Adolescents' Sexual Initiation: The Interaction of Race/Ethnicity and Immigrant Status

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Abstract

This paper provides an in-depth examination of the joint effects of race/ethnicity and immigrant status on adolescents' intercourse risk. We employ a sample of 4,535 females and 3,759 males from the National Education Longitudinal Study (NELS 88/94) who were followed for 6 years beginning in the eighth grade. We use discrete-time logistic regression models to estimate the associations of race/ethnicity and immigrant generational status with first intercourse hazard, and to evaluate the statistical interactions between race/ethnicity and immigrant status. Overall, Asian and Hispanic girls had lower and non-Hispanic Black girls had higher estimated risks relative to non-Hispanic White girls. Hispanic boys and White non-Hispanic boys had similar intercourse risks, but Black boys had higher and Asian boys lower relative risks. However, these patterns are contingent on immigrant status. Among girls, the protective effects of Asian or Hispanic identity are found only among second generation youth. Risk profiles for boys are more complex: being a third-plus generation Hispanic is associated with a higher risk while an Asian identity is associated with a lower risk only among first- and second-generation youth. These findings confirm the importance of accounting for the overlap between race/ethnicity and immigrant status in models of adolescent behavior. As the demographic diversity of the US population grows, researchers must include both race/ethnicity and immigrant status in their models of adolescent behavior.

Keywords

Immigrant youth; Adolescent sexual intercourse; NELS

For over three decades, scholars have sought to elucidate what Jessor and Jessor (1975) labeled the transition to nonvirginity—the developmental processes and age-graded behaviors that culminate in first sexual intercourse. One recurring question within this area of research is the role of race in shaping the timing and consequences of this transition. Complicating researchers' ability to answer this question are shifts in the racial and ethnic composition of the adolescent population, the result of changes in US immigration policy enacted during the 1960s (see Bean and Stevens 2003). What was, in the 1970s, a largely biracial society comprising a White population of European ancestry and a comparatively small African American population had become, by the mid-1990s, a multi-racial, multi-

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ethnic society (Lee and Bean 2004). Adolescent sex researchers have responded to this growing diversity in two ways: (1) by expanding the operational definition of "race" in between-group studies to include categories other than White and Black, most frequently Hispanics and, where data allow, Asians or "others" (Blake et al. 2001; Grunbaum et al. 2000; Harris 1999; Schuster et al. 1998) and (2) by conducting within-group studies describing the onset of sexual activity within the growing sub-populations of Latino and Asian youth (Guilamo-Ramos et al. 2005; Hahm et al. 2006; Tosh and Simmons 2007).

Studies in the first vein suggest that, overall, Asian and Hispanic youth are less likely to have experienced first intercourse than their White and Black peers (Browning et al. 2004; Grunbaum et al. 2000; Miller et al. 1999; Upchurch et al. 1998; Schuster et al. 1998). The findings of within-group studies suggest that the between-group results may reflect, in part, differences in nativity status. Asian and Hispanic youth who are immigrants or the children of immigrant parents are less likely to be sexually active than their peers (Hahm et al. 2006; Hussey et al. 2007; Kaplan et al. 2002; Upchurch et al. 2001), and school enrollment data suggest that most Asian (92.2%) and Hispanic-origin (64%) youth of high school and college age are immigrants or the children of immigrants but relatively few Black (16.7%) or White (9.2%) youth are (Shin 2005, Table B). These differences raise the possibility that race/ethnic variation in intercourse risk reflects immigrant status rather than race/ethnic differences per se and that the observed differences across race/ethnic groups may look very different once immigrant status is taken into account.

This paper considers how the transition to nonvirginity during adolescence is shaped by immigrant status and race/ethnicity. Specifically, we examine both the joint effects of immigrant status and race/ethnicity on non-marital intercourse risk during adolescence, controlling for a wide range of individual, family, and contextual characteristics, and the moderating effect of immigrant status on the association between race/ethnicity and intercourse risk. A significant feature of our analysis is our use of nationally representative data describing a cohort of youth who moved through their adolescence during the late 1980s and early 1990s. This cohort has two distinguishing features. First, cohort members moved through their teen years during a period in which the proportion of adolescents who had ever had intercourse decreased—the first drop since national estimates became available in the early 1970s (Abma and Sonenstein 2001). Second, cohort members who were immigrants or the children of immigrants comprised the leading edge of what continues to be the most rapidly growing segment of the child population (Capps and Fortuny 2006; Zhou 1997) and they moved through adolescence during a period of increasing demographic diversity (see Bean and Stevens 2003). Their experiences suggest how increasing racial/ ethnic diversity and an influx of immigrants may together be modifying our understanding of the transition to adulthood.

Background

Explanations for Race Differences in Intercourse Risk

Prior to the mid-1990s, most research on race differences in adolescent sexual behavior compared African American teens and their White peers; accordingly, a substantial literature has developed that documents a significant Black–White difference in age at first intercourse and attempts to explain it (Brewster 1994; Furstenberg et al. 1987; Hogan and Kitagawa 1985; Kantner and Zelnik 1972; Lauritsen 1994; Moore et al. 1986). Explanations for the persistent Black–White difference in first intercourse timing fall into two broad categories: those emphasizing socio-economic disadvantage and those pointing to sub-group differences in sexual norms and attitudes (Furstenberg et al. 1987). Studies in the former group are grounded in the well-established association between race/ethnicity and socio-economic conditions. From this perspective, youth from disadvantaged backgrounds are

assumed to perceive limited opportunities for social and economic attainment and, accordingly, attach little cost to the potential adverse consequences of sexual activity. Because Black teens are more likely than their White peers to come from disadvantaged families and to live in disadvantaged neighborhoods, they are also more likely than Whites to engage in non-marital intercourse and to do so at earlier ages (cf., Hogan and Kitagawa 1985).

