Mexican Adolescent Migration to the U.S. and Transitions to Adulthood[1]

René Zenteno, *Secretaría de Gobernación, México*
Silvia E. Giorguli, *El Colegio de México*
Edith Gutiérrez, *El Colegio de México*

March, 2011

ABSTRACT

Little systematic scholarly research has addressed the issue of adolescent migration and its interrelationships with other transitions in the life course. Using data from the Mexican Migration Project, we evaluate contemporary theories of international migration that account for the initiation of Mexican migration to the United States during adolescence and compare their results with those predicting migration at later stages of the life course. We hypothesize that the motivation for migrating will vary depending on the stage in the life course. If adolescent migration is seen as an individual decision linked to the process of gaining autonomy and to the expectations around the meaning of "becoming of age", a greater exposure to migration—either through family networks or at the community level—will have a greater impact on the probabilities of migrating. Economic variables usually linked to labor migration—such as wage differentials or the demand for capital—will gain relevance later in the life course, when they may be related to the formation and needs of an independent household. We estimate discrete-time-hazard models of the probabilities of a first migration using individual, household, community and macroeconomic variables. Most of the studies that have taken a similar approach concentrate only on men; in this paper, we include female migration in our analysis, and estimate separate models by sex. Finally, we also want to shed light on the extent to which adolescent migration is

[1] . Paper to be presented at the Annual Meeting o the Population Association of America, Washington D.C., April, 2011. A previous version of this paper was presented at the International Seminar on Youth Migration and Transitions to Adulthood in Developing Countries organized by the International Union for the Scientific Study of Population, Rio de Janeiro, Brazil, December, 2010.

influenced by other transitions in the life course such as entering the labor market, getting married or becoming a parent.

Mexican Adolescent Migration to the U.S. and Transitions to Adulthood

René Zenteno, *Secretaría de Gobernación, México*
Silvia E. Giorguli, *El Colegio de México*
Edith Gutiérrez, *El Colegio de México*

For the majority of Mexicans the transition into adulthood starts at very young ages. The first transitions Mexicans experience are linked to economic adult roles. At the turn of the century, close to twenty five percent of all adolescents had left school and one third of the boys were already working by age fifteen (Giorguli, 2010). In spite of the persistent flow of labor migration from Mexico to U.S. and its high prevalence during adolescence, the research on transitions to adulthood in the country has overlooked to what extent moving to U.S. may be linked to other changes and decisions during this stage in the life course—such as leaving school, entering the labor market or starting a union.

Following the contemporary theoretical approaches of labor migration, we would expect that differences in economic opportunities and the demand for capital, reinforced by the consolidation of social networks, would be driving adolescent as well as adult migration. Nonetheless, there may be other aspects particular to the teenage years that may be intervening in the decision to migrate to U.S. for the first time. For example, recent research has suggested that young people living in contexts with high migration prevalence leave school earlier and tend to have lower educational attainment (Giorguli et al, 2010; Giorguli and Serratos, 2009). Similar results have been found in households with migration experience (Meza and Pederzini, 2007; Rapoport and McKenzie, 2006).

Although the mechanisms that link an early dropout from school to the exposure to international migration are not clear, some hypothesis have pointed to the idea of a "culture of migration" that is built and institutionalized in settings with a long migratory tradition (Kandel and Massey, 2002; Kandel, 1998; Kandel and Kao, 2001; Lopez Castro, 2004). In such settings and in terms of the youth and the transitions to adulthood, migration may be incorporated as one of the desirable and possible options in the process of becoming of age and gaining residential and economic autonomy. It is even possible that migration is valued as a *rite de passage*, and those adolescent boys who do not experience it may face a

negative perception from their peers (Kandel and Massey, 2002: 982). Furthermore, international migration may be seen as an alternative to social mobility in a context where labor opportunities are uncertain and scarce, and it may be considered as a more certain mean to fulfill the consumption expectations of the youth in sending communities and in families with some prior migration experience (Meza and Pederzini, 2007; McKenzie and Rapoport, 2006; Kandel and Kao, 2001).

Following this arguments, we hypothesize that the contemporary economic approaches for explaining the reasons of migration will work differently when analyzing adolescent's first trips to US. Factors linked to the exposure to international migration at the family and community level will be more relevant in explaining the initiation of migration among adolescents. In contrast, first trips to US occurring later in the life course will be related to the formation of a new household and the economic needs defined by the family life cycle stage. Thus, variables linked to the demand of capital and the economic performance of the sending and receiving contexts will have a stronger effect on predicting a first trip after the teenage years.

Gender, migration and the transition to adulthood

The process of becoming of age in Mexico is gendered. The difference lies mainly in the expected economic roles for young men and women. For example, for male adolescents, leaving school is related to entering into the labor force while women, even in their teenage years, tend more often to stay out of the labor force. In the year 2000, more than eighty percent of men and less than half of the women out of school were working by age 17 (Giorguli, 2010).

Migration to US also has a gender component. Since its origins, more men than women have moved to US to work. That explains why most of the research done on Mexican outmigration from a quantitative approach has concentrated only on male migration (Massey et al, 1987; Massey and Espinosa, 1997; Lindstrom, 2006; Parrado, 2003). It was until later when women as migrants were included on the research about Mexico-U.S. migration (Cerruti and Massey, 2001; Donato and Kanaiaupuni, 1993). The motivations for

female migration may be more heterogeneous. Some of them may migrate to work; for others, their decision is tied to the prior move of other family members (parents, husbands, siblings). We know, for example, that female migration is more dependent on social networks than male migration (Curran and Rivero, 2003).

In this paper we argue that the explanations of the culture of migration and the perception of international migration as a *rite de passage* operate mainly for male migration as it is linked to the expectations around the fulfillment of their role as successful breadwinners. There is evidence that later in the life course female migration will be linked to the family life course and the timing of childbearing (Lindstrom and Giorguli, 2007). Nonetheless, for adolescent women, the determinants of their first trip may be more often related to other variables, such as the migration specific social capital.

Mexico-US migration and its intersection with the transition to adulthood among the Mexican youth

As mentioned before, most of the first trips to US happen during the same time span as most of the events that define the transition to adulthood. There has been little research linking Mexican migration to U.S. to other events in the life course. Massey et al (1987) suggested that men's migration was related to the family life cycle. In their study, they documented that the probabilities of migrating decreased after marriage, increased afterwards with the arrival of the first children and decreased again as children formed their independent households. After their original study, others have analyzed how migration is linked to the early dropout from school (Kandel, 1998; Kandel and Massey, 2002), marriage (Parrado, 2003) and family formation (Lindstrom and Giorguli, 2002 and 2007).

What the prior literature suggests is that the decision to migrate or stay in the community of origin is coordinated with other decisions in the life course. Furthermore, the timing of the different events—leaving school, entering the labor market, starting a union—may be synchronized with the timing of a first migration for men and women. In this paper we will explore the interaction between migration and other events in the life course. We expect

that early transitions into adulthood in the productive or the reproductive sphere[2] will motivate young adolescents to migrate.

