Transition to First Intercourse among Adolescents: The Intersection of Race/Ethnicity and Immigrant Status

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Context: The increasing diversity of the adolescent population in the United States necessitates research on adolescent intercourse risk that includes indicators of both race/ethnicity and immigrant status.

Methods: The National Education Longitudinal Study (NELS 88/94) provided a sample of 4,535 females and 3,759 males who were followed for six years, beginning in the eighth grade. Discrete-time logistic regression models were used to assess the association of race/ethnicity and nativity status with first intercourse hazard, controlling for demographic, family, and educational characteristics, and geographic location.

Results: Overall, Asian and Hispanic girls had a lower risk and non-Hispanic Black girls a higher risk than non-Hispanic White girls, and Black boys had a higher and Asian boys a lower risk than did non-Hispanic White boys. However, these patterns are contingent on immigrant status. Among girls, the protective effects of Asian or Hispanic identity obtain only among those who are immigrants or who have immigrant parents. Risk profiles for boys are more complex: being a native-born Hispanic with native-born parents is associated with a higher risk while an Asian identity is associated with a lower risk only among first- and second-generation youth.

Conclusions: Excluding nativity status from empirical models of sexual behavior leads to a misspecification of the association of race/ethnicity with intercourse risk. As the demographic diversity of the US population grows, researchers must include both race/ethnicity and nativity status in their models of adolescent behavior.

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Most youth in the United States report experiencing first intercourse prior to high school graduation (Singh and Darroch, 1999) and, despite a recent decline in the prevalence of sexually-experienced teens (Abma et al., 2004), sexual initiation remains a critical marker on the road to adulthood. Engaging in sexual intercourse during the teen years, particularly during early adolescence when knowledge about reproduction and contraception may be limited, exposes youth to multiple risks, including sexually transmitted infections, socio-emotional problems, and pregnancy. The repercussions of such adverse consequences may reverberate across the adult life course; thus, understanding the patterns and predictors of adolescent sexual activity continues to have high priority for practitioners, policy-makers, and researchers (Albert, Brown, & Flanigan, 2003).

Although many factors are associated with adolescents' intercourse risk, race is perhaps the best-documented predictor of first intercourse timing. Evidence spanning several decades points to the consistently lower median age at first intercourse of African American teens relative to their White peers, and to Blacks' higher rates of sexually transmitted infections and teen parenthood (Abma et al., 2004; Kantner & Zelnik, 1972; Moore, Simms, & Betsey, 1986; Santelli et al., 2000; Centers for Disease Control, 2007). High immigration rates in recent decades have produced an adolescent population that is increasingly diverse with respect to race and ethnicity, however, and the research

literature has recently expanded to include studies of sexual onset among Hispanic and Asian youth. Overall, Hispanic and Asian teens of both genders appear less likely than their non-Hispanic Black peers be sexually active and, compared to non-Hispanic Whites, fewer Asian teens and Hispanic girls and more Hispanic boys are sexually experienced (Browning, Leventhal, & Brooks-Gunn, 2004; Day, 1992; Miller, Forehand, & Kotchick, 1999; Upchurch et al., 1998; Kaplan, Eriksen, & Juarez-Reyes, 2002).

A substantial body of research points to economic and socio-cultural differences as key sources of the black-white difference in intercourse risk, and these factors likely are important in understanding broader race/ethnic differences in intercourse risk as well. Social and economic variables also are associated with immigrant status, and a growing literature suggests the importance of immigrant status for multiple adolescent outcomes, including sexual activity (Hahm, Lahiff, & Barreto, 2006; Harris, 1999; King & Harris, 2007; Aneshensel, Fielder, & Becerra, 1989; Upchurch et al., 2001). Hispanic and Asian youth are substantially more likely than either Black or White teens to be immigrants or the children of immigrants: about 90% of Asian children and 60% of Hispanic children live in immigrant families (Zhou, 1997). It is possible, then, that the patterns of intercourse risk described above reflect the influence of nativity status rather than race/ethnic differences *per se*, and that the observed differences across race/ethnic groups may look very different once nativity status is taken into account.

This paper evaluates the relationship between adolescent intercourse risk and both race/ethnicity and nativity status, drawing on the large literature on race differences in sexual activity and recent research on the experiences of immigrant youth. We use nationally representative data from the National Education Longitudinal Study (NELS:

88/94) to address three questions: How does first intercourse risk for Asian and Hispanic teens compare to intercourse risk for African American and non-Hispanic White teens? How does nativity status influence adolescent intercourse risk and does this influence vary across race/ethnic groups? And, finally, do the effects of race/ethnicity and nativity status differ by gender? The answers to these questions are aimed at better understanding adolescent intercourse risk in a population that is increasingly diverse demographically, socially, and economically.

