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Age at Migration, Family Instability, and Timing of Sexual Onset

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Abstract

This study builds on and extends previous research on nativity variations in adolescent health and risk behavior by addressing three questions: (1) whether and how generational status and age at migration are associated with timing of sexual onset among U.S. adolescents; (2) whether and how family instability mediates associations between nativity and sexual debut; and (3) whether and how these associations vary by gender. We find that first- and second-generation immigrant youth initiate sexual activity later than native youth. Foreign-born youth who migrate after the start of adolescence exhibit the latest sexual onset; boys' sexual behavior is particularly sensitive to age at migration. Parental union stability is protective for first- and second-generation youth, especially boys; however, instability in co-residence with parents accelerates sexual debut for foreign-born girls, and dilutes protections from parental marital stability. Use of a non-English language at home delays sexual onset for immigrant girls, but not boys.

Keywords

adolescent; sexual behavior; family instability; immigrant

1. Introduction

Sexual onset is one of several pivotal life transitions that largely occur during adolescence. Despite declines in teenage sexual activity over the past few decades, approximately three-quarters of young women and men in the United States engage in sexual intercourse by their 20th birthday (Finer and Philbin 2013; Martinez and Abma 2015). The particular age at which sexual debut occurs has important short- and long-term implications for health and wellbeing. For example, sexual debut early in adolescence has been linked with elevated risk of sexually transmitted infection during the teenage years and adulthood (Buffardi et al.

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2008; Kaestle et al. 2005; Upchurch et al. 2004), risky sexual behavior in adulthood (Sandfort et al. 2008), and early pregnancy and childbearing (Resnick et al. 1997; Wellings et al. 2001).

As part of a larger body of scholarship on immigrant-native differences in health across a range of outcomes and life stages (e.g., Cho et al. 2004; Harris, Perreira, and Lee 2009; Hummer et al. 1999; Jasso et al. 2004; Markides and Eschbach 2005), recent research on adolescent sexual behavior in the United States has begun to consider differences by immigrant background. Currently one in four U.S. youth are first- or second-generation immigrants[1] (Migration Policy Institute 2015a); this share is projected to reach one in three by 2050 (Passel 2011). Despite emerging evidence that foreign-born youth initiate sexual activity later than US-born youth (Harris 1999; McDonald, Manlove, and Ikramullah 2009; Spence and Brewster 2010), and that U.S. immigrant youth's acculturation is associated with earlier sexual debut (Afable-Munsuz and Brindis 2006; Greenman and Xie 2008; Upchurch et al. 2001), existing research has not clearly identified underlying mechanisms for observed nativity-based differentials, and has only minimally explored heterogeneity within immigrant generations.

Analyzing data from the 1997 National Longitudinal Survey of Youth (NLSY97), we extend prior research in three main ways. First, in addition to considering variations in sexual debut by immigrant generation, we ask whether and how the life stage at which migration occurs is associated with the timing of sexual onset. Age at migration has been linked with numerous aspects of immigrants' social integration, including language acquisition and educational attainment (Beck, Corak, and Tienda 2012; Bleakley and Chin 2010; Gonzalez 2003), but its association with sexual behavior has not been assessed.

Second, we investigate family instability as a mechanism contributing to nativity differences in timing of sexual activity. Prior studies on nativity differentials in health have largely ignored the potentially harmful consequences of family instability among youth with immigrant backgrounds, due to deportation, circular migration (repeated migration experiences between an origin and destination), and staged migration whereby parent(s) migrate first and later send for children (Adserà and Tienda 2012; Landale, Thomas, and Van Hook 2011). To capture the migration-related family instability often experienced by immigrant youth, we distinguish between parents' union instability and instability in parent-child co-residence. This distinction is important because the relatively stable marriages of immigrant youths' parents appear to protect against risk behaviors (Perreira and Ornelas 2011). Because migration-linked family changes may accelerate sexual debut, the net effect on timing of sexual initiation of both forms of instability is difficult to predict.

