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New Days, New Ways?: Modernization, Sexual Attitudes and Contraceptive Knowledge among Adolescent Women in a Traditional State in Mexico

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NEW DAYS, NEW WAYS?: MODERNIZATION, SEXUAL ATTITUDES AND CONTRACEPTIVE KNOWLEDGE AMONG ADOLESCENT WOMEN IN A TRADITIONAL STATE OF MEXICO

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Abstract

This paper examines contraceptive knowledge and attitudes toward adolescent pregnancy and nonmarital childbearing among teenaged Oaxacan women with varying exposure to modernization. As early union formation becomes less normative in Mexico, more young women face nonmarital fertility risks. Both survey and in-depth interview data were collected in 1999 from 123 randomly selected adolescent women living in urban and rural communities of Oaxaca, Mexico. The 1) willingness to have a nonmarital birth, 2) perception that becoming pregnant as a teenager would be problematic, 3) likelihood of using contraceptives, and 4) score on a short sexual knowledge quiz are examined by modernization indicators, including 1) exposure to U.S. migrant workers, 2) English language education, 3) sex education in school, and 3) mother's educational attainment. Multivariate analyses indicate that young women participating in more and less modernized sectors of society are differentially influenced by opportunity costs and traditional cultural attitudes regarding early sexuality and family formation.

NEW DAYS, NEW WAYS?: MODERNIZATION, SEXUAL ATTITUDES AND CONTRACEPTIVE KNOWLEDGE AMONG ADOLESCENT WOMEN IN A TRADITIONAL STATE OF MEXICO

This paper examines contraceptive knowledge and attitudes toward adolescent pregnancy and nonmarital childbearing among teenaged women with varying degrees of exposure to modernization in a traditional state of Mexico. As early union formation becomes less normative in Mexico (Brambila-Paz et al. 1994), more young women face nonmarital fertility risks. This, plus increased emphasis on universal education in Mexico, is likely to shift the social response regarding adolescent fertility toward concern for lost personal opportunities and the perpetuation of social and economic disadvantage in the families of adolescent mothers.

Structured interview data collected in spring 1999 from young women who attended *secundarias* and *preparatorias* in Oaxaca, plus ethnographic data collected in the study communities, provide information on sexual and reproductive knowledge and attitudes among adolescent women. These data are used to examine their 1) score on a short sexual knowledge quiz, 2) perception that becoming pregnant as a teenager would be problematic, 3) expressed willingness to have a nonmarital birth, and 4) tendency to use contraceptives, by their potential exposure to modern sexual attitudes or behaviors. Measures of modernization include 1) having been taught about pregnancy in school, 2) education in English language usage, 3) exposure to U.S. migrant workers, and 4) mother's educational attainment.

Mexico has accomplished remarkable reduction in average family size in recent decades, largely through widespread family planning education and increased access to contraceptives. As one young Oaxacan father teasingly retorted when he was asked how many children he wanted,

“With two, we can live better!” — the government-broadcasted sound bite encouraging families to have fewer children than did their parents. The country has also made sex education part of the secondary schooling process.

For the many women who stop schooling with *primaria* (1 to 6 years of education), knowledge of sexuality and contraception may be compromised. At the same time, many young women may be exposed to new ideas about sexual behavior by family and friends who migrate seasonally to the United States. And while encouragement of young women to seek higher levels of education than in the past presents opportunity costs to early family formation, concurrent increases in knowledge and availability of contraceptives can remove pregnancy from the list of risks associated with early sexual activity. Thus questions arise regarding the level of awareness regarding sexuality and contraceptives, as well as attitudes of adolescent women and their families regarding early sexual activity and family formation, at a time of social and structural change (Durston, 1997; Ramirez 1996).

Adolescent Fertility in Mexico

Adolescent Fertility Trends

Nearing half (42 percent) of all women in Mexico in 1990 had given birth during their teen years (IPPF 1991), indicating support in the Mexican context for early family formation. Indeed, for the most part until the 1990s, Mexican fertility researchers did not address adolescent childbearing as an issue of concern (e.g., Campos 1989). This is primarily because an "early" transition to adulthood was considered relatively normative and tended to occur within marital or marriage-like unions, but also because a trend toward older ages at first marriage initially pushed

adolescent fertility rates downward.

Historical Trends

The IPPF figure given above applies to women of all ages. It thus represents the collection of women's experiences at different points in the historical, political, and social development of that cultural context, and a shift toward delayed family formation today is implied in that only 10.4 percent of 15- to 19-year-old Mexican females in 1990 were mothers and slightly fewer than 15 percent of all women in this age group were married or cohabiting in free union (author's calculations based on the 1990 Mexican Census).

While the adolescent fertility rate in Mexico is high compared with that in the United States (which has the highest rate found in any industrial or postindustrial nation in the world), it has declined since the 1930s, and projections anticipate further decline in the age-specific fertility rate for 15 to 19 year olds ($ASFR_{15-19}$) (Benítez and Jiménez 1978, cited in Camposortega 1989). Over a period during which fertility in Mexico remained somewhat constant, the $ASFR_{15-19}$ went from .1345 in 1930 to .089 in 1970 (Alba 1977) — the largest decline in fertility for any age group at that time — and this shift is attributed to a changing average age at first union (Juárez 1989). The adolescent fertility rate (expressed per thousand) rose in the 1970s, reaching 106 in the early 1980s before declining again at mid-decade (Mier y Terán 1989). IPPF (1991) points out, however, that the decline in adolescent fertility in the Latin American region has been slower than that for older women in recent years. In addition, while the $ASFR_{15-19}$ began dropping in Mexico during the later half of the 1980s, descending to around 85 births per 1000 women younger than 20 in 1997 (United Nations 1999), 16 percent of all live births were to this age

group.

