating how

migration shapes the educational attainment of the next generation through its effects on fertility and intergenerational transmission of education. Based on the insights obtained, we then create a demographic model that examines how marriage, assortative mating, migration, fertility, and intergenerational transmission of education together shape the educational attainment in Mexico and the U.S. And finally, we simulate the effects of changes in the size and composition of migration and estimate their effects on the distribution of schooling in the next generation.

A demographic model is a promising way to study the aggregate consequences of migration because of several reasons. First, in the absence of longitudinal data tracking the behavior of immigrants, non-migrants, and native born, it offers a unique opportunity to examine international migration as a cross-national rather than a country-specific process. Second, it computes more accurate estimates of the aggregate effects of migration than prior work focusing on the impact of being from a migrant family by considering the combined effects of (1) family background on children; (2) family formation; and (3) population redistribution across two countries via international migration. Third, it isolates specific socio-demographic mechanisms that facilitate or impede educational mobility of offspring who remain in Mexico as well as those who grow up in the U.S. This may help inform policies for facilitating the educational mobility and socioeconomic achievement across both sides of the border.

BACKGROUND

Socio-demographic Processes, and Educational Composition in the Next Generation

In this section, we summarize past findings that illustrate how the various socio-demographic processes independently contribute to the process by which migration shapes the educational attainment of the next generation in Mexico and the U.S.

Education as a determinant of migration. Educational selectivity of international migration has implications for the educational composition in both: the country of origin and destination country. Migration tends to disproportionately remove individuals with certain educational characteristics from the country of origin, which in turn, has implications for the educational composition of current and future generations. If migration is positively selective in terms of education, it will disproportionately remove individuals with above average levels of education, who offspring also tend to be high achieving scholastically. The removal of high achieving parents and offspring will depress aggregate levels of education in the country of origin. The opposite is true for a negatively selective stream of migration.

Educational selectivity of migration also affects how well immigrants and their children adapt to the destination countries (Feliciano 2005, 2006). Parents' educational standing in the country of origin has strong positive effects on the education attainment of offspring in the destination country (Feliciano 2006). Immigrant children whose parents have above average levels of education in the country of origin perform better academically because their parents place greater value on their education and express higher expectations about children's education (Feliciano 2006).

Empirical studies offer mixed accounts about the educational selectivity of Mexican migration to the U.S. Some argue that Mexican immigrants represent a positively selected group of individuals because migrating from Mexico to the U.S. requires that they are more resourceful and a level of ambition that is higher than those of their non-migrant counterparts (Feliciano 2005; Portes and Rumbaut 1996). According to them, these personality traits also allow them to obtain higher levels of education. A second group of researchers argue that immigrants are negatively selective in terms of education because the demand for Mexican labor exists largely in

the secondary labor market (Ibarraran and Lubotsky 2005). A third group argues that while some segments of a migration stream are positively selected, others are negative selected (Borjas 1987; Lee 1966). Specifically, they point out that the most disadvantaged segment of the population are less likely to migrate compared to others because they lack the resources necessary to finance a migration trip (Borjas 1987). In contrast, the most advantaged do not migrate because their skills are highly rewarded in Mexico and they can enjoy a high standard of living without taking the risks associated with migration.

Marriage as a determinant of migration. Marriage and assortative mating patterns affect the distribution of schooling in the next generation in several ways. At the individual level, mother's marital status and father's socioeconomic characteristics influence offspring's education by determining the amount of educational resources available in families (Gamoran, 2001; Lareau, 2000). In settings where men's migration precedes women's international migration, mother's marriage behavior influences her ability to relocate her children to a country with greater educational opportunities. At the population level, these characteristics affect the distribution of schooling in the next generation by determining the number and types of potential parents present in each country (Mare and Maralani 2006).

Mexican migration to the U.S. is highly selective in terms of women's marital status. This selectivity is attributable to Mexican cultural norms on women's vulnerability and family honor as well as U.S. immigration policies with a strong emphasis on family reunification (Curran and Rivero-Fuentes 2003; Donato et al. 2008). In Mexico, women are perceived to face greater risks when migrating to the U.S. compared to men (Cerruti and Massey 2001; Curran and Rivero-Fuentes 2003; Donato et al. 2008). As a result, women are considerably less likely to

migrate than men and when they do, they usually migrate as the spouse of legal migrants under the family reunification policy (Donato et al. 2008).

Migration and Fertility. Differential fertility among immigrants, non-migrants in the country of origin, and the native born in destination countries affects population size and composition of the country of origin and destination countries in important ways. At the individual level, mother's fertility affects the amount of resources available for each child in the family by determining the number of siblings with whom the child has to share the family resources allocated towards childrearing (Blake 1989). At the population level, differential fertility determines the number of children born to and raised by parents with certain demographic profiles in the population (Mare and Maralani 2006).

Prior work has extensively shown that Mexican migration to the U.S. alters women's fertility behavior. For non-migrant wives with migrant men, migration temporarily depresses fertility levels but does not reduce their fertility over the long-term (Massey and Mullen 1984; Lindstrom and Saucedo 2002). Immigrant women depress their fertility in anticipation of migration; resume (and even accelerate) their fertility in the earlier stages of migration; and decrease their fertility once they assimilate into the U.S. society (Choi 2010; Parrado and Morgan 2008). Before Mexico underwent their demographic transition, non-migrants in Mexico had substantially higher fertility compared to all U.S. residents, including Mexican immigrants (Rindfuss and Sweet 1977; Bean and Swicegood 1985). Among U.S. residents, Hispanic women, especially Mexican immigrants, had the higher fertility rates than other native born women Bean and Swicegood 1985). In recent decades, Mexico underwent a dramatic decrease in fertility, and today, Mexican immigrants have higher fertility rates than both: non-migrants in Mexico and the native born in the U.S. (Frank and Heuveline 2005; Choi 2010). The higher fertility rates of

Mexican immigrants ensure that their offspring are represented in higher numbers in the U.S. population compared to other groups who reproduce at lower rates. Furthermore, the higher fertility rates of Mexican immigrants suggest that migration reduces Mexican population size through out-migration as well as a reduction in the number of offspring born to the next generation.

International Migration and Intergenerational Transmission of Education. Families transmit their unequal position, statuses, and resources to subsequent generation, including their educational advantage (Blau and Duncan 1967; Mare and Maralani 2006). Migration facilitates (or impedes) the process by which parents transmit their educational resources to their offspring.

Evidence is mixed as to how migration affects the educational attainment of the offspring who remain behind in the country of origin. Some studies show that the migration of a family member, usually the father, has beneficial effects on their offspring's educational attainment because it increases the amount of educational resources available in their families (Antman 2007; Hanson and Woodruff 2003). In contrast, other studies show that migration has adverse effects on the offspring's education because it separates a child from their parents. According to these studies, the negative psychic costs of parental separation outweighs the beneficial effects of remittances (Kandel and Kao 2000; McKenzie and Rapoport 2006). Migration may also depress offspring's education by offering them an alternative venue for social mobility, and thus, removing incentives to attain higher levels of education (Kandel and Kao 2000).

There are also mixed accounts regarding how migration affects the educational attainment of immigrant children. Migration from Mexico to the U.S. exposes the immigrant children to an environment with greater educational opportunities. Perhaps because of this exposure, individuals of Mexican descent have higher levels of education compared non-

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migrants in Mexico (Duncan and Trejo 2007). Nonetheless, individuals of Mexican descent have lower levels of education than other U.S.-born groups (Grogger and Trejo 2002; Telles and Ortiz 2008). Whether this gap persists across generations is unclear. Some researchers argue that this gap persists over time (Telles and Ortiz 2008). Other researchers argue that the educational gap ceases to exist over time if generational status is measured appropriately using biological instead of synthetic generations (Smith 2003).