The second explanation for race differences in intercourse risk derives from a cultural deviance model (Kornhauser 1978), and posits that group differences in behavior reflect group differences in norms and values. From this perspective, then, Black teens' earlier average age at first intercourse reflects a relatively greater tolerance for non-marital sexual engagement during adolescence. This explanation for race/ethnic differences in intercourse timing has been viewed with some suspicion in the social sciences, in part because norms and normative processes are difficult to measure directly (Lauritsen 1994). At the same time, growing evidence suggests the importance of normative factors to understanding teens' sexual behavior. Self-reported norms strongly influence the timing of sexual initiation, as do various aspects of schools' social environments and neighborhood characteristics assumed to shape or reflect prevailing social norms (Browning et al. 2004; Fletcher 2007; Harding 2007; Teitler and Weiss 2000).

Although often counter-posed in the literature, the socioeconomic disadvantage and cultural differences models are not mutually exclusive nor are the effects of norms and normative processes easily disentangled from socioeconomic factors (Brewster et al. 1993). Race/ethnic differences in adolescent intercourse risk likely reflect a combination of normative influences and socioeconomic processes. Importantly, culture and socioeconomic status also are critical components of the conceptual models describing the experiences of immigrant youth. In these models, however, the intertwining of cultural and socioeconomic factors is recognized explicitly.

Immigrant Generational Status and Adolescent Behavior

Until the last quarter of the twentieth century, the predominant paradigm in research on immigrant incorporation into "mainstream" America was assimilation theory, which explicitly ties immigrants' economic mobility to their cultural assimilation. Within this paradigm, immigrants' absorption of the majority culture—including its language, norms and values—leads to their structural integration and, subsequently, marital and civic assimilation (Gordon 1964). It is their mastery of the language and their adoption of mainstream behaviors that provide the children and grandchildren of immigrants the access to higher education and labor markets necessary for economic and social mobility. Immigrant incorporation, then, is an intergenerational process. Although the pace of this process may vary across ethnic groups, the assimilation model predicts that race/ethnic differences will diminish across subsequent generations, producing eventual convergence in values and behaviors (Bean and Stevens 2003).

Although this model fits well the experiences of immigrants to the United States a century ago (Alba and Nee 1999), a growing number of scholars have questioned its applicability to the experiences of contemporary immigrant groups. The classic model was informed largely by the experiences of groups who immigrated to the United States prior to a 40-year "immigration hiatus" following the implementation of restrictive quota laws in 1924. These groups did not experience the reinforcement of cultural values and traditions associated with successive waves of new arrivals and as a result their distinctiveness faded across generations (Alba and Nee 1999). Contemporary immigration policies allow on-going replenishment of the first generation, however, easing one barrier to the maintenance of culturally specific practices and belief systems (Waters and Jiménez 2005). Moreover,

whereas earlier immigrants were predominantly White and European in origin, contemporary immigrants are substantially more diverse with respect to national origin and race/ethnicity and, accordingly, belief systems and behaviors (Bean and Stevens 2003).

Because of these changes, the experiences of some contemporary immigrant groups diverge substantially from the pathway to incorporation posited by the classic assimilation model. The segmented assimilation model theorizes multiple modes of incorporation that are circumscribed by immigrants' human capital, context of reception, geographic location, and race/ethnicity (Portes and Zhou 1993). From this perspective, only the offspring of groups who experienced a favorable reception and possess high levels of human capital are likely to experience the upward trajectory of socioeconomic mobility and cultural integration predicted by the classic model. Other immigrant groups follow one of two alternate pathways.

Where a community exists to support the maintenance of culturally specific practices and ethnic endogamy, immigrant groups may take the route of partial or limited assimilation, in which children's educational attainment and economic success are encouraged but their cultural assimilation is discouraged. Alternatively, "negative" or "downward" assimilation occurs when immigrant groups lack sufficient social or human capital to support the economic mobility of the second generation, or overcome the barriers posed by increasingly segmented labor markets and lingering discrimination (Massey 1995). Blocked opportunities may engender in immigrant youth an "adversarial stance" toward mainstream attitudes and behaviors, particularly among those youth who are phenotypically distinct from their non-Hispanic White peers (Bean and Stevens 2003; Fernandez-Kelly and Schauffler 1994; Portes and Rumbaut 2001).

What are the implications of these perspectives for group differences in intercourse risk? The classic model predicts behavioral convergence; however, the diversity of recent immigrants—with respect to social and economic characteristics, phenotypes, and cultural traditions—may hinder convergence, a possibility that seems particularly likely when considered in light of the persistent Black–White differences. The segmented assimilation model offers two competing predictions. Partial assimilation predicts that group differences in intercourse risk will persist over successive generations, reflecting the maintenance of distinct ethnic identities and cultural practices. The downward assimilation model predicts increasing divergence in intercourse risk profiles across generations, reflecting the successful incorporation of some national-origin groups into the American mainstream and the rejection of mainstream values and norms by those who experience structural and institutional barriers to mobility. Notably, both the partial and negative assimilation models share a common endpoint—intercourse risk profiles that are differentiated along race/ethnic lines. In that respect, they extend the cultural differences and socioeconomic disadvantage models of Black–White differences in intercourse risk to an increasingly diverse adolescent population.

