Understanding Minority Fertility: Contraceptive Use among First Generation Mexican Immigrant Couples in Houston, Texas, and San Diego, California

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ABSTRACT

While it is widely known that the Mexican origin population in the United States has higher fertility than the U.S. population on average, few studies explore the proximate determinants behind this higher fertility. Using Donato and Kanaiaupuni's Health and Migration Study, with detailed information on health and migration experiences of Mexican origin individuals living in Houston and San Diego, I investigate the factors underlying contraceptive use among first generation Mexican immigrant couples. In particular, I study how socioeconomic and cultural characteristics of both male and female partners in a union are related to their use of contraception. I find support for the relationship between cultural characteristics and contraceptive use, but little support for the relationship between socioeconomic characteristics and contraceptive use. The models with the best fit employ both male and female partners' characteristics, suggesting the involvement of both men and women in contraceptive decision making and the importance of the couple as the unit of analysis.

There is much evidence that the Mexican origin population and Mexican immigrants in particular in the United States have higher fertility than the U.S. population on average (see Forste and Tienda 1996), contributing greatly to the rapid growth of this segment of the population. Many researchers have explored how socioeconomic and cultural factors are related to these and other minority group rates. However, few studies explore the proximate determinants, in particular, contraceptive use, behind this higher fertility. Those that do focus on the association between migration experiences and contraceptive use, comparing couples by migrant status – whether the couple has current or past migration experience or is split between the U.S. and Mexico (Donato, Kanaiaupuni, and Carter 1999, 2001). Nevertheless, these studies do not explore the relationship between contraceptive use and socioeconomic and cultural factors particular to the experience of Mexican immigrant couples currently living in the United States. Furthermore, these studies do not focus on how the characteristics of both members of a couple function in conjunction, or in opposition, in relation to contraceptive use.

In order to fill this gap in the literature, I use a unique data set, Donato and Kanaiaupuni's Health and Migration Study, which contains detailed information on the health and migration experiences of Mexican origin women and their partners living in neighborhoods in Houston in 1996 and San Diego in 1997. With these data, I investigate the factors underlying contraceptive use among first generation Mexican immigrants. In particular, I explore how socioeconomic factors, measured by education and income, and cultural characteristics, specifically, language use and relationships with Hispanics versus

Anglos, are associated with the contraceptive use of Mexican immigrant couples.[1] Furthermore, I pay particular attention to the characteristics of both members of couples and their relationships to contraceptive use.

In this paper, I will first discuss the theoretical framework behind the relationships between contraception and socioeconomic and cultural characteristics before presenting evidence for these relationships. Then I will elaborate on the couple focus of this analysis. Next, I will discuss studies of Mexican migration and contraceptive use and unresolved issues from this work before moving on to the analysis.

THEORETICAL FRAMEWORK

The theoretical framework I employ to explain contraceptive use is the Easterlin synthesis framework (Easterlin 1975, 1978; Easterlin and Crimmins 1985). According to this framework, fertility is determined by the demand for and supply of children and the costs of fertility regulation. As Easterlin (1975) points out, demand is the result of "incomes, prices, and tastes" for children (p. 55), while supply is determined by natural fertility and survival probabilities. The costs of fertility regulation "are psychic costs – the displeasure associated with the idea or practice of fertility control – and market costs – the time and money necessary to learn about and use specific techniques" (p. 56) – depending on attitudes and access issues. When the supply of potential children is greater than the demand, a couple is motivated to limit their fertility. The behavioral outcome of this motivation, however, depends on the costs of fertility regulation – and the strength of the fertility limiting motivation. Therefore, contraceptive use depends on

[1] The couples in my sample are those who are in a union – whether religious, civil, or consensual. I use the terms "husband" and "wife" throughout the course of the paper to refer to the male and female members, respectively, of the couple whether they are legally married or not.

motivation (demand vs. supply of births) and the costs of acting on that motivation (taking into account the strength of the motivation).

Researchers exploring minority fertility have focused on factors that influence the supply of and demand for children and the costs of fertility regulation. In particular, they have derived hypotheses using socioeconomic and cultural explanations for minority fertility levels (Forste and Tienda 1996).[2] I will discuss the implications of socioeconomic characteristics and cultural characteristics for the Mexican immigrant case on the Easterlin framework below.

Before continuing, however, it is important to note that the Easterlin framework is problematic in a number of ways. For example, it is static; it explains stopping better than spacing behaviors; and it ignores gender and treats the household as an undifferentiated, monolithic unit. However, it offers a basis for understanding contraceptive use and can be improved by incorporating a gender- and couple-based perspective. With this analysis, I attempt to factor in these perspectives with a focus on the couple-dyad and each member's socioeconomic and cultural characteristics.

Socioeconomic Characteristics and Contraception

Motivation for Fertility Regulation

As discussed above, motivation for fertility control is a result of the supply of and demand for children. I will not be treating supply of children in much detail in this paper – except for parity. However, the potential supply of children is influenced by

[2] Some past research on minority fertility has also focused on a minority group status hypothesis. This hypothesis contends that minority group members limit their fertility to achieve higher status (Forste and Tienda 1996). Because the minority status hypothesis has a number of differing forms and primarily applies to minority groups with fertility levels lower than the general population, it is not useful for explaining Mexican-origin fertility and contraceptive use.

socioeconomic characteristics including education and income, which are associated with health factors that may lead to a larger potential supply of surviving children.

There are a number of ways that socioeconomic characteristics are related to demand for children. The effects of socioeconomic status may be ideational. For example, according to Gorwaney et al. (1991), socioeconomic characteristics influence the formation of values, role orientations and life plans, and thus affect fertility. Levels of education and income lead to tastes concerning lifestyles that produce differing demands for children.

These motivational factors, however, may differ for men and women; characteristics such as education, employment status, and income matter in distinct ways for men's and women's fertility decisions and outcomes. For example, for a man, having more education, being employed, and earning a high income does not conventionally conflict with decisions about having children; furthermore, having children does not usually conflict with men's educational and career pursuits.

There is much more evidence, however, for a link between fertility and career choices for women, in particular, labor force participation – although the causal ordering of the two is unclear (Cramer 1980; Waite and Stolzenberg 1976). In many cases, women's aspirations and attainment in education, employment, and income can complicate their current and future decisions about family. Though there are legally mandated minimum maternity leave benefits designed to decrease the negative career consequences, childbearing can be costly for women in jobs requiring higher levels of education and personal investment. Therefore, there exists a more immediate

relationship between demand for contraceptive use and human capital for women that does not hold in the same way for men.

Costs of Fertility Regulation

Contraceptive use is costly; therefore, couple's socioeconomic characteristics are likely to be related to their contraceptive use. Couples with more education are more likely to be better informed about different contraceptive techniques and the pros and cons associated with different methods. Although some contraceptive methods are relatively inexpensive – and in some cases are available free of charge – higher socioeconomic status couples can afford a larger selection of contraceptive methods. Therefore, such couples have more options when searching for an acceptable method. Couples with more education and higher incomes are also likely to have greater access to health care, thereby increasing the ease of accessibility to a greater number of contraceptive methods.

These costs of fertility regulation may be particularly strong for women since, traditionally, family planning has been aimed at women and most available contraceptives are female-based – often requiring visits to a health care provider for women to acquire them. Therefore, women are more often the ones who spend the time and energy to learn about and acquire the necessary methods and, perhaps, experience more of the psychic costs of using them. In contrast, family planning is less often considered a "men's issue." Furthermore, there are fewer available male contraceptive methods (including condoms, which do not require a visit to a health care provider to acquire them). Therefore, men generally do not have to incur costs of time and energy as high as those women incur acquiring contraceptives – nor are they are likely to

experience side effects from contraceptives. Socioeconomic characteristics, as a result, may have more of an impact on women's costs of fertility regulation than men's.

Cultural Characteristics and Contraception

Motivations for Fertility Regulation

As described above, motivation to control fertility results from the supply of and demand for children.[3] Considering demand, different cultural groups may value families with greater or fewer numbers of children. Applying this framework to minority fertility in the United States, most researchers exploring the cultural hypothesis of fertility argue that there is something about a particular minority or immigrant culture and its norms and values that makes individuals with greater attachments to that culture more likely to prefer and have larger families, and, therefore, less likely to use contraception. However, as more time – whether it be generations or years within an individual's lifetime – is spent in the United States (or any society with lower fertility rates) and attachments to one's culture of origin lessen, individuals are more likely to limit fertility – primarily through contraception.