BACKGROUND

Race differences in intercourse risk

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; Lauritsen, 1994). 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.

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 & 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. Race/ethnic differences in adolescent intercourse risk likely reflect a combination of normative influences and socioeconomic processes. 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.

Nativity status and adolescent behavior

Until the last quarter of the 20th 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 adoption of mainstream behaviors that provides 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 & Stevens, 2003).

Although this model fits well the experiences of immigrants to the United States a century ago (Alba & 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 forty-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 & 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 & 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 & 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; Zhou, 1999). 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 & Stevens, 2003; Fernandez-Kelly & Schauffler 1994; Portes & Rumbaut, 2001).

Whereas the classic model predicts behavioral convergence, 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 & Harris, 2007; Portes & 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 & 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 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 and home experiences, involvement in problem behaviors, 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 nativity status and race/ethnicity.

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.

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 s/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 9, using the *svylogit* command to adjust for design effects.

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 zero otherwise.

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.

One goal of our analysis is to test for differences across race/ethnic groups in the association of nativity 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.

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 (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 percent of students lived in a single-parent family, as an indicator of the permissiveness 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.

--- Table 1 about here ---

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 six percent of girls and ten percent 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 under one-fifth of girls and 14 percent 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 percent of girls and nine percent of boys were still virgins.

--- Table 2 about here ---

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 percent ($e^{-.665} = .51$) of the risk for their White peers; the risk for Hispanic girls is 79 percent ($e^{-.231}$) of the White risk, and risk for African American girls is 1.4 times ($e^{.342}$) the risk for White girls. Table 4 shows that, relative to White boys, Asian youth have a lower intercourse risk ($e^{-.581} = .559$) and Blacks have a higher risk ($e^{.904} = 2.47$); however, Hispanics boys' intercourse risk is statistically equal to that of White boys.

--- Tables 3 and 4 about here ---

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 nativity 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 vs. Model 2). Among girls, then, what appeared in Model 1 to be a protective effect of Asian or Hispanic identity reflected the confounding of race/ethnicity with nativity 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 nativity 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 ($F = 2.9$, $p = .008$) and marginal improvement for girls ($F = 1.9$, $p = .08$). 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 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, we limit our discussion of the results to Asians, Hispanics, and Whites.

--- Figures 1 and 2 about here ---

The three panels in Figure 1 suggest movement toward convergence in intercourse risk across successive generations, consistent with the prediction of the classic assimilation model. Significant race/ethnic differences are apparent among first- and second-generation girls but Asian, Hispanic, and White girls of the third-and-higher generation have statistically identical risk profiles. At the same time, the specific patterns leading to this 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). Fewer second- than first-generation Asian girls experience first intercourse during adolescence, a finding that is at odds with the convergence model, although third- and higher-generation Asian girls do have a significantly higher intercourse risk and lower average age at first intercourse than either first- or second-generation Asian girls.

Although the patterns for girls are generally consistent with a convergence model, the patterns for boys are not. Generation clearly matters for all race/ethnic groups, but race/ethnic differences characterize each generation. Across all three generation groups, Asian boys are more likely to be virgins than are their White and Hispanic peers. 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. Among Hispanic and White boys, both the proportion virgin at each age and the median age at first intercourse decrease across successive generations. However, the decrease is somewhat larger for Hispanics and Hispanic boys of the third- and higher-generations are significantly less likely than White boys to be virgins.

DISCUSSION

We use nationally representative data from a prospective longitudinal study to examine the roles of immigrant status and race/ethnicity in shaping the transition to first (non-marital) intercourse among adolescents. Our baseline models describe race/ethnic differences consistent with those observed by Upchurch and her colleagues (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 do non-Hispanic White boys. Importantly, however, we find substantial evidence that the association of race/ethnicity with intercourse risk is contingent on both nativity status and gender.

Consistent with the overall thrust of the assimilation model, intercourse risk is highest among members of the third-and-higher generations for youth of all races/ethnicities, regardless of gender. At the same time, the racial/ethnic convergence predicted by the assimilation 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. 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.

