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Socioeconomic context and the association between marriage and Mexico–U.S. migration

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Abstract

In this paper, I analyze how the association between Mexico–U.S. migration and marriage varies across socioeconomic settings in origins. Using Mexican Migration Project data and employing bilevel survival analysis with controls for socioeconomic, migrant network, and marriage market characteristics and family size, I find that single people are most likely to migrate relative to those married in areas of recent industrialization, where the Mexican patriarchal system is weaker and economic opportunities for both men and women make post-marital migration less attractive. Marital status is not significant in agriculture-dependent areas, where the bargaining power of husbands might be higher relative to other settings; their age-profiles of earnings flatter; and remunerated female work scarcer, making migration attractive later in the life course.

Keywords

Migration; Marriage; Gender; Family; Mexico; United States

1. Introduction

Individuals decide to migrate—or not—through calculations in which various social institutions may play significant roles (e.g., Stark and Bloom, 1985; Tilly and Brown, 1967). Most notably, family members can assert various kinds of support (Flores, 2005) and opposition to the move, the latter even in patriarchal contexts with relatively well-established migrant networks, like Mexico (Hondagneu-Sotelo, 1994). The manifestation and end product of such assistance and resistance reflect not only family members' preferences but also their bargaining position within the household or family, and hence the normative context that structures their roles, at least loosely, in generational and gendered ways (Grasmuck and Pessar, 1991; Hondagneu-Sotelo, 1992).

Migration decisions are also associated with socioeconomic *milieus* in places of origin. In the case of migration between Mexico and the U.S., which is often temporary, the likelihood of migration may be highest not in the poorest areas but in those with a fair degree of (small-scale) investment opportunities (Lindstrom and Lauster, 2001). Context may matter partly because institutions have a different composition or operate differently across settings. For instance, migrant networks seem to propagate less swiftly in metropolitan areas than in small towns and rural localities (Fussell and Massey, 2004), perhaps because of the greater attractiveness and diversity of urban labor markets or the peculiarities of social organization of neighborhoods in large cities.

In a similar fashion, the composition of families, bargaining position of spouses, or the very benefits of migration for those in different stages of the family life cycle could vary across settings in ways that could imply their association with migration has different orders of magnitude or direction. For instance, female labor-force participation in remunerated activities in a patriarchal society like the Mexican could very well be possible in some settings while not in others given both local economic development and normative context. This could in turn influence the bargaining position of women with regarding a potential move, or the relative benefits of migration for married men *per se*.

While familial arrangements and socioeconomic conditions do seem to matter in their own right, there is little research on how the relevance of institutions such as marriage and the family could differ with regards to the migration process across socioeconomic settings. From the perspective of a migrant-to-be, marriage and family formation may bring new social and economic obligations that could either discourage (Hondagneu-Sotelo, 1994) or stimulate movement (Kanaiaupuni, 2000; Massey et al., 1987: Chapter 7). Responses to these obligations may in turn depend on local opportunities and local norms (Aysa and Massey, 2004). Thus, the direction, or at least magnitude, of the association between migration and marriage, which is one of the most relevant markers of changing obligations and bargaining positions for males, could vary conspicuously across socioeconomic contexts.

This paper analyzes variation across socioeconomic settings in the association between Mexico–U.S. migration and marital status/family life cycle for quasi-completed male cohorts, using retrospective labor, migration, marriage, and fertility histories from the Mexican Migration Project database. As feminist scholars have pointed out, the social construction of gender may affect the migration of men and women in different ways (e.g., Curran et al., 2006; Hondagneu-Sotelo, 2003; Pedraza, 1991). As such, I focus on the experience of single and married men with a gendered socioeconomic lens in mind while considering how variation in the association between migration and marriage under different socioeconomic conditions in origins may be expressing the different variants of the patriarchal family model prevalent in Mexico or, at the very least, mediating the effects of such patriarchal system.

I find that marital status is not strongly or significantly associated with the likelihood of a first U.S. migration *on the margin*, though having children aged 2–5 is *negatively* associated with U.S. migration in the vast majority of communities. Moreover, the association between marriage and migration varies conspicuously across settings. In (rural) areas heavily dependent on agriculture, the likelihood of becoming a U.S. migrant does not vary significantly before and after marriage. In sharp contrast, men living in moderate-sized urban areas where women have some opportunities in for paid, perhaps less informal labor in manufacturing are least likely to migrate to the U.S. for the first time after marriage. Before presenting and discussing the results, I summarize previous findings on the topic and explain why one should expect the association between marriage and migration to vary across settings. I also introduce the data and analytical strategy appropriate (if not perfect) for the purposes of the paper.

2. Background

The literature on the relationship between marriage and spatial mobility has mostly been devoted to internal migration and residential moves (e.g., Courgeau, 1977; Flowerdew and Al-Hamad, 2004; Juárez, 1996; Mulder and Wagner, 1993; Sandefur and Scott, 1981), finding single people are more geographically mobile than married individuals. The evidence with respect to international movement is scarcer but points in the same direction. Analyzing migration choices of Mexican male household heads in a bivariate fashion, Massey et al. (1987: Chapter 7) found a general pattern across the familial lifecycle: the likelihood of migration “begins at a high level among young unmarried men, *falls after marriage*, rises with

the arrival of children, and then falls again as the children mature and leave home” (p. 200; emphasis added). This pattern varied somewhat across the four communities studied by the authors. Ambitious young unmarried men were especially likely to migrate to the U.S. in communities with limited opportunities (in their study, a rural town with a high proportion of landless households) while fluctuations over the life cycle were much less pronounced in the two urban-industrial settings studied by Massey and colleagues. Their analysis, however, failed to control for individual differences in exposure to married life, among other confounders.