Geographic Trends

Family formation behavior varies in Mexico not only over time, but across space. Average age at first union, for example, is 21.1 years for females and around 24 years for males (García y Garma 1989), but this demographic feature differs by urban, suburban, and rural residence. Rural women form unions at younger ages than urban women and are less likely to use contraceptives at the initiation of sexual activity (Porras et al. 1982). And while the percentage of Mexican women married by age 16 declined from 26 to 19 percent in rural areas between the cohort of women born in the 1940s and that of the 1960s, in urban areas the decline was from 9 to 1 percent (Brambila-Paz et al. 1994).

To some extent, the rural-urban difference can be explained by female educational attainment. In 1970, 58 percent of partnered women had begun their first union by age 20; by 1980 this same pattern was still observed for socioeconomically disadvantaged women, explained by Porras and his colleagues (1982) as resulting from low educational expectations and the small advantage these women gain from labor force participation. Still, although rural-origin residents of Mexico City have lower socioeconomic status than Mexico City natives, past research shows that differences in the average number of live births for the two groups remain with statistical control for a woman's education and her spouse's occupation (Brito 1969).

Studies of Adolescent Fertility in Mexico

During the current decade, Mexico's academic, medical, and social service communities

have recognized a need for better understanding of all youth behaviors that have serious social as well as personal consequences. However, a recent review of the adolescent fertility research in Mexico calls investigation efforts to date "fragmented" and at an "incipient" stage (Ramírez 1996). While earlier work focused on macro-level causes and proximate determinants of sexual and reproductive practices and on AIDS risk, more recently, Mexican researchers have attempted to increase understanding through interpretive anthropological studies based theoretically in issues of social construction and gender and motivated by an interest in women's reproductive health.

Thus the 1990s has yielded an array of studies focused on the reproductive rights, health, and behaviors of Mexican youth. Sociodemographic studies find the average age of first coitus to be 16 (Velez Sagaón 1996), typically just prior to first marital or cohabiting union formation for females (INEGI/UNIFEM 1995). Among sexually active teens in Mexico, 76 percent had their first experience with their *novio*; only 11 percent report a first experience with a more casual boyfriend (CONAPO 1988). However, the length of time between onset of coitus and establishment of a union depends on urban or rural residence, with urban women engaging in sexual relationships much earlier relative to union formation than rural teens. In addition, age at first sex varies by region of the country; for example, a study in Nuevo León found 57 percent of sexually active teens reporting the initiation of sexual activity between the ages of 14 and 17 (Carraza 1994).

Despite its link to lowered adolescent fertility generally, the increasing average age at union is credited with increased risk of <u>premarital</u> childbearing. Premarital teen births have gone from 17 percent of births to adolescents in 1976 to 35 percent in 1987 (Quilodrán 1992), with women from families having lower socioeconomic resources more likely to become pregnant

early. Women who become pregnant premaritally usually receive the support of their families or the families of their boyfriends, but abortion statistics in Mexico show abortion to be another solution used increasingly among young women (Romero 1993). Psychosocial studies find that most pregnancies occur within committed relationships, but that Mexican teens who remain pregnant have lower educational expectations, lower self-esteem and -efficacy, and lower levels of communication with their mothers than women who delay pregnancy past the teen years. In addition, researchers report early pregnancy as a strategy these teens use for gaining power within the family through motherhood status.

Psychosocial studies also find that sexually active teens tend to have more friends who do not attend school; talk more with their friends than with their mothers about sexuality; have more liberal attitudes about sex, contraception, and pregnancy; and exhibit less acceptance of traditional family values than those who are not sexually active (Atkin 1989, 1990; Atkin and Alatorre 1991; 1993; Pick et al. 1991). Changing gender relations and within-family power relations are cited as increasing the risk of sexual activity among today's Mexican adolescent women, and with these social changes has come greater public interest in female sexuality and reproductive issues (Ramírez 1996). In addition, concern for population growth, as well as for adolescent physical and mental well being, prompted the Mexican state to educate adolescents about sexual and contraceptive issues.

Recognizing the tremendous potential of population momentum with their large population percentage of youth (CONAPO 1996), Mexico aims to provide sex and family life education for all youth in secondary schools. This programatic investment in sex education for adolescents began in the early 1970s, along with Mexican efforts to increase family planning

access among all women (CONAPO 1982). By the late 1980s, 40 percent of secondary school students were reporting having learned about sexuality or contraceptives in their schools (CONAPO 1988).

While there has been insufficient research to evaluate the effectiveness of this strategy, both limitations and successes of sex education in Mexican schools are indicated. However, adolescents provided sex education in schools before they become sexually active are found more likely to use contraceptives (Ramírez 1996). Despite Mexico's family planning efforts, though, adolescent intercourse in Mexico is likely to be unprotected against pregnancy (International Planned Parenthood Federation 1991; Carraza 1994). IPPF (1991) reports that more than 30 percent of all first births among married women at the beginning of the decade were premaritally conceived and almost two thirds of Mexican adolescent childbearers reported their births as unwished. And while most school students report having heard about contraceptives, most do not understand how to use them correctly and many have faulty information about how pregnancy occurs (CONAPO 1988). Almost half of ever-sexually-active 15- to 24-year-old women surveyed in Mexico City reported not having used a contraceptive at first premarital intercourse because they had not expected to engage in intercourse. While planning is key to protection against unwanted pregnancy, the IPPF notes that it is the planning itself which may differentiate sexual actions as mistakes rather than purposeful wrong-doings in cultures where young people recognize that adults do not condone premarital sexual activity. And whereas a first step toward pregnancy prevention is the recognition that it is a real risk, successful contraception also requires access to the means of prevention, including basic contraceptive knowledge.

Other factors that are known to be important for adolescent fertility behaviors, however,

are urban residence and urbanization; educational attainment, including that of parents (e.g., Huerta-Franco et al. 1996; Forste and Heaton 1988); marriage behavior, and both internal and international migration (e.g., Bustamante et al. 1994). These factors offer points of departure for future adolescent fertility research in Mexico, and along these lines, Ramírez (1996) calls for research on the roles of gender and gender relations; of popular culture and both Mexican and international media; of migration and inter-cultural experiences; of institutions, including the church, that voice secular mores; and of personal ethics in sexual behavior, as well as a better understanding of sexual and reproductive rights and the relationships of public and private power over sexuality.