Most prior studies have drawn on community-based samples or considered the effects of nativity status within a single race/ethnic groups. Some failed to find an

association between nativity status and sexual experience (Blake et al., 2001; Brindis et al. 1995), while others observed that immigrant youth are significantly less likely than their native-born peers to have engaged in sexual intercourse (Aneshensel et al., 1989; Browning et al., 2004; Harris, 1999; Hingson et al. 1991; Hussey et al., 2006; Hahm et al., 2006). A major strength of our work is its reliance on nationally representative data with a sample that provided the statistical power to address joint effects of race/ethnicity and generation for Asians, Hispanics, and non-Hispanic Whites while controlling for socio-economic variables and geographic location. Accordingly, our findings qualify the inconsistent findings of prior studies of immigrant youth: Nativity status is important to understanding youths' intercourse risk but its effects vary across race/ethnic groups and by gender.

Our work also speaks to the relative contributions of economic and cultural factors to race/ethnic differences in intercourse risk. Although children in immigrant families are more likely than native-born children to live with two married parents, those parents are less likely to have completed high school, more likely to work in low-wage, low-skill jobs, and their families are more likely to be poor or near-poor (Brandon, 2002; Hernandez & Charney, 1998; Reardon-Anderson, Capps, & Fix, 2002). Despite their socioeconomic disadvantage, however, immigrant youth overall have a lower intercourse risk than third-and-higher generation youth. Moreover, the effect of nativity status does not diminish much when socio-economic factors are held constant, suggesting that socioeconomic explanations are insufficient to account for racial variation in sexual behavior. Rather, it seems that cultural factors are critical to understanding the transition to first intercourse.

Despite its advantages, our data also limited our findings in several important respects. First, we could not address heterogeneity within broad race/ethnic groupings. Better understanding the relative roles of nativity, economic and cultural factors will require greater attention to such heterogeneity. For example, we suspect that a correlation between ethnic heterogeneity and nativity 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 failed to provide sufficient cases to examine the experiences of first- and second-generation Blacks, an endeavor that will require community-based sample drawn from a city with a sizeable African or Afro-Caribbean population (e.g., Miami). Targeted samples also will allow for the incorporation of direct measures of cultural attachment and identification with mainstream culture, variables missing from our models.

The growing diversity of the adolescent population along lines of race/ethnicity and nativity status affords researchers the opportunity to re-examine theories of adolescent sexual behavior intended to explain the different risk profiles of Black and White teens. Our study illustrates the advantages of doing so: by including indicators of both race/ethnicity and immigrant status, we have been able to clarify their relationships with intercourse risk and provide additional evidence of the role of socio-cultural factors in shaping teens' sexual behaviors. It remains for future research to identify the specific variables that differentiate immigrant from native-born youth with respect to intercourse risk, and to determine whether these differences extend to other dimensions of the transition to first intercourse.

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Table 1. Descriptive Statistics for Covariates Measured at Baseline, by Sex

	Girls		Boys	
Variable	Mean	s.d.	Mean	s.d.
Generation:				
First	.04	.19	.04	.18
Second	.09	.29	.07	.26
Third+ (ref)	.87	.34	.89	.31
Race/Ethnicity:				
Black	.11	.31	.09	.29
Hispanic	.08	.28	.08	.27
Asian	.03	.18	.03	.18
White (ref)	.78	.42	.81	.40
Age	13.54	.56	13.65	.57
Family Structure:				
Two Parent	.68	.47	.69	.47
Other (ref)	.32	.47	.31	.46
Family income, 1987:				
Less than $10,000 (ref)	.09	.29	.07	.26
$10,000 to $24,999	.24	.42	.23	.42
$25,000 to $74,999	.56	.50	.57	.50
$75,000 or more	.11	.31	.13	.33
Father's education:				
College or higher	.25	.43	.30	.46
Not college grad (ref)	.67	.47	.65	.48
Missing or unknown	.08	.27	.06	.23
Mother's education:				
College or higher	.16	.37	.19	.39
Not college grad (ref)	.83	.38	.79	.41
Missing or unknown	.01	.10	.02	.13
Religion:				
Any affiliation (ref)	.93	.26	.88	.32
No affiliation	.07	.26	.12	.32
HS Curriculum:				
Academic	.31	.46	.34	.47
Other (ref)	.69	.46	.66	.47