Finally, we consider gender differences in the associations between timing of sexual debut and both nativity and family instability. Prior research has separately examined gender differences in norms of sexual behavior (Crawford and Popp 2003), parental control (Axinn, Young-DeMarco, and Ro 2011), and the consequences of parental union instability (Cooper

[1]First generation immigrants are born outside the United States. Second and third generations refer, respectively, to the children and grandchildren of immigrants.

et al. 2011), but not in associations between migration background and sexual debut. Gender-based differences in norms, behaviors, and social control are often greater among immigrants than non-immigrants (Lopez-Gonzalez, Aravena, and Hummer 2005; Suárez-Orozco and Qin 2006). Furthermore, parenting roles also are frequently gendered (Carling et al. 2012; Goldberg 2013a). Therefore, we investigate whether generational variation in sexual onset is more salient for adolescent girls than boys, and also whether the consequences of migration-related family changes differ according to the sex of the parent as well as the child.

We find that on average, youth with migration backgrounds initiate sexual activity at later ages than their native counterparts; however, the timing of sexual debut differs by generational status, and for the foreign-born, also by age at migration. Boys' sexual initiation is particularly sensitive to age at migration, whereas for young women sexual onset timing mainly varies along generational lines. Both parental union instability and co-residential instability are associated with accelerated sexual onset, with notable gender differences. First- and second-generation youth, particularly boys, benefit from parents' relative union stability; however, maternal co-residential instability increases the risk of early sexual debut for foreign-born girls and dilutes protections from parents' marital stability. Use of a non-English language in the home delays girls' sexual debut, but not that of boys.

2. Background

Several literatures are relevant for understanding nativity differentials in sexual activity, including scholarship about immigrant health advantages and a growing body of evidence about the developmental significance of age at migration for adult outcomes. In addition, we draw on studies that link family instability—both union dissolution and changes in living arrangements—with youth development for insights about their implications for the timing of sexual initiation.

2.1 Age at migration

Central to Elder's (1998) life course paradigm is the claim that the developmental impact of a life transition is contingent on the age it occurs. In support of this claim, several recent studies demonstrate that the age at which individuals migrate is consequential across a range of outcomes, including language acquisition (Bleakley and Chin 2010; Oropesa and Landale 1997), educational attainment (Beck et al. 2012; Corak 2012; Gonzalez 2003; Rumbaut 2004), health (Gubernskaya, Bean, and Van Hook 2013; Kimbro 2009), and fertility (Adserà et al. 2012; Bean, Swicegood, and Berg 2000). Age at migration not only indicates the extent of early socialization into the institutions and values of an individual's origin country, but also the lifecycle timing of move-related disruptions in peer networks and social relationships.[2]

[2]Age at migration is the core dimension undergirding Rumbaut's "decimal generations," which are social aggregates "defined by age and life stage at migration for the foreign born, and by parental nativity for the native born" (Rumbaut 2004: 1160).

With a few recent exceptions, the burgeoning empirical literature about immigrant health advantages seldom considers age at migration. Building on the classical and reformulated assimilation framework (Gordon 1964; Alba and Nee 1997), most studies of immigrant integration consider years in the host country or comparisons between first, second, and higher generations to assess convergence with norms and behavior of the native population (Waters and Gerstein Pineau 2015). Several studies show that youth with migration backgrounds fare better than their native-born counterparts in obesity, substance use, and sexual risk behavior, but concur that the immigrant health advantages fade over time (Waters and Gerstein Pineau 2015; Afable-Munsuz and Brindis 2006; Creighton et al. 2012; Gfroerer and Tan 2003). Inferences that health advantages erode as youth adopt American lifestyles need further verification because duration effects usually conflate length of exposure to U.S. norms and institutions with age at migration. Age at migration captures the extent to which early life socialization took place in the origin country as opposed to the United States, as well as the timing in life of migration-linked life disruptions.

Ex ante it is unclear how age at migration is associated with sexual onset. On the one hand, youth who migrate at later ages conceivably delay sexual onset due to childhood socialization into "cultural repertoires" that may discourage early and premarital sexual activity. Van Hook and Bean (2009) propose that immigrant cultural repertoires combine origin-country norms with constraints and opportunities shaped by the migration experience (see also Bachmeier and Bean 2011). Immigrant cultural repertoires presumably are more salient for teen migrants compared with child migrants and children of immigrants, whose primary or exclusive socialization is in the United States. Although second generation youth and those arriving during childhood also experience the cultural repertoires of their immigrant parents, exposure to U.S. norms and institutions presumably weakens their allegiance to origin-country cultural norms. The implication is that youth who migrate during adolescence should experience sexual debut at ages akin to their origin country peers, which are generally later than the U.S. average.[3] For adolescent migrants whose peer networks were disrupted by international migration, lack of English fluency could slow the formation of new relationships, further delaying sexual onset.