Data

In order to address these issues we use data from the Mexican Migration Project (MMP), a binational project directed by Jorge Durand at the University of Guadalajara and Douglas Massey at Princeton University. Rather than surveying migrants using the standard social scientific methods, they use a blend of ethnographic and survey methods to study particular Mexican communities and their U.S. destinations (Massey et al. 1987). Simple random samples of households in Mexican communities are paired with non-random snowball samples of U.S. settlers to generate a binational dataset that controls, in some measure, for the selection biases inherent to most data sources on immigration. Each year since 1987 the project has surveyed four to six communities and their U.S. destination areas. The properties of these data have been described in a variety of publications (Massey, Goldring, and Durand, 1994; Massey and Parrado, 1994; Massey and Espinosa, 1997) and a systematic comparison between the MMP and the ENADID suggests that the MMP data, while not strictly representative, nonetheless yield a remarkably accurate profile of Mexico-U.S. migrants (Massey and Zenteno, 2000).

The MMP project collects retrospective histories on major life course events such as migration, employment and marriage of household heads and their spouses. To make all different cohorts perfectly comparable we construct a yearly life history that begins by age 12 and ends with the year of the survey or when the individual reached age 35. To minimize recall error, we only included men and women who were 49 or less at the time of the survey and, following Massey and Espinosa (1987:956), we began the analysis in 1965. Based on the communities with complete retrospective information on migration and labor

[2] As culturally embedded transitions, whether they occur "early", "late" or "on time" in the life course depends on the cultural surroundings, age expectations, the normative context and the roles that individuals are expected to fulfill at certain ages. In the Mexican case, getting married or having a child during adolescence (or teenage years), specially for men, may be considered as an "early" transition.

trajectories, our analysis includes 123 communities for men and 119 for women (see Table 1). Our sample includes the life histories of 8,110 men and 8,337 women.

In Table 1, we present the distribution of the communities included in our analysis by migratory region. The migratory regions were built based on the proposal by Durand and Massey (2003). States in Mexico are grouped according to their geographical location, historical links to migratory movements and migration prevalence.[3] Within the four regions (historic, border, central Mexico, South-East), Table 1 shows the distribution by type of community. The proportion of Mexican men and women that ever migrated to US varies along regions and type of communities. In all cases, more men had migratory experience compared to women. As expected, the region with the longest participation in the migratory flow to US (historic) has the highest exposure to migration for both, men and women, ranging between 0.59 and 0.22 depending on the size of the community. It is followed in terms of prevalence by the region that groups the Border States. The migration experience for men varies widely across the type of communities for those located in the regions which recently incorporated into the migratory flows.

[INSERT TABLE 1 ABOUT HERE]

Methodological approach

On their classical article, "Whats Driving Mexico-U.S. Migration? A Theoretical, Empirical and Policy Analysis", Massey and Espinosa (1997) seek to evaluate how neoclassical economics, the new economics of labor migration, segmented labor market theory, social capital theory, and world systems theory contribute to explain international migration. To this purpose, they conduct an empirical analysis with indicators linked to each of the theoretical frameworks and pull them together in a set of models predicting

[3] The Mexican states were grouped in four regions as follows:

- **Historic:** Aguascalientes, Colima, Durango, Guanajuato, Jalisco, Michoacán, Nayarit, San Luis Potosí, Zacatecas.
- **Border:** Baja California, Baja California Sur, Coahuila, Chihuahua, Nuevo León, Sinaloa, Sonora, Tamaulipas.
- **Central:** D.F., Guerrero, Estado de México, Morelos, Oaxaca, Puebla, Querétaro, Tlaxcala.
- **South East:** Campeche, Chiapas, Quintana Roo, Tabasco, Yucatán, Veracruz.

first, repeat and return migration between Mexico and US. They also test to what extent US policies targeted to deter the flow of undocumented entries actually influence the migration patterns. Our main argument is that the factors associated with adult migration may not operate when we look at the chances of making a first trip to US during the adolescent years. To test this hypotheses, in this paper we adapt the variables and conceptual categories previously used by Massey and Espinoza (1997).

We evaluate contemporary theories of international migration that account for the initiation of Mexican migration to the United States during adolescence. Using discrete time hazard models that include an adapted version of the variables used by Espinosa and Massey (1997), we estimate the probabilities of taking a first trip to US during the adolescent years or afterwards.[4] The models include variables on demographic background (age, year of birth, marital status, parenthood), human capital (labor force experience, education), social capital (family migration experience and prevalence of migration in the community), physical capital, community economic context, macroeconomic variables and U.S. policy context. All the time varying variables refer to the prior year (t-1). As Massey and Espinosa (1997) point out, the variables introduced can be related to one or more theories.

[INSERT TABLE 2 ABOUT HERE]

We conducted the multivariate analysis in two stages. We initially look at the probabilities of a taking a first trip during the adolescent years. Afterwards, in order to explore whether the determinants of a first trip vary depending on the age, we estimated the probability of taking a first trip during the life year with all the sample information and added interactions by age groups (12 to 19 and 20 to 34) using all the variables in the models. As we hypothesized that the motivations for migrating differ for men and women and due to data constraints for the women's dataset, the models were estimated separately by sex.

[4] We followed Massey and Espinosa's (1997) proposal on the determinants of a first trip. Nonetheless, we do not include all the variables they used as some are not relevant for this study or they were highly correlated with some of the other determinants included in the models.
We also reorganized the information for those variables related to transitions in the life course (entry into marriage and parenthood and labor experience) in order to better capture the link between the family transitions of individuals during adolescence and the first migration.

The Mexican Migration Project collects the complete life histories of household heads. However for spouses (92% of the women in the dataset) the information is not available for the first communities of the study. Variables such as the migration experience of parents and siblings were not available for spouses, and the ownership of land, a home or a business were available for spouses after the year they got married (see table 2). As an alternative, we used the husband's life histories to complete the information on age at marriage, birth of a child and physical capital for spouses on the women's dataset. To keep the comparability in the variables for spouses and female household heads, we also used the husband's information for the latter when available. For those women who were spouses of the head at the moment of the survey and who had had more than one union, the information on the years before the current union was not available. Nonetheless, the divorce and remarriage rate was low among the sample; among household heads, only a small proportion (4%) had had more than one union. Given that the construction of the variables for men and women differs, the estimates from the models for each sex are not fully comparable.

We estimated the yearly indicators for the community and national variables based either on the information from the Mexican Migration Project or through other sources. We used linear inter and extrapolations to derive estimates of values for intercensal years for the community variables. At the national level, the data on inflation rate and real interest rate in Mexico as well as the variables for the US policy context were obtained from the Mexican Migration Project. The data for the yearly information on U.S. employment growth was taken from the U.S. Bureau of Labor Statistics (2001). For the purchasing power parity, we use the information from the Penn World Table[5].

We used three variables to explore the possible link between the timing of certain events related to the transition to adulthood and the probability of taking a first trip to U.S. The

[5] The Penn World Table is a project of the University of Pennsylvania. It provides information on purchasing power parity and national income accounts for several countries around the world. They can be accessed at http://pwt.econ.upenn.edu/pwt_index.php.

model allows us to analyze whether getting married, becoming a parent or entering the labor force during the teenage years increase or decrease the probabilities of migrating.

