# Determinants of fertility across context: a comparison of transition to first birth among Mexican immigrants, Mexican non-migrants and non-Hispanic whites

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**Abstract**
Population statistics frequently draw attention to the fact that immigrant women have higher fertility relative to women of the majority population at destination, which researchers attribute to immigrants' sociodemographic characteristics, cultural patterns of childbearing, and adaptation to the destination context. However these assessments often rely on fertility measures that may misrepresent immigrant fertility, as well as exclude non-migrants at origin as a frame of reference. To address these limitations, I use both Mexican and US data sources to assess Mexican-origin women's transition to first birth, focusing on proximate determinants of fertility and indicators of migration. Mexican immigrant women experience first birth earlier than non-migrant women; US-born women represent an intermediate group between immigrants and whites. Longer durations of residence are associated with lower age-specific risk, but do not affect the risk of birth within marital unions. Differences in contraceptive use appear to have an important impact on women's first birth transitions.

## Introduction

Population statistics and academic research have frequently drawn attention to the fact that Mexican-origin women have higher fertility rates and total numbers of children born relative to non-Hispanic white women in the United States (US). According to recent estimates, the Total Fertility Rate (TFR) among white women is 1.9 children per woman, compared to 2.9 children per woman among Mexican-origin women (Martin et al., 2009). These differences in fertility are often attributed to Mexican immigrants' sociodemographic characteristics, cultural preferences and patterns of childbearing, and adaptation to the destination context. While these factors likely influence Mexican-origin women's fertility outcomes, two key questions have not been well-addressed in the literature. First, when in women's reproductive life course do immigrants begin to demonstrate indications of higher fertility, and second, is the higher fertility among Mexican-origin women in the US a reflection of patterns of childbearing in Mexico?

This paper aims to address these two questions and, thereby, reconsider the factors influencing Mexican-origin immigrants' fertility. Specifically, I will focus on Mexican-origin women's transition to first birth, as early entry to motherhood is an indicator of higher future fertility, and assess how two key proximate determinants of the timing of first birth, conceptions within unions and contraceptive use, vary across groups of Mexican-origin women. In addition to looking at US- and foreign-born Mexican immigrant women, I will also include Mexican non-migrants as a reference group for immigrant women's childbearing patterns. By doing so, these analyses will contribute to the understanding of the interrelationship between origin and destination contexts and the process of migration on immigrant women's fertility outcomes.

## Background of Mexican-origin Fertility

### *Fertility among Mexican-origin immigrants in the US*

There is a substantial literature investigating higher fertility among Mexican-immigrant women in the US. The majority of the literature has focused on period measures (i.e. TFR) or cumulative fertility indicators, such as the total number of children born (Ford, 1990, Bean et al., 2000, Frank and Heuveline, 2005). While the reliance on these outcomes is likely due to the nature of the data available, the measures themselves are not those which are best suited for understanding the dynamics of childbearing (Andersson, 2004). For example, period fertility measures such as total fertility rates may be distorted due to delays or accelerations in childbearing, which is likely to occur as childbearing may be more closely related to migration rather than a function of a woman's age (Bongaarts and Feeney,

1998, Sobotka, 2008). In areas with many recent migrants, the fertility rates of immigrants may be high and generate inaccurate assumptions regarding their levels of fertility over the life course. While analyses using the total number of children born are not as affected by this tempo distortion, these cumulative measures, as they are often applied, do not permit a more nuanced understanding of the dynamic processes that may be operating. Using analytic approaches investigating fertility timing to help identify parity-specific birth behavior may better explain patterns of childbearing as well as observed differences between groups in current and cumulative fertility measures (Andersson, 2004, Frank and Heuveline, 2005, Parrado and Morgan, 2008).

Very few studies have investigated fertility among Mexican-origin women in the US using these approaches, and the findings are not consistent. For example, while shorter durations of residence in the US have been associated with increased risk of first birth, indicators of acculturation and socialization were not significant in other studies (McDonald et al., 2009, Carter, 2000, Lindstrom and Saucedo, 2007). The difficulties with drawing conclusions about women's fertility behavior from these studies can be linked to the range of outcomes measured, such as risk of birth in a given year and risk of birth prior to age 20, as well as the diversity of groups employed as a reference for immigrant women.

A complimentary approach to assessing the timing of women's fertility is evaluating other proximate determinants of fertility, such as contraception. While research has pointed to low use of contraception as a contributing factor to the higher fertility of Mexican-origin women (Unger and Molina, 1998, Mosher et al., 2004), placing contraceptive use within a proximate determinants framework and the reproductive life course of immigrant women has been notably absent (Forste and Tienda, 1996). Much of the literature has, instead, focused on women's current or recent use of a contraceptive method as well as their knowledge or attitudes surrounding contraception (Garces-Palacio et al., 2008, Sangi-Haghpeykar et al., 2006, Wilson, 2009, Venkat et al., 2008, Ortiz and Casas, 1990, Romo et al., 2004). Research that has investigated the use of contraception at first sex, provides better indications of the relationship between contraception and the timing, and overall quantum, of Mexican origin women's fertility. A consistent finding in these studies is the relatively low use of contraception at first sex among Mexican-origin women (Abma et al., 2004, McDonald et al., 2009).

Also common in much of the contraceptive literature is a discussion of the relationship between women's contraceptive use and cultural factors. Differences between Mexican-origin women and other race/ethnic groups is often attributable to "cultural" norms or practices (Forste and Tienda, 1996, Sangi-Haghpeykar et al., 2006, Minnis and Padian, 2001). Differences between US-born and foreign-born women is also attributable to culture, or rather processes of acculturation (Wilson, 2009, Minnis and

Padian, 2001, Unger and Molina, 1998). However, it is difficult to support claims regarding cultural norms or patterns surrounding contraceptive use, and fertility in general, without considering the behavior and practices of women in Mexico. For foreign-born women, the behaviors and practices among Mexican non-migrants may be particularly salient. In fact, a reported limitation of the immigration and fertility literature is the lack of evidence about family formation and fertility in sending contexts that is linked to these same outcomes among immigrant women (Forste and Tienda, 1996, Landale and Oropesa, 2007). According to Landale and Oropesa (2007) the inclusion of sending areas as a frame of reference for immigrant women's fertility would be a "welcome addition" to the literature (p. 399).

*Determinants of Fertility in Mexico*

While the total number of children born to Mexican women, on average, has changed substantially over the last several decades, the determinants of fertility as it relates to first birth have remained relatively stable. Entry into motherhood occurs relatively early in Mexican women's lives (around 21 years of age); this is primarily due to early ages of forming marital or conjugal unions, a pattern that has also remained stable during Mexico's fertility transition (Fussell and Palloni, 2004, Rosero-Bixby et al., 2009, Mier y Teran, 2007). Although changes in ages at union formation and timing of first birth have occurred for younger cohorts, these changes have been modest (Fussell and Palloni, 2004, Miranda, 2006).

