Generational Differences in Early Fertility and Sexual Behavior among Male and Female Immigrants in the United States

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Introduction:

As evidenced by the wealth of current and past studies on the causes and consequences of early childbearing and sexual risk behaviors, interest in the topic among researchers and policymakers has been great. Understanding early fertility is indeed important, considering the negative implications of such behavior for both young parents and their children (Haveman, Wolfe, and Pence, 2001; Waite and Moore, 1978; Keplinger, Lundberg and Plotnick, 1995 & 1999; Hotz, McElroy and Sanders, 1997; Blackburn, Bloom and Neumark, 1993). Those who engage in sexual risk behaviors put themselves in jeopardy of sexually transmitted diseases and unintended pregnancy. However, while there is abundant research on the predictors of early fertility and sexual risk behaviors for adolescents as a whole, very little work has specifically focused on young immigrants. Further, the bulk of existing research on early fertility is female-centered. As policymakers and researchers increasingly recognize the importance of men's contributions to fertility and family formation decisions, careful analyses of the fertility of young men are needed. At the same time, changes in the volume and composition of immigration to the United States in the past four decades have contributed to renewed interest in the rate of adaptation and pattern of accommodation of immigrants, making a study of immigrant fertility across generations of young men and women particularly salient.

Motivation

The social contexts in which immigrant youth develop and mature are different from those of their native-born counterparts. Indeed, immigrants differ from their native peers along dimensions that have been linked in the literature to fertility and sexual risk behavior. For example, in addition to being faced with decreased economic resources relative to natives (immigrants, especially new immigrants, are more likely than natives to live in poverty, use public assistance, and be unemployed (U.S. Census Bureau, 2003; Fix and Passel, 2002; Borjas and Hilton, 1996)), immigrant children often reside in families with a non-traditional or complex structure. Immigrant children are more likely to live with married parents (although this result does not hold for all ethnic groups) and in households that contain a grandparent than native children (Tolnay, 2004; Brandon, 2002; Opresa & Landale, 1997; Jensen & Chitose, 1994; Rumbaut, 1997; Hernandez, 1999; Wilmoth et al, 1997; Kamo & Zhou, 1994; Glick & Van Hook, 2002; Kritz et al. 2000). Also, immigrants, especially those who migrated recently, often live in communities that are very different from those of natives. For example, many new immigrants to the U.S. settle and live in neighborhoods in inner-city urban areas where problems of poverty. unemployment, crime, and social disorganization are rampant (Sampson and Groves, 1989; Wilson, 1987). However, immigrant adolescents growing up in poor but ethnically homogeneous neighborhoods, such as ethnic enclaves, may experience a different set of effects than similar natives. (Sanders and Nee, 1996; Portes and Zhou, 1992; Waldinger, 1996 & 1997; Light et al., 1993; Nee, Sanders, and Sernau, 1994).

As first and second generation immigrant children are the fastest growing segment of the young adult population, the health and well-being of these youth is important from a policy perspective. Research addressing the adjustment and adaptation process of immigrant youth is essential to understanding the well-being of this population and to inform public policy. In this paper, factors that predict early fertility and sexual risk taking behavior among generations of male and female U.S. immigrants are examined. The analysis focuses specifically on the role of assimilation, family structure, and community/contextual factors.

Data and Method:

A major complexity with research addressing the adaptation of immigrants across generations is the difficulty separating generation effects from cohort effects; differences in outcomes across generations may be a result of cohort differences rather than assimilation or adaptation. Using three datasets including adolescents and young adults from birth cohorts spanning 1957 to 1984 allows for comparisons both within and across cohorts. Data (see Tables 1 and 2) from the National Longitudinal Study of Youth 1997 (NLSY97), the National Education Longitudinal Study of 1988 (NELS88), and the National Longitudinal Study of Youth 1979 (NLSY79) will be used to perform multivariate analyses predicting sexual risk behaviors and fertility among young immigrants. The NLSY79 includes individuals who were aged 13 to 25 between 1979 and 1990, the NELS88 includes respondents who were in that age range between 1988 and 2000, and the NLSY97 includes respondents between 13 and 25 years of age between 1997 and 2003. Significantly, the data allows for an examination of immigrants arriving before and after the 1965 Immigration Act, when family reunification reforms took place and the composition of immigrants to the United States changed dramatically; using these three datasets allows for an analysis of immigrant families who migrated from the 1950s to the 1990s. Thus, in this analysis, differences both within and across cohorts of immigrant youths can be examined.