Conditioning Effect of Gender

The cultural traditions of contemporary immigrant groups provide youth less autonomy and less opportunity to develop relationships with opposite-gender peers than is typically the case in the United States (King and Harris 2007; Portes and Rumbaut 2001). Moreover, these traditions may be strongly gendered. Asian cultures, for example, tend to value greater passivity and submissiveness in young women while subtly encouraging independence and sexual accomplishment in young men (Chia et al. 1994; Kim et al. 1996; Talbani and Hasanali 2000). Hispanic cultures, too, tend to have a more traditional gender orientation and sexual engagement is strongly proscribed for girls but not boys (Upchurch et al. 2001).

Gendered norms predict gender differences in intercourse risk and, more importantly, raise the possibility of gender differences in the effects of generational status.

Data and Methods

We use data from the National Education Longitudinal Survey (NELS), which followed a nationally representative cohort of eighth-graders, beginning in 1988, as they moved through adolescence and into early adulthood. Although the NELS was intended to support policy-relevant research on educational processes and outcomes, interviews with students, parents, and school administrators yielded information about topics ranging well-beyond schooling, including family life, home experiences and sexual activity. Importantly, because of its substantial sample size and over-samples of Hispanic and Asian-American youth, the NELS provides sufficient numbers of first- and second-generation youth to evaluate the net effects on non-marital intercourse risk of immigrant status and race/ethnicity among these groups.

The initial NELS sample comprised 24,599 eighth grade students drawn from a clustered, stratified national probability sample of 1,052 public and private schools (Haggerty et al. 1996). Our analyses are based on data from the 14,915 respondents who participated in the 1988 baseline and the 1990, 1992, and 1994 follow-up interviews. We necessarily excluded respondents who were missing data on sexual activity, who reported a first intercourse date prior to the first interview date, or who married before experiencing first intercourse. The sample does not include sufficient numbers to support analysis of respondents who self-identified as American Indian or Alaskan natives; these respondents also were excluded from the analyses. The final sample comprises 8,294 individuals: 4,535 females and 3,759 males.

Measures

Dependent Variable—The dependent variable was constructed using month and year of first intercourse, as reported by the respondent in 1994; it is coded 1 if the adolescent had sexual intercourse during the observed year and 0 otherwise.

Key Covariates—The two covariates of primary interest are generation and race/ethnicity. *Generation* was defined on the basis of the adolescent's and her/his parents' country of birth. First-generation respondents were born outside of the United States and had at least one foreign-born parent. Second-generation adolescents also had at least one foreign-born parent but were themselves born in the United States. Third-plus generation (i.e., "native") members were born in the United States to native-born parents.

Our measure of *race/ethnicity* is based on respondent's self-identification at the baseline interview as Asian or Pacific Islander, Hispanic regardless of race, non-Hispanic White, or non-Hispanic Black. Although Hispanic and Asian respondents provided more specific ethnic identification, sample size constraints necessitated our use of the less detailed, four category variable. Nearly two-thirds of the Hispanic sample self-identified as Mexican, Mexican-American, or Chicano and almost four-fifths of the Asian sample were of East Asian origin.[1]

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[1]Respondents who identified as non-Hispanic Black or White were not asked about their ethnic background, but information on language used at home sheds some light on the ethnic origins of Black and White immigrants. More than half (56%) of Black immigrants reported living with French speakers, suggesting Haitian or West African origins. The ethnic origins of White immigrant youth are more difficult to pin down: Among White immigrant respondents, the modal language category (23%) was "unspecified"; specific languages mentioned by the White respondents included Italian, French, German, Greek, Polish, and Portuguese.

Control Variables—The empirical literature shows adolescents' intercourse risk to be a product of multiple variables, including family background, school performance and educational expectations, school characteristics, and even geographic factors such as urban residence and region of the country. The NELS data allow us to control for the effects of many of these influences. Our multivariate analyses include family background measures constructed from the baseline interviews with students and their parents, and time-varying measures of student characteristics and school context from the student follow-up and school administrator interviews.

Items constructed from the baseline data include *age at baseline*, calculated from the respondent's birth date, and indicators of family and religious background based on data obtained from the respondents' parents. *Family structure* is a dichotomy distinguishing between those respondents who lived with both biological or adoptive parents at baseline from those who did not. *Total family income* (in 1987) collapses the original 15 response categories to four: less than $10,000; $10,000 to $24,999; $25,000 to $74,999; and $75,000 or more. *Parents' educational attainment* is indicated by two dichotomies coded one if mother (father) had earned at least a college degree and zero if mother (father) had not or was not living with the respondent at baseline. A binary measure of *religious background* is coded one if the interviewed parent indicated no religious affiliation and zero otherwise.

Student's high school curriculum, current educational status, and educational expectations are all measured as dichotomous, time-varying covariates. *High school curriculum* is a dummy variable coded one for academic track and zero otherwise. At the first wave, when the students were eighth-graders, curriculum captures expected high school curriculum; in subsequent waves, curriculum reflects actual enrollment. *Educational status* indicates whether the individual was off-time with respect to the cohort's progression through high school. Prior to 1992, when most cohort members graduated, individuals who had either failed or skipped a grade were coded one; after 1992, those who had not graduated were coded 1 in each year they did not have a diploma or GED. *Educational expectations* are measured by students' responses to the question "As things stand now, how far in school do you think you will get?" At each observation, respondents expecting to finish college were coded one.