The Research Objectives

The objective of this study is to examine the role of modernization in a young woman's exposure to sexual and contraceptive knowledge and her attitude regarding family formation. I ask three basic questions: First, does exposure to sexual and contraception knowledge (i.e., possibly through information taught in schools, through having been exposed to North American ideas about sexuality because of English language knowledge, through a mother's higher educational attainment, or through knowing someone with a wider range of knowledge gained through immigration to the United States) increase a young woman's sexual knowledge? According to a health belief model (Eisen et al. 1985), based in Coale's (1973) three preconditions for pregnancy prevention, such knowledge should better prepare a person for making reproductive decisions. Thus, I ask whether these sources of knowledge also influence a young woman's attitudes about an adolescent pregnancy or a nonmarital birth. And finally, I ask whether these

factors operate together to influence a young woman's openness to the use of contraceptives.

Figure 1 represents the proposed path of influence investigated by this study. As shown, modernization indicators are expected to influence a young woman's recognition of her ability to prevent a pregnancy as well as her motivation to do so, and each of these factors is expected to influence her perception of the cost of contracepting. Another possible influence is that increasing the sexual and contraceptive knowledge such that the ability to prevent a pregnancy will influence her motivation to do so, and this pathway is indicated as a dotted line here. Each of the pathways is tested, as described below.

FIGURE 1 HERE

The Analytical Procedure

Ordinary least squares regression is used to determine the contribution of each modernization measure to the percentage-correct score obtained on a short quiz of "sexual and contraceptive knowledge"; to the percentage correct, about which the respondent was certain of her answer ("knowledge plus self efficacy"); and a scaled item indicating the respondent's "perceived ease of contraceptive use." Logistic regression models are similarly used for models regressing the binomial response variables "willingness to have a nonmarital birth" and "thinks having an adolescent pregnancy would be problematic" on the same modernization measures. A binomial variable indicating the respondent's expectation of going to college is added to models in which the mother's educational attainment is found to be an important predictor in order to

determine whether parent human capital operates through perceived opportunity costs. All models control for urban residence (coded "1") and age of respondent. Both of these factors have been found in earlier studies to influence contraceptive use and sexual attitudes.

In each case, simple models are tested including only the control variables and each modernization factor (including indicators of the recognition of ability to control and motivation to control pregnancy in models for perceived ease of contraceptive use). Those indicators with statistically significant influence are then added together to a full model to determine effects net of one another; additional models evaluate mediation effects.

The Data — The Oaxacan Study Sample and Interview Procedures

Structured interview data, plus open-ended conversational data from in-depth interviews with selected respondents and key informants, were collected in Oaxaca, Mexico, during spring 1999. As part of a broader study of Mexican-origin adolescent women in the United States, the questionnaire comprises focal questions from the survey instruments used by the National Longitudinal Study of Adolescent Health (Add Health) to interview adolescents and their parents in their homes. The questionnaire, translated into Spanish, was tested and refined for use in Oaxaca by a team of sociologists and interviewers in Oaxaca de Juarez, Oaxaca, with the intent to maintain construct reliability and question wording nuances as close as possible to the original Add Health survey.

Oaxaca as a Study Site

Certainly data collected from a single state of Mexico will not be representative of the

entire country. Indeed, beyond the well known north-south differences, the World Fertility Survey further divides Mexico into eight subregions based on literacy, regional infrastructure and living conditions, labor force participation, and income (De Vos 1995). Generally, the Pacific south and southeast regions are considered the least developed areas of Mexico (Unikel 1982), and the state of Oaxaca exhibits several characteristics of being a less developed area, including lower levels of literacy and relatively high adolescent fertility. Estimates based on the own-child method using 1990 Mexican Census data puts the state's adolescent fertility rate at around 140 per 1000 women age 15 to 19. The map in figure 2, which illustrates cross-state adoelscent fertility trends, shows Oaxaca to be among southern-rim states with the nation's highest adolescent fertility.

FIGURE 2 HERE

While the Oaxacan people are described by key informants as culturally traditional, continuing in many traditional Mexican family strategies involving patronage and patriarchy, diversity is extant in the state. Although literacy has improved there in recent years and 80 percent of the state's young women aged 12 attended school in 1990, only 30 percent of 15- to 19-year-old women were enrolled that year (Instituto Nacional de Estadistica, Geografia e Informatica 1990). In addition, Oaxaca is inhabited by numerous indigenous groups, speaking sixteen distinct languages, as well as its middle and upper classes, mostly of mixed European and indigenous heritage. A focus on school students in this study excludes those expected to be most traditional and inclined toward beginning families early (in particular, those living in more remote villages); analysis thus determines the force of modernization among those most exposed to it. Study

communities provide a broad range of representation from these groups, however. Although remote indigenous villages are not included among study sites, young women from such villages whose families had sent them to schools in the city are included in the study sample.

Another consideration is that Oaxaca has a long history of seasonal work migration, with identifiable Oaxacan immigrant communities in the United States (Grimes 1998). While adolescent school women may be relatively traditional in their family and reproductive values compared with the country as a whole, young women exposed to others with U.S. immigration experience may become less traditional in their thinking about sexuality and contraception. Exposure to new ideas from seasonal work migrants is believed to bring new ideas about male-female relationships to immigrant sending communities. This issue os one of great concern among adults in one of the study communities. New behavioral expectations and ideas among male migrant workers returning to the community may place families with teen women on guard for their social well being. This may result in providing girls with more information for self protection, or in rigid prohibitions against nonmarital sexual activity with such men. Thus, Oaxacans are expected to present a relatively conservative example along a continuum of Mexican traditionalism which may be countered or reinforced by U.S.-migration network ties.