Educational Status:				
Off-time	.03	.17	.04	.19
On-time (ref)	.97	.17	.96	.19
Expected Education:				
College or higher	.72	.45	.71	.46
Less than college (ref)	.28	.45	.29	.46
Parent's Expectations:				
College or higher	.74	.44	.76	.43
Less than college (ref)	.17	.38	.17	.37
Unknown or missing	.09	.28	.08	.27
Parent-Child Communication	4.45	1.38	4.07	1.49
Geographic Region:				
South	.33	.47	.31	.46
Non-South (ref)	.67	.47	.69	.46
School location:				
Urban	.24	.43	.23	.42
Non-urban (ref)	.76	.43	.77	.42
School type:				
Public	.87	.34	.87	.34
Private (ref)	.13	.34	.13	.34
Percent Single-Parent Families				
Less than 25%	.55	.50	.56	.50
25% or higher (ref)	.45	.50	.44	.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

	Girls		Boys	
Year	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 8th grade cohort

	(1)	(2)	(3)	(4)	(5)
Time					
1989	0.93***	0.93***	0.93***	0.93***	0.97***
	(0.42)	(0.14)	(0.14)	(0.14)	(0.14)
1990	1.46***	1.45***	1.46***	1.46***	1.41***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
1991	1.76***	1.75***	1.76***	1.76***	1.76***
	(0.12)	(0.13)	(0.12)	(0.12)	(0.13)
1992	2.12***	2.12***	2.14***	2.14***	2.21***
	(0.13)	(0.13)	(0.13)	(0.13)	(0.14)
1993	1.82***	1.83***	1.84***	1.86***	1.96***
	(0.14)	(0.14)	(0.14)	(0.14)	(0.15)
1994	-0.21	-0.21	-0.19	-0.18	-.08
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Baseline age	0.37***	0.38***	0.37***	0.38***	0.29***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.05)
Race/ethnicity:					
Asian	-0.67**		-0.26	-0.36	-0.41
	(0.16)		(0.15)	(0.29)	(0.28)
Hispanic	-0.23*		0.02	0.08	-0.04
	(0.10)		(0.11)	(0.13)	(0.14)
Black	0.34**		0.36**	0.41**	0.25
	(0.13)		(0.12)	(0.12)	(0.13)
Generation:					
First		-0.73**	-0.60**	-1.08**	-0.98**
		(0.19)	(0.19)	(0.41)	(0.35)
Second		-0.49**	-0.46**	-0.23	-0.07
		(0.09)	(0.12)	(0.16)	(0.14)
Race x generation					
Asian, first				0.82	0.78
				(0.65)	(0.56)
Asian, second				-0.45	-0.47
				(0.44)	(0.41)
Hispanic, first				0.31	0.29
				(0.54)	(0.53)
Hispanic, second				-0.32	-0.39
				(0.23)	(0.23)
Black, first				0.89	1.03*
				(0.56)	(.50)
Black, second				-1.03	-0.89
				(0.56)	(0.50)

Intact family	-0.59***
	(0.07)
Family income:	
$10,000-$24,999	0.13
	(0.11)
$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*** (.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

*$p < .05$ ** $p < .01$ ***$p < .001$

Table 4. Logistic regression coefficients (robust standard errors) from discrete-time hazard models of first intercourse risk: Males from NELS 8th grade cohort