The models include two time-varying covariates capturing adolescents' perceptions of their parents' involvement in their school lives. *Perceived parental expectations* were obtained at each wave from adolescents' responses to the question "How far in school do you think your father (your mother) wants you to go?" Responses are coded as college or higher if one or both parents expected the respondent to attend college, less than college if neither expected college, or unknown. At each wave, adolescents also were asked to rate how frequently (often, sometimes, never) they discussed with their parents their selection of courses or school programs and things studied in class, and school activities or events important to the respondent. Based on preliminary analyses, we combined often and sometimes responses and then summed the dichotomous responses to index *parent–child communication*. Index values range from zero to six, with higher values indicating greater parent–child communication.

Four covariates capture contextual characteristics relevant to adolescents' sexual experiences; all are time-variant, allowing for change due to students' school transitions and geographic mobility. *Geographic region*, based on the US Census regional classification, is coded one for Southern residence and zero otherwise. *Urban location* is coded one if the school is in an urban area. *School type* distinguishes public schools, coded one, from private secular and religious institutions. School administrators were asked to report the *percent of the student body from single-parent families*. We include a dichotomous measure of this

variable, coded one if less than 25% of students lived in a single-parent family, as an indicator of the school's normative environment. Table 1 presents descriptive statistics for the covariates and for the controls as measured at the baseline interview; these statistics are weighted to represent the national eighth-grade cohort in 1988.

Analysis

We exploited the longitudinal nature of the data by converting the individual-level records to person-year observations. Each respondent contributed one record for each year between 1988 and 1994 that she/he did not experience first intercourse, up to a maximum of seven observations (i.e., one for each year of the study). Because preliminary analysis revealed gender differences in the effects of several covariates, including race/ethnicity and generation, all analyses are gender-specific. The event-history file for girls comprises 17,536 person-year observations with 2,905 event occurrences; the boys' file includes 13,498 person-year observations with 2,530 event occurrences. Logistic regression analyses of these discrete-time records were conducted in STATA, version 10.1, using the *svy* command to adjust for design effects.

One goal of our analysis is to test for differences across race/ethnic groups in the association of immigrant generational status with intercourse risk. To that end, we specify multiplicative terms representing the statistical interaction between race/ethnicity and generation. Although our analyses are weighted and adjusted for sampling design, cell sizes for first- and second-generation Blacks are insufficient to provide a reliable basis for statistical inference; therefore, although we include immigrant Blacks in the interaction analyses for consistency across models, we do not address the Black-by-generation coefficients in our discussion of the interaction models.

Because the testing of group differences in logistic regression models is subject to biased results due to unequal error variances across cases/groups (Allison 1999, Williams 2009), we also ran heteroskedastic choice models using the *oglm* command in STATA (Williams 2006). The results (available on request) suggest that heteroskedasticity was not a problem for our analyses.

Results

The life table estimates in Table 2 provide two perspectives on the timing of sexual initiation in the NELS cohort: the conditional probability (hazard) of experiencing first intercourse at each year and the cumulative probability of remaining a virgin at each year (survival probabilities). Intercourse risk was quite low in 1988, when cohort members were in the eighth grade; just 6% of girls and 10% of boys experienced first intercourse in this year. As the cohort moved through high school, intercourse risk increased rapidly for both genders, peaking in 1992 which was senior year for the average cohort member. At this point, just less than one-fifth of girls and 14% of boys remained virgins. Intercourse risk dropped rapidly after 1992, as those youth who had not experienced first intercourse became an increasingly select group. By 1994, just 12% of girls and 9% of boys were still virgins.

Tables 3 and 4 consider the association of intercourse risk with race/ethnicity and with generation. Both tables present, for girls and for boys respectively, logistic regression coefficients from a set of discrete-time models in which time is measured in single years relative to 1988 and age at baseline is held constant. The first model in each table quantifies race/ethnic differences in the relative risk of an adolescent first intercourse, controlling only for age at baseline. As Table 3 shows, intercourse risk for Asian girls is 51% ($e^{-0.665} = 0.51$) of the risk for their White peers; the risk for Hispanic girls is 79% ($e^{-0.231}$) of the White

risk, and risk for African American girls is 1.4 times ($e^{0.342}$) the risk for White girls. Table 4 shows that, relative to White boys, Asian youth have a lower intercourse risk ($e^{-0.581} =$ 0.559) and Blacks have a higher risk ($e^{0.904} = 2.47$); however, Hispanics boys' intercourse risk is statistically equal to that of White boys.

The second model in Tables 3 and 4 specifies the effects on intercourse risk of generation, again controlling only for age at baseline. Among girls (Table 3), the coefficients reveal a pattern consistent with the classic assimilation model: The relative risk of intercourse is lowest for first-generation girls and lower, but somewhat less so, for second-generation girls. Table 4 shows that intercourse risk also is lower among first-generation boys relative to their third-generation counterparts; however, second-generation boys are no less likely than their third-and higher-generation peers to experience first intercourse during adolescence. These findings suggest that although immigrant status matters for youth of both genders, among girls, its effects are more persistent across generations.

Model 3 shows the net effects of race/ethnicity and generation. Looking first at the results for girls (Table 3), comparison of the race/ethnic coefficients in Model 3 with those in Model 1 reveals that the coefficients for Asian and Hispanic, but not Black, identity are attenuated when we control for generation. In contrast, the coefficients for generation change little when the effects of race/ethnicity are held constant (Model 3 versus Model 2). Among girls, then, what appeared in Model 1 to be a protective effect of Asian or Hispanic identity is revealed in Model 3 to reflect a confounding of race/ethnicity with immigrant generational status.