Study Procedures

Both survey and in-depth interview data were collected from 128 never-pregnant randomly selected women aged 12 to 19 years and living in urban and rural communities of Oaxaca, Mexico, during 1999. Pregnant and parenting teens were also interviewed although the sample analyzed statistically for this study is limited to young women reporting never having been pregnant, for

whom complete information was obtained on the variables pertinent to this study (*n* = 123). Oaxaca is among the more culturally traditional of Mexican states and continues to exhibit relatively high rates of adolescent fertility. It also has a historical tradition of prevalent work-related migration

Two communities of Oaxaca -- one urban, the other a rural village -- were selected as study sites. In each site, adolescent women who attended school were selected for interview. Adolescent women were chosen to participate according to sampling procedures discussed below, told about the study, and given a letter of introduction to the study to share with their parents. Girls were asked to participate in a 1-hour interview, at their convenience, either in a private room at the school, in their home, or at the project office in the central area of town. In each case, the mother of the participant (or the woman acting as her guardian) was asked to participate in a 30-45 minute interview at some time following the interview with the daughter. All participants were explained their rights to refuse to answer any question they preferred not to answer, or to end the interview at any time they wished. Nevertheless, all adolescents and mothers who began the interview finished it. All were interviewed separately and received a small monetary compensation for their time.

Interviews were conducted by a team of six female interviewers. Among the almost one-third of women surveyed whom I interviewed personally, five agreed to lengthier discussions with me on topics covered in the questionnaire as well as other topics of interest to them. In addition, all the women whom I interviewed were encouraged to express their thoughts regarding the focal issues when they wanted to expand upon their questionnaire responses.

Sample Selection

In the urban study community, secondary and preparatory schools (similar to middle and high schools in the United States) were selected at random from the city's central and surrounding areas, representing the range of residential socioeconomic status from lower middle class to relatively wealthy. All schools but one agreed to participate, permitting the random selection of participants from their rosters. The school that refused participation is among the city's more prestigious private schools catering to wealthier families. A public school of similar social stature provided respondents of comparable socioeconomic backgrounds.

The rural study community has only one public school at the secondary and preparatory levels. Community families with adolescent girls participated in a town meeting, called by a local school official and at which the study was introduced. At this site, all interviews were held in private at the town's library in the central plaza.

The Variables

Table 1 presents descriptive statistics for the variables studied here. Modernization indicators are binomial indicators of whether or not the respondent 1) received sex education in her school, 2) received English lessons in her school or elsewhere, and 3) knows a family member or friend who has ever migrated to the United States, as well as a continuous indicator of the number of years of education her mother completed. A binomial indicator is included in models containing the education measure to indicate whether or not the mother's education is missing, and missing education items are replaced with the sample mean value for mother's education.

TABLE 1 HERE

"Sexual and contraceptive knowledge" is a continuous variable giving the percentage of items answered correctly on a nine-item quiz. These items include the following true-false questions: 1) "When a woman has sexual intercourse, almost all sperm die inside her body after about six hours." 2) "When using a condom, the man should pull out of the woman right after he has ejaculated." 3) "Most women's periods are regular, that is, they ovulate (are fertile) fourteen days after their periods begin." 4) When putting on a condom, it is important to have it fit tightly, leaving no space at the tip." 5) "Vaseline can be used with condoms, and they will work just as well." 6) The most likely time for a woman to get pregnant is right before her period starts." 7) Even if the man pulls out before he ejaculates (even if ejaculation occurs ourside the woman's body), it is still possible for the woman to become pregnant." 8) "As long as the condom fits over the tip of the penis, it doesn't matter how far down it is unrolled." and 9) "In general, a woman is most likely to get pregnant if she has sex during her period, as compared with other times of the month."[1]

Each of these questions is followed by a question asking the respondent to rate how sure she is of her response. These responses are combined with her answers for each item to determine, for each, whether the respondent is correct <u>and</u> feels sure that she is correct. The

[1]These questions evaluate a fairly sophisticated level of knowledge. Nevertheless, it is knowledge thought needed for understanding of the risk of pregnancy and how to prevent an unwanted conception. Only one item could not be answered by any of the respondents (item number 5). All other items were correctly answered by at least one to two thirds of the respondents.

percentage for which both are true is the score used for the variable "knowledge plus self efficacy."

The respondent's "recognition of an adolescent pregnancy as problematic" is determined by her complete agreement to the statement "To be pregnant at this moment in my life would be one of the worst things that could happen." Her "willingness to have a nonmarital birth" is indicated by a yes or no response to the question "Tell me, would you have a child without being married?"

The "perceived ease of using contraceptives" is measured using a scaled item based on responses to four questionnaire items: 1) In general, using contraceptives is a hassle." 2) "In general, contraceptives are too expensive to buy." 3) For me, contraceptives interfere with the pleasure of sexual relations." and 4) "The use of contraceptives in immoral." Responses range from agree to completely disagree on a five-point scale, so that a high score indicate a greater tendency or willingness to use contraceptives. The scaled item has a Cronbach's alpha correlation of .70.

In addition, some models consider whether or not the respondent has ever has sexual relations (coded "1" for yes). When mother's education is a significant factor, an additional model is tested to which is added the respondent's expectation of going to college; this strategy tests the idea that perceived opportunity costs, rather than contraceptive or sexual knowledge, is the important factor affecting attitudes. This continuous indicator ranges from 1 to 5, where 5 represents the greatest expectation for post-secondary education.

Again, all models control for the age of the respondent, as older adolescent women are known to be better contraceptors than younger ones due to cognitive maturation and to a greater

likelihood of involvement in a committed heterosexual relationship. Models also control for urban residence since rural women in Mexico are found less likely to contracept than urban women.

Results

Modernization and the Recognition of Ability to Prevent Pregnancy

Higher levels of sexual and contraceptive knowledge give women the means for recognizing the potential to prevent an unplanned or unwished pregnancy; greater knowledge plus more confidence n one's knowledge provides for the agency needed to do so. Table 2 presents the OLS regression coefficients from models regressing the sexual and contraceptive knowledge score on indicators of modernization, controlling for urban residence and age. This score is poorly explained by these measures. Only mother's education and knowing a U.S. immigrant have even a moderate effect on this knowledge, and when the respondent's previous sexual experience is added in model 7, the coefficient for knowing a U.S. immigrant is attenuated, suggesting that having such exposure is linked with a greater tendency to have had sexual experiences.