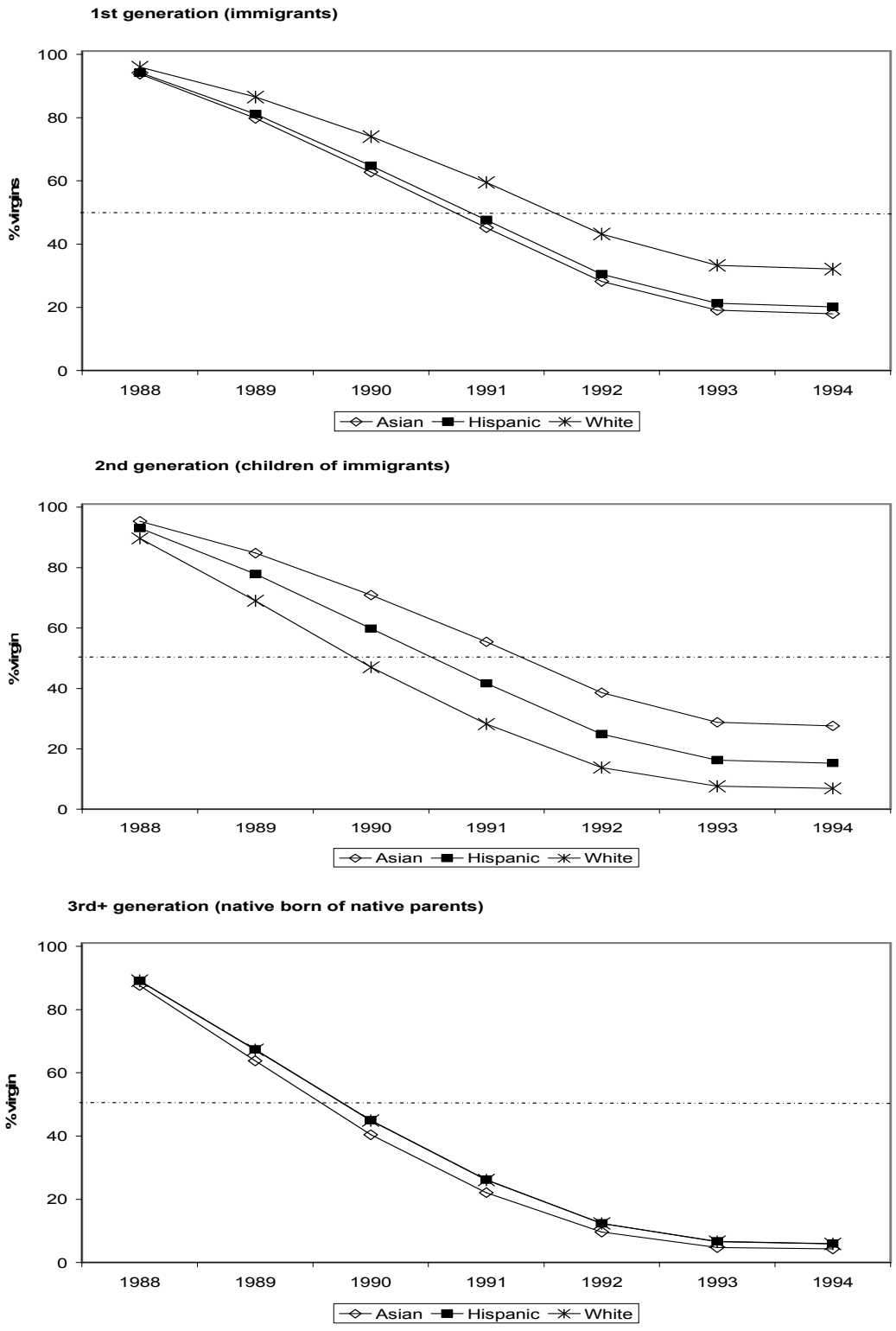
	(1)	(2)	(3)	(4)	(5)
Time					
1989	0.73***	0.71***	0.73***	0.73***	0.75***
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
1990	1.12***	1.07***	1.12***	1.12***	1.07***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
1991	1.40***	1.35***	1.41***	1.41***	1.38***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
1992	1.89***	1.83***	1.89***	1.90***	1.90***
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
1993	1.35***	1.29***	1.35***	1.37***	1.37***
	(0.13)	(0.14)	(0.14)	(0.13)	(0.14)
1994	-0.71**	-0.77**	-0.71**	-0.70**	-0.71**
	(0.23)	(0.23)	(0.23)	(0.23)	(0.23)
Baseline age	0.28***	0.30***	0.29***	0.29***	0.22***
	(0.06)	(0.06)	(0.06)	(0.05)	(0.05)
Race/ethnicity:					
Asian	-0.58**		-0.29	0.37	0.37
	(0.14)		(0.18)	(0.24)	(0.23)
Hispanic	0.17		0.31**	0.37**	0.32*
	(0.09)		(0.11)	(0.12)	(0.13)
Black	0.90**		0.92**	0.95**	0.84***
	(0.15)		(0.14)	(0.15)	(0.15)
Generation:					
First		-0.60**	-0.51**	-0.33	-0.27
		(0.14)	(0.17)	(0.29)	(0.27)
Second		-0.17	-0.19	0.04	0.07
		(0.10)	(0.14)	(0.21)	(0.21)
Race x generation					
Asian, first				-0.87	-.89*
				(0.44)	(0.43)
Asian, second				-1.15**	-1.12**
				(0.38)	(0.39)
Hispanic, first				-0.07	-.18
				(0.38)	(0.39)
Hispanic, second				-0.41	-0.37
				(0.23)	(0.29)
Black, first				-1.57**	-1.60**
				(0.60)	(.56)
Black, second				-0.01	0.08
				(0.92)	(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)
$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