Kanaiaupuni (2000) compared the migration dynamics of male and female household heads in an event-history multivariate setup, finding that the likelihood of U.S. migration is higher for both single men and, especially, women relative to their married counterparts.¹ However, as Massey and colleagues posited, Kanaiaupuni found that the number of children ages 0–10 in the household was positively associated to male U.S. migration, though the predicted probabilities of migration for married men with children were still much lower than those of single individuals (see Kanaiaupuni, 2000: Table 6). As Kanaiaupuni’s estimates are net of socioeconomic characteristics of both individuals and communities, they further suggest the migration of men does not put them at odds but could even resonate with their expected roles as providers. Still, they also imply mobility is a more complicated endeavor for married individuals—especially women—net of family size and other characteristics.

Other studies have looked at the issue at hand by focusing on gender differentials in migration dynamics while tackling marital status in an indirect fashion. In their study of migration by household position and gender, Cerrutti and Massey (2001) found that *wives* of household heads tend to migrate mostly for family reasons. In contrast, (unmarried) daughters are more likely to move for work-related reasons, responding to similar factors to those their brothers and fathers respond to. As such, both marital status and generation seem to be a rather relevant determinant of gendered patterns of migration in Mexico, at least for women.

Gendered patterns of migration, especially after marriage, seem to be a reflection of the Mexican patriarchal family system, where marital unions tend to be more formal and less unstable but where women tend to have a subordinate role in household decisions to that of their male partners (Oliveira, 1998). For instance, Massey et al. (2006) found that the migratory behavior of married women in patriarchal settings such as the Mexican and Costa Rican is sensitive to the previous migration of their husband or partner, that of other relatives, and to their own possession of legal documents (as many of them emigrated to the U.S. only after their husbands sponsored their legal permanent residence, see Donato, 1993; Riosmena, 2008). In contrast, the migratory behavior of women in less patriarchal settings such as Nicaragua and the Dominican Republic is not strongly related to their partner’s behavior, suggesting the gradient between pre- and post-marital migration propensities may not be as pronounced as that of Mexican women reported by Kanaiaupuni (2000).

While household decisions may indeed be influenced by the prevalent gender and generational dynamics (even in more matriarchal societies such as the Dominican, see Grasmuck and Pessar, 1991), women in patriarchal societies do not act in a passive fashion despite the aforementioned power imbalance. In her study of Mexican migrants, Hondagneu-Sotelo (1994) found that while many wives were not consulted by their husbands with regards to their temporary separation due to migration, many did not remain passive and opposed their husbands’ migration intentions. Although they were unsuccessful in preventing their partners from migrating (Hondagneu-Sotelo only interviewed migrants), they pushed for reunification and their eventual settlement in the U.S., and in some cases were able to negotiate with their own

¹For similar results for the migration decision of Puerto Rican women, see Ortiz (1996).

labor-force participation given the high cost of living in destinations and the more limited effect of cultural norms against female work existent in origins.

Whether successfully or not women oftentimes oppose their husbands' migration as it implies the separation of the family and an added set of obligations for them in origins (see King, 2007 and references therein). Furthermore, these obligations seem to be shaped by the interplay of local norms and economic conditions. Aysa and Massey (2004) found that non-migrant wives in urban areas –but not in rural ones– are more likely to join the labor-force when their husbands leave.²

Altogether, these results do not only suggest that both men and women may face different obligations, expectations, and motivations for migration before and after marriage but that these very obligations, expectations, and motivations may vary across socioeconomic and normative settings net of the economic obligations brought by family size. Following this logic, while men may be (González de la Rocha, 1994) less constrained by marriage in order to migrate, migration may be a more reasonable way in which men perform their role as providers under certain (i.e., more limited) socioeconomic conditions.

To the best of my knowledge, there has been no systematic study of how differentials by marital status in both the propensity to migrate and the timing of international migration vary across the different socioeconomic contexts in which these decisions are made. This study looks at individual male behavior to assess whether the socioeconomic selectivity of both migration and marriage affects the relation between them, while also controlling for aggregate-level characteristics that may influence the likelihood and timing of *both* events.

Given that both men and women do seem to be more constrained from migrating by marriage one would expect that—on average and net of confounders such as family size and conditions influencing marriage timing—single men are more likely to migrate than those married (Kanaiaupuni, 2000). However, one could also expect that this relationship varies according to the degree of economic opportunities and the strength of patriarchal norms in a setting (net of the level of migration in a community and other confounders).

If males are the sole breadwinners of the household or if female labor is concentrated in unpaid, informal, and/or temporary jobs, the economic pressure on male household heads will be especially high while the bargaining power of females will tend to be low. Where, in addition, economic opportunities are limited (e.g., in a rural area with little access to land), women may be unable to persuade their partners not to migrate (Hondagneu-Sotelo, 1994). Moreover, poor economic opportunities for individuals may translate into an especially flat lifetime earnings profile (Beaudry and Green, 2000; Klevmarken, 1982). If people have little schooling and work at low-wage, low-mobility, informal jobs, labor-market experience will bring them little returns, making U.S. migration an attractive strategy either before or after marriage, as the job market would not penalize their absence. On the other hand, economically diverse areas may provide more opportunities not only to males but also to females. For people in these areas, migration may be less attractive *after marriage*, as more households can rely on earnings from both males and females, and females may also have more influence in the migration decisions of their male counterparts. Finally, one would not expect the role of social context to be linear or monotonic across the rural-urban continuum as the likelihood of migration is not high in metropolitan areas, partly because social networks are less relevant (Fussell and Massey, 2004).

²For an account of various strategies Mexican women use to cope with economic shocks including those temporarily brought by the departure of the primary breadwinner, see González de la Rocha (1994).

In order to test the aforementioned associations, we use gendered measures of socioeconomic context relevant for both migration and marriage. In the case of marriage, female economic activity indices such as labor-force participation rates and the proportion of women working in sectors such as manufacturing have been used in marital search models for both men and women (Oppenheimer, 1988). In the case of migration, measures of male and female economic activity in different sectors within their municipalities have been used as proxies for local economic opportunities (Lindstrom, 1996; Lindstrom and Lauster, 2001; Massey and Espinosa, 1997).