TABLE 2 HERE

Models in Table 3, in which knowledge plus self efficacy is regressed on these indicators, show that mother's education and knowing a U.S. immigrant are important for this outcome as well. In this case, prior sexual experience, while operating in the same direction as for knowledge alone, has no significant effect. Model 8 shows that mother's education operates through the young woman's expectation of going to college.

TABLE 3 HERE

Modernization and the Motivation to Prevent Pregnancy

Table 4 presents logistic regression coefficients, with odds ratios for significant factors, for models predicting the perception that adolescent pregnancy would be problematic. Greater sexual and contraceptive knowledge remains important in the simple and full models (models 1 and 6), decreasing the odds of this perception by 3 percent for each 1 percent increase in the knowledge score. Although only moderately certain, however, having had sex education in school appears to double the likelihood that the respondent has this perception. The only other factor influencing this attitude is a young woman's sexual and contraceptive knowledge. This effect is unexpectedly negative. Only a mother's educational attainment and knowing a U.S. immigrant influence a young woman's willingness to have a nonmarital birth, both relatively large effects, in an unexpected positive direction.

TABLE 4 HERE

Modernization and Perceived Ease of Contraceptive Use

Among the modernization indicators studied, the perception that an adolescent pregnancy would be problematic and a higher score on the sexual and contraceptive knowledge quiz have positive influences on a young woman's perception that the use of contraceptives is not difficult to do (Table 5). Having had sex education in school has an unexpected negative influence, however.

TABLE 5 HERE

In addition, mother's education has a moderate positive influence, but mediation models to test intervening effects (not shown) indicate that this factor operates through the young woman's sexual and contraceptive knowledge. Girls of better educated mothers tend to have higher knowledge scores, and this score influences their ideas about contraception.

Discussion

Generally, the theoretical model proposed in Figure 1 is supported, although only for some indicators and pathways. Figure 3 shows the pathways of effects found by the analyses. Less certain effects are indicated by dashed arrows. Among the modernization indicators studied, having had classes in English language usage is the only one with no consequences for any outcome studied. The direction of effect here is like that for other modernization indicators, however, and possibly, English language fluency would be a more discriminating indicator of the influence of modernization in these models. Having had sex education in school does increase the recognition that pregnancy during adolescence would be problematic, although it has only a moderate effect. This perception of pregnancy is associated with the attitude that contraceptives are easy to use. Mother's education and knowing a U.S. immigrant have positive effects on sexual knowledge, which in turn increases the perception that contraception is easy and accessible.

FIGURE 3 HERE

An aspect of the theoretical model not supported as expected is the connection between knowledge and motivation. Empirical results show a negative relationship between knowledge and motivation, contrary to reasonable expectation. An explanation may lie with that for other unexpected relationships found in this study — the positive effects of a mother's education and knowing a U.S. immigrant on willingness to have a nonmarital birth and the negative effect of sex education on perceived ease of using contraception.

These findings indicate that reproductive control involves more than providing information on sexuality and contraception. Oaxacan adolescents who become pregnant tend to receive support from family members. While parents may be unhappy about the event in the beginning, girls may feel that an adolescent pregnancy will not be disastrous in the long run. Indeed, two young mothers in the study, both living with their partners, had gone back to school within months of their child's birth. The consequences of a nonmarital birth, then, appear to hinge on the mother's access to social support through her partner and family.

Precisely why a nonmarital birth is less objectionable for these girls is unclear from the analysis, but possibly this attitude is related to family experiences with union formation and female headship among women better able to provide financially for their families, although this is a question for further study. Better educated mothers and their daughters whom I interviewed spoke of relationships with male partners in a different light than poorly educated mothers and their daughters. These women spoke of their families as secure environments, where men are reliable and good providers, family members are supportive of one another, and daughters are good workers and trusted; whereas less well educated mothers were much more concerned about

the sexual behaviors of their daughters, exhibiting a somewhat coercive approach to the control over daughters' activities. In addition, most pregnant and parenting adolescents interviewed (but not included in the statistical analysis) live, with their partners, in the home of one of their parents. Such families provide a great deal of support to couples who become expectant parents, and girls in families better able to be so supportive may be more willing to assume that role. Thus, whether or not premarital pregnancy is a shameful occurrence, higher resource families appear better able to accommodate it and make the best of the situation, particularly when the baby's father participates in the process. This suggests that the parent-child relationship and parental support play important roles for such families which increase comfort for young women with regard to the decision to bear a child before marriage.

A possible explanation for the negative effect of sex education on ideas about contraception is that adolescents with sex education experience may have received an abstinence message, if not from teachers, from parents in response to the sex education unit. A coercive style regarding sexuality may increase anxiety regarding sexuality and contraceptive use, resulting in the documented reasoning among Hispanic teens that to use contraception acknowledges the intent to engage in a disapproved activity. This question, too, should be investigated more thoroughly using these data.

This study demonstrates the complexity of understanding adolescent attitudes about sexuality and contraception, suggesting that young women participating in more and less modernized sectors of society are differentially influenced by opportunity costs and traditional cultural attitudes regarding early sexuality and family formation. Generally, sex education is associated with attitudinal barriers to an adolescent pregnancy, but also has a direct association

with attitudinal barriers to contraceptive use, and poorly educated mothers appear to foster a negative feeling toward nonmarital childbearing. These findings suggest that effective sex education for adolescents must involve not only teens, but their mothers as well. In-depth interviews reveal that poorly educated mothers need, and want, more information about sexuality and contraceptives themselves so that they can be information resources for their daughters. Indeed, many feel that they are the most appropriate source for such information, rather than the schools. Others leave such education completely to the schools, saying the schools have more information than they do; this parenting strategy leads to low levels of communication about sexuality and typically coercive techniques to prevent daughters from initiating sexual activity.