Related to Mexican women's early entry to motherhood is their initiation of contraception. Although the use of contraception is high, overall, among Mexican women, use of contraception early in women's reproductive lives, particularly at sexual debut, is quite low. Studies of young women report that only one-fifth to one-third of young Mexican women use a contraceptive method at first sex (Garcia Baltazar et al., 1993, Gonzalez-Garza et al., 2005, Galindo et al., 2007b). This places young Mexican women at high risk of pregnancy shortly after becoming sexually active.

The research on the proximate determinants of fertility as it relates to first birth indicates that Mexican immigrant women may exhibit patterns that are, in fact, similar to that of non-migrant Mexican women. Factors such as early entry to motherhood, close links between childbearing and union formation, and limited use of contraception at sexual debut are identified as possible reasons for this similarity. However differences attributable to the process of migration and social context of the US may help to explain the seemingly higher fertility of Mexican immigrants relative to non-migrants.

Using data on reproductive aged Mexican-origin women from both the US and Mexico, I examine women's transitions to first birth. In this analysis I address the following questions: How does transition to first birth vary across origin and destination contexts for immigrants and majority groups; does this transition differ when women's risk is assessed from the onset of reproduction (age 14) compared to the onset of union formation, the context in which the majority of fertility occurs; is contraceptive use different at sexual debut and the interval leading up to first conception for immigrant and non-migrant women?

**Data and Analysis**

For this analysis, I use cross-sectional reproductive health surveys for Mexico and the US, respectively. The 2003 Encuesta Nacional de Salud Reproductiva (ENSAR, National Survey of Reproductive Health) serves as my source of Mexican non-migrants. All women in the ENSAR will be considered non-migrants, due to the difficulty in identifying return migrants with the information available. The ENSAR interviewed 19,496 women ages 15 to 49 about their fertility, union formation and contraceptive histories, and age at first intercourse. As the survey was nationally representative, it included a considerable number of women who reported belonging to an indigenous group. Due to the fact that indigenous Mexican women have markedly different fertility patterns and account for a very small fraction of migrants to the US, they are excluded from these analyses (Miranda, 2006, Galindo et al., 2007a). This results in a sample of 17,005 non-migrant Mexican women.

My sample of Mexican-origin immigrant women in the United States comes from the 1995 and 2002 cycles of the National Survey of Family Growth (NSFG), which interviewed a combined total of 18,310 women ages 15 to 44. Similar to the ENSAR, information on respondents' fertility, union formation, and contraceptive histories and month and year of first sex are available. The data also includes information on race/ethnicity, whether the respondent was born in the US, and the year she began residing in the US. I combine the two most recent cycles of the NSFG in order to increase the sample size of Mexican-origin women in the United States, as well as create birth cohorts that correspond to those available in the 2003 ENSAR.

In the NSFG, women reporting Hispanic/Latino ethnicity and self-identifying as Mexican, Mexican-American or Chicana are considered Mexican origin. I further classify women as US- or foreign-born. Among foreign-born women, I calculate their duration of residence based on the month and year they began residing permanently in the United States. Combining both cycles of the NSFG results in a

sample of 1,849 Mexican-origin women (803 foreign-born and 1042 US-born), and 10,622 white women – who will serve as an additional reference for the fertility behavior of US-born Mexican women.

I use the conception of a pregnancy that leads to a woman's first live birth as the primary outcome in this analysis. By focusing on the estimated date of conception which led to the first birth, I am able to better address the relationship between migration and first birth. For the NSFG I rely on the estimated date of conception. In the ENSAR, I back date by nine months the date of first live birth to estimate the month and year of conception.

I used a multi-tiered approach to assess the determinants of women's first birth, described in further detail below. I first analyze women's transition to first birth beginning at age 14, in order to evaluate how a woman's risk of conceiving her first child changes as she ages. Next, I assess women's risk of first birth within conjugal unions, among those who have ever formed a union. I use this stratified event history approach rather than including indicators of union status and duration (among other related variables) in a sample that includes never-married women for several reasons. First, births among Mexican-origin women primarily occur within the context of a union (Castro-Martin, 2002, Quilodrán, 1991). Additionally, addressing time-varying marital status and other indicators of union formation for a sample with many never-married women would result in a large amount of zero exposure, thereby biasing estimates, or the construction of complex composite variables, making the interpretation of results difficult (Hoem, 2000). Finally, I compare women's contraceptive use relative to sexual debut and conception, relying on descriptive analysis. This is due to the fact that the contraceptive history data available does not include a complete history of women's contraceptive use. All analyses are weighted and take into account the sampling design of the respective datasets.

*Transition to first birth beginning at age 14*

A woman's risk for exposure to first birth begins the month and year she turns 14, and is measured in person-months of exposure. Women who conceived their first birth prior to age 14 are excluded from analysis. Those who have not conceived a pregnancy resulting in a live birth are censored at the time of the interview. Foreign-born Mexican immigrant women become at risk in the month and year they migrate to United States.

As a first step in investigating differences in transition to conception leading to first live birth (from here forward referred to as first birth), I estimate Kaplan-Meier survival functions, and determine how the timing of the transition and the proportion of women making the transition to first birth varies across groups and origin-destination contexts.

Next, I employ piecewise exponential hazard models to evaluate whether the baseline hazard of experiencing first birth differs between non-migrant, immigrant and white women, and how this risk varies, if at all, across immigrant groups. I use a piecewise exponential approach because it provides a more flexible means by which to model the hazard when the baseline rate is not known (Blossfeld and Rohwer, 2002). I stratify all models by group to account for the use of two separate datasets as well as to test assumptions about changes in the risk of birth over time between groups.

Given the nature of the data, I use a limited set of covariates to assess how key factors associated with fertility vary across groups and origin-destination contexts. Models for all groups will include women's educational status and educational attainment, modeled as a time-varying covariate, categorized as in school, less than secondary education, and secondary education or more. Although the proportion of white women with less than secondary education is low, this categorization is most appropriate for assessing the influence of educational attainment on fertility for Mexican non-migrants and Mexican immigrant women, for whom levels of post-secondary education are low (Feliciano, 2008). Models for foreign-born Mexican women (migrant and non-migrant) will also include a time-varying indicator variable for the period of the Mexican fertility transition in which the exposure occurred. This variable is categorized as before 1985, between 1985 and 1995, and after 1995, and based on the magnitude of changes in the total fertility rate in Mexico (Consejo Nacional de Poblacion [CONAPO], 2001).

The effect of migration for foreign-born Mexican immigrant women will be assessed using several different variables. To evaluate whether migration and risk of birth are closely related behaviors, women's duration of residence will be included as a time-varying covariate with the following categories: 0 to 12 months, 13 to 24 months, 3 to 5 years, 5 to 10 years, 10 years or more. Additionally, the effect of migration will be assessed using an indicator variable for where women completed their last year of schooling (Mexico or the US); where women were born and received their education are strongly associated with fertility outcomes as these are the primary socializing influences in women's lives (Stephen, 1989, Singley and Landale, 1998). Table 1 presents the number of person-months of exposure and first births across groups and categories of covariates.