Almost all variables in the models are time varying and are included as observed over the prior year. Aside from cohort, the place of the survey (US or Mexico) and the relationship to the household heads for the female dataset refer to the survey year. These two variables can be taken as proxies of the selectivity of the population analyzed. In the first case, the place of the survey will capture whether individuals (men and women) that may have a greater intention to stay in US and not return to Mexico are different from the rest of the sample. The second variable, head or spouse of the head, show whether these two groups may differ by some unobserved factors that explain variations in their behavior since the adolescent years.

Results

Descriptive statistics

Table 3 presents the means and distribution of the variables computed across person-years for men and women. The table includes the information for the whole sample (person-years from 12 to 34) and for the teenage years (12 to 19). Around 40% of the total person years refer to the adolescent period. Most of the individuals of the sample were born before 1966. The data on marital status shows that very few men marry and had children before age 20: in 3.3% of the life years, adolescent men were married and in 3.1% had had a child. Women married and became mothers earlier than men. Thus, during adolescent years, the percentages of life years married with no children (8.4%) and with children (10.1%) were higher for women compared to men.

The mean years of completed education show figures close to the national averages in 1990 (6.6 according to INEGI, 2006). The difference between the mean for the adolescent years and the whole sample reflects that for the former, many of them had not reached their final education and were still enrolled in school before age 20. Nonetheless, it is interesting to point out that the difference between the adolescent years and the person years for the whole sample is less than one, suggesting that the gains in education after adolescence are

small for the Mexican youth across the cohorts under study. The descriptive statistics on labor experience vary widely for men and women, as would be expected given the lower participation rates of the latter. During the adolescent years, close to 40% of the men and 63% of the life years for women were spent out of the labor force.

The variables on migration specific social capital show the spread of the migratory phenomenon in Mexico. For the person years observed, in 15% at least one parent had migrated to the US. The proportion with at least one sibling with migration experience is 0.17 during the adolescent years and it increases to 0.27 when we look at the whole sample. For women, in close to 20% of the person years a parent or the husband had prior migration experience. Finally, the data on male and female prevalence show that, although female migration has increased, on average the levels are far from that for men. The prevalence for men oscillates around 0.20 and for women around 0.05. The large majority of the respondents were landless—and the proportion is even smaller for the specific teenage period. Having a home and/or a business also increases when we look at the whole sample.

Regarding the labor opportunities in the community, on average around 30% of the working population were self-employed and 23% of the working women were employed in manufactures. The proportions are similar to those reported by Massey and Espinosa (1997). The macroeconomic data show greater variability, as the standard deviations are high (data not shown).

Finally, the variables on U.S. policy context are introduced in order to capture the effects of the increasingly restrictive nature of migration policies in that country. The average probability of apprehension while crossing without documents to U.S. is around 0.22. The supply of legal visas is sufficient to cover only between 6 and 7% of Mexico's potential demand.

[INSERT TABLE 3 ABOUT HERE]

Migration patterns during the adolescent years

Mexican migration to US has been identified as a labor phenomenon where young adults participate. Figure 1 shows the distribution of US migrants by sex according to the age at first trip. The first migration from Mexico to U.S. occurs for both, men and women, mainly during adolescence (12 to 19 years of age) and early adulthood (20-24). The age pattern is similar for male and female migrants. Of all first trips to U.S. before age 35, one out of three occurred during adolescence, and almost one out of three during the years of early adulthood. It is in this period (15 to 24) that most of the Mexican youth will experience the transitions to adulthood in the productive (leaving school and entering the labor force) and reproductive (marriage and parenthood) spheres (Giorguli, 2010).

[INSERT FIGURE 1 ABOUT HERE]

The survival functions show more clearly the age pattern of a first trip (Figure 2). For women, as the probabilities of migrating to US are notoriously lower, the survival function shows little changes across ages. However, for men, it is clear that a probability of a first migration to US increases after age 16. We do not know whether this general pattern in the survival functions for men and women have remained in time, especially as there have been changes in the profile of migrants. Figure 3 illustrates the differences in the survival function by birth cohort. In both cases (men and women), the changes in the curves show the increase in the intensity of migration flows in the last decade of XX century. In terms of the age patterns, the differences by age cohort are visible after age 17 for men and later for women. Thus, in a rough way, the pattern of adolescent migration seems to have remained stable over time.

[INSERT FIGURES 2 AND 3 ABOUT HERE]

Regional variations in migration patterns may have an influence on the age distribution of the first trip (see Tables 4a and 4b). A first exploratory analysis separating the communities by region show that, for women, in the historic and border states, where migration is more institutionalized, the first trip to U.S. during the adolescent years is more frequent than in the other regions where migration is less prevalent (Central) or where it has emerged more

recently (South-East). Something similar happen for men in the region where migration started later; in the South-East region, the proportion of men who engaged in a first trip after age 24 is notoriously higher compared to all the other regions. There is however a difference in the regional pattern of age at first trip for men and women. In the Central Region, the percentage migrating before turning 20 is high (close to 40%) compared to the other groups for men, and low for women (almost 27%). In contrast, the higher percentage of adolescent migration for women occurs in the Border region (close to half of them), which suggest a different pattern of female migration in this region that needs to be further analyzed.

[INSERT TABLES 4A AND 4B ABOUT HERE]

The determinants of adolescent migration

Table 5 shows the parameter estimates from the logistic discrete-time hazard models predicting a first trip to US before age 20. For men, the results show that the probability of migrating increases with age; we do not see a similar effect among women. On the transitions into adulthood during the teen years, we do not find any evidence that getting married or having a child modify the chances of a first trip for women. While prior research have suggested that the probabilities of migrating for women increase at marriage and decrease when the first children are born (Lindstrom and Giorguli, 2007), our study suggest that this may not be the case when these two events occur during the teen years. For men, we also find opposite results from what prior studies have suggested (Massey et al, 1987; Lindstrom and Giorguli, 2007). Getting married and having kids early in the life course may deter adolescent men from taking a first trip to US.

Contrary to the results by Massey and Espinosa (1987), where the coefficient showed a negative relation and, to the authors opinions, illustrated the negative selectivity of Mexican migrants, in our models education has a positive and significant effect for men and women, stronger among the latter. Combined with the result on home ownership, which were significant and positive only for men, these results suggest that male adolescent migration occurs more often in households that may be better off. Regarding the labor experience

during the teenage years, the effect is strong for both sexes. Delaying the entrance into the labor market—and probably staying longer in school—decreases the probabilities of taking a first trip.

[INSERT TABLE 5 ABOUT HERE]

The variables on migration specific social capital show the expected direction. The odds of a first trip before age 20 increase when the youth has a greater exposure to migration, either at the family or the community level. For men, having a parent or a sibling that have migrated in the past notoriously increases the likelihood of a first trip to US. Male migration prevalence also has a positive and significant effect. For women, whether the spouse has migrated and female migration prevalence increase the chances of migrating to US. The results for both, men and women, suggest that migration specific social capital may be especially relevant for explaining adolescent migration.