This hypothesis asserts, in a sense, that some sort of cultural "assimilation[4]" takes place by which individuals gain greater acceptance of smaller family norms and contraception as they are integrated into U.S. society. In the case of Mexican migrants,

[3] Although some cultural practices, such as prolonged, intense breastfeeding or extended periods of postpartum sexual abstinence, lead to longer interbirth intervals and lower the potential supply of children, in this analysis, I will not focus on supply of children – particularly cultural characteristics associated with it. It seems unlikely that Mexican cultural practices have a great impact on potential supply of children. Instead, they are more likely to be related to demand for children.

[4] I define assimilation according to Alba and Nee (1997: 865) as "…the decline, and at its endpoint the disappearance, of an ethnic/racial distinction and the cultural and social differences that express it" (Alba and Nee 1997: 865). This definition neither assumes which group is doing the assimilating nor the direction in which it takes place. Alba and Nee argue that at the individual level acculturation appears to take place in one direction towards the mainstream, dominant culture. On another level, the minority culture is influencing the mainstream, dominant culture.

they are expected over time to take on attitudes and practices in the United States relating to fertility limitation through the increased use of contraception.

There are a number of Mexican cultural characteristics that may be related to lower motivations to contracept – particularly demands for greater numbers of children. For example, there is evidence of a long-standing pronatalist ideology promoted by the Mexican government. According to Cabrera (1994: 109), throughout the twentieth century until the 1970s, the Mexican government "…officially encouraged [large families] by social recognition and monetary awards" and by prohibiting the sale of contraceptives. The healthy state of the economy and ideological and cultural conditions at the time also sustained high fertility by promoting "the prevailing social construction of the family and, especially, of the relationship between husband and wife… [involving] sharp differentiation in the roles, rights, and prerogatives accorded to the two sexes" (Alba and Potter 1986, 58).

Although in the U.S laws against the use of contraception were liberalized in the 1930s and all restrictions against contraception for married couples were lifted in 1965 (D'Emilio and Freedman 1988), in Mexico, it was not until 1974 that the government enacted a new law to promote family planning (Cabrera 1994). Fertility rates fell during the late 1970s as contraceptive use increased dramatically following the changes in government regulations (Chen et al. 1990); however, contraceptive use in Mexico still has not quite reached the levels of use in the U.S.

For these reasons, greater Mexican cultural attachments appear to reinforce pronatalist, anti-contraception values and behaviors. However, it is likely that attachments to culture in the experience of migration and settlement function differently

for men and women – and also that men and women may vary in the speed and level to which they come to accept different facets of U.S. society and culture. Although some researchers (see Edwards 1994; Forrest et al. 1993) argue that living in the U.S. does not improve gender relations among Mexican-origin men and women – particularly when considering areas related to sexuality – others argue that Mexican immigrant women enjoy greater power and freedom than those living in Mexico (Hondagneu-Sotelo 1994; Hirsch 1999; Lindstrom and Saucedo 2002). As gender relations are an area in which Mexican migrant men can still maintain some degree of power in a country where they hold very little, Mexican migrant men may resist relinquishing that form of power. Mexican migrant women, however, may be more likely to "assimilate" and to do so more quickly as the U.S. society may allow them some more power in gender dynamics (Lindstrom and Saucedo 2002) and perhaps lessening their attachment to cultural characteristics such as pronatalism.

Costs of Fertility Regulation:

Just as cultural factors may influence a couple's motivation to control their fertility, they may also factor into the costs of fertility regulation. For example, a large majority, 89 percent, of the Mexican population is Catholic (CIA World Factbook 2001). As the Catholic Church prohibits its members from using all forms of contraception other than the rhythm method, individuals in a Catholic society – particularly those who practice the religion – may be less likely to use contraception. The influence of the Catholic Church in Mexico may increase what Easterlin termed the "psychic" costs of fertility regulation – making the acquisition and use of contraception highly unpleasant. However, from the point of view of minority fertility studies, it is possible that such

psychic costs may decrease with lessened cultural attachment to the minority group and increased integration into "mainstream" society. Because women are more often responsible for the acquisition and use of contraception, they may perceive higher psychic costs to contraceptive use then men. Therefore, women with greater cultural Mexican attachments living in the U.S. may find contraceptive use more costly in that respect than women with fewer Mexican cultural attachments. In contrast, since men less often participate in the acquisition (and use) of contraceptives, these particular costs may be minimized for them – regardless of their level of Mexican or American cultural attachment.

There is also evidence from ethnographic work that suggests that even after the shift from pronatalism to family planning in governmental policy social condemnation of the practice of contraception still exists. For example, in an ethnographic study of a rural indigenous Mexican village, Browner (1986) found that women who did not bear many children in this community were seen as lazy and selfish. Moreover, they were considered likely to be promiscuous because they had more free time and fewer obligations to children; therefore, they were seen as having more time for sexual relations aside from their marriage partners. Browner also discovered that the social disapproval of contraception was so strong that even the few women in the village who were using contraceptives denied it during the first few interactions with the author.

While as the previous study reveals that, in some cases, using contraception can damage women's social status, there can also be negative consequences for men. For men, contraceptive use and limiting fertility may lead to doubts about men's virility or their control over their wives (Folch-Lyon et al. 1981; Shedlin and Hollerbach 1981).

More recently, Donato et al. (1999) argue that husbands view contraceptive use by their wives as "an invitation for promiscuity when they were away on a migrant trip" (p. 6), challenging men's power over their wives.

Another cultural characteristic, language, is also likely to be associated with the costs of using contraception. Individuals who cannot speak English are likely to have more limited access to contraception. It is more difficult for them to communicate their contraceptive needs and desires to doctors or pharmacists in the United States; therefore, it is likely that gaining access to contraception - and in particular to methods that must be obtained through interaction with a medical professional - is more limited for these individuals.[5]

Again, differences are likely to exist in the relationship between fertility regulation costs associated with language for men and women. As women are more often responsible for acquisition of contraceptives, immigrant women's ability to communicate in English and immersion in English-speaking networks are likely to have a greater effect on their access to contraception than men's language ability.

Evidence for Socioeconomic and Cultural Characteristics Association with Contraceptive Use and Fertility

There is evidence of an association between socioeconomic characteristics and contraceptive use in the general populations of the United States and Mexico. For example, in the United States, according to data from the 1988 NSFG (Forrest and Singh 1990), there is a relationship between poverty status and contraceptive use. Although

[5] Language ability also has a socioeconomic component: individuals living in the U.S. with greater English abilities have access to more and better jobs than individuals with little English ability. Therefore, there is a link between language ability and socioeconomic status and, hence, costs of contraception. Nevertheless, language is also a cultural component and controlling for other aspects of socioeconomic status should remove most of those possible effects.

researchers have not found such a relationship in examinations of later waves of the NSFG (see Peterson 1995; Abma et al. 1997), there is evidence that contraceptive use in the U.S. varies according to community characteristics, including income and education (Grady et al 1993).

In Mexico, many researchers have found evidence for a link between socioeconomic status – including schooling, social class or background, and income – and contraceptive use (CONAPO 2000b; Chen et al. 1990; Pick et al. 1988; Folch-Lyon 1981; Tsui et al. 1981). This strong and positive relationship is likely to continue to hold true for Mexicans after migration to the United States, owing to their past experiences and behaviors in Mexico.

There is little research on the contraceptive use of Mexican-origin individuals in the United States. Although some information is available on individuals of Mexican-descent, statistics on rates of use tend to focus on the pan-ethnic Hispanic group. Moreover, statistics referring to Mexican-origin individuals do not usually separate individuals according to immigrant generation. Although little work is available on contraception, there is much more work on the fertility of people of Mexican-origin focusing on social characteristics and culture.

Most researchers have found an effect from both socioeconomic and cultural characteristics on Mexican-origin fertility levels. Wife's education, in particular, has been found to have a strong negative association with fertility (Gurak 1980, Fischer and Marcum 1984, Bean and Swicegood 1985, Swicegood et al. 1988). Gurak (1980) also found a relationship between women's occupation and family income and fertility. Economic opportunities and constraints were found to be related to Mexican-origin

fertility by Lopez and Sabagh (1978), Abma and Krivo (1991), and Lindstrom and Saucedo (2002).