*Transition to first birth within unions*

As a second step in this analysis, I evaluate how women's risk of birth varies within unions. In this analysis, women's risk begins the month and year they formed a union. For Mexican-origin women, both consensual unions and legal marriages are considered unions. Research on Mexico indicates that

consensual unions are not markedly different than marriage (Pebley and Goldman, 1986, Castro-Martin, 2002). In addition, studies of cohabitation among Mexican-origin women in the United States have found fertility to be quite high in these unions, suggesting that in this group, cohabitation serves as a surrogate to marriage (Wildsmith and Raley, 2006). Among white women, union formation begins the month and year of legal marriage, as this remains the primary context in which childbearing occurs (Martin et al., 2009). Additionally, it is unclear whether cohabitational unions represent a substitution for marriage or are a unique family form (Raley, 2001). Foreign-born Mexican immigrant women enter the risk set the month and year of migration to the US. All women are censored at the time of interview if they have not conceived their first child by the survey date.

This analysis will also use Kaplan-Meier techniques and a piecewise exponential hazard modeling approach. Covariates included in the analysis for all women include educational status and attainment as a time varying covariate and age at union formation, categorized as less than 20 years old, between 20 and 24 years old, and 25 years old or older. Additionally, models for Mexican non-migrants and immigrants include a time-varying variable for the Mexican fertility transition. Models for Mexican immigrant women only include the following migration indicator variables: duration of residence (time-varying) and country where her education was completed. A summary of the number of person-months of exposures and first births to women who ever formed a union are presented in Table 2.

*Contraceptive use relative to sexual debut and first conception*

In this section of the analysis, I compare mean ages at sexual debut and first use of contraception. This will provide indications of the duration of time between sexual debut, contraceptive initiation, and pregnancy. Additionally, I use contraceptive histories to identify the type of contraceptive method women were using at the time of conception. In the NSFG, monthly contraceptive information is available for five years prior to the survey. By locating the date of conception within the method calendar, it is possible to determine what contraceptive method, if any, women were using. My analysis of the NSFG is restricted to women who were currently pregnant at the time of the survey or whose first birth could be located within the method calendar.

Although a detailed contraceptive method calendar was not part of the ENSAR, the month, year and type of method last used (prior to a woman's current method) is available. Therefore, it is possible to identify method use relative to first birth. In order to minimize the chances of excluding women who have multiple contraceptive segments following the first birth, my analysis of the ENSAR is restricted to women who were either currently pregnant at the time of the survey or who delivered their first child

within 9 months of the survey date. Given the large sample of the ENSAR, this restriction allows for a sizeable number of women in which to explore contraceptive use.

Women's contraceptive method use is grouped into the following categories: IUDs/Implants (eg Norplant), hormonal methods (e.g. pills, injections, patch), condoms, withdrawal/rhythm/calendar methods, other methods, and no method use in the interval.

**Results**

*Transition to first birth beginning at age 14*

In a comparison of the Kaplan-Meier estimates of the survival functions for women's transition to first birth beginning at age 14, foreign-born Mexican immigrant women experience a first birth earlier than non-migrant and US-born Mexican women (Figure 1). Approximately half of Mexican immigrant women have their first child by age 20; it is not until about 2 years later (age 22) that 50 percent of non-migrants and US-born women have a first birth. These estimates also demonstrate that US-born Mexican women experience a first birth significantly earlier than white women.

Unadjusted and adjusted piecewise hazard rates reveal a similar pattern. Mexican immigrant women have higher hazard rates in each age interval relative to non-migrants (Panel A, Table 3). While at younger ages, US-born Mexicans transition at a rate that is very similar to non-migrants, differences between these groups begin to appear around age 20, when the risk for US-born women falls below that of non-migrants. Despite this decline among US-born Mexicans, women in this group have significantly more rapid transitions compared to white women. Although these findings support other research that Mexican-origin women in all groups have early entry to motherhood, there are notable differences in how fast women make this transition (Abma et al., 2004, Landale and Oropesa, 2007, Aneshensel et al., 1990). This suggests a role for sociodemographic factors and the process of migration on women's transition to first birth.

Lower levels of educational attainment increase women's risk of first birth for all groups (Panel B Table 3). The effect of less than secondary education among Mexican immigrant women is similar to that of non-migrants, while the effect for US-born Mexicans is more similar to the effect observed for whites. Additionally, women who are enrolled in school have lower risks of first birth. This is true for all groups, although the effect for US-born Mexican women is not as strong.

Mexican immigrant women whose exposure to risk occurs during the most recent periods of the Mexican fertility transition (e.g. 1995 or later) have lower risks of birth relative women whose exposure occurred during earlier periods. This effect is not significant for immigrants, however, and stands in

contrast to the effect observed for non-migrant women. Changes related to the fertility transition in Mexico, therefore, appear to have little to no significant effect on women who migrate.

Migration does have a significant effect on immigrant women's transition to first birth. However, the effect appears to be linked more to processes of socialization rather than links between migration and family formation. The risk of first birth is not statistically different for women who have recently migrated and those immigrants who have lived in the US for at least 1 to 3 years. In fact the effect of women's time in the US only becomes significant following at least 5 years of residence. This indicates that women who migrated at younger ages, and likely completed their education in the US have significantly lower risk of conceiving their first child relative to those who completed their education in Mexico; models that adjust for where women completed their education, rather than duration of residence, demonstrate similar results. Additionally, controls for indicators of migration reduce the risk associated with less than secondary education among immigrant women, and this covariate no longer exhibits a significant effect on immigrant women's risk of first birth. This suggests the limited transferability of educational skills or socioeconomic status with migration.

*Transition to first birth within unions*

The next set of results focuses on women's transition to first birth within unions. Kaplan-Meier estimates for Mexican immigrant women demonstrate a very similar pattern, albeit somewhat slower overall transition, relative to non-migrant women. Women in both groups experience first births relatively early in their unions, and 50 percent of women have become pregnant within one year following union formation (Figure 2). US-born Mexican women represent an intermediate group. The median duration of transition to first birth is somewhat longer compared to immigrant and non-migrant women (approximately 24 months), but is significantly earlier in marriage compared to white women.

A comparison of the unadjusted and adjusted piecewise hazards indicates that immigrant women's risk of first birth within unions is, in fact, quite similar to that of non-migrant women at all union durations (Panel A Table 4). Women's risk of first birth is highest in the first three months of their union and declines with increasing union durations. Risk among US-born Mexicans is substantially lower compared to other Mexican-origin women, although US-born women demonstrate a somewhat similar pattern of decreasing risk at longer union durations. This trend of decreasing risk lies in contrast to what is observed among white women, who have relatively constant risk for first birth in the first three years of their unions.

The age at which women enter into unions and women's educational status and attainment appears to work differently for Mexican-origin women (Panel B Table 4). For non-migrant and Mexican immigrant women, those who form unions younger than age 20 do not have significantly higher risks of first birth within their union relative to women who were between ages 20 and 24 years. US-born Mexican women who were less than age 20, on the other hand, do have significantly higher risks of first birth. Although whites who married before age 20 also have significantly higher risks, the effect of early age at union formation seems to be particularly strong for US-born Mexicans.