In the literature, the variables on physical capital are used to test the hypotheses on the neoclassical theories and on the new economics of migration approach. According to the former, the possession of physical assets such as land, homes and businesses, could increase the odds of migrating as they provide individuals, other things being equal, with the means necessary to finance a trip and absorb the costs related to the moves (Massey and Espinosa, 1997: 961). From our models, only owning a home increases the odds of men migrating before age 20. It may be an indicator that adolescent migration is more resource-dependent as it relies on the economic resources that the adolescents' family of origin may have. For women, the variables were not significant (although there is a limitation given that the information was only available for men and it was imputed to women from their spouses' information).

Next we assess the impact of the size of the community and the local labor opportunities. None of the coefficients for men were significant. For women, the odds of migrating increase with the size of the community suggesting that female migration during the

teenage years may be less related to the rural scenario of traditional male migration to US. Another interesting result is the coefficient for the proportion of self-employed among the working population. If we take this variable as a proxy of the availability of formal jobs, the indicator points that when the local economy relies more on self employment and less formal jobs are available, teenage girls will consider more often migration as an option.

Most of the variables on the macroeconomic context were not significant. For men, the odds of migration during adolescence increase when the US labor market grows and when the purchasing power parity increases. Following the arguments of the segmented labor market theory, male migration in the teenage years rely on the demand of the US labor market and is sensitive to wage differentials. For women, only the indicator on direct foreign investment was significant. As a preliminary hypothesis, we may say that women's migration to US, which may be related to family and not only labor motivations, responds less to the macroeconomic context in both countries and to wage differentials.

We also test whether the more or less restrictive nature of migration policies influence the decisions around adolescent migration. Contrary to the results by Espinosa and Massey (1997), we found that when the probabilities of apprehension increase, the chances of taking a first trip during the teen years decrease among men. It may be that, as the risks of crossing the border increase when more restrictions and surveillance are implemented, the first migration is delay for later in the life course given the additional vulnerability that adolescent men may face. Nonetheless, the availability of visas has the opposite effect (the greater availability, the lower probabilities of migrating) for both, men and women. For Espinosa and Massey (1997: 963), in their study this result showed that the restrictive policies implemented in US might have backfired. More restrictive environments (in this case measured by the lower availability of visas) may create greater pressure to stay longer in US and may incentive the migration of family members—adolescent children, for example.

We introduced in the model the survey place (Mexico or US). This variable has been used in prior research as a proxy that captures other unobserved characteristics between those

who engaged in a circular migration patterns or have returned and those who might be targeting for a more permanent migration (Lindstrom and Giorguli, 2002 and 2007). Those who were interviewed in US had greater chances of taking a first trip during the adolescent years. Finally, there is also some evidence that female household heads are different from wives interviewed. The probability of migrating early in the life course is greater among the former.

Variations in the determinants of migration depending on the stage in the life course

To compare whether the variables operate differently among adolescents and young adults, in table 6 we show the results of the model for the whole sample with interactions by age group (12 to 19; 20 to 34). As 12 to 19 is the reference category in the full model, an interaction term in the same direction as the main coefficient implies that the effect of the variable is greater on predicting a first migration after age 20 and vice versa. In the following paragraphs, we focus on those significant interactions of interest for this paper.

There is some evidence that the positive effect between human capital (measured through education completed) and the probabilities of taking a first trip to US operate during the teenage year. Nonetheless, this effect cancels out for later ages.

As most men work later in the life course[6], labor experience loses power as predictor of a first trip. The same effect was found among women. That labor experience is such an important predictor of migration during the teenage years and it points to the possible link and coordination between this transition (entering the labor market) and migration as a transition to adulthood itself.

[INSERT TABLE 6 ABOUT HERE]

The model with interactions supports our originally hypotheses of a stronger effect of (or dependence on) migration specific social capital regarding adolescents' probabilities of a first trip to US. This is specially clear for men on both, the family and community

[6] There were few cases of men after age 19 with no labor experience.

exposure to migration. Furthermore, the results on home ownership suggest that the dependence on family economic resources for migrating is greater for men during the teenage years.

Interestingly and different from men, the effect of prevalence of male and female migration in the community does not show any change by age group among women. As prior literature has suggested, that may indicate that the "culture of migration" and the expectations around working in the US as a *rite of passage* influences greatly adolescent men but do not have a similar effect on adolescent women migration patterns.

For women, the community context is more relevant in defining their chances of migrating during the adolescent years. The effect we found on the size of the community (the larger, the greater probability of migrating) is stronger for adolescents. Likewise, the effect of the characteristics of the local labor market opportunities—in this case measured by the proportion of self-employment—cancels out during the adult life years.

On the macroeconomic context, men seem to be more sensitive to changes in the US labor market during the teenage years. In addition, the results of the interaction terms that capture the US policy context point that men respond less to changes in these variables later in the life course.

Finally, the variables measuring unobserved characteristics (selectivity) between the Mexican and US samples and among household heads and spouses for women appear more clearly during the second age period analyzed (20 to 34 years of age).

Preliminary concluding remarks

We started this paper with two main questions. To what extent traditional migration theories are useful to understand adolescent migration? How does migration interact with other decisions in the life course—such as entering the labor market, getting married or having a child? Our first results suggest that the determinants of migration work differently to predict a first trip to the US during the adolescent years than later in the life course. For

example, while migration specific social capital has proved to be important in increasing and perpetuating migration, our results suggest that the effect is even stronger for adolescents. We first found that in regions with a higher prevalence of migration, taking a first trip before age 20 occurs more frequently. Furthermore, adolescents rely more on family migration capital. We found additional evidence that the hypothesis of a "culture of migration", that has been linked to men's transitions to adulthood in contexts of high prevalence, has a greater effect in predicting a first trip during adolescence. We do not see a similar effect for women. Even though there is also a positive effect of female prevalence ratios on the probabilities of taking a first trip to US, there is no evidence of a difference by age group.

Adolescent men seem to rely more than women on economic determinants when it comes to the decision of migrating to US. They may depend more often on family resources to start a trip and their decision to migrate or not is linked to the macroeconomic context in US. For adolescent girls, we do not see a similar pattern. What seems to be important is the characteristics of the labor market in the community of origin, specifically the availability of formal jobs.

Finally, our results clearly show that staying out of the labor market deters adolescents from migrating. It is those who have already started their labor trajectories who may take a trip before age 19 and the effect was consistent for men and women. We did not find any evidence that a transition into marriage or parenthood influenced the decision of adolescent women to migrate. And for men, getting married during the teenage years, which for men is early in the life course given Mexican normative patterns, deters adolescents from migrating.

References

Cerruti M. and D. Massey (2001). "On the Auspices of Female Migration from Mexico to the . United States" in *Demography*, 38(2): 187-200.

Curran, S. and E. Rivero-Fuentes (2003). "Engendering Migrant Networks: The Case of Mexican Migration" in *Demography*, 40(2): 289-307.