Rationale for Studying International Migration as a Cross-National Phenomenon

International migration is a cross-national phenomenon that connects the countries of origin and destination. As a result, decisions to migrate or engage in return migration is driven by the "push factors" in the country of origin and the "pull factors" of destination countries (Massey et al. 1993). In addition, how immigrants fare in destination countries is also contingent upon (1) the amount of human capital they bring from the country of origin; (2) the social, political, and economic circumstances that motivate migration; and (3) the social, political, and economic circumstances that they face in destination countries (Portes and Zhou 1993; Telles and Ortiz 2008; Zhou 1997).   Additionally, how non-migrants fare is determined by (1) the characteristics of individuals who remain in the country of origin; (2) how selective they are; and (3) whether and to what extent they benefit from remittances. Despite the many connections spanning the country of origin and destination countries, empirical work on migration is country-specific due to the absence of longitudinal data tracking the behavior of immigrants across national boundaries. Although country-specific studies offer valuable insights about the international migration process, they often render a segmented picture of the impact of migration by failing to capture the processes outside of the country in observation.

Country-specific studies of immigrant adaptation lack the ability to observe the pre-migration behavior of immigrants. As a result, these studies often resort to documenting the degree to which the socio-demographic behavior of immigrants converges with those of native born groups over time (e.g. Ford 2000; Carter 2000; Telles and Ortiz 2008). Their inability to observe the pre-migration behavior of immigrants precludes them from ascertaining the degree to which the observed difference between immigrants and native born groups can be attributed to "migrant selectivity" instead of the "effects of migration". To accurately ascertain the consequences of migration, studies should be able to compare the pre-migration and post-migration behavior of immigrants.

Analogous studies on the consequences of migration for sending communities cannot observe the post-migration behavior of immigrants. Therefore, in order to estimate the aggregate consequences of migration, these studies either rely on comparisons of return migrants and non-migrants or assess the socioeconomic impact of remittances by documenting differences between families with a migrant and non-migrant member(e.g. Frank and Wildsmith 2005; Hanson 2007; Kanaiaupuni and Donato 1999). Yet, in the context of Mexican migration to the U.S., relying on comparisons of the behavior of return migrants and non-migrants may be problematic as "return migrants" may serve as a poor proxy of "all out-migrants". This is because return migration selects out-migrants at the extreme: those who failed to obtain employment with reasonable wages in the U.S. and (2) those who amass substantial savings in the U.S. and return to Mexico to enjoy the lifestyle offered by these savings (Borjas 1987). At the aggregate level, this approach also fails to fully assess the impact of Mexican migration because it precludes an important actor of this process: "immigrants residing in the destination country". Studies examining the socioeconomic consequences of remittances also offer incomplete and inaccurate

estimates of the consequences of migration by ignoring the offsetting effects of the psychic costs of migration.

Together, these observations call for a comprehensive analysis that simultaneously considers what social processes in the country of origin motivate migration; how selective is the migration process; and how the social conditions in the countries of origin and destination interact with one another to shape the social outcomes of non-migrants in the country of origin, immigrants, and the native born.

MODEL OF MIGRATION AS A CROSS-NATIONAL PHENOMENON

We construct a demographic model that describes how international migration influences educational composition of the next generation in the country of origin and destination countries. This model captures the combined effects of four complex and interrelated processes: (1) international migration; (2) intergeneration transmission of education (i.e. the extent of educational mobility across generations); (3) differential fertility; and (4) marriage and assortative mating.

Our model examines how international migration affects the process by which a generation of women with varying levels of education produces a generation of offspring with varying levels of education. It can be expressed mathematically as follows:

$$C_t = \sum_{e=0}^{3} \sum_{m=0}^{2} \sum_{a_1=0}^{3} \sum_{a_2=0}^{1} \sum_{r=0}^{1} \sum_{j=0}^{4} p_{m|e}^{M} \cdot p_{a_1|me}^{A_1} \cdot p_{a_2|me}^{A_2} \cdot p_{r|a_1 a_2 me}^{R} \cdot r_{r a_1 a_2 me}^{F} \cdot p_{t|r a_1 a_2 me}^{T} \cdot W_e$$

Equation 1

where C_t is the number of children with education t; $p_{m|e}^{M}$ denotes the probability that a woman with education e has marital status m; $p_{a1|me}^{A1}$ denotes the probability that a woman with education e and marital status m is married to a man with level of education a_1; $p_{a_2|me}^{A_2}$ denotes

the probability that a woman with education e and marital status m is married to a man with migration status a_2; $r^F_{ra_1a_2me}$ denotes the number of offspring that a woman who has education e, marital status m, migration experience r, and a husband with education level a_1 and migration experience a_2 has throughout their reproductive years; and $p^T_{t|ga_1a_2m}$ denotes the probability that an adult offspring whose mother has education level e, marital status m, migration experience r, husband with education level a_1 and migration status a_2 achieves educational attainment t.

How migration affects the educational attainment of the next generation deserves special mention. For non-migrants in Mexico, $p^R_{r|a_1a_2me}$ denotes the probability that a woman with levels of education e, marital status m, and husband with education a_1 and migration status a_2 remain in Mexico. For Mexican immigrants in the U.S., $p^R_{r|a_1a_2me}$ denotes the conditional probability of migrating from Mexico to the U.S. Non-Mexican women in the U.S. are not at risk of migrating from Mexico to the U.S.; and therefore, migration is not a dimension of the process by which they affect the educational attainment of the next generation in the U.S. Non-migrants in Mexico and the native born population in the U.S. complete their education, get married, complete their fertility, and educated their offspring in their countries of birth. Mexican immigrants complete their education and marry in Mexico, but they migrate, complete their fertility, and educated their offspring in the U.S.

This model adapts the **Mare-Maralani Population Renewal Model**, which explores how the demographic processes contribute to the reproduction of education, to investigate how international migration influences the educational composition of the next generation (Mare and Maralani 2006). The unique contribution of our model is that we incorporate "international migration" as an important determinant of the population composition of countries with high levels of migration. Doing so involves expanding the analyses beyond the country level and

exploring how the social, economic, and demographic processes of the country of origin and destination country work together to engender the aggregate socioeconomic characteristics of both countries. Population renewal models allow for a more comprehensive assessment on the aggregate consequences of migration by providing a unique venue to assess how the various socio-demographic processes in the country of origin and destination country fit together to engender the educational composition of both countries. In the absence of longitudinal data observing the behaviors of immigrants, non-migrants, and the native born across the distinct stages of the migration process, this method offers a unique opportunity to assess the "long-term" impacts of social and demographic events taking place in both sides of the border. Furthermore, it also recognizes that life events, which occur early in life, have trickle down effects on later life events and allows us to capture the effects that accrue indirectly via these later life events. For instance, our model recognizes that changes in the education of the country of origin also affect the marriage, assortative mating, migration, fertility, and intergenerational transmission of education of the Mexican origin population and allows us to the capture these indirect effects.