While having less than secondary education significantly increases women's risk of first birth among Mexican non-migrant and US-born women, lower levels of education do not have a significant effect on the risk of birth within unions for immigrant women. Enrollment in school also does not have a significant effect for Mexican immigrants, but enrollment does reduce a woman's risk of birth among non-migrant and US-born women who have formed unions. These results, in conjunction with those observed in women's age-specific risks, indicate that educational enrollment and attainment are not significant factors affecting the risk of first birth among Mexican women who migrate.

Migration indicators also do not have a significant effect on immigrant women's transition to first birth within unions. There is no apparent increase in risk among women who have recently migrated. Additionally, durations associated with earlier ages of migration and greater socialization to the context of the US are not associated with significantly lower risk. The lack of association between risk within unions and women's socialization to the US is also observed in the model that adjusts for where immigrant women completed their last year of schooling. This suggests that having a first birth shortly after forming a union is similar for women who were born in Mexico, regardless of their migration experience.

*Contraceptive use relative to sexual debut and first conception*

Compared to non-migrant women, Mexican immigrants are somewhat older at sexual debut, and the age at which they begin using contraception (Table 5). While Mexican non-migrant women begin using contraception, on average, one year following their initiation of sexual intercourse, there is a longer period of time between sexual debut and contraceptive initiation for immigrant women (approximately 3 years).

Again, US-born women comprise an intermediate group. They are significantly more likely to be younger, on average, when they initiate sexual activity. In fact, the average age for sexual debut for US-born women is similar to that of white women, indicating a process of socialization to early sexual

activity. However, US-born Mexican women do not initiate contraceptive use as soon as whites, but rather appear to follow the pattern of delayed initiation such as that observed for Mexican immigrant and non-migrant women. Yet, half of US-born Mexican women report using a method at first sex compared approximately one-quarter of non-migrant and immigrant women.

There are also notable differences in contraceptive method use in the interval preceding conception. Among Mexican-origin women, the use of hormonal methods was more frequently reported by those born in the US (18.8%), followed by non-migrants (14.3%) and Mexican immigrants (9.3%), and markedly lower than that reported by whites (28.8%). Condom use during the interval was common among all groups, but more frequently reported by US-born Mexican women and immigrants (32. 7% and 25.2%, respectively). Use of withdrawal and other traditional methods was highest among non-migrant women (11.4%) and lowest among Mexican immigrants (4.5%); approximately 8 percent of US-born Mexicans and whites reported using these methods.

Compared to other groups, Mexican immigrant women more often reported that they were not using a method in the interval. While the percentage of non-migrants who were not using a method was also very high (50%), the frequency of non-use was somewhat higher among immigrant women. Approximately 40 percent of US-born Mexican women also reported not using a contraceptive method in the interval, which was similar to the frequency of non-use among white women. These results indicate that, with respect to contraceptive use, US-born Mexican women occupy a middle position relative to whites and other Mexican-origin women.

**Discussion**

In this analysis, I set out to evaluate how Mexican immigrant women's fertility compares to non-migrants in Mexico and how two key proximate determinants of fertility affect women's transition to first birth. The findings indicate that Mexican-origin women in the US demonstrate several similarities to non-migrant women in Mexico, but there are important key differences between the groups that affect their timing of first birth.

Compared to Mexican non-migrant and US-born Mexican women, Mexican immigrants exhibit a more rapid transition to first birth. This can be attributed, in part, to differences in contraceptive use rather than differences in patterns of risk relative to marriage or migration. Mexican immigrant and non-migrant women have similar risks of birth within their marital unions. Additionally, immigrant women's transition to first birth does not increase in the period shortly following migration, in contrast to what has been reported elsewhere (Carter, 2000, Lindstrom and Saucedo, 2007, Andersson, 2004).

Rather, Mexican immigrant women experience longer delays in initiating contraception after becoming sexually active, and also more frequently report not using a method or using somewhat less effective contraceptive methods in the interval preceding first birth, thereby increasing their exposure to the risk of pregnancy.

While the earlier transition to first birth among immigrants may not be directly linked to an increased risk following migration, these results do indicate that migration is associated with immigrant women's fertility in other ways. First, migration appears to change the association between women's educational attainment and risk of first birth. In contrast to non-migrant and US-born women, there is not a significant difference in risk between immigrant women with less than secondary education and those with secondary education or more. This could indicate that educational skills acquired in Mexico are not transferable to the US labor market – thereby changing opportunity costs associated with childbearing (Parrado and Flippen, 2005). In fact, immigrant women who have completed their education in the US were found to have lower risks of transition to first birth. In addition to suggesting an effect of gaining relevant educational skills, this finding may also indicate a role of education and socialization to sexual and contraceptive norms in the US.

The findings for US-born Mexicans lend further evidence to this conclusion. However, it seems that longer durations in the US may result in the adoption of only certain behaviors affecting women's transition to first birth, as indicated by the intermediate position of women in this group. US-born Mexican women initiate sexual activity earlier and more frequently report using contraception at first sex compared to immigrant and non-migrant women, which explains, in part, the later transition to first birth for US-born Mexicans. Yet, the use of contraception at sexual debut, in addition to the pattern of contraceptive use before first birth among US-born women, is quite different than that of whites. This combination of delayed contraceptive use, in addition to higher risks of birth following union formation, support findings from other research on differences in risk of first birth between US-born Mexican women and whites (Aneshensel et al., 1990, Abma et al., 2004, Wildsmith and Raley, 2006).

These results provide a basis for understanding how the fertility of Mexican-origin women in the US relates to patterns of childbearing at origin. Early childbirth among Mexican-origin is not necessarily the product of cultural norms that operates the same for all women, but rather an outcome that is linked to how the determinants of fertility are shaped by social contexts. For example, for all ever-married Mexican-origin women, the risk of first birth was highest in the initial months following union formation. Early transitions to first birth within marriage is likely due to an emphasis on beginning families shortly after marriage (Hirsch, 2003, Castro-Martin, 2002). However, relative to Mexican non-

migrants, Mexican women in the US experience a somewhat lower risk of birth within unions. Among immigrant women, this may be due to the fact that women migrate soon after forming their union and wish to become more established, both financially and in their relationship with their partner, before beginning a family (Hirsch, 2002, Wilson and McQuiston, 2006). The reasons for which the risk of first birth within conjugal unions is much lower for US-born women, compared to Mexican immigrant and non-migrant women deserves further study.

Additionally, there were significant differences in the use of a contraceptive method at sexual debut. The overall low use of a method reported by the women in this analysis may be due to perceptions or attitudes in Mexican-origin communities that discourage early contraceptive use, such as fear of parents discovering one is sexually active and gender dynamics surrounding contraceptive use (Gilliam, 2007, Gilliam et al., 2004, Hirsch, 2003, Hirsch and Nathanson, 2001, Lemay et al., 2007, Martinez-Donate et al., 2004). However, the fact that use at first sex was highest among US-born Mexican women may be linked to the fact that gender roles and attitudes regarding women's sexual activity are gradually changing as families address challenges associated with living in the US (Hirsch and Nathanson, 2001, González-López, 2005).