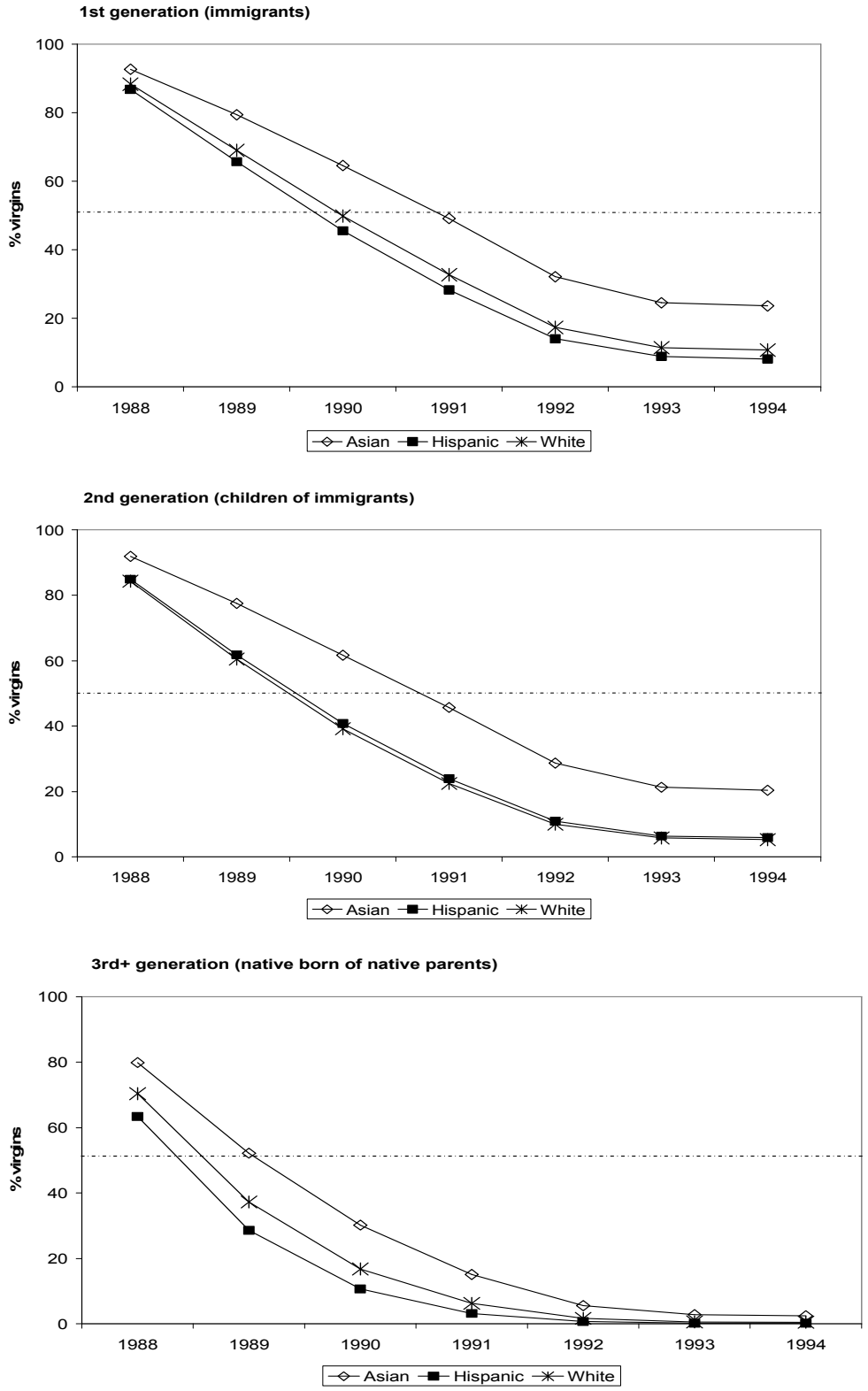
*$p < .05$ ** $p < .01$ ***$p < .001$

Figure 1. Adjusted Percentage of Girls Remaining Virgins by Year, Nativity Status, and Race/Ethnicity[a]



[a] Survival probabilities based on fitted hazards of first intercourse

Figure 2. Adjusted Percentage of Boys Remaining Virgins by Year, Nativity Status, and Race/Ethnicity[a]



[a] Survival probabilities based on fitted hazards of first intercourse