Certain other variables are especially good predictors of either migration or marriage, but not both. Social capital held and transmitted through kinship and *paisanaje* networks is clearly related to international migration. At the individual level, having immediate relatives with previous experience in the U.S. increases the odds of U.S. migration, especially for the first spell (Massey and Espinosa, 1997). At the aggregate level, the level of U.S. migration experience in a community has also been found to be a strong predictor of U.S. migration (see Fussell and Massey, 2004; Massey, 1990; Massey et al., 1994; Massey and Espinosa, 1997).³ In the case of marriage, aggregate-level measures of the potential availability of marriage partners have generally been found to be strong positive predictors of marriage timing. Fossett and Kiecolt (1991) analyzed the predictive power of various sex-ratio measures as proxies of marriage market conditions (also see Goldman et al., 1984; Lloyd and South, 1996). They found that adjusting sex ratios for labor-force status improved the prediction of measures of family formation. I only adjust for the labor-force participation of males, as that of females was relatively low for the cohorts under study.⁴

3. Data and methods

3.1. Data

The data come from the Mexican Migration Project (MMP), based at the Universities of Guadalajara and Princeton (see <http://mmp.opr.princeton.edu>). The MMP re-collects wide-ranging multilevel social, economic, and demographic data focused on migration to the United States. The MMP communities were selected to cover a wide spectrum of urbanization and socioeconomic conditions. Within each community, a simple random sample of 100–200 households was selected. Individual- and household-level data were collected via a flexible survey instrument, the ethnosurvey (Axinn et al., 1991; Massey, 1987), which allows for a less contrived interview than more standardized survey approaches, while careful interviewer training aims to maintain a fair degree of internal validity. As of this writing, the MMP collected data on 118 Mexican communities, surveyed (once and only once) between 1987 and 2007. As some items relevant for the analysis were included only after 1998 and as only communities surveyed on or before 2002 were available when the analyses were performed, I use data on 35 communities surveyed between 1998 and 2002, with an average refusal rate of 6.05%.⁵

³The measure commonly used in these studies, the migration prevalence ratio, is defined as the proportion of people above age 15 with some previous U.S. migration experience in a community in a given year (for a more detailed description and methodological discussion of the measure, see Massey et al. (1994).

⁴In addition, both international migration propensities (Lindstrom and Lauster, 2001; Massey and Espinosa, 1997) and marriage timing (Parrado and Zenteno, 2002; Quilodrn, 1991) are associated with people's age and educational attainment, as well as the economic base and/or dynamism in the community of origin. Age-specific migration and marriage schedules are highest for people in their early 20s, decreasing thereafter (see Hill and Wong, 2005; and Quilodrn, 1980, respectively). People in occupations commensurate with their level of educational attainment are least likely to migrate to the U.S. (Quinn and Rubb, 2005); those with medium levels of education are the least likely to marry (Quilodrn, 1991). Net of age effects, leaving school, entering the labor force, and accruing labor force experience all strongly predict marriage timing in Mexico (Parrado, 2004; Parrado and Zenteno, 2002).

⁵See [http://mmp.opr.princeton.edu/databases/pdf/codebooks/Appendix A – Sample Information \(MMP118\).pdf](http://mmp.opr.princeton.edu/databases/pdf/codebooks/Appendix%20A%20Sample%20Information%20(MMP118).pdf) (last accessed May 13, 2008).

The database includes complete retrospective life histories of household heads, most of whom are male, as is to be expected in a fairly patriarchal system with low divorce rates. Since female heads are few and their experience may not be representative, I focus on the experience of males while keeping in mind the gendered nature of marital and family life. To avoid potential biases, I studied only individuals who had already gone through the age span where most marriage and migration transitions occur—in Mexico, ages 15–45. As Panel A in Table 1 shows, some 95% of people in the study had married by age 40, and 90% of U.S. migrants had started their migratory career by age 45. Thus, the lower age limit for the study was age 45 (by the year of the survey). Since selective mortality and recall bias are natural sources of bias in retrospective studies, I set the upper age limit at 65. Heads aged 45–64 in the survey year (1998–2002) are likely to be a representative sample of their birth cohorts, because people ages 40 and over have mostly formed their own households. In sum, I study the marriage–migration behavior of male household heads belonging to the 1933–1937 to 1953–1957 birth cohorts, for the years when they were aged (on last birthday) 15 to 44—that is, for the years from the 1950s to the 1990s, which encompassed far-reaching changes in the Mexican political economy and U.S. immigration policy (Massey et al., 2002). These cohorts also experienced overall, non-monotonic delays in marriage (Quilodrn, 2001).

This selection of communities and cohorts yielded a total of 1575 individuals in 35 communities, located in 27 different municipalities ranging from a few small rural settlements, to small cities, to neighborhoods in a couple of large metropolitan areas. I supplemented these (mostly time-varying) individual-level data with municipal-level indicators coming from the National Institute of Statistics, Geography, and Informatics (see www.inegi.gob.mx), most of which were readily available from the MMP community-level files. I therefore pooled community-level data by municipality, which mainly involved integrating four neighborhoods sampled in two large urban areas. Municipal-level socioeconomic indicators similar to the ones used here are associated with the likelihood and timing of marriage (Parrado and Zenteno, 2002), the likelihood of U.S. migration (Massey and Espinosa, 1997), and migratory trip durations (Lindstrom, 1996).

A final note on the data: the experience of individuals in the sample might not be strictly representative of their cohorts in each community as some people might have not returned. The (logged odds ratio) estimates would then be biased if this proportion is sizable and if return migration is selective in terms of marital status. As it has been well-documented in the literature, return was quite common for Mexicans (Chavez, 1988; Massey et al., 1987), even for those with permanent legal residence (Jasso and Rosenzweig, 1982). Although return propensities decreased somewhat in the second part of the 1990s (Marcelli and Cornelius, 2001; Massey et al., 2002; Riosmena, 2005: Chapter 3), this is a period where *first* U.S. migration propensities are relatively low in the cohorts studied. Moreover, as one would expect married migrants to be more likely to return, especially for those without documents (Massey and Espinosa, 1997: Table 7), the estimates of the effect of marriage are probably an underestimate of the true value of the effect of marriage, and thus conservative figures.