Furthermore, patterns of contraceptive use may be affected by both shared attitudes and knowledge as well as social context. Researchers have pointed to greater levels of misinformation among Mexican-origin women regarding hormonal methods, and some have suggested this as a possible explanation for higher fertility and earlier childbirth among women in this group (Gilliam et al., 2004, Venkat et al., 2008, Sangi-Haghpeykar et al., 2006). However the differences in the types of methods Mexican-origin women use, compared to women in other groups, may also be due to other factors. For example, the higher levels of condom use observed could be attributable to the fact that this method is easier to conceal from parents (Gilliam et al., 2004) or, for Mexican immigrant and US-born women, a method that is easier to access over-the-counter in the United States.

There are several limitations of this analysis that deserve mention. First, the sample of Mexican-origin women in the United States, particularly for foreign-born immigrant women, was somewhat small, even after combining several years of the NSFG. It may be that with a larger sample of women it would be possible to detect similarities and differences between groups more clearly. However, even with a limited sample size, several findings supported results found elsewhere in the literature, thereby demonstrating the validity of these results.

Additionally, the reliance on two separate datasets resulted in the limited comparability of variables which could be used in analyses. While the variables included, such as education and age at

union formation, have been shown to have very strong influences on women's fertility, the availability of other information would prove useful (Rosero-Bixby et al., 2009, Aneshensel et al., 1990, Jejeebhoy, 1995). Specifically, cross-national data that include migration, union formation and fertility histories, as well as partnership characteristics and more detailed information surrounding contraceptive use would provide more nuanced explanations for differences observed here.

Finally, this work focused exclusively on women's transition to first birth. First birth is a significant indicator of women's future fertility, but it is also important to consider, in future analyses, women's transitions to second and third birth. This will help determine if immigrant women are transitioning to higher order parities more often than Mexican women who do not migrate and which factors may explain this difference.

**Conclusion**

This analysis provides an important contribution to the literature on the fertility patterns of Mexican-origin immigrants in the US, by using a proximate determinants approach to women's fertility and including non-migrant Mexican women as a reference for the behavior of women in the US. The results of this analysis indicate that while first birth occurs relatively early in women's reproductive lives for both those in the US and Mexico, there are important differences in fertility determinants between the groups that results in earlier transitions to first birth for some women. The differences in risk within unions and contraceptive use indicate that early childbirth among Mexican-origin women is not simply the result of cultural norms that transcend international boundaries, but rather the way in which determinants of fertility are shaped by social contexts.

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**Table 1. Frequency of person-months of exposure and first conceptions by group status**

| | Mexican non-migrants | | Mexican immigrants | | US-born Mexicans | | Whites | |
|---|---|---|---|---|---|---|---|---|
| | Exposures | Events | Exposures | Events | Exposures | Events | Exposures | Events |
| **Age Group, yrs[1]** | | | | | | | | |
| 14 - 15 | 393,423 | 1,037 | 5,032 | 16 | 24,232 | 66 | 236,361 | 191 |
| 16 - 17 | 306,839 | 2,289 | 5,334 | 53 | 18,857 | 151 | 205,983 | 633 |
| 18 - 19 | 222,291 | 2,312 | 4,844 | 71 | 13,880 | 125 | 174,292 | 849 |
| 20 - 21 | 151,244 | 1,820 | 4,200 | 64 | 9,909 | 95 | 141,719 | 792 |
| 22 - 24 | 136,736 | 1,624 | 4,756 | 89 | 9,497 | 90 | 159,900 | 1,028 |
| 25 - 27 | 73,468 | 798 | 2,981 | 52 | 5,520 | 50 | 107,808 | 776 |
| 28 + | 95,838 | 621 | 3,825 | 40 | 6,657 | 47 | 157,532 | 978 |
| **Education[1]** | | | | | | | | |
| Less than Secondary | 815,794 | 8,137 | 9,876 | 181 | 8,321 | 132 | 36,708 | 437 |
| Secondary or More | 188,851 | 1,724 | 11,268 | 155 | 31,575 | 288 | 535,132 | 3,678 |
| In school | 375,194 | 640 | 9,828 | 49 | 48,656 | 204 | 611,755 | 1,132 |
| **Fertility Transition Period** | | | | | | | | |
| Before 1985 | 398,138 | 3,222 | 8,918 | 88 | -- | -- | -- | -- |
| 1985-1995 | 463,102 | 3,964 | 15,139 | 214 | -- | -- | -- | -- |
| 1995-2003 | 518,599 | 3,315 | 6,915 | 83 | -- | -- | -- | -- |
| **Duration of residence in US[1]** | | | | | | | | |
| 0 - 12 months | -- | -- | 3,611 | 66 | -- | -- | -- | -- |
| 13 - 24 months | -- | -- | 3,131 | 47 | -- | -- | -- | -- |
| 3 - 5 years | -- | -- | 6,751 | 108 | -- | -- | -- | -- |
| 5 - 10 years | -- | -- | 7,533 | 74 | -- | -- | -- | -- |
| 10 years or more | -- | -- | 9,946 | 90 | -- | -- | -- | -- |
| **Last year of Education** | | | | | | | | |
| Completed education in Mexico | -- | -- | 11,236 | 207 | -- | -- | -- | -- |
| Completed education in US | -- | -- | 19,736 | 178 | -- | -- | -- | -- |
| **Total** | **1,379,839** | **10,501** | **30,972** | **385** | **88,552** | **624** | **1,183,595** | **5,247** |