Donato, K. and S.M. Kanaiupuni (1993). "Current Trends and Patterns of Female Migration: Evidence from Mexico" in *International Migration Review*, 27:748-71.

Durand, J. and Douglas M. (2003). *Clandestinos. Migración México-Estados Unidos en los albores del siglo XXI*, México, Universidad Autónoma de Zacatecas and Miguel Ángel Porrúa, 210 p.

Giorguli S. (2010). "Divergent paths to adulthood in Mexico", paper presented at the Population Association of America Annual Meeting, Dallas, 39 p.

Giorguli S. and I. Serratos (2009). "El impacto de la migración internacional sobre la asistencia escolar, ¿paradojas de la migración?", in *El Estado de la migración. Las políticas públicas ante los retos de la migración mexicana a Estados Unidos*, Paula Leite y Silvia E. Giorguli (coord.), Consejo Nacional de Población, Mexico, pp. 313-344 .

Giorguli S., E. Valle, V. Salinas, C. Hubert and J. Potter (2010). "La dinámica demográfica y la desigualdad educativa en México" in *Estudios Demográficos y Urbanos*, El Colegio de México, 25(1): 7-44.

Kandel, W. and D. Massey (2002). "The Culture of Mexican Migration: A Theoretical and Empirical Analysis", *Social Forces*, 80(3): 981-1004.

Kandel, W. y G Kao (2001). "The Impact of Temporary Labor Migration on Mexican Children's Educational Aspirations and Performance" in *International Migration Review*, 35(4): 1205-1231.

Kandel W. (1998). "Temporary U.S. Migration and Children's Educational Outcomes in Three Mexican Communities", Ph.D.Dissertation, University of Chicago.

Lindstrom D. and S. Giorguli (2002). "The Short and Long-Term Effects of U.S. Migration Experiences on Mexican Women's Fertility" in *Social Forces*, 80(4): 766-798.

Lindstrom, David y S. Giorguli (2007). "The Interrelationship between fertility, family maintenance, and Mexico-U.S. migration" in *Demographic Research Review*, 17: 821-857.

Lindstrom, D. (2006). "Economic Opportunity in Mexico and Return Migration from the United States" in *Demography*, 33(3): 357-374.

López Castro G (2004). "Migración, educación y socialización. Adolescentes mexicanos en la migración exterior" in *Ethos Educativo*, 36-37: 61-78.

Massey D. and K. Espinosa (1997). "What's Driving Mexico-U.S. Migration? A Theoretical, Empirical, and Policy Analysis" in *The American Journal of Sociology*, 102 (4): 939-999.

Massey D., L. Goldring and J. Durand (1994). "Continuities in transnational migration: an analysis of nineteen Mexican communities" in *The American Journal of Sociology*, 99(6):1492-1533.

Massey D.S., R. Alarcón, J. Durand, and H. González (1987). *Return to Aztlan: The Social Process of International Migration from Western Mexico*. Berkeley: University of California Press.

Massey D. and E. Parrado (1994). "Migradollars: The Remittances and Savings of Mexican Migrants to the United States." Population Research and Policy Review 13: 3-30.

Massey D., and R. Zenteno (2000). "A Validation of the Ethnosurvey: The Case of Mexico-US Migration" in *International Migration Review*, 34: 765–792.

Massey D. and E. Parrado (1998). "International Migration and Business Formation in Mexico" en *Social Science Quarterly*, 79(1): 1-20.

McKenzie, David y Hillel Rapoport (2006). "Can migration reduce educational attainments? Depressing evidence from Mexico?", Working Paper 274, Stanford Center for International Development, Stanford University, California.

Meza, Liliana y Carla Pederzini (2009). "Migración internacional y escolaridad como medios alternativos de movilidad social: el caso de México" in *Estudios Económicos*, Special Number: 163-206.

Parrado, Emilio A (2003). "International Migration and Men's Marriage in Western Mexico" in *Journal of Comparative Family Studies*, 35(1):51-72. 11

Passel, Jeffrey (2006). The size and characteristics of the unauthorized migrant population in the US. Estimates based on the March 2005 current population survey. Research Report, Pew Hispanic Center, Washington.

Table 1: Characteristics of Mexican communities sampled									
Region and Type of Community		Number of Mexican communities sampled		Number of cases in Mexico and U.S. sampled				Proportion of men with U.S. migration experience	Proportion of women with U.S. migration experience
				Men		Women			
		Men	Women	Mexico	U.S.	Mexico	U.S.		
Traditional									
	Metropolitan Areas	13	12	955	84	796	45	0.2175	0.0797
	Cities	17	15	1205	157	861	79	0.4743	0.1489
	Towns	19	19	1367	158	1232	72	0.4662	0.0966
	Villages	19	18	767	87	773	65	0.5890	0.1480
Border									
	Metropolitan Areas	10	10	749	23	904	23	0.2047	0.0971
	Cities	2	2	176	0	218	0	0.4205	0.0596
	Towns	4	4	243	4	318	8	0.2308	0.0675
	Villages	1	1	55	0	64	0	0.3818	0.0156
Central									
	Metropolitan Areas	4	4	355	1	438	1	0.0843	0.0251
	Cities	6	6	380	14	429	8	0.2919	0.0595
	Towns	7	7	514	26	631	30	0.2685	0.0408
	Villages	9	9	511	17	622	20	0.2917	0.0639
Initial									
	Metropolitan Areas	1	1	81	20	116	13	0.1881	0.0465
	Cities	1	1	113	0	140	0	0.2566	0.0357
	Towns	5	5	364	0	428	0	0.1951	0.0140
	Villages	5	5	275	0	367	0	0.2945	0.0300
Total sample size		123	119	8110	591	8337	364	0.3494	0.0823
Source: Calculations based on the Mexican Migration Project for 128 communities.									

Table 2. Definition of Variables		
Variable	**Operational Definition**	**Notes**
Demographic Background:		
Age	Age at last birthday grouped in two categories: 12-19 and 20-34	
Cohort	Birth cohort based on year born (before or after 1965)	
Own family context	Combines whether respondent was in a formal or an informal union and whether he/she had children under age 18 during the prior year.	For spouses (women's data set), based on husband's response
General human capital:		
Education	Number of years of school completed lagged by one year	
Labor force experience	Number of years since first job during the prior year. It is grouped in three categories: No labor experience; 1-4 years; 5 or more	
Migration specific social capital:		
Parent a U.S. migrant	Either or both parents were U.S. migrants; lagged one year.	Not available for women
Siblings U.S. migrants	At least one sibling with U.S. migration experience; lagged one year	Not available for women
Spouse or parent a U.S. migrant	Spouse or parent has prior migration experience; lagged one year	Used only for women's models; when available and before marriage, we used parent's information
Male migration prevalence	Proportion of men 15 and older in the community with U.S. migration experience; lagged one year	
Female migration prevalence	Proportion of women 15 and older in the community with U.S. migration experience; lagged one year	
Physical capital:		
Land	Hosehold owns at least one hectare; lagged one year	For spouses (women's dataset), based on husband's response
Home	Household owns home; lagged one year	
Business	Household owns a business; lagged one year	
Community variables:		
Size of the community	Natural logarythm of the population in the community; lagged one year	
Proportion self-employed	Proportion of workers who were self-employed; lagged one year	
Proportion of women working in manufacturing	Proportion of female workers employed in manufacturing; lagged one year	