3.2. Methods

I estimate discrete-time survival models predicting a first U.S. migratory trip of an individual in a given year t while controlling for individual- and community-level characteristics in $t - 1$. This family of models can be estimated by way of a logistic regression on a set of time-varying pseudo-observations (i.e., person-years, see Allison, 1982; Yamaguchi, 1991). To test whether marriage is negatively associated with migration dynamics, one should pay special attention to their relationship while controlling for the characteristics that might influence *both or either*, and testing for interactions between marital status and socioeconomic setting. To avoid confounding the influence of socioeconomic conditions with that of differences across

communities in marriage timing, I further control for characteristics associated with the latter such as labor-force adjusted sex ratios (see Table 2), which one would not necessarily expect to be associated with migration once controlling for socioeconomic conditions and the level of migration in a community.

The estimation method selected is that of Generalized Estimating Equations (GEE, see Liang and Zeger, 1993; Zeger and Liang, 1985). GEE considers the natural grouping of observations via an intra-cluster correlation matrix that produces asymptotically consistent and more efficient estimates and standard errors robust to clustering (Liang and Zeger, 1993: 60–61). This estimation method is especially appropriate and remarkably computationally convenient for two reasons. First, the MMP uses a two-stage sampling procedure in which communities are selected first (albeit, strictly speaking, non-randomly) and individuals and their households are selected in a second stage. Thus, when one pools data from various communities, individuals are clustered within them. Second, the method is appropriate for estimating micro–macro interactions (e.g., between marital status and community characteristics).

4. Results

4.1. The sequencing and pacing of marriage and migration

Panels A and B in Table 1 shows descriptive statistics on the marriage and migration timing of the sample. It is clear from the Panel A of the Table that marriage, broadly defined to include consensual unions, is a nearly universal event: 99% of household heads marry or establish a cohabiting union at least once. The 95th percentile of the age-at-marriage distribution is well below 44 for all union types except those in consensual unions. The latter represent a minority of unions (11%), 23% of which later become religiously or legally formalized, an important component in the pathway of consensual unions in the country (Martin, 2002; Pebley and Goldman, 1986; Quilodrán, 2001). Moreover, while only 6% of first unions had been dissolved by the survey year, the dissolution probability for consensual unions (excluding legalizations) was higher than average, at 9%. In spite these differences, I treat consensual unions the same way as other, institutionally sanctioned unions given the small number of consensual unions in the data and their relative stability.

Panel B in Table 1 shows some timing characteristics of the first U.S. trip. Among all the men sampled, 24% had embarked on their first migration to the U.S. before the survey year. First migration tends to occur slightly later in life than marriage (the median is 25, compared to 23 for marriage). This difference reflects the fact that a slight majority of people in the sample (60%) migrated after marriage, as well as the catch-up in marriage of returned single migrants (see Parrado, 2004). Men who migrated when single had trip durations on average twice as long as those who migrated when married. The relationship between marital status and trip duration is thus a topic for future consideration, one that has not yet elicited much research.

Panel C in Table 1 shows the distribution of age at marriage according to migrant status, as well as according to the individual's order of events (marriage first, or migration first). The distributions of age at marriage among never- and ever-migrants are astonishingly similar, even though the figures are not adjusted for differences in socioeconomic status and the ever-migrant group is of decent size. This empirical convergence results from a slightly lower-than-average age at marriage among married migrants compared to a fairly higher-than-average age at marriage (28) of single returnees,⁶ who, nonetheless, seem to marry more quickly than other unmarried people of the same age (see Parrado, 2004).

⁶Calculations not shown here but available from the authors show that the vast majority of people marry while in Mexico; a smaller minority do so during a year when they spent less than 6 months in the U.S. The available information on the migration and labor history of spouses shows that most of them were located in Mexico during the person-year of marriage.

Table 2 shows means and standard deviations of individual and community-level characteristics of non-migrants, those migrating while single, and those migrating for the first time after marriage. These characteristics are evaluated for the year before the occurrence of the *first* event (whether it is migration or marriage). In other words, characteristics are measured for the year before marriage for non-migrants and married migrants, while they refer to the year before migration for single migrants. Though imperfectly, these numbers show the characteristics of people at similar ages, as first-time single migrants to the U.S. are only slightly younger than the other two groups are when they marry (cf. Table 1, Panel C).⁷ In addition, Table 2 indicates those variables where there were significant differences between non-migrants and either migrant group (“A”), or between single and married migrants (“B”).

While many differences were found between the migrant groups and non-migrants (most of them discussed in detail in other studies and thus not discussed here), only three characteristics were found to be significantly different at the 0.05 level between single and married migrants. Besides the fact that single migrants were more likely to belong to the 1938–1942 cohort, married migrants are more likely than single migrants to come from places with higher percentages of economically active males in agriculture and lower proportions of people with at least 6 years of education. In other words, married migrants tend to be drawn from more rural places, giving some support to the hypothesis hereby proposed regarding context. I now turn to discussing the multivariate models in order to test whether this association prevails after controlling for characteristics generally found relevant in predicting migration or marriage.

4.2. Survival models

Two points are worth mentioning before introducing these results. First, in addition to the fact that the estimation method adjusts (coefficients and) standard errors for the clustering of individuals within communities, I generally report likelihood ratio tests rather than Wald tests. This is so for all variables except age, cohort, and marital duration, where results of Wald tests are reported for each individual coefficient. I also include a *joint* likelihood ratio test of the significance for the whole variable (shown next to its heading). Second, some community-level variables are expressed in dichotomous form in all models presented here given the expectation that context is associated to marriage and migration in non-linear ways.