Source: ENSAR, 2003; NSFG Cycles 1995 and 2002

-- Not applicable

**Table 2. Frequency of person-months of exposure and first conceptions among women in unions by group status**

| | Mexican non-migrants | | Mexican immigrants | | US-born Mexicans | | Whites | |
|---|---|---|---|---|---|---|---|---|
| | Exposures | Events | Exposures | Events | Exposures | Events | Exposures | Events |
| **Marital duration, months[1]** | | | | | | | | |
| 1 - 3 | 31,876 | 3,244 | 989 | 82 | 1,752 | 74 | 17,645 | 340 |
| 4 - 6 | 12,749 | 899 | 638 | 33 | 1,134 | 39 | 12,254 | 213 |
| 7 - 12 | 18,412 | 1,211 | 1,048 | 56 | 1,902 | 46 | 22,154 | 436 |
| 13 - 18 | 11,795 | 672 | 769 | 33 | 1,564 | 45 | 19,266 | 357 |
| 19 - 24 | 8,202 | 434 | 613 | 22 | 1,296 | 37 | 16,772 | 319 |
| 25 - 36 | 10,760 | 354 | 852 | 25 | 1,921 | 45 | 27,332 | 484 |
| 37 or more | 32,416 | 475 | 2,912 | 40 | 6,084 | 72 | 114,560 | 1,148 |
| **Age at marriage** | 65,747 | 4,280 | | | | | | |
| Less than 20 years old | 42,744 | 2,249 | 3,192 | 131 | 6,165 | 196 | 81,960 | 1,269 |
| 20 - 24 years old (ref) | 17,719 | 760 | 2,817 | 108 | 7,694 | 129 | 113,097 | 1,540 |
| 25 years old or more | 65,747 | 4,280 | 1,812 | 52 | 1,794 | 33 | 34,926 | 488 |
| **Education[1]** | | | | | | | | |
| Less than Secondary | 89,078 | 5,768 | 3,328 | 139 | 1,637 | 81 | 8,529 | 154 |
| Secondary or More | 28,698 | 2,107 | 3,763 | 124 | 10,453 | 217 | 192,019 | 2,789 |
| In school | 8,434 | 314 | 730 | 28 | 3,563 | 60 | 29,435 | 354 |
| **Fertility Transition Period** | | | | | | | | |
| Before 1985 | 31,582 | 2,292 | 1,572 | 66 | -- | -- | -- | -- |
| 1985-1995 | 45,713 | 2,799 | 3,847 | 159 | -- | -- | -- | -- |
| 1995-2003 | 48,915 | 2,198 | 2,402 | 66 | -- | -- | -- | -- |
| **Duration of residence in US[1]** | | | | | | | | |
| 0 - 12 months | -- | -- | 947 | 56 | -- | -- | -- | -- |
| 13 - 24 months | -- | -- | 891 | 40 | -- | -- | -- | -- |
| 3 - 5 years | -- | -- | 1,712 | 86 | -- | -- | -- | -- |
| 5 - 10 years | -- | -- | 1,781 | 51 | -- | -- | -- | -- |
| 10 years or more | -- | -- | 2,490 | 58 | -- | -- | -- | -- |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Last year of Education** | | | | | | | | |
| Completed education in Mexico | -- | -- | 4,575 | 168 | -- | -- | -- | -- |
| Completed education in US | -- | -- | 3,246 | 123 | -- | -- | -- | -- |
| **Total** | **126,210** | **7,289** | **7,821** | **291** | **15,653** | **358** | **229,983** | **3,297** |

Source: ENSAR, 2003; NSFG Cycles 1995 and 2002

-- Not applicable

**Table 3. Unadjusted piecewise hazard rates and adjusted hazard rates and ratios for transition to first birth by group status**

| | Mexican non-migrants | | Mexican immigrants | | US-born Mexicans | | Whites | |
|---|---|---|---|---|---|---|---|---|
| **Panel A: Baseline Hazard Rates** | Hazard | (se) | Hazard | (se) | Hazard | (se) | Hazard | (se) |
| **Unadjusted Model** | | | | | | | | |
| **Age, yrs[1]** | | | | | | | | |
| 14 - 15 | 0.0024 | (0.0002) | 0.0033 | (0.0009) | 0.0026 | (0.0003) | 0.0008 | (0.0001) |
| 16 - 17 | 0.0073 | (0.0003) | 0.0104 | (0.0018) | 0.0076 | (0.0007) | 0.0030 | (0.0002) |
| 18 - 19 | 0.0107 | (0.0004) | 0.0127 | (0.0020) | 0.0100 | (0.0010) | 0.0048 | (0.0002) |
| 20 - 21 | 0.0117 | (0.0005) | 0.0151 | (0.0026) | 0.0093 | (0.0010) | 0.0057 | (0.0003) |
| 22 - 24 | 0.0118 | (0.0005) | 0.0197 | (0.0022) | 0.0087 | (0.0011) | 0.0069 | (0.0003) |
| 25 - 27 | 0.0107 | (0.0006) | 0.0152 | (0.0025) | 0.0085 | (0.0013) | 0.0076 | (0.0005) |
| 28 + | 0.0050 | (0.0005) | 0.0083 | (0.0017) | 0.0069 | (0.0011) | 0.0064 | (0.0003) |
| **Adjusted Model[2]** | | | | | | | | |
| **Age, yrs[1]** | | | | | | | | |
| 14 - 15 | 0.0026 | (0.0002) | 0.0083 | (0.0026) | 0.0033 | (0.0006) | 0.0018 | (0.0002) |
| 16 - 17 | 0.0073 | (0.0005) | 0.0184 | (0.0052) | 0.0085 | (0.0012) | 0.0058 | (0.0003) |
| 18 - 19 | 0.0100 | (0.0006) | 0.0179 | (0.0044) | 0.0101 | (0.0010) | 0.0068 | (0.0003) |
| 20 - 21 | 0.0111 | (0.0006) | 0.0195 | (0.0046) | 0.0093 | (0.0011) | 0.0075 | (0.0004) |
| 22 - 24 | 0.0105 | (0.0006) | 0.0229 | (0.0033) | 0.0085 | (0.0011) | 0.0076 | (0.0003) |
| 25 - 27 | 0.0097 | (0.0006) | 0.0169 | (0.0023) | 0.0084 | (0.0013) | 0.0079 | (0.0005) |
| 28 + | 0.0045 | (0.0005) | 0.0091 | (0.0022) | 0.0069 | (0.0011) | 0.0065 | (0.0003) |

**Table 3 (cont'd)**

| | Mexican non-migrants | | Mexican immigrants | | | | | | US-born Mexicans | | Whites | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Panel B: Hazard Ratios** | HR | (se) | HR | (se) | HR | (se) | HR | (se) | HR | (se) | HR | (se) |
| | Model 1 | | Model 1 | | Model 2 | | Model 3 | | Model 1 | | Model 1 | |
| **Education**[1] | | | | | | | | | | | | |
| Less than Secondary | **1.49** | (0.07) | **1.39** | (0.18) | 1.26 | (0.16) | 1.22 | (0.18) | **1.96** | (0.27) | **2.05** | (0.15) |
| Secondary or More (ref) | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| In school | **0.31** | (0.03) | **0.42** | (0.09) | **0.43** | (0.09) | **0.45** | (0.10) | **0.68** | (0.09) | **0.38** | (0.02) |
| **Fertility Transition Period** | | | | | | | | | | | | |
| Before 1985 | 1.00 | (0.05) | 0.87 | (0.13) | 0.86 | (0.13) | 0.86 | (0.13) | -- | -- | -- | -- |
| 1985-1995 (ref) | 1.00 | | 1.00 | | 1.00 | | 1.00 | | -- | -- | -- | -- |
| 1995-2003 | **0.84** | (0.04) | 0.85 | (0.11) | 0.87 | (0.12) | 0.87 | (0.12) | -- | -- | -- | -- |
| **Duration of residence in US**[1] | | | | | | | | | | | | |
| 0 - 12 months (ref) | -- | -- | | | 1.00 | | | | -- | -- | -- | -- |
| 13 - 24 months | -- | -- | | | 0.86 | (0.18) | | | -- | -- | -- | -- |
| 3 - 5 years | -- | -- | | | 0.95 | (0.19) | | | -- | -- | -- | -- |
| 5 - 10 years | -- | -- | | | **0.63** | (0.11) | | | -- | -- | -- | -- |
| 10 years or more | -- | -- | | | **0.55** | (0.10) | | | -- | -- | -- | -- |
| **Last year of Education** | | | | | | | | | | | | |
| Completed education in Mexico (ref) | -- | -- | | | | | 1.00 | | -- | -- | -- | -- |
| Completed education in US | -- | -- | | | | | **0.71** | (0.13) | -- | -- | -- | -- |