Turning to the results for boys (Table 4), controlling for generation produces an attenuation of the Asian coefficient but has no impact on the Black coefficient, just as in the girls' models. The Hispanic coefficient in Model 3 is statistically significant, however, indicating that a higher intercourse risk among Hispanic boys relative to Whites is suppressed when immigrant status is not taken into account. The reason for this suppression becomes clear in the next set of models, which test for the race/ethnic differences in the effects of generation predicted by the segmented assimilation models. Finally, as in the girls' models, the significant generation effect is unchanged by the controls for race/ethnicity.

Model 4 adds to Model 3 six multiplicative terms representing the statistical interaction of generation and race/ethnicity, with third-generation Whites serving as reference category. Adjusted Wald tests for model fit show significant improvement for boys ($F = 2.9$, $p = 0.008$) and marginal improvement for girls ($F = 1.9$, $p = 0.08$). Model 5 adds to the interaction model the full set of covariates. Comparison of Models 4 and 5 reveals an increase in the coefficient representing first-generation Black girls; otherwise, the coefficients in both tables are largely unchanged by these controls. In other words, the joint effects of race/ethnicity and generation are independent of controls for family background, school performance and educational expectations, school characteristics, and geographic location.

To simplify interpretation of the results, we estimated and graphed the survival probabilities (i.e., probability of remaining virgin at each age) by race/ethnicity and generation for the "average" respondent, defined by the modal categories of the qualitative covariates and the median values of age and parent–child communication. Figures 1 and 2 illustrate the results for girls and boys, respectively. Additional Wald tests for contrasts involving the full set of race/ethnicity-by-generation contrasts revealed numerous significant differences; we refer to these differences in our discussion of the figures. It is at this point in the analysis that the small cell sizes for first- and second-generation Blacks become an issue; thus, the figures reflect only the experiences of Asians, Hispanics, and Whites.

The three panels in Fig. 1 suggest movement toward convergence in intercourse risk across successive generations, consistent with the prediction of the classic assimilation model. Significant race/ethnic differences characterize the first- and second-generation girls but not the third-and-higher generation girls. Although Fig. 1 does not include the survival probabilities for Black girls, it is worth noting that the non-significant coefficient for Blacks in Model 5 of Table 3 indicates that they are no more likely than comparable Whites to be sexually active. At the same time, the specific patterns leading to this third-generation convergence differ across race/ethnic groups. Among Hispanic and White girls, the proportion virgin at each age drops across successive generations as does the median age at first intercourse (represented by the dashed horizontal line). This drop is greater among White girls who, surprisingly perhaps, have the lowest intercourse risk at the first generation. Whereas the proportion virgin is lower at the second generation than at the first among Hispanic and White girls, among Asian girls the reverse is true: The proportion virgin is significantly higher at the second generation than at the first, a finding that is robust to different model specifications.

Although the coefficient estimates and survival probabilities for girls suggest racial/ethnic convergence in intercourse risk by generation three, the profiles for boys do not. Statistically significant race/ethnic differences are evident at each generation. Among first- and second-generation boys, Asians are more likely than Whites or Hispanics to remain virgins throughout adolescence. Moreover, comparing Asian boys across generations reveals that intercourse risk is lower for the second generation than the first, just as it is among Asian girls. The profiles for White and Hispanic boys diverge across generations, consistent with the prediction of the segmented assimilation perspective. Although both groups experience an increase in intercourse risk across successive generations, this increase is greater among Hispanics. As a result, among third-and-higher generation boys, Hispanic boys are more likely than their White counterparts to have experienced first intercourse. Finally, the coefficient estimates for Model 5 in Table 4 and Wald test results (not shown) indicate that third-and-higher generation Black boys have a higher intercourse risk than their White, Hispanic, and Asian peers.

Discussion

The growing population of immigrant youth and their racial and ethnic diversity provide the opportunity to re-consider the influence of race and ethnicity on the transition to adulthood among American adolescents. Informed by the substantial research literature on race/ethnic differences in adolescent outcomes and more recent work on immigrant youth, the present study considers a critical aspect of the transition to adulthood, the onset of sexual activity. We use nationally representative panel data to examine the joint effects of race/ethnicity and immigrant status on first (non-marital) intercourse risk for adolescent girls and adolescent boys. Our results shed new light on race/ethnic differences in intercourse risk and clarify the inconsistent findings of past studies on the effects of immigrant status on adolescent sexual behavior.

Our baseline models describe race/ethnic differences similar to those observed by Upchurch et al. (1998) in their study of Los Angeles teens. First intercourse hazard is lower among Asian and Hispanic girls and higher among non-Hispanic Black girls than it is among their non-Hispanic White peers. Non-Hispanic Black boys have a higher hazard and Asian boys a lower hazard than non-Hispanic White boys. Importantly, however, we find substantial evidence that the association of race/ethnicity with intercourse risk is contingent on both immigrant status and gender.

Consistent with the overall thrust of the classic assimilation model, intercourse risk is lowest for the immigrant children of immigrant parents and highest for the native-born children of native-born parents, regardless of race/ethnicity and gender. At the same time, the racial/ethnic convergence predicted by the classic model fits more closely the experiences of girls than boys. Among girls, the race/ethnic differences in intercourse risk that characterize the first- and second-generations are largely insignificant among the third- and higher generations, with the exception of the higher relative risk for non-Hispanic Blacks—a difference that was attenuated entirely by the addition of control variables. Among boys, however, race/ethnic differences in intercourse risk become somewhat more pronounced across successive generations, as the risk for Hispanic boys increases more rapidly than does the risk for Asian or White boys.