The cultural characteristics that have been found to predict fertility levels among individuals of Mexican origin living in the U.S. include English proficiency (Swicegood et al. 1988, Bean and Swicegood 1985, Sorenson 1988), English use (Swicegood et al. 1988, Sorenson 1988), ethnic composition of neighborhood (Gurak 1980, Fischer and Marcum 1984), and time spent in the U.S. (Bean et al. 1984, Lindstrom and Saucedo 2002).

Couple Studies

Missing from most of the aforementioned work on fertility and contraception is a focus on both members of the couple as the unit of analysis. Other researchers have emphasized the importance of this practice. Thomson (1989), for example, argues for a more theoretically and analytically precise understanding of the couple as "an interacting dyad" (p. 268) rather than as a single, undifferentiated unit – with the female partner acting as a proxy for the couple – because married couples often do not agree about childbearing decisions. There is much evidence that information on both partners leads to better predictions of fertility behavior than information on one partner only see Becker 1996 for a review of couple studies).

Although these studies focus on fertility decision making – particularly related to fertility preferences – it is possible to apply these ideas of the couple as interacting dyad in terms of each partner's characteristics and their contraceptive outcomes. As discussed above, men and women may have differing motivations and costs of fertility regulation, which are differently affected by their own socioeconomic and cultural characteristics.

The outcome of these differences (and similarities) occurs – except in instances in which one partner is contracepting surreptitiously – at the couple level; therefore, it is important to take into account how these characteristics work together or in opposition to predict fertility regulation. Evidence from previous studies indicates that inclusion of both partners' characteristics yields better predictions of couples' actual contraceptive use (Becker 1996).

Past Studies of Mexican Immigrant Contraceptive Use

The few studies that examine contraceptive use among Mexican migrants do so through the lens of gender. These studies explore contraceptive behaviors in both Mexican and American communities with high levels of migration.

In a study using data they collected in a number of Mexican communities with high levels of U.S. migration and neighborhoods in Houston, Texas, and San Diego, California, Donato et al. (1999) find that female migrants and women from migrant households living in Mexico know more about contraception but actually use it less than those from nonmigrant households. However, greater migration experience to the U.S., currently being in a union, and being young were positively associated with the likelihood of using a modern contraceptive method. Donato et al. (1999:15) also find that "when women control the decision-making power in their households, or participate equally with their spouses, [and if they work] they have much lower odds of leaving their fertility decisions unregulated."

Using the same data in a more recent examination of the intersection between migration and contraceptive behaviors, Donato et al. (2001) study the effects of women's migration status, received remittances, and household characteristics on a number of

outcomes including the likelihood of using different contraceptive methods including the IUD, pill, female sterilization, condom, rhythm/withdrawal, and injections. In terms of specific method use, Donato et al. find that women's education has a statistically significant and positive relationship with using the IUD, female sterilization, condoms, and injection as compared to using no method.

Unresolved Issues

The existing literature with insight into Mexican immigrant contraceptive use actually focuses on the relationship between migration and contraceptive use rather than providing a thorough and pointed analysis of the relationship among current Mexican migrant couples living in the United States.

Donato et al. (1999; 2001) do include Mexicans currently living in the U.S. in their analyses. However, they consider migration status – both partners current migrants, one partner current migrant, both partners non-migrant – as explanatory variables, along with other independent variables, including received remittances, female autonomy, and education. They do not explore if and/or how these explanatory measures vary differently according to whether couples are both current migrants living in the U.S, are split across Mexico and the U.S., or are both current nonmigrants living in Mexico. Also, they include women who are not currently in a union in their analysis. The patterns of contraceptive use in such a context differ greatly from contraceptive use among those currently in marital or consensual unions.

These studies do consider couples in their analyses of contraceptive use to some extent. They include couple-level characteristics such as migration status, U.S.

experience, household decision-making, and income; however, they tend to focus more on women's characteristics and classify contraceptive outcomes as women's decisions.

Taking into account these issues, this piece of research explores contraceptive use specifically among first generation Mexican immigrant couples currently living in the U.S. I attempt to add to the couple-focused contraception literature by examining the relationships between socioeconomic and cultural characteristics of husbands and wives and their current contraceptive use.

HYPOTHESES

In this study, I test three hypotheses. According to the first, the socioeconomic hypothesis, couples with higher socioeconomic status are more likely to use contraception than lower socioeconomic status couples. According to the Easterlin framework, higher socioeconomic individuals are likely to have preferences for fewer children, in whom they make greater investments. Moreover, they are more likely to be able to afford and have greater access to contraception, thereby reducing the costs of fertility regulation. Therefore, they should be more likely to use contraception than couples of lower socioeconomic status.

The second hypothesis, the cultural hypothesis, asserts, in this case, that since Mexicans come from a generally more pronatalist culture with lower rates of contraceptive use, increases in acculturation to American culture will lead to increases in contraceptive use. In other words, regardless of socioeconomic status, individuals with higher levels of Mexican ethnic attachment will be less likely to use contraception than individuals with lower Mexican ethnic attachment. In terms of the Easterlin framework, individuals with greater Mexican cultural attachment are likely to have higher demands

for children and greater psychic and material costs of fertility regulation; therefore, they should be less likely to use contraception.

My third hypothesis, which is not treated in the Easterlin framework, explores the relative importance of male and female socioeconomic and cultural characteristics. It states that both wives' and husbands' characteristics matter in models of contraceptive use, although they may function differently. Models containing husbands and wives' characteristics will better predict contraceptive use than wife- or husband-only models, although wife-only models will better predict contraceptive use than husband-only models.

Data and Methods

For this analysis, I use data from the Health and Migration Survey (HMS), a binational data collection project developed and carried out by Donato and Kanaiaupuni to explore the relationship between health and migration in Mexico and the U.S. This project has yielded a number of data collection efforts in both countries. Data from the earlier waves of the survey come from representative samples in eight communities in San Luis Potosí, Mexico. Data collection in the United States is based on those respondents' primary migration destinations: one neighborhood in Houston, Texas, and another in San Diego, California. The neighborhoods in the two cities vary greatly in terms of age distribution, recency of migration, and homeownership. The Houston neighborhood is older, more established, and has higher rates of homeownership; the San Diego neighborhood is younger, with more recent migrants and fewer homeowners (Donato et al. 2001). The specific datasets that I use come from the two earliest waves of data collection in the U.S.: Houston, 1996, and San Diego, 1997.

In order to select the samples in the two neighborhoods, the investigators walked through them and made note of their boundaries and areas – such as commercial establishments – that should be excluded from their sampling frame. The researchers then used a listing of household addresses within these boundaries to randomly select a sample of households. Trained interviewers were sent to these households to schedule interview appointments with the woman of the house.

The data collection is based on an in-person interview with the primary woman in the household and gathers information related to her family and others living in the household (almost always in Spanish). The survey covers a range of topics including, most importantly for this analysis, the processes of migration and fertility.

From the 292 women in the combined Houston, 1996, and San Diego, 1997, data files, I select the 127 first generation Mexican women age 15 to 49[6] who are not pregnant, currently in a union,[7] and living with a first generation Mexican migrant man. I delete seven cases in which the wife is sterilized and had her last birth before migrating to the U.S. in order to exclude couples whose contraceptive decisions were made in Mexico rather than the United States. I eliminate three households from the sample that are missing information on the dependent variable – current contraceptive use – and one household in which information regarding the husband and general household is missing, leaving 116 cases. Of these cases, there are six with information missing for independent variables measuring cultural characteristics. For all but one of these cases, I am able to

[6] Although analyses of current contraceptive use in the U.S. generally use a narrower age range (15 to 45), I choose the wider age range that is more prevalent among the analyses of contraceptive use in Mexico. This age range increases my sample size slightly and also is in agreement with research on with higher fertility populations in which women bear children through a wider range of age (CONAPO 2000a; CONAPO 2000b).

[7] Unions include marriages, whether religious, civil, or both, and consensual unions as indicated by the respondent.

substitute for missing values with either the partner's information or other similar measures from the individual. I will discuss these methods of substitution further when I present the variables themselves. For the one case I delete, all information for both wife and husband on all cultural measures is missing. These procedures result in a final sample size of 115 couples.