An indicator without ambivalent meaning is "knowing a U.S. immigrant." Girls with exposure to North American ideas and ways of living are more knowledgeable about sexuality and contraception, more experienced sexually, and are more open to the idea of using contraceptives.

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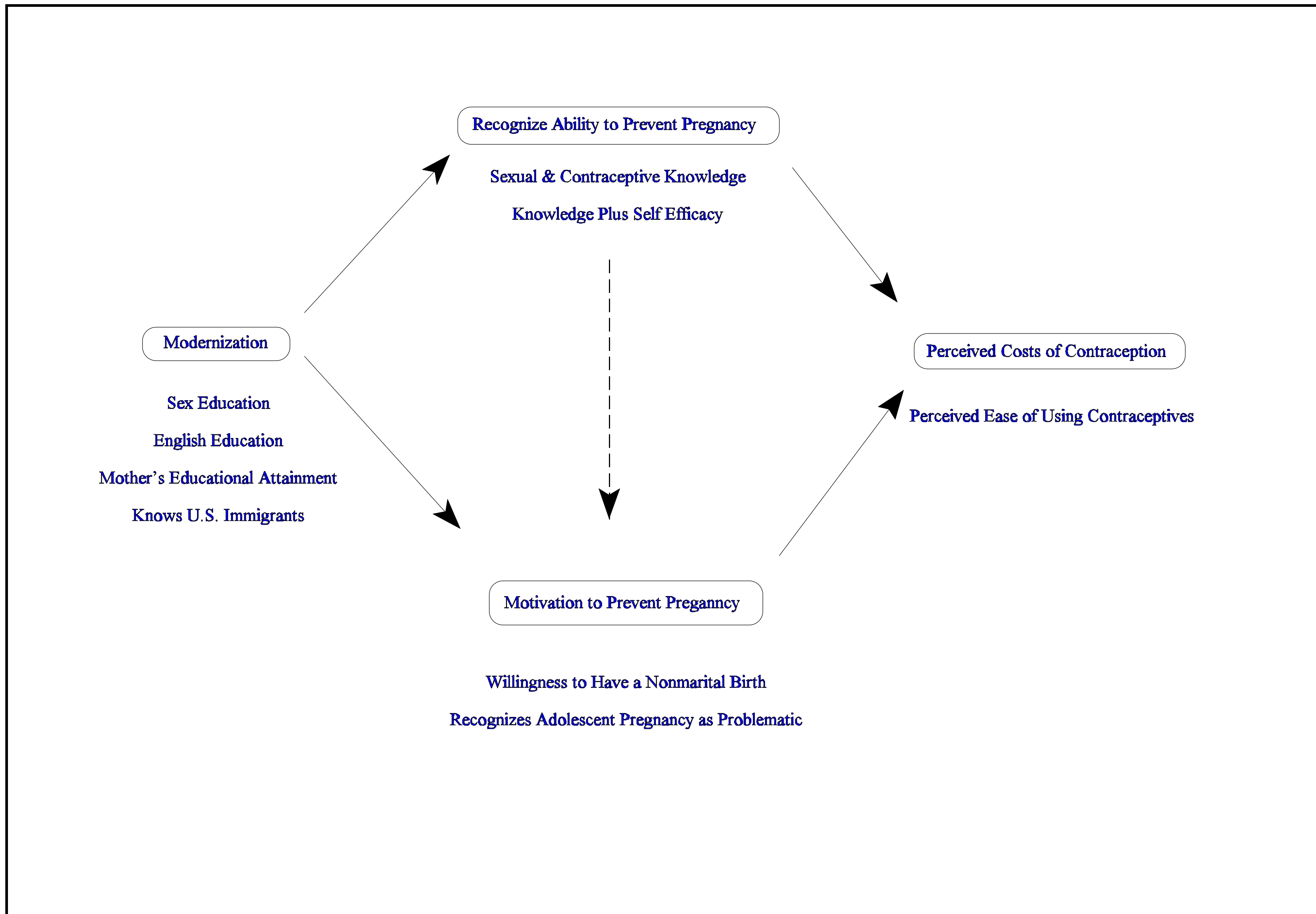

Figure 1. Proposed Theoretical Model of the Influence of Modernization on Perceived Ease of Contraceptive Use.