The marginal gender difference mirrors findings reported by studies using more recently collected data behavior (King and Harris 2007; Upchurch et al. 2001; Weiss and Tillman forthcoming). The nature of the gender difference in generational status accords well with the argument that daughters of immigrant parents may be more closely supervised than sons, or held to different and more restrictive standards of behavior. Our work adds a critical detail: the influence of generational status depends on gender, and the expression of this gender difference varies across race/ethnic groups. These differences suggest the possibility that patterns of assimilation may be differentiated not only by race and ethnicity but also by gender, a possibility that bears further investigation.

Some previous investigations have observed a significant association between immigrant status and teens' sexual behavior though others have not (cf., Aneshensel et al. 1989; Brindis et al. 1995; Browning et al. 2004; Harris 1999; Hingson et al. 1991; Hussey et al. 2007; Hahm et al. 2006). Some of this inconsistency may reflect data limitations, including reliance on community-specific samples or consideration of a single race/ethnic group. A notable strength of our work is its reliance on nationally representative data with a sample sufficient to address joint effects of race/ethnicity and generation while controlling for socio-economic variables and geographic location. Thus, we are able to qualify the inconsistent findings of prior studies: Immigrant generational status is important to understanding youths' intercourse risk but its effects vary across race/ethnic groups and by gender.

Despite its advantages, our data set also limited our findings in several important respects. First, we could not address heterogeneity within the four admittedly broad race/ethnic groupings. Better understanding of the relative roles of immigrant status and both economic and cultural factors will require greater attention to such heterogeneity. For example, we suspect that a correlation between ethnic heterogeneity and immigrant status may account for the pattern we observed among Asian youth, for whom intercourse risk was higher at the first- than the second-generation. Our national sample also provided insufficient cases to examine the experiences of first- and second-generation Blacks. Such an endeavor may require community-based sampling from a geographic area (e.g., Miami) with a sizeable African or Afro-Caribbean population. Targeted samples also would allow for the incorporation of direct measures of cultural attachment and identification with mainstream culture, variables missing from our models.

In addition, our data pertain to a cohort that moved through adolescence between 1988 and 1994. Members of this cohort now average about 33 years of age and much has changed since they entered adolescence. Three changes are particularly pertinent. First, continued immigration has increased the share of the foreign-born population, from about 6.5% in 1985 to 12.5% in 2006 (Migration Policy Institute 2007). Second, Black and White non-Hispanics comprise decreasing percentages of the overall population (Bean and Stevens

2003). Finally, the immigrant population is substantially more dispersed geographically today, with significant growth evident in the southern and midwestern states (Waters and Jiménez 2005). In light of these changes, it is reasonable to ask whether our findings can be generalized to more recent cohorts. We cannot answer this question directly, but evidence from the Add Health study and other data sets suggests that the general thrust of our findings —the importance of both immigrant status and race/ethnicity as determinants of intercourse risk—obtains for more recent cohorts and for other aspects of the transition to adulthood (cf., Greenman and Xie 2008; Harris 1999; King and Harris 2007).

A final limitation of our study is its lack of information about aspects of adolescent sexuality other than the timing of first intercourse. Although first intercourse is a significant milepost in the transition to adulthood, a focus on intercourse alone ignores the reality that sexual experimentation at this stage of the life course is not limited to coitus. Recent research indicates that many adolescents have experience with sexual activities that may substitute for and delay the timing of first (vaginal) intercourse, including oral sexual activity and anal intercourse and that the prevalence of these behaviors vary by race/ethnicity and nativity status (Brewster and Tillman 2008; Lindberg et al. 2008; Weiss and Tillman forthcoming). A more comprehensive understanding of the role of race/ethnicity in the transition to sexual activity will require data on the full range of adolescent sexual experiences.

Our findings speak to the relative contributions of economic and cultural factors to race/ethnic differences in intercourse risk. Several decades of research on adolescent sexual activity have established that youth from disadvantaged backgrounds have a greater risk of non-marital intercourse than youth living in more advantaged circumstances. Immigrant youth, however, pose a conundrum. On average, they are less likely than non-immigrant youth to have college-educated parents and more likely to live in low-income households[2] (Brandon 2002; Hernandez and Charney 1998; Reardon-Anderson et al. 2002), but they have a lower intercourse risk. The protective effect of immigrant status holds both within and across race/ethnic groups and it does not diminish much when socio-economic characteristics and other aspects of family background are held constant. This persistence, particularly when viewed in conjunction with the gender-differentiated patterns described above, suggests that socioeconomic explanations are insufficient to account for racial and ethnic variation in sexual behavior. Rather, it appears that cultural factors are critical to understanding the onset of sexual activity.

Acknowledgments

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[2]The less advantaged position of immigrant families generally holds across race/ethnic groups. In our sample, for example, both Hispanic and Asian immigrants are over-represented in the lowest-income households. Asians are somewhat better off in that a greater proportion report having a college-educated parent.