In their analyses described above, Donato et al. (1999, 2001) use the HMS data also. My sample differs from theirs in that I use only the data collected in the communities in the U.S., containing information from those individuals whom Donato et al. (1999, 2001) refer to as "current migrants."

Dependent Variable

I measure the dependent variable by an item from the contraception section of the HMS survey. This question inquires about the principal method one is currently using to prevent pregnancy. The response categories include a negative response (no method) as well as the following methods: pill, IUD, injectables, gel or cream, condom, sterilization of the woman, sterilization of the man, rhythm or abstinence, withdrawal, and other. I create a dummy variable of current contraceptive use from this item coding all negative responses – or the non-use of contraception – as zero and all other responses indicating a contraceptive method as one.

Independent and Control Variables

Wife-Only and Husband-Only Measures

In the wife- and husband-only models, there are measures of socioeconomic and cultural characteristics as well as control variables. The socioeconomic measures I use

are for education in Mexico, a dummy variable indicating completion of secondary school or greater,[8] and the natural logarithm of income in dollars in the last month.[9]

My cultural characteristics indicators include a scale of English use and a measure of relationships with Hispanics versus Anglos. In order to measure English use, I create a scale out of survey items which measure how often an individual speaks English at home, with friends, and in the neighborhood. I average the response scores to these three items to create an overall English use score ranging from 1 to 4, with one indicating no English spoken at home, with friends, or in the neighborhood, and four indicating English is always spoken at home, with friends, and in the neighborhood. The scales for both wife's and husband's English use have sizeable reliability coefficients (Cronbach's alpha is 0.83 and 0.73, respectively). Removing each variable from the scales reduces the coefficients; therefore, the items within the scale appear to be highly correlated.

As discussed above, there are seven cases with missing information for which I substitute values. For English use, four of these cases have missing information. For two of these cases, the wife is missing information on all of the variables in the scale; therefore, I substitute the husband's English use score. For the other two cases, the wife is missing information from two of the three English use items composing the scale; therefore, I use the available English use information – in both cases, English use in the neighborhood – for the overall English use score. To test the impact of these

[8] I tested other measures of education including a second dummy variable indicating completion of primary school. It did not have a statistically significant effect and did not improve the fit of the model. Furthermore, I tested total years of education in Mexico and in the U.S. Neither of these variables was statistically significant and both provided a worse fit to the models than the measure of completed secondary education in Mexico.

[9] I also included measures of English ability in early versions of my socioeconomic models, since English ability is likely to be associated with the kinds of jobs an individual has and one's access to contraceptive services, but excluded these variables as they were not found to be statistically significant and worsened the fit of my models.

substitutions, I include a flag for those cases where English use information is substituted. This flag is never statistically significant and has very little impact on the regression results; therefore, I exclude it from further analysis.

As another indicator of immersion in Mexican vs. U.S. culture, I employ a measure of relationships with Hispanics versus Anglos for both wife and husband. I use survey items which ask respondents about their "friendly relationships" with Chicanos, Latinos, and *gringos* (Anglos). I create a dummy variable indicating whether an individual responds that he/she has more, closer relationships – through work and in other areas – with Hispanics (Chicanos or Latinos) versus Anglos. If the Hispanic relationships score is greater than the Anglo score, the closer Hispanic relationships measure has a value of one. If the Hispanic and Anglo scores are the same or the Anglo score is higher, the closer Hispanic relationships variable is coded as zero.[10]

I use substitutions for five cases missing information on relationships with Hispanics and Anglos. For these cases, I substitute the spouse's relationship information for the other spouse. Again, I include a flag to indicate such cases. This flag is never statistically significant, so I remove it from further analyses.

I include a number of control variables to take into account other factors that might influence contraceptive use outside of the previously discussed measures. The controls in wife- and husband-only models include parity, current place of residence, religion, desire for more children, marital status, age, documentation status, and U.S. experience. As individuals are likely to make contraceptive decisions based on the number of children they have, I include three dummy variables to control for the effects

[10] While this measure somewhat confounds ethnic attachment and friendliness or sociability, because I use a comparison between Hispanic and Anglo relationships, I am able to control for friendliness/sociability to some extent.

of parity on contraceptive use. The dummy variables indicate if the couple currently has one or no surviving children, three or four surviving children, or five or more surviving children, respectively. The reference category is for couples in which they have 2 living children, the modal category.

The current place of residence dummy variable indicates whether the couple lives in Houston, Texas, or San Diego, California (the reference category). To measure religion, I include a dummy variable which represents those women who report practicing the Catholic religion. Although religion is a cultural measure that can be related to contraceptive use, I include it as a control variable because it precedes many of the other measures in time and it is not likely to change over time; therefore, whether a wife identifies as Catholic or not may not indicate much about her level of Mexican cultural attachment. There is no equivalent survey item for husbands.

I create the desire for no more children variable from a survey item that asks the wife why she does not want more children. A score of zero indicates that she wants more children while every other response is a reason why she does not want more. I collapse these responses to a score of one. Again, there is no equivalent measure for husbands in the survey. While one would expect, theoretically and practically, that this variable would be significantly related to contraceptive use, I do not find such evidence of any relationship; therefore, I will not discuss its results further below.[11]

I also include controls for marital status – whether the couples are formally married (whether civil and/or religious) or if they are in a consensual union (the reference category) – and age in years. I use controls for documentation status also, as individuals

[11] Perhaps if a similar item were available for husbands there would be a better fit to actual contraceptive use. Furthermore, the survey item does not take into account timing. While a respondent might answer that she wants more children still, she may desire them in the future and not at the survey date.

without documents have lower wages, are less likely to be integrated into American mainstream society, and have less access to social services (Donato and Massey 1993; Chavez 1998). Documentation status, therefore, can represent to some degree cultural attachment and socioeconomic status. This dummy variable indicates whether the individual is currently documented, or has legal status in this country, with the reference category indicating current undocumented status.

The final control measure captures the U.S. experience of the wife and the husband. After testing various measures – including cumulative years of U.S. experience – I decided upon a generational-type measure recommended by Rumbaut (2003). He argues that there are significant differences among individuals who may technically be classified as first generation (i.e., were born abroad and migrated to the United States) according to the age at which they came to the U.S. Broadly, Rumbaut asserts that individuals who migrate as children are likely to have experiences of incorporation in American society very different from individuals who migrate as adults, and perhaps these immigrant children are to some extent more similar to the second generation. Rumbaut proposes that one classify the immigrant children of immigrants as the 1.5 generation in contrast to the true first and true second generations.[12] I create this measure of generational status as a dummy variable by calculating the individuals' ages at last migration from the year of their last U.S. trip. Those whose last trip to the U.S. was before age 18 receive a score of one on the 1.5 generation dummy variable. Those who migrated as adults, at age 18 or later, are in the reference category. Of course, what this

[12] Rumbaut even goes so far as to distinguish the 1.5 generation into the 1.25, the 1.5 and the 1.75 generations (2003). I lack the number of cases to divide my sample in this way; therefore, I collapse the age categories into one group, which I assign the term 1.5 generation (although Rumbaut classifies the exact ages of the 1.5 generation as 6 to 12 and the 1.25 generation as 13 to 17).

variable measures is somewhat ambiguous. U.S. experience, or generation, may affect both the costs of fertility regulation – psychic and financial – as well as the demand for children; it contains components of both the socioeconomic and cultural characteristics hypotheses. For example, it can be related to increases in socioeconomic status that occur as more time is spent in the U.S.; it can also be associated with decreasing Mexican cultural attachment. By including the socioeconomic and cultural characteristics measures, I can explore whether or not they help explain any relationship found between generation and contraceptive use.