Table 3 presents GEE discrete-time event-history models predicting the likelihood that a person makes a first U.S. trip. Model 1 is an additive baseline model including all covariates. Although marriage is negatively related to migration as is generally expected, the inclusion of controls (even starting with age) weakens this relationship enough to make it indistinguishable from random noise. In addition, the familial lifecycle is weakly associated with migration in a slightly unexpected way. The presence of children ages 2–5 is the only strongly significant variable, and it is negative, which is contrary to what Massey et al. (1987: Chapter 7) found (in a bivariate fashion) in their study of four Mexican communities and also to Kanaiaupuni’s, (2000) findings with respect to children below 10. However, as reported by Kanaiaupuni (2000), the presence of children of all other ages (including infants) is positively related to migration, though the effect sizes are too small to be conclusive.⁸

⁷Alternatively, one could just follow all people to the year of the survey and report their experiences. But this approach also has problems, insofar as some time-varying information (e.g., property acquisition) may be affected by migration.

⁸While the coefficients of having children ages 0–1 and 6–15 presented in Model 1 are positive though not statistically significant, they suggest differences between this study and Kanaiaupuni’s could be partly due to differences in age categorization. After attempting a similar specification to that of Kanaiaupuni’s study—using a variable indicating the number of children of the head who are 0–10 in the person-year of analysis—did not eliminate the discrepancy: the coefficient is negative but not statistically insignificant. Thus, it seems differences may be due to the more limited use of cohorts or the use of a larger set and spectrum of communities or socioeconomic controls in this study.

In alternative specifications (not shown) I tested if the effect of children ages 2–5 varies across socioeconomic settings finding that the *magnitude* of the effect does increase in larger municipalities. However, the *direction* of the effect remained negative across the vast majority of communities and was not significant in less populated areas. Thus, I constrained the effects to be the same across communities and proceed to discuss how the association between marital status and migration varied across settings.

Given the expectation that pre- or post-marital migration may be favored in some settings rather than others, Model 2 shows tests for interactions between marital status and some community-level characteristics. Overall, Model 2 shows that premarital migration is especially likely to occur in communities with higher proportions of people with primary (i.e., above-average) education and females engaged in manufacturing. Though the effect of the latter interaction coefficient is not significant, controlling for its presence strengthens the effect of other components of the marital status–context interaction, so it was left in the analysis. At the other extreme, people from mostly agricultural communities were also more likely to migrate while single rather than married.

After these three interactions are added to the model, the “main” effect of marital status on migration turns significant *and* negative. This coefficient needs to be interpreted rather precisely as the effect of marital status when *all* three other (dichotomous) contextual variables included in the interactions are zero. That is, it measures the effect of marital status in communities with fewer than 50% of males in the labor-force in agricultural occupations, fewer than 10% of females in manufacturing, *and* fewer than 35% of people ages 12 and over with 6 or more years of education. People from these communities are *more* likely to migrate to the U.S. while married rather than single. The next section interprets this finding and discusses the magnitude of these effects. However, as I explain there, this community type is not at all representative of the data, so this study confirms the notion that premarital migration is in general more prevalent, though its effect does vary considerably according to a community’s setting.

4.3. Predicted probabilities along the life course by marital status and socioeconomic setting

Since the models specified above relate to the log-odds scale, and the “effect” of marital status is to some extent contingent on the characteristics of local contexts, it makes sense to look at predicted probabilities in places of varying socioeconomic characteristics. As the event studied is time-dependent, its (one-year) probability for an individual of a given age (and fixed characteristics) will be highly contingent on the age chosen. In addition, of course, some individual characteristics vary considerably more than others along the life course. To depict these dynamics, Figs. 1 and 2 show different representations of the predicted age-specific schedule of migration between ages 15 and 44 for varying community contexts and marriage timings.

These predicted probabilities are calculated upon Model 2 reported in Table 3. Some characteristics of people (e.g., education) were fixed at average levels across all the predicted age range. But some need to vary as people age. Aside from the monotonic increase in age and period indicators, the calculations assume that people gain 12 months of labor-force experience for every added year of age (all of it in an unskilled occupation). For the sake of simplicity, community characteristics were held constant over time. As they are mostly represented in terms of discrete thresholds, this does not seem to be an unreasonable approach.

As implied by the working model, the difference in likelihood of migration among never- and ever-married people varies by community type. The three different community characteristics yield a total of 2^3 possible discrete community types, according to whether or not they reach the selected thresholds for people with primary education (35%), males in agriculture (50%),

and females in manufacturing (10%). These combinations are shown in Table 4, along with a calculation of how many municipality-years each represents out of the total space-time covered in the sample. Since some combinations are more representative of the data than others, I focus below on the four with the highest relative frequency, i.e., types 1 through 4 in Table 4, which together represent 88% of all community-years in the sample.

Type 1, with lower proportions of males in agriculture and higher proportions of females in manufacturing and people with higher educational attainment represents the established urban-industrial town (“established” as type 1 communities experienced urbanization/industrialization relatively early). In contrast, type 2 is the traditional rural community of old, where female participation in industry and educational levels are low while male participation in agriculture remains high. Type 3, with low educational levels, high proportions of males in agriculture, and moderate ones of females in manufacturing, seems to represent the early-industrializing rural community, where female participation in industry is incipient but educational levels are still low. Finally, Type 4, where basic educational levels are higher and there is some female labor-force participation in manufacturing *but* also high male participation in agriculture, can be regarded as a town of recent industrialization. Exploratory analyses (not shown here) looking at other census characteristics of the communities confirm this typology.

In the long run, marriage is a nearly universal and fairly steady state in the population under study. The exercise assumes three different ages at marriage, at 20 and 27 years of age, which correspond to the 25th and 75th percentiles of the distribution of age at marriage, as shown in Table 1. The model assumes that people remain married thereafter (at least until age 44). In addition, for simplicity, it is assumed that people have four children in total (regardless of age at marriage and none of which are a product of premarital fertility), and that they are equally spaced two years apart (again, regardless of age at marriage), with the first being born two years after marriage. Thus people of similar ages (say, 35) who married at different ages are in different stages of the familial cycle (some of them with one or two teenagers in the household, others with young children only). So, as time progresses, the effect of marital status on the likelihood of migrating becomes a “family effect.”