Nonetheless, the ability to consider many facets of the link between international migration, women's demographic behaviors, and the adult offspring's schooling comes at the cost of being able to incorporate some of the complexity associated with other processes shaping the educational attainment of the next generation. We make the following simplifying assumptions. First, we assume a unidirectional order of causality between marriage, migration, and intergenerational transmission of education. Specifically, we assume the following

sequencing of life events: (1) a woman completes her schooling before any other life events[1]; (2) a woman's education affects whether and whom she marries, measured by her husband's education and migration experience; (3) a woman's schooling, marital status, and her husband's characteristics affects whether she migrates to the U.S.[2]; (4) a woman's schooling, her marital status, her husband's characteristics, and her migration status affect her fertility behavior; and (5) parent's education, parent's migration, and number of siblings affect each adult offspring's education. Second, we also assume that the educational characteristics and migration status of women's current husband is equivalent to the corresponding characteristic of the "social father" of her children. Third, because our model is a single-sex model, we treat men's characteristics as aspects of women's marriage choices. Fourth, to be able to model each process separately, we assume that individuals within the joint categories of independent variables are "homogeneous" and there is no common "unobserved" factor affecting marriage, migration, fertility, and intergenerational transmission of education. Lastly, we assume that mothers and children migrate together. Therefore, women who are residing in Mexico can only contribute towards the

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[1] Authors' calculations reveal that non-migrant women born in Mexico average 8.8 years of education.

[2] Mexican migration to the U.S. is characterized by the circular migration of men and the permanence of women and children in sending communities (Cerrutti and Massey 2001; Frank and Wildsmith 2005). Mexican women's migration to the U.S. is usually preceded by the migration of their spouses (Cerrutti and Massey 2001). Using the Mexican Migration Project (MMP), a dataset with retrospective data on marriage and migration dates, our calculations show that 62% of women born between 1931 and 1964 were married before they initiated their migration.

next generation in Mexico; whereas, women who are residing in the U.S. can only contribute towards the next generation in the U.S.

DATA, SAMPLE, AND ESTIMATES

In this section, we describe how we estimate the various components contributing to the process by which international migration affect the educational attainment of the next generation in the country of origin and destination country. The estimated probabilities, rates, and numbers are combined in the manner specified in Equation 1 to obtain the educational attainment of the next generation in Mexico as well as the Mexican immigrant, Hispanic, and the entire population in the U.S.

Education, Marriage, and Assortative Mating

Data. To describe patterns of marriage and assortative mating, we combine data from the following datasets: (1) the 5% IPUMS sample of the 1990 U.S. Census; (2) the 10% IPUMS sample of the 1990 Mexican Census; (3) the 5% IPUMS sample 2000 U.S. Census; (4) the 10.6% IPUMS sample of the 2000 Mexican Census; and (5) the Mexican Migration Project (MMP). The censuses include information about the sex, age, education, marital status, and migration status of all the members of the sampled households. The IPUMS also includes a "spouse locator" allowing us to link individuals with their spouses, if they residing in the same household. The retrospective histories from the MMP include detailed information about the characteristics of the household heads and their spouses, even if the spouses were absent due to migration.

Using the individual level data available in the distinct censuses, we are able to estimate the distribution of education and marriage rates for women residing in Mexico and the U.S. as well as the educational characteristics and migration status of resident husbands. However,

because the census does not collect information on the characteristics of non-resident spouses, we also use data from the MMP to impute the distribution of husband's characteristics for the sample of married women of Mexican descent with absent husbands.

Sample. We compute the distribution of women's education, probabilities of marriage, and husband's characteristics for the following subsamples of women: (1) women born in Mexico between 1931 and 1951 and living in Mexico and the U.S. in 1990; (2) women born in Mexico between 1932 and 1964 and living in Mexico and the U.S. in 2000; (3) women born outside of Mexico between 1931 and 1951 and living in the U.S. in 1990; (4) women born outside of Mexico between 1952 and 1964 and living in the U.S. in 2000; (5) women born outside of Mexico between 1931 and 1951, who self-identify as Hispanics, and live in the U.S. in 1990; and (6) women born outside of Mexico between 1952 and 1964, who self-identify as Hispanics, and live in the U.S. in 2000[3]. The restrictions by birth cohort ensure that the sampled women were at risk of giving birth to the sample of adult offspring described below. It also yields three subsamples: 1,304,945 women born in Mexico; 81,933 non-Mexican Hispanics, and 2,853,709 non-Mexicans in the U.S.

In subsequent analysis, select combinations of these subsamples are also used to obtain each of the estimates for migration, fertility, and intergenerational transmission of education. In the remainder of this paper, we refer to the women in subsamples (1) and (2) as "Mexican immigrants", those in samples (5) and (6) as "Non-Mexican Hispanics; and those in subsamples (3) to (6) as "Non-Mexicans".

Measures.

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[3] Non-Mexican Hispanics include all Hispanics with the exception of Mexican immigrants.

Women's education classifies each respondent into one of four categories of education (<9; 9 to 11; 12; ≥13). We exclude cases with missing information on women's education.

Marital status categorizes each respondent into one of three categories of marital status (never married, married, and separated, divorced, or widowed[4]).

Husband's education categorizes each married respondent into one of five categories in accordance to their husband's education (<9; 9 to 11; 12; ≥13).

Husband's migration status categorizes each married respondent as the wife of a migrant (i.e. husband was born in Mexico but living in the U.S. at the time of survey) or the wife of a non-migrant.

We impute the educational characteristics and migration statuses for non-resident husbands. For women who are residing in the U.S., we assume that the education-specific probabilities of having a husband with certain levels of education and migration status are the same regardless of the presence of their husbands. For women who are residing in Mexico, we impute the educational characteristics and migration status of absent husbands using the retrospective histories of marriage and migration from the Mexican Migration Project (MMP).

Estimation. The estimates below are computed separately for women born in Mexico, Non-Mexican Hispanics in the U.S., and Non-Mexicans in the U.S.

Women's marital status. We compute $p_{m|e}^{M}$ - the probability of being in a marital status- using multinomial logistic regression models that include women's education as a covariate.

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[4] The separated, widowed, and divorced categories are not included in the simulation analysis because I am unable to determine the timing of these events. Most women who report being separated, single, or widowed are "widows" who tend to be older than most women. We assume that their husbands died after their children were grown.

Husband's education. We compute - $p_{k|me}^{K}$ - the probability of marrying a husband with a higher level of education using ordered logistic regression models that include women's education as a covariate.

Husband's migration. We compute - $p_{g|me}^{G}$ -the probability of marrying a migrant husband using logistic regression models that include women's education as a covariate.

For unmarried women, $p_{k|me}^{K}$ and $p_{g|me}^{G}$ assume the value of 1 so they do not factor into our calculations of the distribution of schooling in the next generation of the various populations in consideration.

Migration

Data. To estimate migration rates, we combine the data available in (1) the 1990 U.S. Census; (2) 1990 Mexican Census; (3) 2000 U.S. Census; and (4) 2000 Mexican Census. The out-migration rates $p_{r|gkme}^{R}$ are computed by dividing the number of women born in Mexico who migrated into the U.S. by the number of women born in Mexico for each of the joint categories of women's education, marital status, and husband's characteristics. The women captured in the numerator are present in the U.S. census and the women captured in the denominator are present in the U.S. and Mexican censuses.

Sample. We restrict our Migration Sample to women born in Mexico (i.e. subsamples 1 and 2 above) as women born outside of Mexico are not at risk of migrating from Mexico to the U.S. This yields a sample of 1,304,945 women born in Mexico.

Measure.

Women's migration status categorizes each respondent as a migrant (i.e. women born in Mexico but living in the U.S. at the time of the survey) or a non-migrant.

Estimation. The out-migration rates contribute towards the education of offspring who grow up in the U.S. The rates of remaining in Mexico contribute towards the education of offspring who remain in Mexico.

Out-migration rates. We compute - $p^R_{r|gkme}$ - the probability of migrating from Mexico to the U.S.- using logistic regression models that include women's education, marital status, husband's education, and husband's migration as covariates.

Rates of remaining in Mexico. The probability of remaining in Mexico is computed by subtracting the out-migration rates from 1.