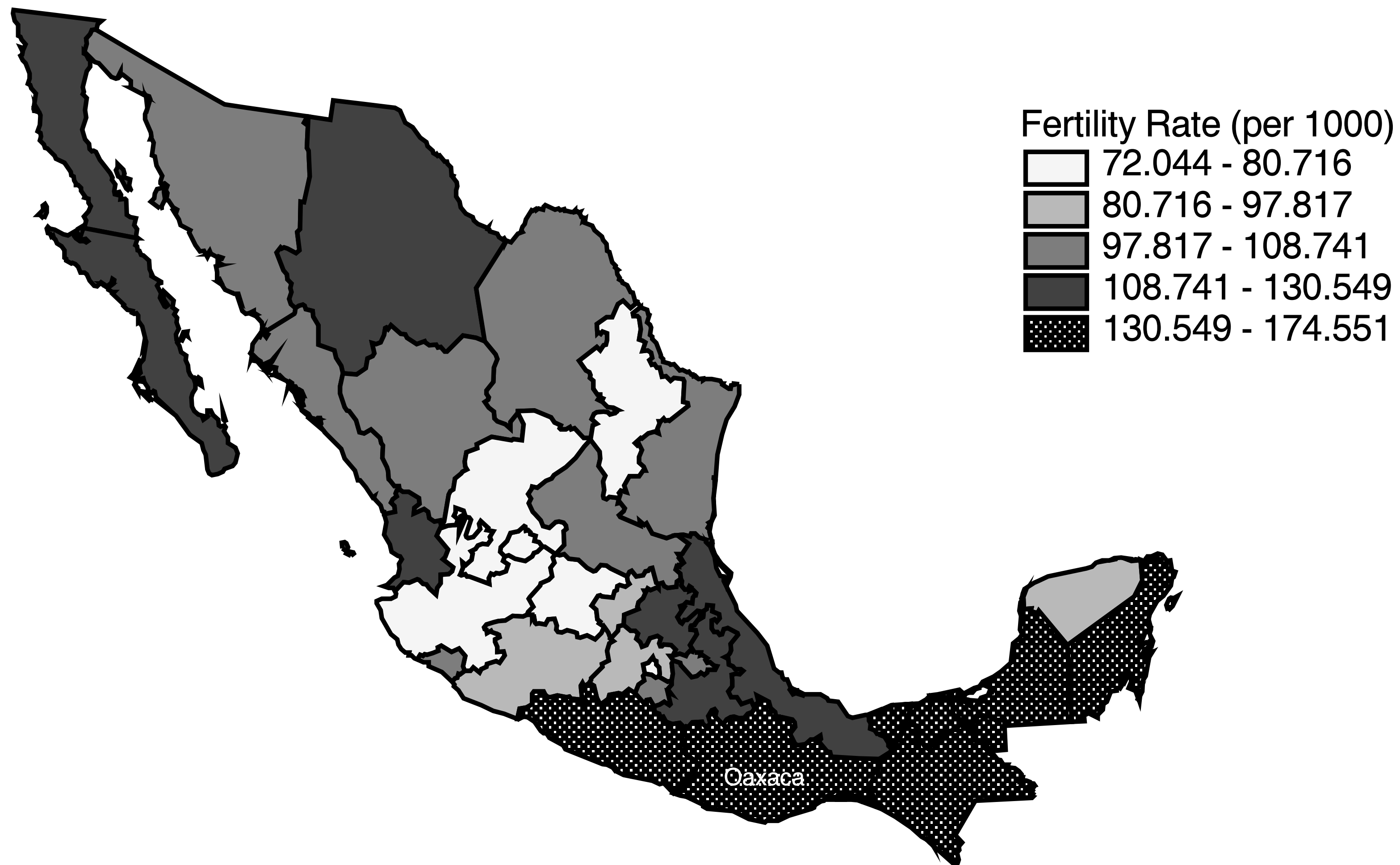

Figure 2. Fertility Rates for Mexican Women Aged 15-19, by State, 1990
(Based on data from Resultados Definitivos, XI Censo General de Poblacion y Vivienda, 1990, Instituto Nacional de Estadistica, Geografia e Informatica).

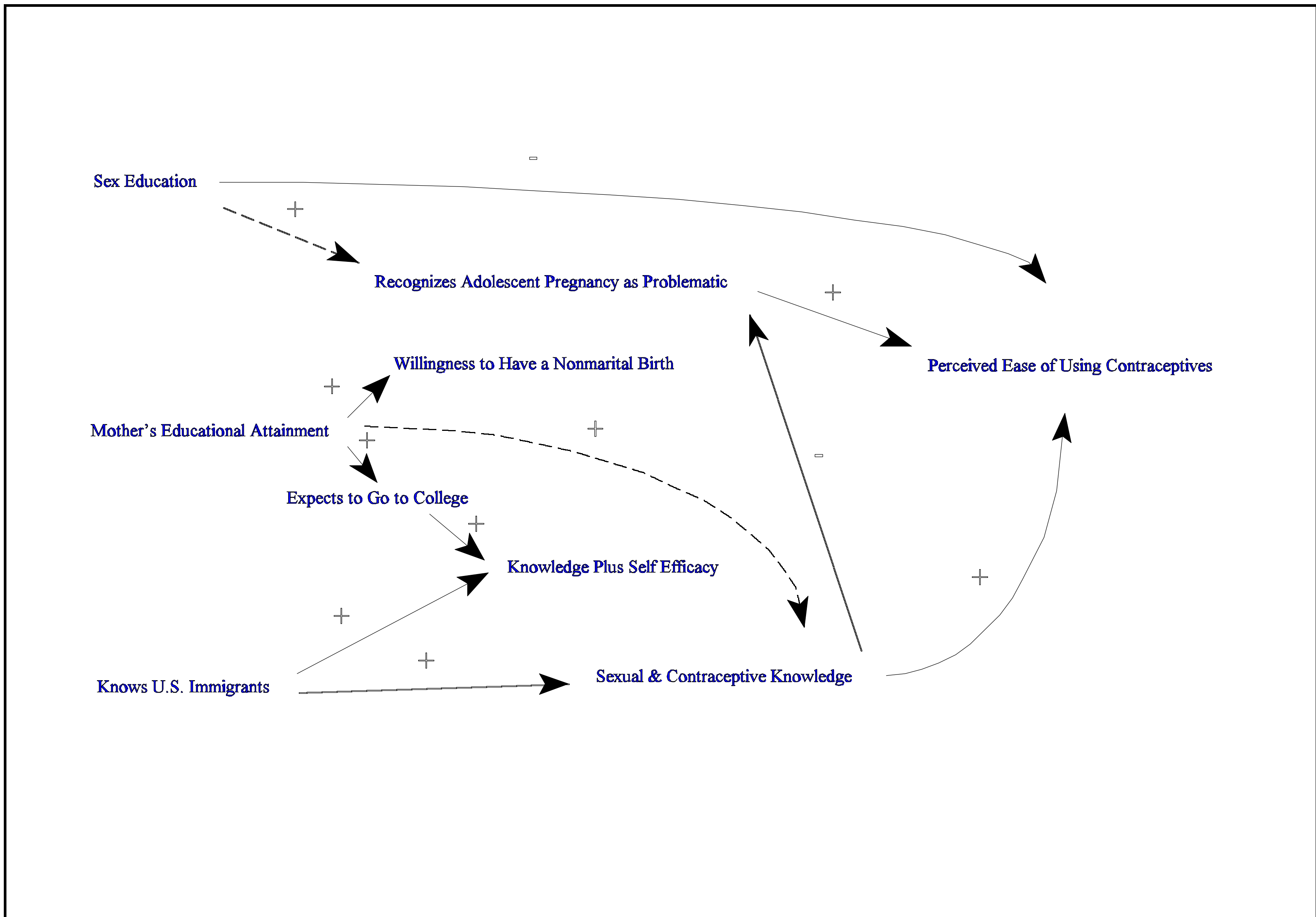

Figure 3. Empirical Model of the Influence of Modernization Factors on Perceived Ease of Contraceptive Use.