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Fig. 1.
Adjusted percentage of girls remaining virgins by year, immigrant status, and race/ethnicity.
Survival probabilities based on fitted hazards of first intercourse
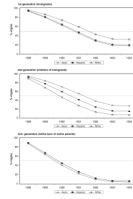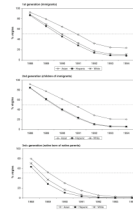
Fig. 2.
Adjusted percentage of boys remaining virgins by year, immigrant status, and race/ethnicity.
Survival probabilities based on fitted hazards of first intercourse

Table 1

Descriptive statistics for covariates measured at baseline, by sex

Variable	Girls		Boys	
	Mean	s.d.	Mean	s.d.
Generation				
First	0.04	0.19	0.04	0.18
Second	0.09	0.29	0.07	0.26
Third+ (ref)	0.87	0.34	0.89	0.31
Race/ethnicity				
Black	0.11	0.31	0.09	0.29
Hispanic	0.08	0.28	0.08	0.27
Asian	0.03	0.18	0.03	0.18
White (ref)	0.78	0.42	0.81	0.40
Age	13.54	0.56	13.65	0.57
Family structure				
Two parent	0.68	0.47	0.69	0.47
Other (ref)	0.32	0.47	0.31	0.46
Family income, 1987				
Less than $10,000 (ref)	0.09	0.29	0.07	0.26
$10,000 to $24,999	0.24	0.42	0.23	0.42
$25,000 to $74,999	0.56	0.50	0.57	0.50
$75,000 or more	0.11	0.31	0.13	0.33
Father's education				
College or higher	0.25	0.43	0.30	0.46
Not college grad (ref)	0.67	0.47	0.65	0.48
Missing or unknown	0.08	0.27	0.06	0.23
Mother's education				
College or higher	0.16	0.37	0.19	0.39
Not college grad (ref)	0.83	0.38	0.79	0.41
Missing or unknown	0.01	0.10	0.02	0.13
Religion				
Any affiliation (ref)	0.93	0.26	0.88	0.32
No affiliation	0.07	0.26	0.12	0.32
HS Curriculum				
Academic	0.31	0.46	0.34	0.47
Other (ref)	0.69	0.46	0.66	0.47
Educational status				
Off-time	0.03	0.17	0.04	0.19
On-time (ref)	0.97	0.17	0.96	0.19
Expected education				
College or higher	0.72	0.45	0.71	0.46
Less than college (ref)	0.28	0.45	0.29	0.46

Variable	Girls		Boys	
	Mean	**s.d.**	**Mean**	**s.d.**
Parent's expectations				
College or higher	0.74	0.44	0.76	0.43
Less than college (ref)	0.17	0.38	0.17	0.37
Unknown or missing	0.09	0.28	0.08	0.27
Parent–child communication	4.45	1.38	4.07	1.49
Geographic region				
South	0.33	0.47	0.31	0.46
Non-South (ref)	0.67	0.47	0.69	0.46
School location				
Urban	0.24	0.43	0.23	0.42
Non-urban (ref)	0.76	0.43	0.77	0.42
School type				
Public	0.87	0.34	0.87	0.34
Private (ref)	0.13	0.34	0.13	0.34
Percent single-parent families				
Less than 25%	0.55	0.50	0.56	0.50
25% or higher (ref)	0.45	0.50	0.44	0.50
Unweighted N	4,535		3,759	

Source: National Education Longitudinal Study, 1988–1994

Note: Weighted to represent the national population

Table 2

Conditional probability (hazard) of experiencing first intercourse and probability of remaining a virgin, by year and gender

Year	Girls		Boys	
	Hazard	Survival	Hazard	Survival
1988	0.06	0.94	0.10	0.90
1989	0.14	0.81	0.19	0.73
1990	0.25	0.61	0.28	0.53
1991	0.34	0.40	0.37	0.33
1992	0.50	0.20	0.57	0.14
1993	0.36	0.13	0.35	0.09
1994	0.05	0.12	0.05	0.09

Table 3

Logistic regression coefficients (robust standard errors) from discrete-time hazard models of first intercourse risk: females from NELS eighth grade cohort

	(1)	(2)	(3)	(4)	(5)
Time					
1989	0.93 *** (0.42)	0.93 *** (0.14)	0.93 *** (0.14)	0.93 *** (0.14)	0.97 *** (0.14)
1990	1.46 *** (0.13)	1.45 *** (0.13)	1.46 *** (0.13)	1.46 *** (0.13)	1.41 *** (0.13)
1991	1.76 *** (0.12)	1.75 *** (0.13)	1.76 *** (0.12)	1.76 *** (0.12)	1.76 *** (0.13)
1992	2.12 *** (0.13)	2.12 *** (0.13)	2.14 *** (0.13)	2.14 *** (0.13)	2.21 *** (0.14)
1993	1.82 *** (0.14)	1.83 *** (0.14)	1.84 *** (0.14)	1.86 *** (0.14)	1.96 *** (0.15)
1994	−0.21 (0.23)	−0.21 (0.23)	−0.19 (0.23)	−0.18 (0.23)	−0.08 (0.23)
Baseline age	0.37 *** (0.06)	0.38 *** (0.06)	0.37 *** (0.06)	0.38 *** (0.06)	0.29 *** (0.05)
Race/ethnicity					
Asian	−0.67 ** (0.16)		−0.26 (0.15)	−0.36 (0.29)	−0.41 (0.28)
Hispanic	−0.23 * (0.10)		0.02 (0.11)	0.08 (0.13)	−0.04 (0.14)
Black	0.34 ** (0.13)		0.36 ** (0.12)	0.41 ** (0.12)	0.25 (0.13)
Generation					
First	−0.73 ** (0.19)		−0.60 ** (0.19)	−1.08 ** (0.41)	−0.98 ** (0.35)
Second	−0.49 ** (0.09)		−0.46 ** (0.12)	−0.23 (0.16)	−0.07 (0.14)
Race × generation					
Asian, first				0.82 (0.65)	0.78 (0.56)
Asian, second				−0.45 (0.44)	−0.47 (0.41)
Hispanic, first				0.31 (0.54)	0.29 (0.53)
Hispanic, second				−0.32 (0.23)	−0.39 (0.23)
Black, first				0.89 (0.56)	1.03 * (0.50)
Black, second				−1.03 (0.56)	−0.89 (0.50)
Intact family					−0.59 *** (0.07)
Family income					
$10,000–$24,999					0.13 (0.11)