Four dependent variables will be used in this analysis: an early fertility indicator (measured by early births, capped at age 25) and three measures of sexual risk-taking behavior (measured by age at first sex, number of sexual partners by age 20, and frequency of unprotected sex). The independent variables included in this analysis represent family background, community/contextual, and assimilation factors. In addition, a set of basic variables (including citizenship and race/ethnicity) will be included with all estimations. Family background variables include maternal education and employment, family income, family structure at age 14, age of the mother at respondent's birth, grandparent presence in family, family size, family religious background, and the language spoken in the household. Community/contextual variables include percent immigrant (1st generation) in tract/county, percent families below poverty in tract/county, unemployment rate in tract/county, percent of families using public assistance in tract/county, state welfare generosity in state, urbanicity, and region of country. Finally, assimilation variables will include generation (including 1.5 generation youth and those from mixed-status families) and, for 1st generation respondents, time since immigration.

Two multivariate methods will be used to examine predictors of early fertility and sexual risk behavior. (All models will be estimated separately in each dataset).

1) Discrete time survival models will be estimated for the dependent variables age at first birth and age at first sex.

2) Poisson regression will be used for the dependent variables **number of sexual** partners and frequency of unprotected sex.

The hazard models will divide the period of risk into categories based on age and will include both time-invariant variables measured at the beginning of the risk period and time-varying variables throughout the risk period. Equation (1) presents an example of such a model, which estimates, for individual i, the probability of experiencing an outcome at time k:

(1)
$$\ln (P_{ik}/1 - P_{ik}) = \beta_0 + \beta_{1k}X_{1ik} + \beta_2X_{2i} + \beta_3X_{3i} + \beta_4X_{4i} + \beta_5X_{5i}$$

where the dependent variable, P_{ik} , is the probability of person i having a birth in year (at age) k, conditional on not having a birth before year (age) k. P_{ik} , is alternatively the probability of person i having sexual intercourse in year (at age) k, conditional on not having experienced sex before year (age) k. Time-varying independent variables for each individual i, such as age, are represented in the vector X_{lik} . Other possible time-varying variables include community/contextual variables, such as concentration of immigrants at time k. The remaining time-invariant explanatory variables (family, assimilation, neighborhood/contextual factors) are included in vectors X_{2i} , X_{3i} , and X_{4i} .

The Poisson regressions model the number of occurrences of an event of interest (in this case, number of sexual partners by age 22 and frequency of unprotected sex by age 22) for person i as a function of the same vectors of independent variables in equation (1). Equation (2) presents an example of such a model:

(2)
$$\ln Y_i = \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + e_i$$

For both of the above analyses (and all four outcomes), the models will be estimated multiple times, with groups of variables added in stages. Initially, the models will include baseline variables only. To identify the mechanisms through which different factors influence early immigrant fertility and sexual risk behavior, the remaining groups of variables (family background, assimilation variables and contextual/neighborhood indicators) will be added to the above, first individually, then in combination. Interactions between generation status and various variables will also be included. The models will alternatively be stratified by immigrant status, generation, race/ethnicity, and sex to illustrate how explanatory variables impact the fertility outcomes for different types of immigrant adolescents. For example, repeating these analyses separately by sex enables an examination of how the fertility and sexual risk behavior of male and female immigrants differ. Furthermore performing these analyses using data representing different cohorts of immigrants variation in fertility and sexual risk taking behaviors across and within cohorts can be examined. State and time fixed effects will be included as well.

Table 1: Characteristics of the NLSY79, NELS88, and NLSY97									
	Birth	Data Collection	Age of Respondents at Survey	Age of Respondents at Survey	Years during which respondents				
Dataset	Cohort	Years	Beginning	End	are 13-22				
NLSY79	1958- 1965 1974-	1979-2002	14 to 21	37 to 44	1979-1987				
NELS88	1975 1980-	1988-2000	13 to 14	25 to 26	1988-1997				
NLSY97	1984	1997-2003	12 to 16	18 to 22	1997-2003				

Table 2: Sample Sizes in the NLSY79, NELS88, and NLSY97								
Dataset	Sample Size at Wave I	Number of Immigrants at Wave I	Number of 1st Generation Immigrants at Wave I	Number of 2nd Generation Immigrants at Wave I	Number of Births to Immigrants by End of Survey*			
NLSY79*	12,686	540	248	292	206			
NELS88	14,191	1,873	714	1159	585			
NLSY97	8,984	1,470	559	911	288			
* For NLSY79, capped at 1983, when the median respondent in 1979 is 22 years old								

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