Fertility

Data. We combine data in (1) the 1990 U.S. Census; (2) the 2000 U.S. Census; (3) the 1990 Mexican Census; (4) the 2000 Mexican Census; and (5) the 1991-2000 NCHS's Vital Statistics Natality Data. All censuses with the exception of the 2000 U.S. census ask its female respondents to report the number of children ever born to them[5]. Vital statistics data collected information about mother's characteristics for all births occurring in a given year.

We estimate separate measures of fertility for women in distinct birth cohorts and countries of residence because the older cohort is old enough to experience their own or their spouse's death in 2000 and the younger cohort is too young to have completed their fertility in 1990. For the older cohort of women (i.e. women born between 1931 and 1951) who reside in Mexico, we use data from the 1990 Mexican Census. For the younger cohort of women (i.e. women born between 1952 and 1964), we use data from the 2000 Mexican Census. For the older cohort of women who reside in the U.S., we use data from the 1990 U.S. Census. For the

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[5] http://www.census.gov/population/www/cen2000/sptabs/faq.html

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younger cohort of women who reside in the U.S., we use data from the 1990 U.S. census and vital statistics data.

Sample. We compute distinct fertility rates for the women residing in Mexico, Mexican immigrants, Non-Mexican Hispanics, and Non-Mexicans in the U.S. Each subsample consists of 1,237,450 women residing in Mexico; 67,495 Mexican Immigrants; 81,933 Non-Mexican Hispanics; and 2,853,709 Non-Mexican women.

Measure. Number of offspring ever born is continuous variable reporting the number of offspring ever born to them by the time of the survey. It ranges from 0 to 12[6].

Estimation. We estimate - r^F_{rgkme} - the number of offspring ever born using poisson regression models that include women's education, marital status, husband's education, husband's migration, and women's migration status. For women in Mexico and the older cohort of women in the U.S., this provides the estimates used in the simulations. For the younger cohort of women in the U.S., we estimate the number of offspring born to these women in 1990 and inflate the values using a ratio of the proportionate change in the number of offspring born to these women between 1990 and 2000[7].

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[6] The 1990 U.S. census combines 12 or more births into one category. To ensure consistency in our analysis, we also assume that the maximum number of offspring is 12.

[7] $\text{Ratio}_{ek} = \dfrac{\text{No. of offspring born with education e and migration k to women in 2000}}{\text{No. of offspring born with education e and migration k to women in 1990}}$. We compute the numerator by adding the number of offspring born to women in 1990 and the additional number of births a woman can have between 1991 and 2000.

Intergenerational Transmission of Education

     Data. We use information available in the Mexican Family Life Survey (MxFLS) to obtain estimates about the educational attainment of offspring in Mexico. The MxFLS is a longitudinal, nationally-representative survey of 35,000 individuals who are in 8,400 households in Mexico (Rubalcava and Teruel 2007). It includes detailed information on the socio-demographic characteristics and histories of marriage and migration for all household members. It also collected retrospective fertility histories for women between the ages of 15 and 49. .

     We use information from the National Longitudinal Survey of Youth 1997 (NLSY97) to obtain analogous estimates for the offspring in the U.S. The NLSY97 is a nationally representative survey of 8,984 American youth born between 1980 and 1984. The NLSY97 includes information about the social and demographic characteristics of the sampled individual as well as the respondent's parents including their place of birth, levels of education, age, and whether they co-reside with the respondent.

     Sample. The offspring contribute to the aggregate levels of education in their country of residence. Our sample of offspring in Mexico consists of 2,942 individuals born between 1974 and 1984 [8] whose mothers were born between 1931 and 1964. Our sample of offspring in the U.S. consists of 6,848 individuals born between 1980 and 1984 whose mothers were born

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[8] We made efforts to restrict our sample of offspring in Mexico to those born between 1980 and 1984 in order to conduct analysis on the same birth cohort of offspring residing in Mexico and the U.S. Combined with restrictions on mother's year of birth, this yields far too few offspring born to migrant husbands to obtain reliable estimates of offspring's education. The inclusion of offspring born between 1974 and 1979 understates offspring's education and the degree of the educational mobility between parents and offspring who remained in Mexico.

between 1931 and 1964 (388 offspring of Mexican immigrants[9]; 6,460 offspring of non-Mexicans; and 618 offspring of non-Mexican Hispanics).

Measure. We categorize adult offspring into one of four categories of offspring's education (<12; 12; 13 to 15; ≥16). We use different categories for women's and offspring's education in consideration of the educational expansion across our two generations of interest.

Estimation. We estimate - $p^J_{j|gkim}$ - the probability that children attain a certain level of education using ordered logistic regression that include mother's education, mother's marital status, mother's migration status, father's education, father's migration, and number of siblings as covariates. We use the term "intergenerational transmission of education" to refer to this association between parents' and offspring's characteristics. This component (i.e. the effect of parental migration on educational mobility across generations) has been the central focus of prior work.

RESULTS

Descriptive results

Table 1 compares the socio-demographic characteristics for the women in the distinct subpopulations. Our results reveal that women born in Mexico have considerably lower levels of education compared to non-Mexican women. 70 percent of women born in Mexico completed fewer than 9 years of schooling compared to 20 percent of non-Mexican Hispanics and 4 percent of Non-Mexicans with analogous levels of education. Among the women born in Mexico, those

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[9] The public use files of the NLSY97 do not provide information on mother's country of birth. Therefore, individuals are classified as the offspring of Mexican immigrant parents if the respondent's parent self-identified as "Mexican, Chicano, or Mexican American" and reported being born outside the U.S.

who migrate have higher levels of education than do their non-migrant counterparts, suggesting that Mexican migration to the U.S. is positively selective in terms of education.

Table 1 goes here.

Not surprisingly, Mexican immigrants are more likely than their non-migrant counterparts to have transitioned into marriage. While 91 percent of Mexican immigrants had transitioned into marriage, only 82 percent of non-migrants in Mexico had done so. The likelihood of having ever transitioned into marriage is virtually the same between Mexican immigrants and all non-Mexicans in the U.S., who are largely comprised on non-Hispanic Whites. This pattern is consistent with previous findings that show that Mexican immigrants have virtually the same marriage rates as non-Hispanic Whites despite their disadvantageous socioeconomic positions in the U.S. (Oropesa 1996; Landale et al. 2008). Non-Mexican Hispanics are less likely than women in the other groups to be married, a trend that is attributable to the prevalence of cohabitation among this population (Landale et al. 2008).

Next, we conducted comparisons of husband's characteristics for the subsample of married women. The distribution of husband's education mirrors closely the distribution of women's education; and thus, educational differences observed for women in the distinct subpopulations also apply to husband's education. Comparisons between women's and husband's education reveal that Hispanic women average fewer years of education than their married counterparts; whereas, the opposite is true for non-Mexican women. Mexican immigrants are considerably more likely than other women to be married to a migrant husband.

Non-migrants in Mexico have higher fertility rates compared to Mexican immigrants and non-Mexicans in the U.S.[10], which is consistent with earlier findings on the fertility of women who spent their reproductive years before the Mexican demographic transition. In line with prior findings, Mexican immigrants have substantially higher fertility than other women in the U.S. While non-Mexicans average approximately 2.5 children, Mexican immigrants average 4.0 children, which is much more similar to the fertility of non-migrants in Mexico who average 4.5 children.

Across all subpopulations, offspring attain higher levels of education than their parents. For instance, only 14 percent of Mexican immigrant women at least obtained some college education (13+ years of schooling); whereas, 55 percent of the offspring born to Mexican immigrants obtained some college education.   This compares to 53 percent of non-Mexican women who at least obtained some college education and 64 percent of the offspring born to these women who obtained the some college education. Although the magnitude of the educational mobility between parents and offspring are larger for the population of Mexican origin, the magnitude of the increase is not large enough to overcome the educational inequality observed in the parent's generation.