	(1)	(2)	(3)	(4)	(5)
$25,000–$74,999					0.19 (0.12)
$75,000+					−0.02 (0.13)
Father's education					
College or higher					−0.24 *** (0.07)
Unknown					−0.14 (0.16)
Mother's education					
College or higher					−0.16 * (0.08)
Unknown					−0.04 (0.12)
Religious affiliation					0.22 * (0.11)
Academic curriculum					−0.11 (0.06)
Off-track					0.61 (0.33)
R's expects college					−0.38 *** (0.08)
Parents' expect					
College or higher					0.10 (0.08)
Unknown					−0.04 (0.12)
Communication					−0.10 ** (0.02)
South					−0.15 * (0.06)
Urban					−0.02 (0.09)
Public school					0.23 (0.13)
% single-parent					−0.10 (0.06)
Constant	−7.79 *** (0.77)	−7.81 *** (0.76)	−7.81 *** (0.77)	−7.86 *** (0.76)	−6.06 *** (0.80)
Design-adjusted *F*	58.85 ***	60.57 ***	51.62 ***	38.03 ***	25.40 ***
Observations	17,536	17,536	17,536	17,536	17,536

*
$p < 0.05$,

**
$p < 0.01$,

***
$p < 0.001$

Table 4

Logistic regression coefficients (robust standard errors) from discrete-time hazard models of first intercourse risk: males from NELS eighth grade cohort

	(1)	(2)	(3)	(4)	(5)
Time					
1989	0.73***(0.11)	0.71***(0.11)	0.73***(0.11)	0.73***(0.11)	0.75***(0.11)
1990	1.12***(0.10)	1.07***(0.10)	1.12***(0.10)	1.12***(0.10)	1.07***(0.10)
1991	1.40***(0.10)	1.35***(0.10)	1.41***(0.10)	1.41***(0.10)	1.38***(0.10)
1992	1.89***(0.12)	1.83***(0.12)	1.89***(0.12)	1.90***(0.12)	1.90***(0.12)
1993	1.35***(0.13)	1.29***(0.14)	1.35***(0.14)	1.37***(0.13)	1.37***(0.14)
1994	−0.71**(0.23)	−0.77**(0.23)	−0.71**(0.23)	−0.70**(0.23)	−0.71**(0.23)
Baseline age	0.28***(0.06)	0.30***(0.06)	0.29***(0.06)	0.29***(0.05)	0.22***(0.05)
Race/ethnicity					
Asian	−0.58**(0.14)		−0.29(0.18)	0.37(0.24)	0.37(0.23)
Hispanic	0.17(0.09)		0.31**(0.11)	0.37**(0.12)	0.32*(0.13)
Black	0.90**(0.15)		0.92**(0.14)	0.95**(0.15)	0.84***(0.15)
Generation					
First		−0.60**(0.14)	−0.51**(0.17)	−0.33(0.29)	−0.27(0.27)
Second		−0.17(0.10)	−0.19(0.14)	0.04(0.21)	0.07(0.21)
Race × generation					
Asian, first				−0.87(0.44)	−0.89*(0.43)
Asian, second				−1.15**(0.38)	−1.12**(0.39)
Hispanic, first				−0.07(0.38)	−0.18(0.39)
Hispanic, second				−0.41(0.23)	−0.37(0.29)
Black, first				−1.57**(0.60)	−1.60**(0.56)
Black, second				−0.01(0.92)	0.08(0.88)
Intact family					−0.37***(0.09)
Family income					
$10,000–$24,999					−0.06(0.16)
$25,000–$74,999					0.09(0.16)

	(1)	(2)	(3)	(4)	(5)
$75,000+					−0.03 (0.18)
Father's education					
College or higher					−0.25 *** (0.09)
Unknown					−0.38 ** (0.16)
Mother's education					
College or higher					−0.16 (0.09)
Unknown					−0.34 (0.27)
Religious affiliation					0.16 (0.09)
Academic curriculum					−0.05 (0.07)
Off-track					0.48 * (0.24)
R expects college					−0.15 (0.09)
Parents' expect					
College or higher					0.06 (0.09)
Unknown					−0.25 * (0.11)
Communication					−0.06 ** (0.02)
South					0.10 (0.08)
Urban					0.06 (0.09)
Public school					0.25 * (0.11)
% single-parent					−0.01 (0.06)
Constant	−6.18 *** (0.68)	−6.32 *** (0.68)	−6.26 *** (0.68)	−6.21 *** (0.68)	−5.02 *** (0.73)
Design-adjusted F	47.76 ***	47.51 ***	39.77 ***	28.20 ***	17.16 ***
Observations	13,489	13,489	13,489	13,489	13,489

*
$p < 0.05$,

**
$p < 0.01$,

***
$p < 0.001$