Source: ENSAR, 2003; NSFG Cycles 1995 and 2002

HR = Hazard ratio, se = standard error
-- Not applicable
Coefficients in bold are significant at $p<0.05$

1. Indicates time-varying variable
2. Adjusted model for Mexican immigrants includes variables for education, period, and where last education was completed

**Table 4. Unadjusted piecewise hazard rates and adjusted hazard rates and ratios for transition to first birth in union by group status**

| | Mexican non-migrants | | Mexican immigrants | | US-born Mexicans | | Whites | |
|---|---|---|---|---|---|---|---|---|
| **Panel A: Baseline Hazard Rates** | Hazard | (se) | Hazard | (se) | Hazard | (se) | Hazard | (se) |
| **Unadjusted Model** | | | | | | | | |
| **Age, yrs[1]** | | | | | | | | |
| 14 - 15 | 0.1000 | (0.0036) | 0.0751 | (0.0093) | 0.0425 | (0.0054) | 0.0203 | (0.0022) |
| 16 - 17 | 0.0646 | (0.0037) | 0.0685 | (0.0179) | 0.0370 | (0.0063) | 0.0173 | (0.0017) |
| 18 - 19 | 0.0661 | (0.0040) | 0.0525 | (0.0073) | 0.0225 | (0.0035) | 0.0204 | (0.0012) |
| 20 - 21 | 0.0519 | (0.0044) | 0.0436 | (0.0096) | 0.0305 | (0.0057) | 0.0190 | (0.0013) |
| 22 - 24 | 0.0528 | (0.0049) | 0.0399 | (0.0110) | 0.0255 | (0.0047) | 0.0189 | (0.0013) |
| 25 - 27 | 0.0325 | (0.0038) | 0.0298 | (0.0064) | 0.0230 | (0.0038) | 0.0184 | (0.0010) |
| 28 + | 0.0162 | (0.0015) | 0.0114 | (0.0033) | 0.0112 | (0.0015) | 0.0106 | (0.0004) |
| **Adjusted Model[2]** | | | | | | | | |
| **Age, yrs[1]** | | | | | | | | |
| 14 - 15 | 0.0904 | (0.0058) | 0.0845 | (0.0194) | 0.0314 | (0.0048) | 0.0206 | (0.0021) |
| 16 - 17 | 0.0589 | (0.0047) | 0.0767 | (0.0262) | 0.0276 | (0.0055) | 0.0174 | (0.0018) |
| 18 - 19 | 0.0602 | (0.0048) | 0.0584 | (0.0122) | 0.0167 | (0.0032) | 0.0203 | (0.0013) |
| 20 - 21 | 0.0477 | (0.0046) | 0.0480 | (0.0131) | 0.0234 | (0.0045) | 0.0189 | (0.0015) |
| 22 - 24 | 0.0492 | (0.0052) | 0.0442 | (0.0112) | 0.0201 | (0.0040) | 0.0187 | (0.0014) |
| 25 - 27 | 0.0308 | (0.0041) | 0.0335 | (0.0095) | 0.0178 | (0.0035) | 0.0180 | (0.0011) |
| 28 + | 0.0154 | (0.0016) | 0.0125 | (0.0038) | 0.0086 | (0.0013) | 0.0101 | (0.0005) |

**Table 4 (cont'd)**

| | Mexican non-migrants | | Mexican immigrants | | | | US-born Mexicans | | Whites | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Panel B: Hazard Ratios** | HR | (se) | HR | (se) | HR | (se) | HR | (se) | HR | (se) |
| | Model 1 | | Model 1 | | Model 2 | | Model 3 | | Model 1 | | Model 1 | |
| **Age at union** | | | | | | | | | | | | |
| Less than 20 years old | 1.03 | (0.05) | 1.21 | (0.21) | 1.23 | (0.21) | 1.21 | (0.21) | **1.73** | (0.22) | **1.18** | (0.07) |
| 20 - 24 years old (ref) | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| 25 years old or more | **0.83** | (0.06) | 0.67 | (0.17) | 0.72 | (0.18) | 0.66 | (0.17) | 1.06 | (0.21) | 0.99 | (0.09) |
| **Education**[1] | | | | | | | | | | | | |
| Less than Secondary | **1.49** | (0.07) | 1.11 | (0.18) | 1.06 | (0.18) | 1.08 | (0.20) | **1.74** | (0.29) | 1.11 | (0.13) |
| Secondary or More (ref) | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | | 1.00 | |
| In school | **0.31** | (0.03) | 0.72 | (0.18) | 0.76 | (0.20) | 0.76 | (0.19) | **0.63** | (0.12) | **0.70** | (0.05) |
| **Fertility Transition Period** | | | | | | | | | | | | |
| Before 1985 | 1.00 | (0.05) | 0.88 | (0.12) | 0.87 | (0.12) | 0.89 | (0.12) | -- | -- | -- | -- |
| 1985-1995 (ref) | 1.00 | | 1.00 | | 1.00 | | 1.00 | | -- | -- | -- | -- |
| 1995-2003 | **0.84** | (0.04) | 0.82 | (0.11) | 0.87 | (0.12) | 0.84 | (0.11) | -- | -- | -- | -- |
| **Duration of residence in US**[1] | | | | | | | | | | | | |
| 0 - 12 months (ref) | -- | -- | | | 1.00 | | | | -- | -- | -- | -- |
| 13 - 24 months | -- | -- | | | 1.05 | (0.27) | | | -- | -- | -- | -- |
| 3 - 5 years | -- | -- | | | 1.43 | (0.35) | | | -- | -- | -- | -- |
| 5 - 10 years | -- | -- | | | 0.93 | (0.21) | | | -- | -- | -- | -- |
| 10 years or more | -- | -- | | | 0.70 | (0.14) | | | -- | -- | -- | -- |
| **Last year of Education** | | | | | | | | | | | | |
| Completed education in Mexico (ref) | -- | -- | | | | | 1.00 | | -- | -- | -- | -- |
| Completed education in US | -- | -- | | | | | 0.88 | (0.18) | -- | -- | -- | -- |

Source: ENSAR, 2003; NSFG Cycles 1995 and 2002

HR = Hazard ratio, se = standard error

-- Not applicable

Coefficients in bold are significant at p<0.05

1. Indicates time-varying variable
2. Adjusted model for Mexican immigrants includes variables for education, period, and where last education was completed

**Table 5. Contraceptive use relative to sexual debut and first conception among women who were currently pregnant with their first child at the time of the survey or recently delivered their first live birth[1], by group status**