(Table 2-Description of variables—continues in next page)

(Table 2. Definition of Variables continues)		
Variable	**Operational Definition**	**Notes**
Macroeconomic context:		
Purchasing power parity	Number of currency units required in Mexico to buy goods equivalent to what can be bought with one unit in US; lagged one year	
U.S. employment growth	Rate of change in total U.S. employment over prior year	
Mexican inflation rate	Rate of chanage in Mexican consumer index over prior year	
Direct foreing investment	Rate of change in direct foreign investment over prior year	
Mexican real interest rate	Avaerage cost of funds in Mexico minus Mexican inflation over prior year	
U.S. policy context:		
Probability of apprehension	Likelihood of arrest while attempting to cross border without documents over prior year	
Availability of visas	Legal immigration divided by sum of legal immigration and gross illegal entries over prior year.	
Survey Place:	Place of interview (Mexico or US)	
Household headship	Household head or spouse of the household head	Used only for women's models
Notes: All variables except for cohort, survey place and relationship to household head are time-varying.		

Table 3. Means and distribution of variables by age and by sex

Variable	Men				Female			
	All sample		12 to 19		All sample		12 to 19	
Demographic Background:								
Age: 12-19 (reference category)	39.40	%	15.50		39.80	%	15.49	
20-34	60.60	%	(mean)		60.20	%	(mean)	
Cohort:								
1940-1965 (reference category)	64.50	%	59.60	%	55.90	%	49.60	%
1966 and older	35.50	%	40.40	%	44.10	%	50.40	%
Own family status								
Not married	53.50	%	93.60	%	2.50	%	81.54	%
Married, no minors	6.70	%	3.30	%	47.20	%	8.35	%
Married with minors	39.80	%	3.10	%	50.30	%	10.11	%
Human Capital								
Education	7.52		6.97		7.06		6.73	
Labor force experience:								
No prior experience	16.60	%	39.20	%	30.50	%	62.60	%
1-4	19.90	%	41.30	%	19.20	%	28.00	%
5 or more	63.50	%	19.50	%	50.30	%	9.40	%
Migration specific social capital:								
Parent a U.S. migrant	15.00		0.15		n.a.		n.a.	
Siblings U.S. migrants	0.27		0.17		n.a.		n.a.	
Spouse or parent a U.S. migrant	n.a.		n.a.		0.18		0.10	
Male migration prevalence	0.22		0.20		0.21		0.19	
Female migration prevalence	0.06		0.05		0.05		0.04	
Physical capital:								
Land	0.06		0.02		0.08		0.04	
Home	0.34		0.13		0.42		0.18	
Business	0.08		0.02		0.09		0.03	
Community variables:								
Size of the community	9.55		9.44		9.51		9.40	
Proportion self-employed	0.31		0.31		0.30		0.31	
Proportion of women working in manufacturing	0.23		0.23		0.23		0.23	
Macroeconomic context:								
Purchasing power parity	1.06		0.34		1.33		0.54	
U.S. employment growth	1.82		2.01		1.76		1.94	
Direct foreing investment	0.04		0.02		0.05		0.02	
Mexican inflation rate	0.06		0.07		0.06		0.07	
Mexican real interest rate	0.30		0.26		0.29		0.28	
U.S. policy context:								
Probability of apprehension	0.21		0.23		0.21		0.22	
Availability of visas	0.05		0.07		0.05		0.06	
Survey place:								
Mexico (reference category)	93.60	%	93.20	%	96.10	%	95.80	%
United States	6.40	%	6.80	%	3.90	%	4.20	%
Relationship to household head:								
Spouse (reference category)	n.a.		n.a.		91.50	%	92.00	%
Household head	n.a.		n.a.		8.50	%	8.00	%
Total number of person years	*176,735*		*69,584*		*174,559*		*69,473*	

Notes: All variables except for cohort, survey place and relationship to household head are time-varying.

Source: Calculations based on the Mexican Migration Project for 128 communities.

Table 4a: Distribution of Migrants by Sex and Age at First Trip to U.S. and Region of Residence. Mexico. Men

	International Migration Region of Residence			
	Traditional	**Border**	**Central**	**South-East**
12 to 14	4.3%	4.2%	3.7%	1.0%
15 to 19	40.3%	29.4%	35.7%	23.5%
20 to 24	34.2%	33.5%	33.0%	23.5%
25 to 29	15.2%	21.6%	18.2%	28.5%
30 to 34	6.1%	11.3%	9.5%	23.5%
Total	100%	100%	100%	100%

Table 4b: Distribution of Migrants by Age at First Trip to U.S. and Region of Residence. Mexico. Women

	International Migration Region of Residence			
	Traditional	**Border**	**Central**	**South-East**
12 to 14	5.3%	6.3%	2.9%	7.1%
15 to 19	36.1%	37.3%	23.8%	17.9%
20 to 24	31.7%	31.0%	40.0%	17.9%
25 to 29	19.0%	19.0%	16.2%	35.7%
30 to 34	7.9%	6.3%	17.1%	21.4%
Total	100%	100%	100%	100%

Source: Calculations based on the Mexican Migration Project for 128 communities.

Table 5. Parameter estimates from logistic discrete-time hazard models predicting a first trip to U.S. before age 20 by sex

Variable	Men		Female	
Demographic Background:				
Age	0.274	***	0.028	
Cohort:				
1940-1965 (reference cat.)				
1966 and older	0.160		0.233	
Own family status:				
Not married (reference cat.)				
Married, no minors	-0.464	***	0.249	
Married with minors	-0.374	**	-0.061	
Human capital				
Education	0.006	*	0.150	***
Labor force experience:				
No prior experience	-2.931	***	-2.531	***
1-4	-0.152	*	0.139	
5 or more (reference category)				
Migration specific social capital:				
Parent a U.S. migrant	0.308	***	n.a.	
Siblings U.S. migrants	1.145	***	n.a.	
Spouse or parent a U.S. migrant	n.a.		1.892	***
Male migration prevalence	3.413	***	-0.685	
Female migration prevalence	-2.577	***	3.775	***
Physical capital:				
Land	0.039		0.378	
Home	0.220	*	-0.146	
Business	-0.323		-0.307	
Community variables:				
Size of the community	0.019		0.098	*
Proportion self-employed	-0.133		1.395	*
Proportion of women working in manufacturing	-0.110		-0.119	
Macroeconomic context:				
Purchasing Power Parity	0.136	***	-0.026	
U.S. employment growth	0.053	**	0.003	
Mexican inflation rate	-0.127		-0.549	
Direct foreing investment	0.079		0.274	*
Mexican real interest rate	-0.412		-0.473	
(Tables 5 continues)				