Panels A and B in Fig. 1 show predicted age-specific probabilities of engaging in a first U.S. trip by community type. The only difference between the predictions used for plotting the two figures is age at marriage (again, varying from age 20 to 27). When standardizing age at marriage across communities, men from rural communities (Type 2) are the least likely to migrate to the U.S. before marriage and the most likely to migrate afterwards, while the reverse is true for men from industrializing communities (Types 3 and 4). However, given differences in the effect of marriage across settings, differences in the *cumulative* probability of migrating to the U.S. between age 15 and 44 across communities vary conspicuously according to age at marriage (this probability can be obtained by multiplying the probability of remaining a non-migrant from age 15 to exact age 45).⁹ The likelihood of becoming a U.S. migrant is 7.5 percent points higher in rural than in industrializing areas (i.e., the cumulative probability of migration is 0.355 vs. 0.28, respectively) assuming marriage occurs at age 20. However, this gradient reverses if one assumes marriage occurs at age 27, where men in industrializing communities are 4.3% more likely to migrate to the U.S. than men from traditional rural areas (0.377 vs. 0.334 cumulative migration probabilities, respectively).

The large effect of marriage on migration probabilities in industrializing towns (as implied in the model and *ceteris paribus*) is clearest in Panel A of Fig. 2, which compares age-specific

⁹In life table notation, ${}_{35}q_{15} = 1 - l_{45} = \prod_{x=15}^{44} 1 - {}_nq_x$, where ${}_nq_x$ denotes the probability of becoming a U.S. migrant between ages x and $x + n$, and l_x is the cumulative probability of remaining a nonmigrant from age 15 to age x ($x \geq 15$).

migration probabilities across the two marriage ages used above plus the median age at marriage in the population (23 years-old). In this setting, the later marriage occurs, the higher is the long-term propensity to migrate to the U.S. The cumulative probability of U.S. migration between ages 15 and 44 (inclusive) varies proportionally with age around 0.75 percentage points per year. If age at marriage were 20, 28% of people would become U.S. migrants between 15 and 44; as age at marriage rose to 23, the proportion of migrants would go up to 33%; finally, this proportion would be 38% if *all* people married at 27. In short, differences brought by varying age at marriage in industrializing communities are comparable to those brought by changes in community setting, if not larger.

Panel B in Fig. 2 shows differences in the migration age gradient in traditional rural communities by age at marriage. Traditional rural settings—where migration is a more likely event—display the *lowest* gradient between pre- and post-marital migration propensities. As a result, the three age patterns in the figure look much more similar than those in Panel A. Given the lack of a sizable “effect” of marriage on migration in these areas, the likelihood of engaging in a migratory trip between ages 15 and 44 in fact slightly decreases with from 35% to 33.4% when age at marriage rises from 20 to 27 years.

5. Summary and discussion

Marriage is a nearly universal and stable event in Mexico, where a high percentage of people are in institutionally sanctioned or later legalized unions (Martin, 2002; Pebley and Goldman, 1986; Quilodrn, 1991, 2001). Typical ages at marriage for *males* are around 23–24. People with previous U.S. migration experience have remarkably similar marriage behavior. But this similarity results from a later age-at-marriage of single migrants combined with a relatively quick catch-up in marriage by people who migrate while single and return to Mexico (see Table 1; Parrado, 2004).

To better pin down the time-dependency of migration and the two-level structure of the data, I estimated several bilevel discrete-time event-history models GEE logistic regression predicting the likelihood of making a first U.S. migratory trip. As the bivariate analyses suggest, people are more likely to *initiate* their U.S. migratory careers while single rather than married. However, once appropriate controls are introduced, this relationship loses statistical significance. On the other hand, the number of young children (2–5 years-old) is strongly and negatively related to the likelihood of engaging in a first migratory trip to the U.S. It thus seems that, net of differential exposure to married life and relevant socio-demographic factors, married men *with young children* are overall less likely to migrate to the U.S., since their household position, though privileged in many ways relative to that of other household members, requires them to assume increased economic and social familial obligations while present in the household. This association held across socioeconomic settings for the most part as only the magnitude but not the direction of the effect varied across municipalities (see discussion of these results on Section 3.2).

I also examined if socioeconomic context affects whether migration precedes or follows marriage as hypothesized in Section 2. For instance, it has been suggested that at least in certain communities, where opportunities for young people are limited, ambitious young men are especially likely to migrate to the U.S. (Massey et al., 1987: Chapter 7). I found that three main characteristics had non-linear effects in determining which sequence was more prevalent at the community level: the percent of the male labor-force working in agriculture, the percent of the female labor-force working on manufacturing and the proportion of adults with more than six years of education (i.e., above average for the cohorts studied). The joint distribution of these characteristics represents a typology of communities going from traditional rural areas dependent on agriculture with low levels of female participation in manufacturing and

educational attainment to those with above-average educational attainment, high levels of male participation in agriculture, and relatively high female participation in manufacturing, all which suggest they are areas of recent industrialization.

The otherwise weak dependence of migration on marital state found in purely additive models (in the log-odds scale) became stronger in specific socioeconomic settings when considering the interaction of contextual indicators with marital status (even after taking into account the bilevel structure of the data). However, while the magnitude of the effect varied, its direction did so to a lesser extent: premarital migration remained more likely than post-marital migration throughout pretty much all the space-time studied here. The single-married gradient in migration was highest in medium-sized towns of relatively recent industrialization (followed by those that had just begun to industrialize), where post-marital migration seems to be an unlikely event and premarital migration a likelier one. At the other extreme, traditional rural communities with low levels of education and female formal economic activity displayed the lowest gradient between pre- and post-marital migration, a fact that may partly explain their higher migration propensities at older ages and their overall high migration prevalence.

The pre- vs. post-marital migration gradient in established urban-industrial centers lied between that of industrializing communities and that of rural areas, though migration overall was less likely in larger urban areas for members of the cohorts studied (it has changed in more recent years, see Bustamante et al., 1992; Cornelius, 1992; Durand et al., 2001; Hernández-León, 2008). As Mexicans in traditional rural areas generally marry earlier than in larger, more industrialized settings (Quilodrán, 2001), contextual variation in the association between migration and marriage paired with the timing of marriage and family formation (which were controlled for in the analyses) could be an important mechanism explaining differences in migration propensities and timing across these settings.