Parameter estimates

This section presents the parameter estimates for the various components of our model: marriage, assortative mating, migration, fertility, and intergenerational transmission of education. The parameter estimates are later used to compute the predicted probabilities, numbers, and

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[10] For U.S. residents, we only report the fertility estimates obtained for the older cohort. This is because the 2000 U.S. Census does not include data on the number of children ever born to women.

rates. These predicted values are combined in the manner specified in Equation 1 to obtain the "baseline" and "simulated" probabilities of each offspring attaining a certain level of education.

Table 2 displays the parameter estimates for models of marriage and assortative mating for each subpopulation. We first document variations in women's marital status depending on their education. For all three subpopulations, the likelihood of being married tends to increase with women's education, peaks at 12 years of schooling, and decreases among the college educated. The odds of marrying over remaining single are approximately 33 percent [exp(0.09-(-0.20))-1] higher for women born in Mexico with only a high school education than for the college educated. For the most part, this pattern also holds for women who are separated, divorced, and widowed. This pattern probably reflects educational differences in the likelihood of transitioning into marriage.

Women with higher levels of education are more likely to marry compared to their lesser educated counterparts as they represent more attractive mates in the marriage markets (Choi and Mare 2008). This trend ceases to hold for college educated women, who can afford to forego marriage to avoid the highly gendered social relationships within Mexican families (Hondagneu-Sotelo 1994).

Table 2 goes here.

Next, we describe how husband's education and migration status differs by women's education. Women in the three distinct populations exhibit strong preferences for positive assortative mating with regards to education. The odds of a woman marrying into the next highest category of husband's education are 4 times [exp (3.59-2.16)] greater for non-Mexican Hispanics with some college education than for their co-ethnics who are high school graduates.

The pattern is consistent with past findings documenting strong preferences for educational homogamy in Mexico and the U.S. (Choi and Mare 2008; Mare 1991; Esteve 2005).

We also documented educational differences in the likelihood of marrying a migrant spouse for the women in the distinct populations. For women born in Mexico, the odds of being married with a migrant husband increase with women's education, peaks at 12 years of schooling, and decreases among the college educated to levels that are lower than those who have less than 9 years of schooling. The odds of marrying a migrant husband spouse are 2 times [exp(0.80)] greater for high school graduates and 5 percent [exp(-0.05)] lower for college graduates than for those who complete less than 9 years of education. This pattern is attributable to educational homogamy and educational variations in men's willingness to migrate. Among non-Mexicans, the likelihood of marrying a migrant husband decreases monotonically following increases in women's education. This pattern likely arises because of the heavy concentration of Mexican men in the lowest category of husband's education. Among non-Mexicans, the odds of marrying a migrant spouse are higher across all categories of education for Hispanics than for the rest of the population.

Table 3 displays the parameter estimates for the migration and fertility component of our analysis. The analysis predicting women's migration status is restricted to the population of women born in Mexico because non-Mexicans are not at risk of migrating from Mexico to the U.S. Husband's migration status is the single most important determinant of women's migration, which is consistent with research showing that women's migration is preceded by their husband's migration (Cerrutti and Massey 2001). Specifically, the odds of migration are 138 times [exp(4.93)] greater for women with migrant husbands than for other women. Once we control for husband's migration status, the likelihood of migration for women increases

monotonically with increases in husband's education. The odds of migration are 4.5 times [exp(1.51)] greater for women married to college graduates than for women married to men with fewer than 9 years of schooling. Net of husband's characteristics, a clear association between women's education and her migration status fails to emerge.

Table 3 goes here.

Next, we explore differences in the number of offspring ever born to women depending on their education, marital status, and husband's characteristics. These analyses are run separately for four subpopulations: (1) non-migrants in Mexico; (2) Mexican immigrants; (3) Non-Mexican Hispanics; and (4) all Non-Mexicans in the U.S. We further separate the subsample of women born in Mexico depending on their country of residence because we assume that women only contribute offspring towards the next generation of their country of residence. For all four subpopulations, the number of offspring decreases monotonically with increases in women's education. Never married women have considerably lower fertility than their married counterparts. Yet, the size of the fertility differentials between married women and "separated, divorced, and widowed" women differs across the subpopulations. Specifically, the fertility of non-migrants in Mexico and non-Mexicans, who are separated, widowed, or divorced, are lower than the fertility of their married counterparts. However, among Mexican immigrants and non-Mexican Hispanics, fertility rates do not differ between married and separated, divorced, or widowed women.

Husband's characteristics also affect women's fertility behavior in important ways. Women's completed fertility is negatively correlated with husband's education, but the effect of husband's education on fertility is smaller than the effect of women's education. Among non-

migrants in Mexico, women with migrant husbands have fewer children than do others. Yet, among U.S. residents, those with migrant husbands have more children than do others.

Table 4 reports parameter estimates describing patterns of intergenerational transmission of education. Parents' education has strong positive effects on children's education. The effects are especially large for the highest category of father's and mother's education (i.e. 13 or more years of schooling). The odds that offspring are in a higher rather than a lower category of education are 7 times [exp(1.97)] greater for the offspring of non-migrant mothers who have some college education than for their counterparts with less than 9 years of schooling. For the offspring of women born in Mexico, mother's education has a stronger effect on offspring's education than father's education. In contrast, for the offspring of non-Mexican women, father's education has a stronger effect on offspring's education than mother's education. Number of siblings is negatively correlated with offspring's education for the offspring born to the four distinct populations of women.

Table 4 goes here.

These results provide a segmented picture of how migration affects the degree of educational mobility across generations. In most analyses of the consequences of international migration, the parameters of equations predicting offspring's education from parents' characteristics (i.e. the transmission) are used to evaluate the effect of changes in the size or composition of migration on the distribution of schooling in the next generation. To assess the overall effect of international migration, however, it is necessary to also consider the joint compositional effects of international migration, fertility, and marriage.

SIMULATIONS

We simulate policy interventions that alter the size and composition of the migration flows between Mexico and the U.S. and estimate the effect of the distinct policy interventions on the distribution of schooling in the next generation for four subpopulations: (1) non-migrants in Mexico, (2) Mexican immigrants in the U.S., (3) Hispanics in the U.S[11]., and (4) the entire U.S. population. We describe in greater detail how we implement each simulation below.

Simulation 1. Changes in the size of the migration flow

Description. The first set of simulations assesses the impact of increases in the size of the migratory flows from Mexico across all categories of women's education. We simulate three scenarios of increases in the size of migratory flows. The first scenario simulates a 25 percent increase in women's out-migration rates, which approximates the rate of increase in the size of foreign-born Hispanic population between 2000 and 2008 (Passell 2010: Table 2). The second scenario assesses the impact of Mexican migration to the U.S. in the event that the actual size of the migration flows from Mexico catches up to the exaggerated levels in line with public perception. Americans perceive immigrants to be 35 percent of the entire U.S. population, which is 2.5 times greater than the 14 percent estimated by official statistics (German Marshall Fund 2009: Chart 3). As Mexican immigrants constitute 32 percent of the foreign-born population, this means that 11.2 percent of the entire U.S. population would be comprised of Mexican immigrants if these rates were to be true (Passel and Cohn 2009). In this simulation, we raise the proportion of Mexican immigrants in the U.S. population to levels akin to public perception, which means augmenting the out-migration rates uniformly by 367 percent. The third scenario

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[11] The distribution of schooling in the next generation is estimated separately for non-Mexican Hispanics in the U.S. and Mexican immigrants. We combine these two estimates using weights that reflect the presence of Mexican immigrants in the Hispanic population in the U.S. We compute estimates for the entire U.S. population in an analogous fashion.

simulates a 40 percent drop in women's out-migration rates, which is equivalent to the decline in migration rates between 2006 and 2009 following the economic recession (Passel and Cohn 2009: Figure 1). When we do this, we assume a uniform increase across the distinct categories of women's education.