Couple Measures

In order to explore the effects of couple characteristics on contraceptive use, I employ couple difference scores and transformations of individual-level variables to take into account the impact of couple differences and similarities of different characteristics on contraceptive use. The socioeconomic variables I create to measure couple characteristics are husband-wife Mexican education differences and the natural logarithm of the couple's total income in the last month. For the couples' cultural characteristics, I create difference scores of couples English use and a combined Hispanic versus Anglo relationship score. In the couple analyses, I use the same control measures for parity, place of residence, religion[13], and marital status as described above. However, because husbands' and wives' ages, documentation status, and generation have moderate to very high correlations,[14] I transform these variables to represent couples' similarities and differences. However, in testing these various difference scores and couple variable transformations, I find very few of them are statistically significant and add to the fit of

[13] There is no equivalent measure in the survey for the male partner's religious identification.
[14] The correlation coefficient for husbands and wives' ages is 0.76. For their documentation statuses, it is 0.37. For their generations, it is 0.43.

the models. Therefore, of the aforementioned transformations, I only include the couple's total income. Individual-level variables from both the wife and husband perform better in the couple models than the other created couple measures.

Analytical Methods

I use logistic regression to measure the association between the explanatory variables and contraceptive use among Mexican migrant couples. For all of my types of analyses – wife-only, husband-only, and couple – I employ four regression models to determine the extent to which socioeconomic characteristics and cultural factors are associated with contraceptive use. I start with baseline models that include only the control variables. Then I add, in two separate sets of models, the socioeconomic characteristics and the cultural characteristics to these baseline models. The final models are full models, including both socioeconomic and cultural variables along with the controls.

Results

The models I will present here will be the reduced versions of the models I described above with the best fits and the most efficient designs according to the Schwarz information criterion (SIC), a statistic provided by the statistical program SAS that is equivalent to the Bayesian information criterion (BIC) statistic, and the Akaike information criterion (AIC). These statistics are measures that take into account sample size, model parsimony, and goodness of fit, penalizing models with additional parameters that add little explanatory value (see, for example, Raftery 1995; Kuha forthcoming).[15] They have different goals and properties. SIC seeks "to identify the models with the highest probabilities of being the true model for the data, assuming that one of the models

[15] Results from other models are available in theAppendices.

under consideration is true" (Kuha forthcoming: 25-26), while AIC "uses expected prediction of future data as the key criterion of the adequacy of a model" (p. 26). They are also preferable in this case to log likelihood ratio tests as they can be used to compare non-nested models. Because they have different properties, when they provide similar results, one can feel reasonably confident about the goodness of fit of compared models (Kuha forthcoming). Importantly for these results, because the criteria prefer parsimony, reduced versions of my models perform best. I continue below with a discussion of the goodness of fit of the various models using SIC and AIC before discussing the separate regression results of selected models.

According to the couple hypothesis, models containing information from both members of a couple should better predict contraceptive use than models with wife- or husband-only information. Across the various reduced models, this appears to hold true. Comparing the information criteria across control, socioeconomic, cultural, and full models, the couple models have the lowest SIC and AIC values in every set of models – except for the full models in which the most reduced wife-only model has a very slight edge in terms of goodness of fit (in both SIC and AIC) over the most reduced couple model (see Table 1 for SIC and AIC comparisons). However, comparing slightly less reduced full models – incorporating one more variable for income of the wife and couple, respectively – reveals a similarly small difference in fit, this time favoring the couple model over the wife-only model.

Looking at the fit of the models also provides evidence for the cultural hypothesis over the socioeconomic hypothesis. The reduced cultural models for wives only and couples yield a better fit than both of their equivalent control and socioeconomic models.

The couples' cultural model provides a better fit to the data than the couples' full model according to both AIC and SBC. The wives' full model, however, fits the data better than the cultural model according to the AIC and worse according to the SIC, because AIC penalizes the larger model less than SIC (Kuha forthcoming). The husbands' cultural model is not an improvement over the fit of the control model, but its fit is better than that of the reduced husband socioeconomic characteristics and full models according to AIC and SBC. Therefore, the only full model, containing both socioeconomic and cultural characteristics, that has an improved fit over the cultural model is for wives only and only according to the AIC. Overall, the model with the best fit according to both information criteria is the reduced couple cultural model.

I will now elaborate in some detail on the results for five models I have selected for their theoretical importance and goodness of fit (see Table 2). Four of these are couple modes: control, socioeconomic, cultural, and full. The fifth model is the full wife model, which I will touch on as a comparison to the full couple model.

Model 1, the couple control model, yields a better fit to the data than all other models except the couple cultural model according to both SIC and AIC. A number of control variables are associated with contraceptive use. As expected, parity is statistically significantly related to contraceptive use. The odds of couples with one or no children using contraception are 16.6 percent of the odds of using contraception for couples with two children. Somewhat surprisingly, couples with three or four children also have statistically significantly lower odds of current contraceptive use than those with two children ($p<.10$). Their odds are 36.4 percent of the odds of those couples with two children. Implications of this finding will be discussed below. Place of residence is also

statistically significantly related to contraceptive use. The odds of using contraception in Houston are 34.4 percent of the odds of using contraception in San Diego. Unexpectedly, the wife being Catholic has a marginally statistically significant and positive association with couple's contraceptive use ($p=.13$), increasing the odds of contraceptive use over couples with non-Catholic wives by 142 percent. Being married rather than in a consensual union also statistically significantly increases the odds of using contraception ($p<.10$), in this case, by 164 percent. Husband's documentation status is also statistically significantly related to contraception ($p<.10$). The odds of using contraception for couples in which the husband is documented are actually 36.5 percent of the odds for couples in which the husband is undocumented. Finally, the largest impact on the odds of contraceptive use comes from wife's generational status. Couples in which wives migrated to the U.S. before age 18 have odds of contraceptive use that are 630 percent higher than the odds for couples in which the wife migrated after 18 years of age.

Addition of socioeconomic variables yields similar results to those in the couple control models – both those including couple income and wife education (see Appendix C) and those containing wife income as the only socioeconomic variable (see Table 2). I omit discussion of models with income measures in them since the income measures are never statistically significant and worsen the fits of the models according to SIC and AIC. In Table 2, Model 2, the reduced couple socioeconomic model, there are some differences from the couple control model. For example, the addition of an indicator of wife's secondary education to the model leads to a reduction to marginal significance ($p=.11$) of the parity measure for couples with 3 or 4 children. Furthermore, the Catholic religion and husband's documentation status variables fall out of statistical significance

in this model. However, the statistical significance and size of the effects of wife's generation increase, now yielding a 727 percent increase in the odds of contraceptive use for couples in which the wife is 1.5 generation versus other couples. The introduction of the wife's secondary education variable into the model does not improve the model's fit over the control models and the education measure does not reach statistical significance, though it is in the expected direction.

In contrast to the socioeconomic models, Model 3, the reduced couple cultural model, containing the wife's English use score, does have an improved fit over the couple control model. The couple measure of relationships with Hispanics versus Anglos is not statistically significant and does not improve the fit of the models according to SIC and AIC; therefore, I do not discuss these results here. They can, however, be viewed in the Appendices. Comparing the couple control and reduced couple cultural models, the effects are similar for the control variables although they are somewhat stronger in the cultural model for the statistically significant parity measures, residence in Houston, and marital status. In the cultural model, being Catholic attains greater statistical significance ($p<.10$) and has a greater impact on the odds of contraceptive use. The relationship between husband's doc status and contraceptive use decreases somewhat in this model, attaining only marginal statistical significance ($p=.11$). The association between wife's generation and couple's contraceptive use also diminishes slightly although it remains statistically significant and has the largest coefficient, increasing the odds of contraceptive use by 356 percent for couples with 1.5 generation wives over other couples. Importantly, while the addition of the cultural characteristics of wife's overall English use score does reduce the generational status coefficient from its size in the

control model, it does not explain much of its relationship with contraception. Wife's English use, however, has a statistically significant and sizeable impact on contraceptive use. For every one point increase in wife's average English use, the odds of the couple using contraception increase by 339 percent. The strength of the association of this variable with contraceptive use leads to the improved fit over the control model seen in the BIC and AIC statistics.

The results of the reduced couple (Model 4) and wife (Model 5) full models are quite similar to the couple cultural models in terms of the control variables.[16] The same parity measures, place of residence, religion, marital status, and generational measures are statistically significant (or marginally significant) and relatively similar in size in all of these models. Husband's documentation status, however, loses statistical significance in the couple full model. In both the wife and couple full models, wife's English use remains statistically significant and the positive coefficient increases in size somewhat over that in the couple cultural model. The largest difference between the wife and couple full models, and from the couple socioeconomic model, is the attainment of statistical significance ($p<.10$) of wife's completion of secondary schooling in Mexico in the wife-only full model. The odds of using contraception are 156 percent greater for couples in which the wife has at least completed secondary schooling in Mexico compared to other couples. This variable does not attain statistical significance in the full couple model; however, it is in the expected direction.