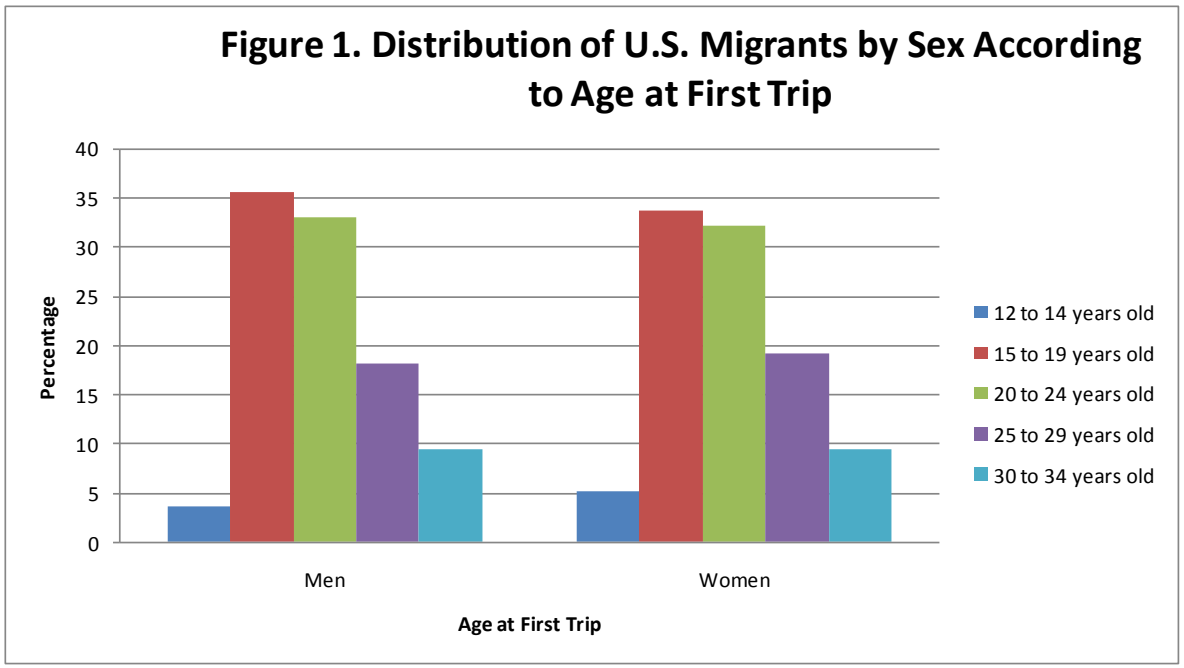
(Tables 5 continues)				
Variable	**Men**		**Female**	
	Model		**Main effect**	
U.S. policy context:				
Probability of apprehension	-1.002	*	-1.430	
Availability of visas	-0.637	**	-3.043	*
Survey place:				
Mexico (reference category)				
United States	1.477	***	2.116	***
Relationship to household head:				
Spouse (reference category)				
Household head			0.069	*
Constant	-9.010	***	-7.512	***
Wald Chi square	1791.37		825.34	
Pseudo R square	0.2769		0.3521	
Total number of person years	*69,584*		*69,473*	
Significance levels: '*' p<=0.1, '**' p<=0.01 y '***' p<=0.001				
Source: Calculations based on the Mexican Migration Project for 128 communities.				

Table 6. Parameter estimates from logistic discrete-time hazard models predicting a first trip to U.S. by sex

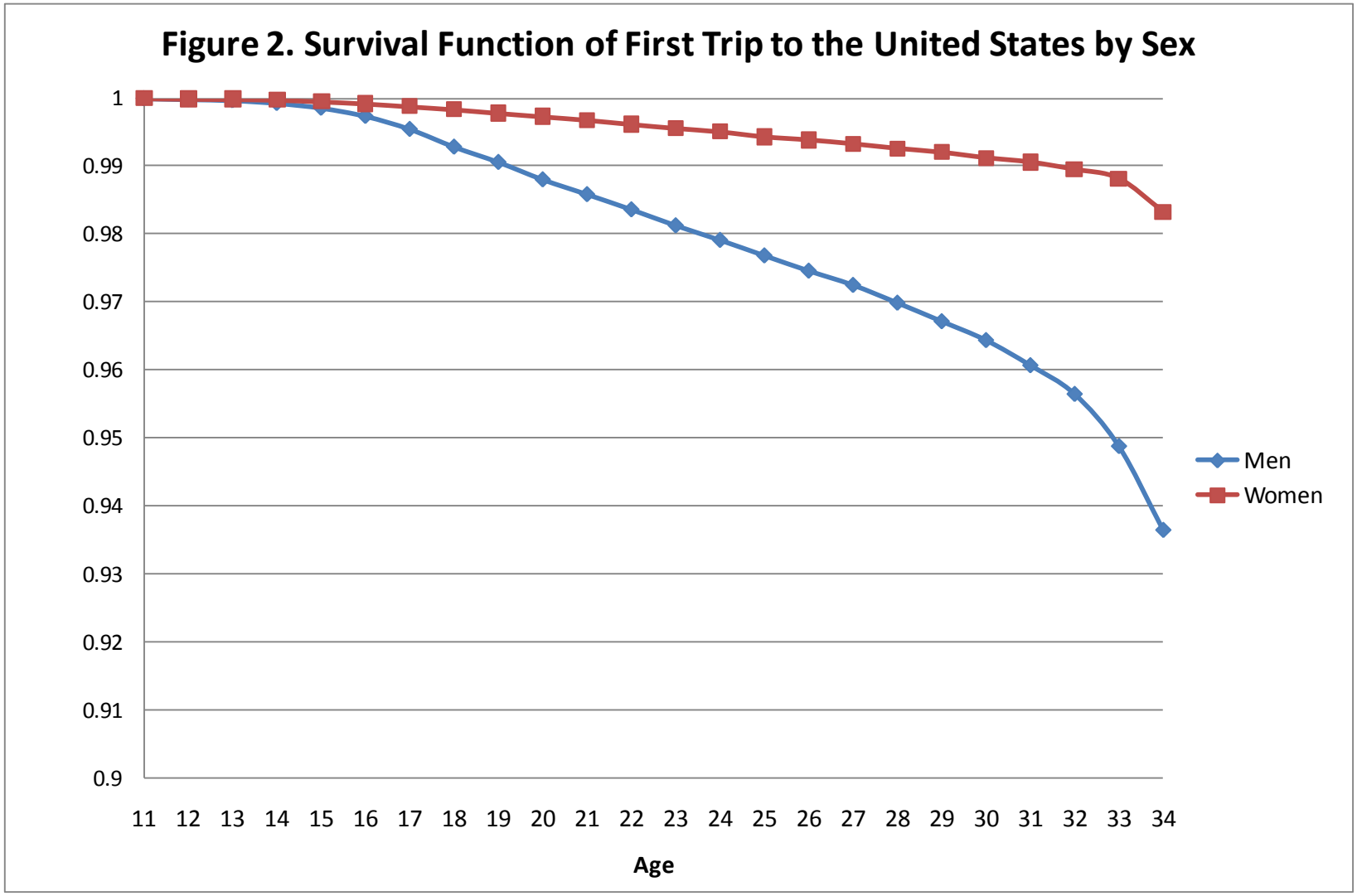
Variable	Men				Female			
	Main effect		Interactions		Main effect		Interactions	
Demographic Background:								
Age: 12-19 (reference cat.)								
20-34	0.462				2.084	*		
Cohort:								
1940-1965 (reference cat.)								
1966 and older	-0.294	*	0.648	***	0.180		-0.022	
Own family status:								
Not married (reference cat.)								
Married, no minors	-0.247	*	-0.112		0.273		0.152	
Married with minors	-0.125		-0.440	**	-0.025		0.021	
Human capital								
Education	0.029	*	-0.032	*	0.155	***	-0.109	***
Labor force experience:								
No prior experience	-3.726	***	--		-2.589	***	1.150	*
1-4	-0.592	***	0.392	***	0.102		0.136	
5 or more (reference category)								
Migration specific social capital:								
Parent a U.S. migrant	0.341	***	-0.344	**				
Siblings U.S. migrants	1.167	***	-0.286	**				
Spouse or parent a U.S. migrant					1.900	***	0.597	**
Male migration prevalence	3.281	***	-2.649	***	-0.704		-0.235	
Female migration prevalence	-2.445	***	3.059	***	3.772	***	0.562	
Physical capital:								
Land	0.045		-0.145		0.381		-0.352	
Home	0.255	*	-0.350	**	-0.147		-0.168	
Business	-0.244		-0.443	*	-0.309		-0.224	
Community variables:								
Size of the community	0.027		-0.046	*	0.098	*	-0.088	*
Proportion self-employed	-0.119		-0.274		1.386	*	-2.375	**
Proportion of women working in manufacturing	-0.073		-0.027		-0.110		-0.249	
Macroeconomic context:								
Purchasing Power Parity	0.209	***	-0.178	***	-0.018		-0.020	
U.S. employment growth	0.052	**	-0.025		0.003		-0.002	
Mexican inflation rate	0.147		-0.377		-0.516		-0.356	
Direct foreing investment	0.080		-0.072		0.276	*	-0.313	*
Mexican real interest rate	-0.327		0.062		-0.468		-0.080	