Our results are presented in the form of ratios dividing the percentage of offspring in the distinct educational categories obtained under the simulated distribution of offspring's education by the analogous percentages obtained under the baseline distribution of offspring's education. The simulated distribution of offspring's education replaces the existing percentages by the migration rates assumed in each simulation scenario. The baseline distribution of offspring's education assumes there are no changes in the marriage, assortative mating, migration, fertility, and intergenerational transmission and combines the predicted values in the manner specified by Equation 1 to obtain the predicted distribution of schooling in the next gernation. We assume that the "new migrants" engage in the fertility and transmission behaviors dictated by their newly assigned migration status. A ratio greater than 1.0 indicates an increasing percentage of offspring in that educational category.

Results. Table 5 shows the estimated effects of changes in the size of the migration flow. Overall, we find that increases in the size of the migratory flow depress the education of offspring born to Hispanic mothers and the entire next generation in the U.S., but has minimal effects on the education of offspring born to Mexican mothers. We first present the results for the scenario where out-migration rates increase by 25 percent. The percent of college graduates decreases by 5.4 percent for the offspring born to Hispanic mothers. The size of the increase, however, is not large enough to affect the educational distribution of the entire next generation in the U.S. Consistent with the overall patterns, a mere change in the size of the migration flow

from Mexico to the U.S. has little effect on the education of offspring born to Mexican mothers. Specifically, the percentage of college graduates decreases by 0.4 percent for the offspring in Mexico and 1.4 percent for the offspring of Mexican immigrants.

Table 5 goes here.

Next, we present the results for the scenario where out-migration rates increases by 367 percent. Because the change simulated under this scenario represents a more dramatic increase, it has more pronounced effects on the education of offspring across all subpopulations. Nonetheless, the effects of a uniform increase in the out-migration rates of Mexican women with differing levels of education has a more profound impact on the education of offspring born to Hispanic mothers and the entire next generation in the U.S.. Following such an increase in the size of the migratory flows, the percent college educated decreases by 15 percent among the offspring born to Hispanic mothers and 7.5 percent for the entire next generation. Increases in the size of the migration flow further depresses the educational attainment of Hispanic and all offspring by increasing the salience of a population who average considerably fewer years of education than other U.S. groups. This effect is further accentuated by the fact that Mexican immigrants have higher fertility rates compared to Hispanics and other U.S.-born. Although the effects of this scenario of increase has more pronounced effects on the education of offspring born to Mexican mothers, sheer increases in the size of the migration flow continue to have limited effects on offspring born to Mexican mothers. The percentage of college graduates decreases by 2.1 percent for the offspring in Mexico and increases by 2.8 percent for the offspring of Mexican immigrants. Under this scenario, the education of the offspring of Mexican immigrants improves as a result of the heightened volume of migration. This exception likely arises because this scenario introduces large numbers of Mexican immigrants who are college

educated and these individuals are more likely than other parents to ensure that their offspring attain a certain level of education (See Table 4).

Our third scenario involves a forty percent reduction in the volume of migration. A reduction in the volume of migration increases the distribution of schooling in the next generation in Mexico and the U.S. The percentage of college graduates increases by 1.2 percent for the offspring of non-migrants in Mexico and 4.7 percent for the offspring of Hispanic mothers. The only exception to this pattern can be observed among Mexican immigrants for whom the percent of college graduates decreases by 0.5 percent. A reduction in the volume of migration increases the education of offspring who grow up in the U.S. by reducing individuals who have considerably lower levels of education than the native born. To a small extent, it raises the education of offspring in Mexico as it removes smaller numbers of a positively selected group of individuals.

Simulation 2. Changes in the composition of migration

Description. The second set of simulations assess the effect of a migration policy that alters the composition of the migration from Mexico to the U.S. Specifically, we simulate the effects of a migration policy ensuring that the educational composition of migrant populations are similar to those of the U.S. population and estimate its effect on the educational attainment of the next generation. For this simulation, we assume the educational characteristics and marriage behavior of women born in Mexico remains the same, but their migration rates are adjusted so that Mexican immigrants have the same distribution of schooling as those of non-Mexican Hispanics and all non-Mexicans in the U.S. When conducting these simulations, we assume that the overall size of the flow remains constant.

Results. Table 5 also presents the results. We find that policy interventions that make Mexican migration to the U.S. more selective in terms of education depress levels of education of offspring who remain in Mexico, but improve the education of all offspring who grow up in the U.S. If Mexican immigrants were to have the educational characteristics of non-Mexican Hispanics, the the percent of college graduates will decrease by 13 percent for the offspring in Mexico and increase by 27 percent for the offspring of Mexican immigrants and 9 percent for the offspring born to Hispanics. Scenarios in which the educational composition of Mexican immigrants mirrors those of all non-Mexicans in the U.S. yield very similar results. The size of the effect is slightly larger reflecting the fact that Hispanics have lower levels of education compared to non-Hispanics. This finding is unsurprising as the simulated intervention is making the flows of migration from Mexico more positively selected groups of individuals. Moreover, because the skills and educational credentials of these immigrants are equivalent to the native born population in the U.S., Mexican migration to the U.S. does not depress aggregate levels of education in the U.S.

Taken together with the results of Simulation1, these results suggest that educational consequences of migration accrue largely due to educational differentials among non-migrants, immigrants, and the native born. For the country of origin, only those policy interventions that alter the educational selectivity of migration will have an impact on the distribution of schooling in the next generation. For destination countries, policy interventions that alter the size of migration streams largely comprised of migrants with distinct levels of education as well as those altering the educational composition of migration will affect the distribution of schooling in the next generation. The size of the effect of such interventions will depend on the size of the migrant relative to the native born population as well as the magnitude of the shifts in migration.

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Simulation 3. Educational Expansion in Mexico

    Description. The third set of simulations assesses the effect of educational policies in Mexico and estimates their effect on the distribution of schooling in the next generation in Mexico and the U.S. The resulting changes in women's education will affect the size and composition of the migration flow as well as demographic behaviors, such as marriage and fertility, that help shape the educational attainment of the next generation in the country of origin and destination. We simulate two scenarios of increases in aggregate levels of education. The first scenario simulate the effects of the PROGRESA program, which is an antipoverty program in Mexico that provides aid to low income families that are contingent upon their children's regular attendance at school (Behrman et al. 2001). Prior work has found that participation in this program increases junior secondary school enrollment by 19 percent for children ages 14 (Behrman et al 2001). The first scenario improves the education of 19 percent of women who are in the lowest education category (i.e. < 9 years of education) and allows them to attain the next highest education (i.e. 9 to 11 years of education). This scenario roughly simulates the effects of PROGRESA participation when the participant children face the next educational transition: enrollment in upper secondary schooling.

    The second scenario simulates the impact of raising compulsory education from the lowest level of education (i.e. <9 years of schooling) to the adjacent education category (9 to 11 years of education). This roughly corresponds to raising the compulsory levels of education in Mexico, currently at junior secondary school, to include enrollment in the next highest level of education (i.e. upper secondary school) (Santibanez et al. 2005). Because only 85 percent of the U.S. population complies with rules that mandate high school education in the U.S., we also assume an 85 percent compliance rate for this mandate (Crissey 2009).