Discussion and Conclusion

[16] The most reduced form of the full models incorporates wife's education and wife's English use as measures of the socioeconomic and cultural characteristics, respectively. The models with other socioeconomic and cultural measures can be found in the Appendices.

The results of these analyses indicate that having information from husbands and wives together yields better predictions of contraceptive use than having information from husbands or wives alone. This finding provides support for efforts of family planning programmers and researchers to incorporate men in fertility-related issues. However, it is also true that the wife-only models provide a much better fit to the data than do the husband-only models. Furthermore, improvement in fit of combined husband and wife information over wife-only information certainly is not very large. Nevertheless, shared couple characteristics – parity, place of residence, and marital status – have consistent and strong relationships with couple contraceptive use.

Generally, I find the expected associations between parity and contraceptive use. Couples with one or fewer children appear to want more and, therefore, are less likely to use contraception than couples with two children. However, couples with three or four children also have lower odds of using contraception than couples with two children. It appears that there are some couples who want to stop childbearing at two children and others, those who reach three children, who want more.

Another relationship that is statistically significant in every model run is that between place of residence and contraceptive use; living in Houston is associated with a lower likelihood of using contraception than living in San Diego. There are a number of possible explanations for this difference in contraceptive use. For example, it is possible that there are differences between the neighborhoods in health care and reproductive services available or differences in the degree to which they successfully provide health services to the Mexican migrant community. If such differences exist in these

neighborhoods, the results of this analysis are evidence that access differentials have a large effect on contraceptive outcomes amongst these migrants.

It is also possible that the history and structure of the two neighborhoods have led them to have differing levels of contraceptive use. As discussed above, the Houston neighborhood is an older, more established Mexican community. Moreover, it has a much longer history as a predominantly Mexican area than the San Diego neighborhood. It is possible that individuals of Mexican-origin living in the Houston community have been better able to preserve their Mexican culture as, through many generations, they have had little non-Hispanic contact within their own neighborhood. Because of this, more traditional Mexican values, including a positive view of large families and social condemnation of contraception, may persist in this neighborhood – perhaps even as they change in Mexico. Moreover, this more established community may have greater social sanctions for those who appear to deviate from these values and norms than for individuals living in a community, such as the one in San Diego, which has less of an established Mexican presence.

In contrast, as the San Diego neighborhood is a newer migrant community, the traditional norms against contraceptive use may be less prevalent there than in Houston or subject to fewer social sanctions. Moreover, in this more recently established migrant community, there may be greater exposure to non-Mexican individuals and the health care and family planning services available to the "native" or non-Mexican origin population living in the community.

Marital status is also consistently associated with contraceptive use; couples who are formally married are more likely to use contraception than couples in consensual

unions. This result indicates that it is more difficult for individuals in consensual unions to negotiate matters such as contraceptive use than it is for married couples. Also, since domestic partner benefits are very uncommon in this country, in cases in which a husband in a consensual unions receives health insurance through his job, his partner is not likely to be eligible for health benefits through his policy. Therefore, some couples in consensual unions may have more limited access to a number of contraceptive methods than some formally married couples.

Along with these couple measures, wife's religion and husband's documentation status also prove, at times, to be significantly associated with contraceptive use, although in unexpected directions. Couples in which the wife is Catholic have higher odds of contraceptive use than other couples. Perhaps because I lack husband's religious identification and measures of religiosity (see Goldscheider and Mosher 1991), I find this unpredicted result. The documentation status findings are also somewhat unexpected. In some models, couples in which the husband is documented have lower odds of contraceptive use, even though one would expect that couples with documented partners are likely to have better jobs and more access to services. However, it is possible that because undocumented couples have a more precarious financial and social existence (Chavez 1998), they are more careful to control their fertility.

Although there is some evidence that wife's education is associated with contraceptive use, there is generally little support for socioeconomic explanations. Furthermore, the amount of education needed to have any effect (and only in one model) is quite substantial (9 or more years), considering that only about 30 percent of women in the sample have that much. Regarding income, perhaps if there were better measures

than income earned in the last month, we would find more expected results. Further research will help determine such a relationship.

The most important finding from this analysis is support for a seeming cultural explanation of contraceptive use. Support for this hypothesis comes from the results of wife's English use and wife's generational status, a control variable. Wife's English use may be related to both demand for children and the costs of fertility regulation. Regarding demand, increased use of English indicates increased socializing with English speakers and participation in networks of English speakers. English-language speakers may be of Mexican origin, but they are not likely to be the most recent immigrants from Mexico with the strongest ties to Mexican culture. Therefore, women who speak English more with their families and friends and in their neighborhoods are likely to be exposed to cultural influences somewhat removed from more traditional and less acculturated Mexican ones.

Both the psychic and material costs of fertility regulation are influenced by women's English use. Those women who are less involved in more traditional Mexican cultural networks are less likely to feel any social condemnation or other psychic costs from the use of contraception. Furthermore, English language networks, regardless of whether there is an actual difference in pronatalism between English-speaking and Spanish-speaking women or Mexican and American "cultures", are likely to provide better information on the specifics of acquiring various contraceptive methods in the United States.

Women who use English more often are likely to participate in wider networks in the U.S. than women who use Spanish more. These larger networks and the weak ties

often associated with them may provide more information about contraception and access to contraceptive techniques to women who use English more often, as Watkins and Danzi (1995) found among immigrant women in the Depression era.

Furthermore, it is important to note that it is *women's* English use that has this strong association with couple's contraception. As noted above, women have traditionally been the ones taking care of reproductive issues. However, this finding highlights the importance of women's networks for disseminating information on contraception and other reproductive issues.

Associated with the finding on English use and arguably in support of the cultural characteristics hypothesis is the finding that wife's generational status is related to couple's contraceptive use. That is, couples in which the wife migrated to the U.S. before age 18 are more likely to use contraception than other couples. This finding appears to be in line with an acculturation argument for a number of reasons. First, socioeconomic factors do not explain away this relationship; the controls for income and education do not reduce the effect of generation.[17] Instead, the wife's generational status coefficient is larger in models in which income and education are included than other models.

The addition of cultural characteristics also does not substantially alter the effect of wife's generational status, although addition of an indicator for wife's English use reduces the effect of wife's generation somewhat. Instead, it appears that generational status is measuring some other aspect of cultural attachment. For example, comparing the results of wife's generation with another measure of U.S. experience provides

[17] Of course, the indicators of socioeconomic status included in my analysis are not the only possible measures nor necessarily the best ones.

evidence in favor of a cultural argument. While wife's English use accounts for some of the effect of wife's generational status, it has a much larger effect on cumulative time spent in the U.S., another indicator of U.S. experience, reducing its relationship to contraceptive use to statistical insignificance (results not shown). Therefore, whatever the mechanism through which wife's English use accounts for cumulative time spent in the U.S. (perhaps access-related issues or shifts in demand for children), it is not the same for the generational status indicator. Thus, this finding indicates that the effect of wife's generational status on couple's contraceptive use must function through some other mechanism. In this case, it seems possible that there is something particular to the experience of coming to the U.S. at a younger age that is associated with contraceptive use. For example, individuals who immigrate at younger ages may be more likely to view American society as their frame of reference rather than the country from which they migrated (Portes and Rumbaut 2001), with possible consequences for contraceptive use (Forste and Tienda 1996), operating through ideas about demand for children and costs about fertility regulation that indicate some form of acculturation.

In summary, this analysis offers evidence that the incorporation of both men and women into studies of fertility and reproductive issues provides at least a somewhat better understanding of such issues than focusing on women (or men) alone, providing support for the cultural hypothesis. Furthermore, while little evidence is found for the socioeconomic hypothesis, the analysis does yield some support for the cultural hypothesis of contraceptive use among first generation Mexican immigrant couples. More research, particularly with greater numbers of cases in additional sites, is necessary to further explore these issues.