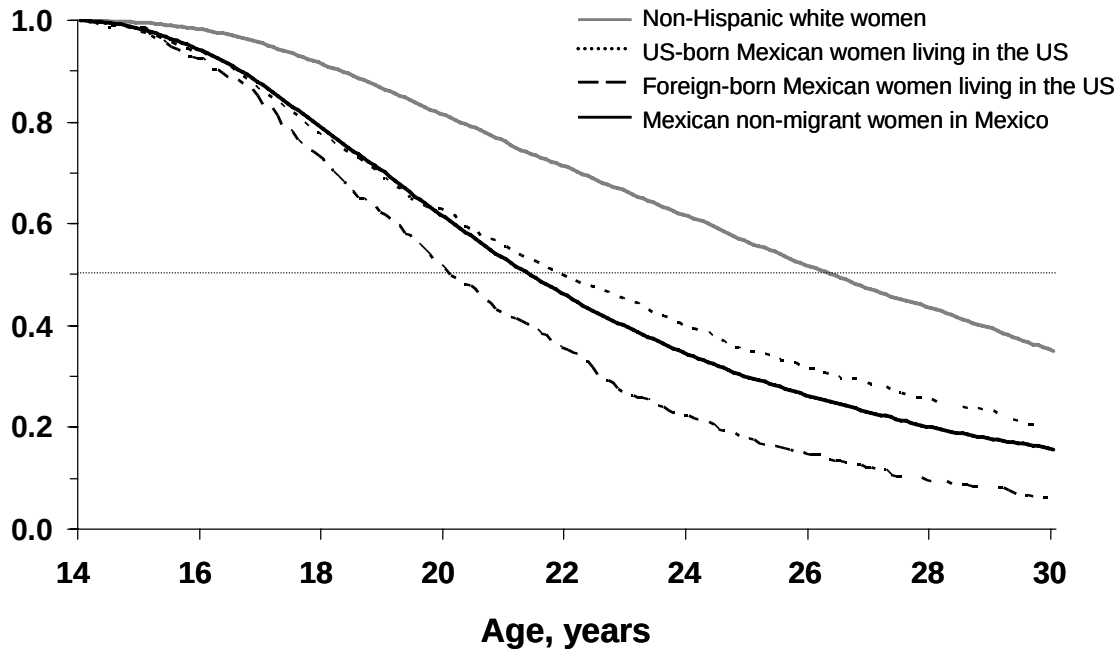
| | Mexican non-migrants (n=609) | | Mexican immigrants (n=108) | | US-born Mexicans (n=168) | | Whites (n=1,342) | |
|---|---|---|---|---|---|---|---|---|
| | | (95% CI) | | (95% CI) | | (95% CI) | | (95% CI) |
| **Mean age at first sex, yrs** | 19.0 | (18.5-19.5) | 20.5 | (19.6-21.4) | 17.3 | (16.8-17.7) | 17.1 | (16.9-17.4) |
| **Mean age at first contraceptive use[2], yrs** | 20.3 | (19.5-21.1) | 23.3 | (21.2-25.3) | 18.5 | (17.8-19.2) | 17.6 | (17.3-18.0) |
| **Used a method at first sex, %** | 28.2 | (21.7-34.8) | 27.2 | (17.6-36.7) | 50.5 | (41.0-60.1) | 72.1 | (69.5-74.7) |
| **Last method used before pregnancy, %** | | | | | | | | |
| IUD/Implant | 2.9 | (1.0-4.8) | 1.7 | (0.0-5.1) | 0.0 | -- | 0.3 | (0.0-1.0) |
| Hormonal method | 14.3 | (8.8-19.8) | 9.3 | (3.6-15.1) | 18.8 | (10.3-27.4) | 28.0 | (25.4-30.6) |
| Condoms | 20.9 | (15.3-26.5) | 25.2 | (13.5-36.8) | 32.7 | (23.5-41.8) | 22.7 | (20.1-25.2) |
| Withdrawal, rhythm, calendar methods | 11.9 | (7.2-16.5) | 4.5 | (1.0-8.2) | 8.3 | (3.6-12.9) | 8.4 | (6.8-9.9) |
| Other methods | 0.0 | (0.0-0.0) | 0.0 | -- | 0.7 | (0.0-2.0) | 3.4 | (2.4-4.4) |
| No method used in interval | 50.0 | (42.5-57.2) | 59.3 | (46.3-72.4) | 39.5 | (31.5-47.6) | 37.0 | (33.9-40.2) |

Source: ENSAR, 2003; NSFG Cycles 1995 and 2002

-- No observations for category

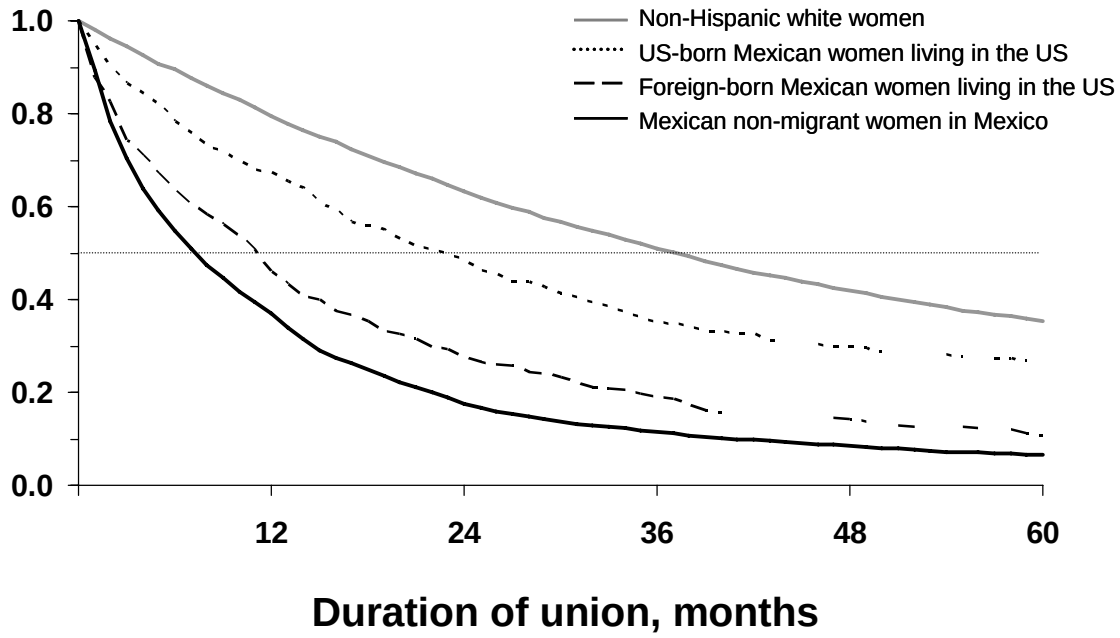
1. Women in the US samples had delivered their first live birth within 60 months prior to the survey date. Women in the Mexican non-migrant sample had delivered their first live birth within 9 months prior to the survey date.
2. Among women who reported ever having used a contraceptive method

**Figure 1. Kaplan-Meier survival estimates for transition to first birth among non-Hispanic whites, Mexican immigrants and Mexican non-migrants**




Source: ENSAR, 2003; NSFG Cycles 1995 and 2002

**Figure 2. Kaplan-Meier survival estimates for transition to first birth following union formation, by group status**




Source: ENSAR, 2003; NSFG Cycles 1995 and 2002