Results. Table 6 presents how increases in women's education in Mexico affect the distribution of schooling in the next generation in Mexico and the U.S. Not surprisingly, increases in women's education in Mexico have beneficial effects for the educational attainment of the next generation. Yet, the beneficial effects accrue mostly for the offspring of women born in Mexico and have minimal impact for the non-Mexican population in the U.S.

Table 6 goes here.

We assess how increasing the proportion of women enrolled in high school affects the distribution of schooling in the next generation. Increases in women's high school enrollment raises the percent of college graduates by 14 percent for the offspring who remained in Mexico; 3.4 for the offspring born to Mexican immigrants; and 1.2 percent for the offspring born to Hispanics. This policy has minimal effects on the distribution of schooling of Hispanic and U.S.-born populations because the shifts in education are occurring at such low levels of education. Moreover, educational increases for 19 percent of Mexican women in the lowest categories of education do not constitute a large enough increase to affect the education of offspring born to Hispanic mothers and the entire next generation in the U.S.

Next, we explore how a rise in the compulsory levels of education in Mexico affects the distribution of schooling in the next generation in Mexico and the U.S. Most of the effects accrue towards the schooling of offspring of women born in Mexico, especially those who remain in Mexico. A rise in compulsory levels of education increases the percentage of college graduates by 85 percent for offspring born in Mexico and 14 percent for offspring born in the U.S. The effects of this policy intervention have minimal effects for the offspring born to Hispanics and U.S.-born groups.

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In analysis unreported here, we found that only policy interventions that gives rise to a substantial increase in the percent of college educated women in Mexico has a large enough impact on the schooling of the offspring of Hispanics and the entire U.S. population[12].

SUMMARY AND CONCLUSIONS

Scholars and policymakers in both Mexico and the U.S. have long expressed concern over the detrimental effects of Mexican migration on the educational composition of future generations. The purpose of this paper is to assess how shifts in the size and composition of migration flow from Mexico affects the distribution of schooling in the next generation. To carry out this goal, we develop an innovative model of migration that allows us to explore how the socio-demographic processes in the country of origin and destination country affect the distribution of schooling in the next generation. Once developed, we use this model to simulate the effects of three policy interventions that alters the size and composition of the migration flows and estimate their impact on the schooling of offspring who remain as well as those who grow up in the U.S.

Our simulation reveal that increases that are uniform across the distinct categories of women's education has only a small impact on the schooling of offspring who remain in Mexico, but has has sizable negative effects on the distribution of schooling in the next generation in the U.S. It also shows that raising the educational characteristics of Mexican immigrants to levels similar to the native born in the U.S. seriously depresses aggregate levels of education in Mexico

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[12] We conducted several other simulations where we raise the levels of education of women in the lowest two categories of education and assigned them to a higher category of education. We also altered the magnitude of the affected parties. These results are available upon request from the authors.

and has strong positive effects on the aggregate levels of education in the U.S. Third, it reveals that the beneficial effects of increases in the educational characteristics of individuals in Mexico accrues mostly for the offspring of Mexican mothers and has very little impact on the educational distribution in destination countries. Taken together, our simulation results indicate that the educational consequences of migration arise due to the differentials in the levels of education among non-migrants, immigrants, and the native born. The magnitude of the educational consequences of migration depend on the size of the migrant population relative to the non-migrant (or native born) population as well as the degree of educational distance that exists among these populations.

Our results provide some support for the view that migration in its current level and composition depresses the educational attainment of the next generation in the U.S., but has limited effects on the education of offspring born in Mexico. This pattern likely arises because the educational distance between immigrants and native born is considerably larger than the degree of educational selectivity that governs Mexican migration.

The methodological approach presented in this paper is an effort trying to move away from a country-specific view of migration and instead treat international migration as a cross-national phenomenon that is driven and affected by the socio-demographic processes of both: the country of origin and destination. We do this because we recognize that migration interconnects communities in the country of origin and destination countries and the redistribution of the population across state boundaries has important implications for population size and composition. We urge future empirical work and data collections efforts to take this approach and make strenuous efforts to treat international migration as a cross-national phenomenon.

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Table 1. Percentage Distribution of Women's Education for Select Samples

	Subsamples				
	Non-migrant in Mexico	Mexican Immigrant in the U.S.	Women Born in Mexico	Non-Mexican Hispanics	Non-Mexicans in the U.S.
Women's education					
< 9	71	55	70	20	4
9 to 11	14	12	13	12	8
12	5	19	7	31	35
≥ 13	10	14	10	37	53
Total	100	100	100	100	100
Observations	1,237,450	67,495	1,304,945	81,933	2,853,709
Women's marital status					
Never married	18	9	17	12	9
Married	68	71	69	58	68
S/W/D	14	20	14	30	23
Total	100	100	100	100	100
Observations	1,237,450	67,495	1,304,945	81,933	2,853,709
Husband's Education					
< 9	67	53	66	18	6
9 to 11	13	11	13	11	8
12	5	18	7	28	30
≥ 13	14	17	15	43	57
Total	100	100	100	100	100
Observations	853,731	47,450	901,181	47,639	1,959,710
Husband's Migration					
Non-migrant	95	20	87	97	99
Migrant	5	80	13	3	1
Total	100	100	100	100	100
Observations	853,731	47,450	901,181	47,639	1,959,710
Women's Migration					
Non-migrant	-	-	90	-	-
Migrant	-	-	10	-	-
Total	-	-	100	-	-
Observations	-	-	1,304,945	-	-
Offspring's education					
< 12	63	20	-	15	14
12	13	24	-	27	23
13-15	1	33		29	24
≥ 16	22	22		28	40
Total	100	100		100	100
Observation	2,942	388		618	6,848
	Mean S.D.	Mean S.D.	Mean S.D.	Mean S.D.	Mean S.D.
Number of children					
Number of children	4.56 3.18	4.04 2.65	4.54 3.16	2.68 1.95	2.49 1.76
Observation	1,237,450	21,579	1,475,188	40,145	1,460,279

Notes: (1) Weighted Percentages; Unweighted Ns; (2) Estimates for husband's education and husband's migration are computed for a sample of married women; (3) For U.S. residents, fertility estimates are computed only for the older cohort of women.

Table 2. Parameter Estimates for Models of Marriage and Assortative Mating for Select Samples

Covariates	Marital Status (Multinomial Logistic)				Husband's Characteristics			
	Married over Never Married		S/W/D over Never Married		(Ordered Logit) Husband's Education		(Logistic) Husband's Migration	
	β	β/se	β	β/se	β	β/se	β	β/se
A. Women Born in Mexico								
Women's education (<9)								
9 to 11	0.05	5.54	0.07	6.52	2.30	313.22	0.30	27.60
12	0.09	6.79	0.23	14.11	3.10	298.90	0.80	59.92
≥ 13	-0.20	-21.75	-0.07	-5.81	3.78	334.69	-0.05	-3.38
Intercept								
Intercept	1.41	436.35	-0.20	-43.49	-	-	-2.44	-540.68
Log-likelihood		-11,654,053			-7,614,962		-265,324	
N		1,304,945				901,181		
B. Non-Mexican Hispanics in the U.S.								
Women's education (<9)								
9 to 11	0.11	2.68	0.10	2.28	1.05	28.98	-0.33	-3.35
12	0.62	18.39	0.28	7.76	2.16	66.96	-0.77	-9.40
≥ 13	0.61	18.88	0.17	4.82	3.59	98.13	-1.14	-13.36
Intercept								
Intercept	1.14	46.95	0.78	30.03	-	-	-3.01	-54.77
Log-likelihood		-1,678,132			-1,105,057		-118,438	
N		81,933				47,639		
C. All Non-Mexicans in the U.S.								
Women's education (<9)								
9 to 11	0.58	45.45	0.54	39.16	1.22	106.73	-0.80	-22.08
12	0.86	82.68	0.43	37.69	2.52	236.60	-1.80	-57.07
≥ 13	0.59	58.69	0.10	8.76	4.27	388.82	-2.20	-69.77
Intercept								
Intercept	1.36	143.57	0.70	68.04	-	-	-3.49	-139.81
Log-likelihood		-46,540,726			-33,880,530		-1,269,867	
N		2,853,709				1,959,710		