Table 1. Descriptive Statistics for Variables Studied (n = 123).

Variable	Proportion or Mean (standard deviation) [range]
Respondent's Age (years)	15.5 (1.8) [12-19]
Urban Residence	77%
Had Sex Education in School	14.8%
Had English Lessons in School	74.2%
Mother's Educational Attainment (years)	6.1 (4.4) [0-16]
Mother's Education is Missing	6.3%
Knows a U.S. Immigrant	25%
Expects to Go to College	3.5 (1.4) [1-5]
Respondent Has Sexual Experience	7%
Perceives Pregnancy Now as Problematic	70%
Willing to Have a Nonmarital Birth	18.8%
Sexual & Contraceptive Knowledge Score	36.9 (18.5) [0-78]
Knowledge Plus Self Efficacy	11.1 (13.5) [0-55]
Perceived Ease of Contraceptive Use	12.5 (4.0) [2-20]

Table 2. OLS Regression Coefficients from Regression of Sexual and Contraceptive Knowledge Score on Indicators of Modernization, Controlling for Urban Residence and Age of Respondent (*n* = 123).

Variable	1	2	3	4	5	6	7
Sex Education	-4.4						
English Classes		4.1					
Mother's Education			.75#		.66#	.69#	.69#
Mother's Education Missing			-2.8		-3.5	-4.0	-3.6
Knows Immigrant				7.9*	7.3#	7.0#	5.1#
Respondent Has Sexual Experience							9.4#
Age	.73	.83	.97	.23	.60		
Urban Residence	-1.4	-1.2	.39	-4.9	-2.2		
Intercept	25.9#	20.8	16.7	31.9*	21.9#	30.6	31.0
Adjusted R^2	-.01	-.01	.004	.01	.02	.03	.03

$p \leq .10$ * $p \leq .05$ ** $p \leq .01$

Table 3. OLS Regression Coefficients from Regression of Knowledge & Self Efficacy Score on Indicators of Modernization, Controlling for Urban Residence and Age of Respondent (*n* = 123).

Variable	1	2	3	4	5	6	7	8
Sex Education	-2.0							
English Classes		3.0						
Mother's Education			.53#		.43	.53*	.54*	.28
Mother's Education Missing			4.7		3.8	3.5	3.9	4.3
Knows Immigrant				9.9*	9.3**	8.3**	7.7**	8.7**
Respondent Has Sexual Experience							5.1	
Expects to Go to College								2.0*
Age	.31	.42	.56	-.20	.08			
Urban Residence	-1.5	-1.0	-.20	-5.1#	-3.5			
Intercept	7.1	2.7	-1.1	13.0	5.6	5.6**	5.3**	.02
Adjusted R^2	-.01	-.01	.01	.07	.08	.08	.08	.11

$p \leq .10$ * $p \leq .05$ ** $p \leq .01$

Table 4. Logistic Regression Coefficients [Odds Ratio] from Regression of Perception that Adolescent Pregnancy Would Be Problematic on Indicators of Modernization, Controlling for Urban Residence and Age of Respondent (*n* = 123).

Variable	1	2	3	4	5	6
Sexual & Contraceptive Knowledge	-.03* [.97]					-.03* [.97]
Sex Education		1.0# [2.8]				.88# [2.4]
English Classes			-.11			
Mother's Education				-.02		
Mother's Education Missing				-.34		
Knows Immigrant					.57	
Age	-.19	-.23*	-.20#	-.20#	-.21#	-.22#
Urban Residence	-.95	-1.1*	-.86#	-.87#	-1.0*	-1.2*
Intercept	25.9#	4.6**	4.2*	4.3*	4.3*	5.5**
-2LogL						
Intercept Model	150.4					
Full Model	139.4**	142.4*	144.9#	144.7	143.7#	137.6**

$p \leq .10$ * $p \leq .05$ ** $p \leq .01$

Table 5. Logistic Regression Coefficients [Odds Ratio] from Regression of Willingness to Have a Nonmarital Birth on Indicators of Modernization, Controlling for Urban Residence and Age of Respondent (*n* = 123).

Variable	1	2	3	4	5
Sex Education	-.55				
English Classes		.49			
Mother's Education			.12* [1.13]	-.02	.12* [1.12]
Mother's Education Missing			-.41	-.34	-.50
Knows Immigrant				.81# [2.2]	.73# [2.1]
Age	-.11	-.08	-.03	-.15	-.08
Urban Residence	-.60	-.57	-.21	-.98#	-.51
Intercept	.22	-.42	-1.69	.87	-1.0
-2LogL					
Intercept Model	121.4				
Full Model	119.0	118.9	113.8#	117.4	112.2#

$p \leq .10$ * $p \leq .05$ ** $p \leq .01$

Table 6. OLS Regression Coefficients from Regression of Perceived Ease of Contraceptive Use on Indicators of Modernization, Controlling for Urban Residence and Age of Respondent (*n* = 123).

Variable	1	2	3	4	5	6	7	8
Perceives Adolescent Pregnancy as Problematic	1.2#							1.8*
Sexual & Contraceptive Knowledge		.03#						.04*
Sex Education			-2.5*					-2.7**
English Classes				.51				
Mother's Education					.15#			
Mother's Education Missing					-.74			
Knows Immigrant						.20		
Expects to Go to College							-.04	
Age	-.25	-.31#	-.21	-.26	-.22	-.30#	-.29#	-.16
Urban Residence	-2.5	-2.6**	-2.1*	-2.5**	-2.1*	-2.7**	-2.7**	-1.7#
Intercept	15.5**	16.2**	16.1**	16.2**	15.0**	17.2**	17.4**	12.5**
Adjusted R^2	.07	.07	.01	.06	.06	.05	.05	.12

$p \leq .10$ * $p \leq .05$ ** $p \leq .01$