(Tables 6 continues)

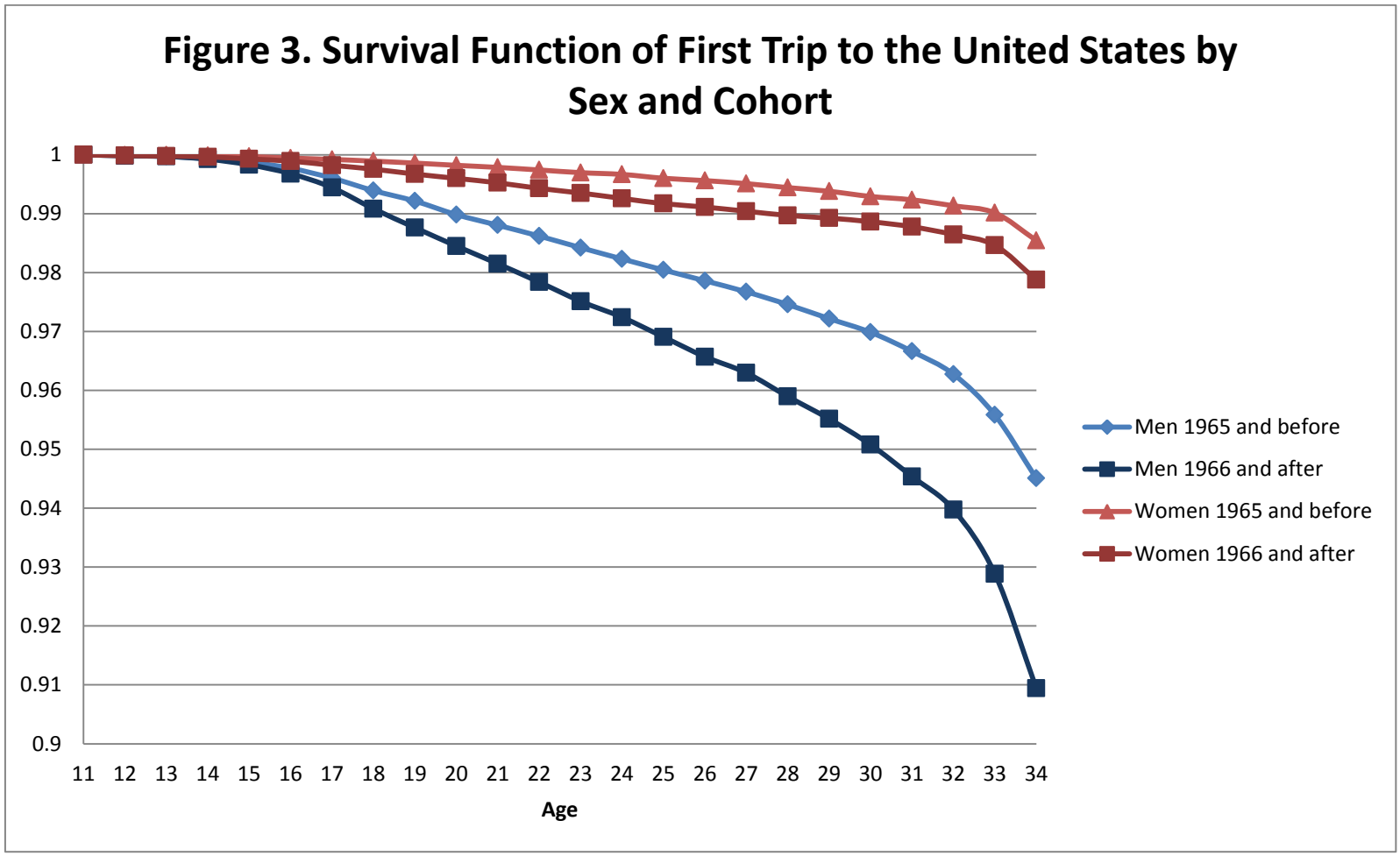
(Tables 6 continues)								
Variable	Men				Female			
	Model		Interactions		Main effect		Interactions	
U.S. policy context:								
Probability of apprehension	-4.183	*	4.438	*	-1.898		-0.948	
Availability of visas	-2.505	**	2.680	**	-3.171	*	2.457	
Survey place:								
Mexico (reference category)								
United States	1.426	***	0.692	***	2.114	***	0.823	***
Relationship to household head:								
Spouse (reference category)								
Household head					0.062		1.246	***
Constant	-3.4631 ***				-6.9320 ***			
Wald Chi square	2840.77				2026.83			
Pseudo R square	0.1962				0.4142			
Total number of person years	*174,670*				*174,559*			
Significance levels: '*' p<=0.1, '**' p<=0.01 y '***' p<=0.001								
Source: Calculations based on the Mexican Migration Project for 128 communities.								



Source: Calculations based on the Mexican Migration Project for 128 communities.



Source: Calculations based on the Mexican Migration Project for 128 communities.



Source: Calculations based on the Mexican Migration Project for 128 communities.