In places with limited opportunities, migration is an acceptable strategy throughout the *whole* age span in which is labor migration is most prevalent. While it is indeed more likely for younger men, it is not necessarily so for the unmarried after controlling for exposure to and the characteristics influencing marriage. Rural areas dependent on agriculture could thus be lacking opportunities to increase one's earnings later in life when compared to the opportunities available to individuals with higher formal education in larger towns, who tend to have a steeper lifetime age-earnings profile (Beaudry and Green, 2000; Klevmarken, 1982). Likewise, the patriarchal system may be operating more 'effectively' in these areas given that and perhaps reflected in the fact that women have fewer opportunities in the labor market (e.g., Aysa and Massey, 2004).

On the other hand, the likelihood of migration for the young and unmarried is especially higher—*relative* to that for married men—in industrializing areas. Net of the factors associated with marriage timing (such as marriage market indicators), a temporary, premarital migration spell also seems to be an especially attractive mobility strategy in places with growing economic opportunities (Lindstrom and Lauster, 2001). Men who live in an economically dynamic context but who have relatively few wealth-generating opportunities themselves are especially motivated to migrate in order to accumulate resources otherwise not available to them, especially in the context of imperfect credit and capital markets (Stark and Bloom, 1985). Taking advantage of these opportunities may help them accumulate the resources or social standing to marry and establish a better livelihood in their places of origin, whether by starting a (small) business venture or, more commonly, by buying real estate or building a house (Lindstrom, 1996; Parrado, 2004). This, in turn, may permit them to establish a family, in which local norms define them as the primary breadwinners.

The existence of more formal, stable, or—at least—better paid employment opportunities for women in manufacturing (at least for a non-trivial minority of the female labor-force) could additionally signify a lesser motivation of husbands to engage in U.S. migration given the additional income brought by their wives, their higher bargaining power with regards to household migration decisions (as they tend to be opposed to the move; see Hondagneu-Sotelo, 1994), or the lower constraints of the patriarchal system in more economically dynamic areas (Aysa and Massey, 2004). Future research should attempt to: further verify if the specific labor-force participation of wives is associated with the U.S. migration behavior of their husbands; investigate if this association is signaling a pure household income effect or is also indicating differences in power dynamics between couples; and—in the end—to disentangle the endogeneity between economic opportunities for women from local cultural conventions with respect to role of men and women in the household and the labor market.

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Fig. 1.
Predicted age-specific probabilities of making a first U.S. trip by community type and age at marriage = 20 and 27 Years.

Fig. 2.

Predicted age-specific probabilities of making a first U.S. trip by age at marriage for industrializing and rural communities.

Table 1
Descriptive statistics on prevalence and timing of marriage and first US migration.

(A) Marriage characteristics		Age at marriage by type of marriage								
		p5	p10	q1	Median	q3	p90	p95	Mean	SD
Total individuals in the sample	1575	100%								
Total individuals ever marrying	1553	98.6%								
Type of 1st marriage										
Religious only	23	1%	20	21	23	29	34	40	26.5	8.94
Civil only	273	18%	18	20	24	27	33	37	24.9	6.03
Religious and civil	1091	70%	18	20	23	26	31	34	23.9	5.21
Consensual union	166	11%	17	21	25.5	32	42	46	27.6	8.67
No. ending 1st marriage before survey year	98	6%								
No. of consensual unions ended (exc. legalizations)	15	9%								
No. of consensual unions legalized	38	23%								
(B) Migration characteristics		Age at trip by ever-migrant status								
		p5	p10	q1	Median	q3	p90	p95	Mean	SD
No. of people with no US migration experience	1196	76%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
No. eventually migrating at least once	379	24%	17	18	25	35	44	48	28.7	9.85
Migrated for 1st time before marriage*	150	40%	16	18	21	24	26	28	21.4	4.51
Migrated for 1st time after marriage	229	60%	21	22	32	40	46	51	33.4	9.57
		Trip duration in months (for those back from 1st trip)								
		p5	p10	q1	Median	q3	p90	p95	Mean	SD
No. eventually migrating at least once	379	24%	2	3	12	24	60	132	28.6	56.03
Migrated for 1st time before marriage*	150	40%	2	2	12	36	132	192	42.4	78.6

30.36

19.4

60

48

24

10

5

3

2

60%

229

Migrated for 1st time
after marriage

6%

No. not returning from 1st
trip by survey year

(C) Migration-marriage characteristics

Age at marriage by sequence status

	p5	p10	q1	Median	q3	p90	p95	Mean	SD
No. never migrating before survey year	17	18	20	23	27	32	36	24.5	5.97
No. eventually migrating at least once	18	19	21	23	26	32	36	24.6	6.04
Migrated for 1st time before marriage*	20	21	24	26	31	36	42	28.2	6.87
Migrated for 1st time after marriage	17	18	20	22	24	27	30	22.3	4.07

* Includes six never-married individuals (by the survey year).

Table 2

Means and standard deviations of covariates in the analysis.

	Non-migrant	Single migrant ^d	Married migrant ^{a,b}
<i>(Five-year) birth cohort (REF = 1953–1957)</i>			
1933–1937	0.073	0.116	0.093
1938–1942	0.233	0.327	0.220
1943–1947	0.259	0.163	0.234
1948–1952	0.338	0.299	0.300
<i>Socioeconomic characteristics</i>			
Educational attainment (REF = 6–11 years)	6.2	5.2	4.5
Less than 6 years	0.409	0.469	0.573
12+ years	0.155	0.061	0.066
<i>Occupation during person-year (REF = unskilled)</i>			
Out of the labor-force	0.070	0.109	0.062
Skilled occupation	0.336	0.197	0.199
Cumulative labor-force experience (in months)	115.0	98.5	103.1
One or more properties held during PY	0.103	0.082	0.049
One or more businesses owned during PY	0.040	0.034	0.022
<i>Migration-related social capital</i>			
Father a US migrant on or before PY	0.021	0.095	0.057
Mother a US migrant on or before PY	0.003	0.048	0.018
At least one brother a US migrant by PY	0.037	0.116	0.057
At least one sister a US migrant by PY	0.024	0.054	0.018
Pct. of people 15+ with US experience	7.3	10.5	9.9
<i>Municipality characteristics</i>			
Pct of males in agriculture	0.489	0.526	0.605
Pct of females in manufacturing	0.185	0.191	0.184
Female labor-force participation rates	0.172	0.161	0.147
Pct of people self-employed	0.262	0.293	0.305
Pct of people 12+ with 6+ years of education	0.303	0.256	0.220
Ratio of males 12+ in LF to (all) females 12+	1.266	1.020	1.181