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Table 1. AIC and SIC Scores for Logistic Regression Models

	Wife			Husband			Couple		
Control Models									
AIC	148.83			152.97			146.53		
SIC	176.27			177.68			173.97		
	Socioeconomic Models								
	With education & income	With education		With education & income	With income		With wife education & their income	With wife education	
AIC	150.19	148.48		156.41	154.41		149.22	147.31	
SIC	183.12	178.68		186.61	181.86		182.16	177.50	
Cultural Models									
	With English use & Hispanic vs. Anglo relationships	With English use		With English use & Hispanic vs. Anglo relationships	With English use		With wife English use & couple Hispanic vs. Anglo relationships	With wife English use	
AIC	145.24	143.45		155.64	153.65		143.42	142.29	
SIC	178.18	173.64		185.83	181.10		176.36	172.48	
Full Models									
	With education, income, English use & Hispanic vs. Anglo relationships	With education, income, & English use	With education & English use	With education, income, English use & Hispanic vs. Anglo relationships	With education, income, & English use	With income & English use	With wife education, couple income, wife English use & couple Hispanic vs. Anglo relationships	With wife education, couple income, & wife English use	With wife education & wife English use
AIC	146.20	144.33	142.54	159.07	157.10	155.13	145.58	144.21	142.59
SIC	184.63	180.02	175.48	194.76	190.04	185.32	184.01	179.89	175.53

Table 2. Logistic Regression Results for Selected Models

	Model 1: Couple Controls		Model 2: Couple Socioeconomic Characteristics: Wife education		Model 3: Couple Cultural Characteristics: Wife English use		Model 4: Couple Full: Wife education and wife English use		Model 5: Wife Full: Education & English use	
Parity										
One or fewer children	-1.794 (0.710)	*	-1.813 (0.712)	**	-2.012 (0.768)	***	-2.008 (0.772)	***	-1.779 (0.741)	**
Two children	Ref.		Ref.		Ref.		Ref.		Ref.	
Three or four children	-1.011 (0.590)	+	-0.966 (0.596)	+	-1.183 (0.622)	*	-1.133 (0.632)	*	-1.077 (0.626)	*
Five or more children	-0.150 (0.733)		0.090 (0.766)		0.000 (0.745)		0.268 (0.777)		0.293 (0.777)	
Place of residence										
Houston	-1.068 (0.500)	*	-1.176 (0.517)	**	-1.247 (0.522)	**	-1.373 (0.540)	***	-1.373 (0.540)	**
San Diego	Ref.		Ref.		Ref.		Ref.		Ref.	
Wife's religion										
Catholic	0.885 (0.590)	+	0.861 (0.595)		1.070 (0.609)	*	1.058 (0.620)	*	0.973 (0.609)	+
Non-Catholic	Ref.		Ref.		Ref.		Ref.		Ref.	
Marital status										
Married	0.972 (0.581)	*	1.123 (0.598)	*	1.261 (0.617)	**	1.445 (0.636)	**	1.331 (0.635)	**
Consensual union	Ref.		Ref.		Ref.		Ref.		Ref.	
Wife's age	-0.029 (0.043)		-0.031 (0.043)		-0.051 (0.045)		-0.054 (0.045)		-0.034 (0.051)	
Documentation status										
Wife is documented									-0.668 (0.561)	
Wife is undocumented									Ref.	
Husband is documented	-1.007 (0.585)	*	-0.785 (0.613)		-0.989 (0.605)	+	-0.728 (0.633)			
Husband is undocumented	Ref.		Ref.		Ref.		Ref.			
Generation										
Wife is 1.5 generation	1.988 (0.796)	**	2.112 (0.814)	***	1.516 (0.812)	*	1.610 (0.842)	*	1.834 (0.879)	**
Wife is not 1.5 generation	Ref.		Ref.		Ref.		Ref.		Ref.	
Education in Mexico										
Wife has secondary education or higher			0.636 (0.585)				0.758 (0.594)		0.941 (0.570)	*
Wife has less than secondary education			Ref.				Ref.		Ref.	
Wife's English use score					1.479 (0.663)	**	1.570 (0.684)	**	1.707 (0.691)	**
Intercept	1.794 (1.345)		1.390 (1.397)		0.624 (1.519)		0.013 (1.602)		-1.078 (1.719)	
Sample size	115		115		115		115		115	

***p<.01 **p<.05 *p<.10 +p<.15

Table 3. Descriptive Statistics: Means (and Standard Deviations) or Percentage for Independent Variables

Variable	By current contraceptive:	Use		Non-use	
Parity (%)					
One or fewer children		18.42		28.21	
Two children		36.85		20.51	
Three or four children		26.32		35.90	
Five or more children		18.42		15.38	
Place of residence (%)					
Houston		26.32		43.59	
San Diego		73.69		56.41	
Wife's religion (%)					
Catholic		80.26		79.49	
Non-Catholic		19.74		20.51	
Marital status (%)					
Married		78.95		74.36	
Consensual union		21.05		25.64	
Wife's age (years)		31.66	(7.20)	32.67	(6.49)
Husband's age (years)		34.62	(7.55)	35.62	(7.91)
Documentation status (%)					
Wife documented		40.79		46.15	
Wife undocumented		59.21		53.85	
Husband documented		72.37		82.05	
Husband undocumented		27.63		17.95	
Generation (%)					
Wife is 1.5 generation		22.37		7.69	
Wife is not 1.5 generation		77.63		92.31	
Husband is 1.5 generation		14.47		10.26	
Husband is not 1.5 generation		85.53		89.74	
Education in Mexico (%)					
Wife has secondary education or higher		30.26		25.64	
Wife has less than secondary education		69.74		74.36	
Husband has secondary education or higher		26.32		28.21	
Husband has less than secondary education		73.69		71.80	
Wife's income in last month ($)		349.54	(416.26)	308.44	(437.57)
Husband's income in last month ($)		1120.58	(582.66)	1146.15	(532.18)
Couple's income in last month ($)		1469.63	(754.85)	1454.05	(667.42)
Wife's English use score		1.29	(0.58)	1.08	(0.27)
Husband's English use score		1.39	(0.57)	1.31	(0.66)
Relationships with Hispanics and Anglos (%)					
Wife: closer relationships with Hispanics		76.32		69.23	
Wife: no closer relationships with Hispanics		23.69		30.77	
Husband: closer relationships with Hispanics		60.53		58.97	
Husband: no closer relationships with Hispanics		39.47		41.03	
Couple: closer relationships with Hispanics		65.79		69.23	
Couple: no closer relationships with Hispanics		34.21		30.77	
Number of Observations		76		39	

Appendix A. Results of Remaining Wife-Only Models Predicting Current Contraceptive Use

	Model 1: Wife Controls	Model 2: Wife Socioeconomic Characteristics: Education & income	Model 3: Wife Socioeconomic Characteristics: Education	Model 4: Wife Cultural: English use & Hispanic vs. Anglo relationships	Model %: Wife Cultural: English use	Model 6: Wife Full: Education, income, English use, & Hispanic vs. Anglo relationships	Model 7: Wife Full: Education, income, & English use
Parity							
One or fewer children	-1.530 (0.674) **	-1.609 (0.686) **	-1.629 (0.685) **	-1.701 (0.728)	-1.694 (0.728) **	-1.776 (0.741) **	-1.763 (0.742) **
Two children	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Three or four children	-0.995 (0.580) *	-0.978 (0.592) *	-0.952 (0.588) +	-1.117 (0.611) **	-1.117 (0.612) *	-1.110 (0.630) *	-1.106 (0.630) *
Five or more children	-0.178 (0.734)	0.131 (0.767)	0.135 (0.766)	0.028 (0.756) *	-0.022 (0.748)	0.309 (0.780)	0.281 (0.778)
Place of residence							
Houston	-1.002 (0.492) **	-1.131 (0.519) **	-1.170 (0.516) **	-1.257 (0.535) **	-1.197 (0.517) **	-1.383 (0.558) **	-1.338 (0.544) **
San Diego	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Wife's religion							
Catholic	0.776 (0.572)	0.726 (0.590)	0.778 (0.582)	0.965 (0.593) +	0.945 (0.591) +	0.938 (0.619) +	0.925 (0.544) +
Non-Catholic	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Marital Status							
Married	0.727 (0.563)	0.987 (0.590) *	1.005 (0.597) *	1.057 (0.606) *	1.028 (0.602) *	1.334 (0.637) **	1.312 (0.633) **
Consensual union	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Wife's age	-0.020 (0.048)	-0.022 (0.048)	-0.024 (0.048)	-0.037 (0.052)	-0.032 (0.050)	-0.037 (0.052)	-0.033 (0.050)
Documentation status							
Wife documented	-0.500 (0.523)	-0.513 (0.575)	-0.395 (0.531)	-0.701 (0.552)	-0.717 (0.550)	-0.767 (0.609)	-0.770 (0.606)
Wife undocumented	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Generation							
Wife is 1.5 generation	2.072 (0.827) **	2.315 (0.867) ***	2.264 (0.858) ***	1.684 (0.838) **	1.676 (0.836) **	1.882 (0.883) **	1.882 (0.884) **
Wife is not 1.5 generation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Education in Mexico							
Wife has secondary education or higher		0.794 (0.565)	0.838 (0.561) +			0.895 (0.575) +	0.912 (0.573) +
Wife has less than secondary education		Ref.	Ref.			Ref.	Ref.
Log of wife's income		0.043 (0.078)				0.041 (0.083)	0.038 (0.082)
Wife's English use score				1.621 (0.659) **	1.579 (0.655) **	1.754 (0.706) **	1.716 (0.700) **
Relationships with Hispanics and Anglos							
Wife: closer relationships with Hispanics				-0.241 (0.531)		-0.199 (0.542)	
Wife: no closer relationships with Hispanics				Ref.		Ref.	
Intercept	1.102 (1.423)	0.646 (1.453)	0.728 (1.448)	-0.170 (1.746)	-0.435 (1.649)	-0.930 (1.815)	-1.144 (1.721)
Sample Size	115	115	115	115	115	115	115