Notes: (1) Parameter estimates are weighted, but report unweighted Ns; (2) Cut point parameters in the ordered logit models; (3) Estimates for marital status are obtained for the entire sample of women; and (4) Estimates for husband's education and husband's migration are obtained for the sample of married women

Table 3. Parameter Estimates for Models of Women's Migration and Fertility for Select Samples

	Migration		Fertility: Number of Offspring Ever Born							
	(Logistic)		(Poisson Regression)							
	Women Born in Mexico		Women Residing in Mexico		Mexican Immigrant in the U.S.		Non-Mexican Hispanics		All Non-Mexicans	
	β	β/se	β	β/se	β	β/se	β	β/se	B	β/se
Women's education (<9)										
9 to 11	-0.30	-15.53	-0.43	-224.47	-0.15	-9.37	-0.11	-8.71	-0.06	-19.64
12	1.31	74.94	-0.61	-204.84	-0.25	-18.11	-0.31	-28.33	-0.29	-95.35
≥ 13	0.54	29.95	-0.51	-167.84	-0.34	-19.60	-0.46	-39.15	-0.46	-147.09
Marital Status (S/W/D)										
Never Married	1.63	74.45	-0.55	-223.30	-0.82	-21.67	-0.49	-20.09	-1.45	-164.15
S/W/D	2.72	140.97	-0.19	-104.82	0.05	3.28	0.01	0.63	-0.10	-33.53
Husband's education (<9)										
9 to 11	0.93	39.85	-0.29	-140.39	-0.14	-7.73	0.01	0.72	-0.05	-14.60
12	1.39	44.56	-0.30	-96.19	-0.17	-10.88	-0.04	-2.76	-0.10	-34.73
≥ 13	1.51	65.73	-0.25	-102.50	-0.21	-11.45	-0.01	-1.01	-0.12	-41.31
Missing										
Husband's Migration (Non-migrant)										
Migrant husband	4.93	284.08	-0.05	-15.83	0.16	11.63	0.02	0.64	0.13	12.40
Intercept	-4.65	-279.89	1.24	526.79	1.47	105.60	1.26	118.33	1.37	437.15
Log-likelihood	-137,100		-29,976,585		-1,005,309		-1,686,400		-52,619,512	
N	1,304,950		1,237,450		22,089		39,877		1,460,279	

Notes: (1) Parameter estimates are weighted; Unweighted Ns; (2) Cut point parameters in the ordered logit models are not reported; (3) Estimates for marital status are obtained for the entire sample of women; and (4) Estimates for husband's education and husband's migration are obtained for the sample of married women.

Table 4. Parameter Estimates for Models of Intergenerational Transmission of Education by Select Samples

	Intergenerational Transmission of Education: Effects of Parents on their Offspring's Education (Ordered Logit)							
	Offspring of Mothers in Mexico		Offspring of Mexican Immigrants		Offspring of Non-Mexican Hispanics		Offspring of All Non-Mexicans	
	β	β/se	β	β/se	β	β/se	β	β/se
Mother's education (<9)								
9 to 11	0.79	6.58	0.45	1.10	0.07	0.14	-0.34	-1.65
12	1.29	5.93	0.22	0.66	-0.59	-1.39	0.19	1.01
≥ 13	1.97	10.56	3.24	4.33	0.09	0.19	1.00	5.14
Mother's Marital Status (S/W/D)								
Never Married	0.08	0.75	0.77	2.13	0.75	2.66	0.79	10.54
S/W/D								
Father's education (<9)								
9 to 11	0.30	2.12	-0.07	-0.19	0.12	0.25	0.04	0.24
12	0.28	1.21	1.19	2.70	0.87	1.69	0.71	4.21
≥ 13	1.34	8.27	-0.36	-0.78	2.10	4.28	1.53	8.82
Missing			-0.17	-0.42	0.35	0.65	0.41	2.17
Father's Migration (Non-migrant)								
Migrant husband	0.23	0.75	-0.47	-1.60	0.28	0.48	0.04	0.16
Number of siblings								
Number of offspring	-0.18	-8.80	-0.13	-1.30	-0.24	-2.02	-0.22	-5.79
Intercept								
Log-likelihood	-2,419		-56,312,914		-81561239.00		-1,759,000,000	
N	2,942		388		618		6,460	

Notes: (1) Parameter estimates are weighted; Unweighted Ns; (2) Cut point parameters in the ordered logit models are not reported.

Table 5. Ratios of Simulated to Baseline Distributions of Offspring's Education for Select Samples: Changes in the Size of Migratory Flows and Composition of Migration

| Simulation/ Offspring's Education | Changes to the Size of Migration Flows | | | Changes in the Composition of Migration Flows | |
| | Perceived | | | Educ Composition of Hispanic | Educ Composition of Non-Mexicans |
	25 % increase	367 % increase	40% drop		
A. Flows of Migration					
A. Offspring residing in Mexico					
< 12	1.001	1.006	0.996	1.040	1.038
12	0.999	0.998	1.001	0.975	0.978
13-15	0.999	0.993	1.003	0.953	0.957
≥ 16	0.996	0.979	1.012	0.876	0.882
B. Offspring of Mexican immigrants in the U.S.					
< 12	1.005	0.881	1.002	0.865	0.859
12	1.005	0.962	1.002	0.897	0.887
13-15	1.003	1.073	1.001	0.972	0.964
≥ 16	0.986	1.028	0.995	1.273	1.302
C. Offspring of Hispanic Mothers					
< 12	1.061	1.074	0.943	0.924	0.921
12	1.006	0.977	0.998	0.954	0.950
13-15	1.015	1.115	0.987	0.987	0.983
≥ 16	0.946	0.850	1.047	1.093	1.103
D. Offspring residing in the U.S.					
< 12	1.011	1.090	0.993	0.995	0.994
12	1.003	1.035	0.998	0.997	0.997
13-15	1.007	1.105	0.996	0.999	0.999
≥ 16	0.992	0.925	1.005	1.003	1.004

Notes:

(1) Ratio is obtained by dividing the simulated distribution of offspring's education by the predicted baseline distribution of offspring's education

Table 6. Ratios of Simulated to Baseline Distributions of Offspring's Education for Select Samples: Changes in the Composition of Migration due to Shifts in the Distribution of Schooling in Mexico

Simulation/Offspring's Education	Offspring in Mexico	Offspring of Mexican Immigrants	Offspring of Hispanics	All Offspring in the U.S.
(1) Increase in HS enrollment				
< 12	0.949	0.964	0.980	0.999
12	1.053	0.980	0.991	0.999
13-15	1.088	1.012	1.006	1.000
≥ 16	1.141	1.034	1.012	1.000
(2) Compulsory: HS enrollment				
< 12	0.693	0.852	0.990	0.994
12	1.318	0.917	1.000	0.998
13-15	1.530	1.049	1.013	1.002
≥ 16	1.848	1.142	0.991	1.002

Notes:

(1) Trans: Intergenerational Transmission of Education; Mar: Marriage and Assortative Mating; Mig: Migration; Fert: Fertility; (2) Ratio is obtained by dividing the simulated distribution of offspring's education by the predicted baseline distribution of offspring's education