	Non-migrant	Single migrant ^a	Married migrant ^{a,b}
<i>N</i>	1196	150	229

* Significant at the 0.05 level.
** Significant at the 0.01 level.
^a Reference for test of significance is non-migrant group.
^b Reference for test of significance is single migrant group.

Table 3
Discrete-time GEE logit predicting the likelihood of a 1st US Trip.

	Model 1		Model 2	
	β	SE	β	SE
Intercept	-7.678	(0.792)**	-7.143	(0.818)**
<i>Marital status/duration and family formation (main effects)</i>				
Never-married before PY (REF=ever-married)	0.097	(0.170)	-0.863	(0.314) ⁺
No. of children of the head 0–1 year-old	0.078	(0.116)	0.063	(0.115)
No. of children of the head 2–5 years-old	-0.187	(0.049)**	-0.182	(0.048)**
No. of children of the head 6–15 years-old	0.023	(0.050)	0.035	(0.051)
No. of children of the head 16–19 years-old	0.065	(0.108)	0.068	(0.108)
<i>Family formation, macro-micro interaction effects</i>				
Never-mar. * 50%+ of males in LF in agriculture	N/A		0.668	(0.283)*
Never-mar. * 10%+ of females in LF in manuf.	N/A		0.541	(0.331)
Never-mar. * 35%+ people 12+ w/6+ yrs of ed.	N/A		0.540	(0.238) ⁺
<i>Municipality characteristics</i>				
At least 50% of males in LF in agriculture	-0.240	(0.199)	-0.454	(0.242) ⁺
At least 10% of females in LF in manufacturing	0.125	(0.170)	-0.158	(0.289)
Pct of females in labor-force	0.005	(0.018)	0.003	(0.019)
Pct of people self-employed	0.014	(0.007) ⁺	0.013	(0.008) ⁺
Ratio of males 12+ in LF to (all) females 12+	-0.001	(0.001)	-0.001	(0.001)
At least 35% of people 12+ with 6+ years of ed.	-0.118	(0.233)*	-0.413	(0.334)*
<i>Age groups (REF = 40–44)</i>				
15–17	2.041	(0.511)**	2.080	(0.532)**
18–20	2.396	(0.458)**	2.414	(0.473)**
21–23	2.676	(0.425)**	2.658	(0.443)**
24–26	2.276	(0.367)**	2.254	(0.384)**
27–30	1.816	(0.330)**	1.807	(0.352)**
30–34	1.281	(0.378)**	1.291	(0.395)**
35–39	1.163	(0.295)**	1.172	(0.311)**
<i>Individual socioeconomic characteristics</i>				

	Model 1		Model 2	
	β	SE	β	SE
Educational attainment (REF = 6–11 years)				
Less than 6 years	0.121	(0.125)	0.120	(0.126)
12+ years	−0.669	(0.173)**	−0.674	(0.174)**
Occupation during person-year (REF = unskilled)				
Out of the labor-force	0.177	(0.254)	0.159	(0.247)
Skilled occupation	−0.266	(0.155) ⁺	−0.277	(0.160) ⁺
Cumulative labor-force experience (in months)	0.004	(0.001)*	0.004	(0.001)*
One or more properties held during PY	−0.310	(0.160) ⁺	−0.317	(0.160) ⁺
One or more businesses owned during PY	−0.186	(0.282)	−0.183	(0.281)
Migration-related social capital				
Father a US migrant by PY	0.493	(0.339)	0.504	(0.333)
Mother a US migrant by PY	0.770	(0.821)	0.742	(0.825)
At least one brother a US migrant by PY	0.984	(0.164)**	1.012	(0.157)**
At least one sister a US migrant by PY	0.049	(0.249)	0.039	(0.255)
Pct. of people 15+ with US experience	0.092	(0.022)**	0.090	(0.022)**
Pct of people 15+ with US experience-squared	−0.001	(0.001)*	−0.001	(0.001)*
Period fixed effects (REF = before 1965)				
1965–1969	−0.281	(0.236)	−0.316	(0.235)
1970–1974	0.161	(0.322)	0.122	(0.320)
1975–1979	0.058	(0.451)	0.066	(0.451)
1980–1984	−0.182	(0.546)	−0.088	(0.555)
1985–1989	0.187	(0.660)	0.298	(0.659)
1990–1994	−0.563	(0.955)	−0.425	(0.956)
1995–2002	1.008	(0.873)	1.122	(0.879)
Person-years	40,897		40,897	
Log-likelihood	−1848.1		−1843.8	

* 0.01 < p < 0.05.** p < 0.01.

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$+_{0.05 < p < 0.10}$

Table 4

Distribution of community-years by community types.

No.	+50% Males in LF in agriculture	+10% Females in LF in manufacturing	+35% People 12+ w/6+ yrs of education	Community-years	Percent	Proposed community type
1	No	Yes	Yes	746	40	Established urban-industrial town
2	Yes	No	No	352	19	Traditional rural community
3	Yes	Yes	No	340	18	Early-industrializing rural community
4	Yes	Yes	Yes	200	11	Town of recent industrialization
5	No	Yes	No	126	7	Neighborhood in urban area
6	Yes	No	Yes	41	2	
7	No	No	Yes	35	2	
8	No	No	No	15	1	
			Total	1855	100	