***p<.01 **p<.05 *p<.10 +p<.15

Appendix B. Results of Remaining Husband-Only Models Predicting Current Contraceptive Use

	Model 1: Husband Controls	Model 2: Husband Socioeconomic Characteristics: Education & income	Model 3: Husband Socioeconomic Characteristics: Income	Model 4: Husband Cultural: English use & Hispanic vs. Anglo relationships	Model 5: Husband Cultural: English use	Model 6: Husband Full: Education, income, English use, & Hispanic vs. Anglo relationships	Model 7: Husband Full: Income & English use
Parity							
One or fewer children	-1.223 (0.631) *	-1.256 (0.633) **	-1.257 (0.632) **	-1.249 (0.639) *	-1.240 (0.633) *	-1.282 (0.642) **	-1.275 (0.636) **
Two children	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Three or four children	-0.742 (0.559)	-0.772 (0.561)	-0.771 (0.560)	-0.709 (0.562)	-0.707 (0.562)	-0.735 (0.564)	-0.739 (0.636)
Five or more children	-0.192 (0.697)	-0.053 (0.726)	-0.050 (0.724)	-0.119 (0.710)	-0.106 (0.701)	-0.001 (0.733)	0.023 (0.724)
Place of residence							
Houston	-0.948 (0.478) **	-0.985 (0.485) **	-0.987 (0.483) **	-1.003 (0.501) **	-1.017 (0.484) **	-1.030 (0.508) **	-1.058 (0.489) **
San Diego	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Marital Status							
Married	0.832 (0.549)	0.831 (0.551) +	0.831 (0.551) +	0.884 (0.554) +	0.881 (0.553) +	0.888 (0.557) +	0.883 (0.555) +
Consensual union	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Husband's age	-0.004 (0.034)	-0.007 (0.034)	-0.007 (0.034)	-0.004 (0.034)	-0.004 (0.034)	-0.008 (0.035)	-0.007 (0.034)
Documentation status	Ref.						
Husband documented	-0.867 (0.573) +	-0.859 (0.578) +	-0.856 (0.574) +	-0.998 (0.593) *	-0.991 (0.590) *	-1.004 (0.601) *	-0.981 (0.591) *
Husband undocumented	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Husband's generation							
1.5 generation	0.788 (0.732)	0.776 (0.749)	0.784 (0.728)	0.552 (0.758)	0.550 (0.757)	0.541 (0.780)	0.550 (0.754)
Not 1.5 generation	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
Education in Mexico							
Husband has secondary education or higher		-0.023 (0.505)				-0.095 (0.514)	
Husband has less than secondary education		Ref.				Ref.	
Log of husband's income		0.115 (0.151)	0.114 (0.150)			0.114 (0.150)	0.109 (0.148)
Husband's English use score				0.445 (0.393)	0.439 (0.389)	0.452 (0.399)	0.434 (0.391)
Relationships with Hispanics and Anglos				Ref.		Ref.	
Husband: closer relationships with Hispanics				0.054 (0.466)		0.076 (0.470)	
Husband: no closer relationships with Hispanics							
Intercept	1.636 (1.148)	0.988 (1.457)	0.977 (1.439)	1.102 (1.269)	1.134 (1.238)	0.492 (1.541)	0.515 (1.497)
Sample Size	115	115	115	115	115	115	115

***p<.01 **p<.05 *p<.10 +p<.15

Appendix C. Results of Remaining Couple Models Predicting Current Contraceptive Use

	Couple Socioeconomic Characteristics: Wife education & couple income	Couple Cultural: Wife English use & couple Hispanic vs. Anglo relationships	Couple Cultural: Wife English use	Couple Full: Wife education, couple income, wife English use, & couple Hispanic vs. Anglo relationships	Couple Full: Wife education, couple income, & wife English use
Parity					
One or fewer children	-1.797 (0.713) **	-2.045 (0.770) ***	-2.012 (0.768) ***	-1.995 (0.772) ***	-1.964 (0.772) **
Two children	Ref.	Ref.	Ref.	Ref.	Ref.
Three or four children	-0.958 (0.597) +	-1.173 (0.625) *	-1.183 (0.622) *	-1.097 (0.638) *	-1.1052 (0.635) *
Five or more children	0.030 (0.793)	0.085 (0.752)	0.000 (0.745)	0.232 (0.797)	0.1653 (0.800)
Place of residence					
Houston	-1.178 (0.517) **	-1.342 (0.537) **	-1.247 (0.522) **	-1.455 (0.552) ***	-1.3813 (0.542) **
San Diego	Ref.	Ref.	Ref.	Ref.	Ref.
Wife's religion					
Catholic	0.867 (0.595)	1.049 (0.609) *	1.070 (0.609) *	1.061 (0.620) *	1.0755 (0.620) *
Non-Catholic	Ref.	Ref.	Ref.	Ref.	Ref.
Marital Status					
Married	1.116 (0.599) *	1.235 (0.620) **	1.261 (0.617) **	1.413 (0.639) **	1.4407 (0.636) **
Consensual union	Ref.	Ref.	Ref.	Ref.	Ref.
Wife's age	-0.028 (0.044)	-0.058 (0.046)	-0.051 (0.045)	-0.054 (0.047)	-0.0478 (0.046)
Documentation status					
Husband documented	-0.774 (0.614)	-0.971 (0.606) +	-0.989 (0.605) +	-0.674 (0.642)	-0.6835 (0.639)
Husband undocumented	Ref.	Ref.	Ref.	Ref.	Ref.
Generation					
Wife is 1.5 generation	2.108 (0.813) ***	1.531 (0.814) *	1.516 (0.812) *	1.591 (0.844) *	1.5867 (0.843) *
Wife is not 1.5 generation	Ref.	Ref.	Ref.	Ref.	Ref.
Wife's education in Mexico					
Secondary education or higher	0.658 (0.590)			0.801 (0.611)	0.8234 (0.605)
Less than secondary	Ref.			Ref.	Ref.
Log of couple's income	-0.079 (0.271)			-0.168 (0.315)	-0.1734 (0.302)
Wife's English use score		1.498 (0.667) **	1.479 (0.663) **	1.611 (0.689) **	1.6081 (0.684) **
Relationships with Hispanics and Anglos					
Couple: closer relationships with Hispanics		-0.475 (0.518)		-0.429 (0.524)	
Couple: no closer relationships with Hispanics		Ref.		Ref.	
Intercept	1.842 (2.101)	1.190 (1.651)	0.624 (1.519)	1.435 (2.454)	0.9431 (2.310)
Sample Size	115	115	115	115	115

***p<.01 **p<.05 *p<.10 +p<.15