On the other hand, moves that sever existing social supports could potentially accelerate sexual onset. Geographic relocation may disrupt the strong connections between children, parents, extended family members, teachers, and other community adults that facilitate children's positive development and provide social control (Luke et al. 2012; South et al. 2005; Stack 1994). When major life disruptions occur during early childhood, there may be time to regain stability and reconstruct social networks prior to the teen years. In contrast, social disruptions that occur during adolescence coincide with the timing of critical developmental decisions, including whether to form romantic partnerships and engage in sexual behavior (McLanahan 2009; McLanahan and Bumpass 1988). In addition to weakening adolescents' ties to adults and institutions that would normally serve as social

[3]The median ages at first heterosexual intercourse for women and men in the top five origin countries for U.S. immigrants (Migration Policy Institute 2015b) are: 18 for women and men in Mexico (ENSANUT 2012); 18 for women and 23 for men in India (IIPS and Macro International 2007); 22 for women and men in the Philippines (PSA and ICF International 2014); 23 for women and men in China (Guo et al. 2012); and 22 for women and 24 for men in Vietnam (GSO, NIHE, and ORC Macro 2006). For women and men in the United States, the median age at first heterosexual intercourse is 17.

control mechanisms (Stack 1994), migration increases the likelihood that teens will affiliate with delinquent peers (South, Haynie, and Bose 2005). Moreover, adolescents that experience difficulties re-establishing friendships and supportive peer networks in their new locale may initiate sexual relationships as a means to combat loneliness (Luke et al. 2012; Stack 1994).

2.2 Family instability

Family instability encompasses both union transitions and changes in living arrangements. Scholarship on the consequences of parental union instability for child wellbeing in the United States associates parents' partnership transitions with adverse child health (Bzostek and Beck 2011), increased risk of child behavioral problems (Cavanagh and Huston 2006; Fomby and Cherlin 2007; Osborne and McLanahan 2007), early sexual debut (Albrecht and Teachman 2003; Fomby, Mollborn, and Sennott 2010; Wu and Thomson 2001) and adolescent parenthood (Hofferth and Goldscheider 2010; Wu 1996). Drawing on theories of social control and social stress, this body of literature posits several underlying mechanisms for the observed associations, including decreased supervision (if the transition involves the departure of one or both parents), diminished emotional support and sense of security, changes in family roles, and ambiguity about behavioral expectations for youth (Albrecht and Teachman 2003; Fomby et al. 2010; Marteleto et al. 2016; Osborne and McLanahan 2007; Wu 1996; Wu and Thomson 2001). On average, foreign-born couples experience less partnership instability than their native counterparts, which several analysts claim serves to protect their children from risky behaviors (Brandon 2002; Landale et al. 2011; Perreira and Ornelas 2011); however, parents' union stability is only one aspect of family instability that potentially influences the behavior of their offspring.

Youth with migration backgrounds often experience disruptions in family living arrangements due to family separation and reconstitution associated with circular and staged migration, as well as deportation (Adserà and Tienda 2012; Dreby 2010; Landale et al. 2011; Suárez-Orozco, Todorova, and Louie 2002). Except for family migration, where all members of a nuclear unit move together, international migration generally disrupts living arrangements, which depending on the staging of migration, involves separation of couples as well as parents from children for variable durations. Nevertheless, largely due to data constraints, few quantitative studies examine the separation and reconstitution of families across international boundaries (Adserá and Tienda 2012). In sub-Saharan Africa, where migration is a major source of family instability, changes in co-residence with parents and guardians are associated with early transitions into both sexual activity and childbearing (Goldberg 2013a; Goldberg 2013b; Marteleto et al. 2016). Evidence from Mexico, where migration is now the most common form of father absence (Nobles 2013), indicates that parent absence is associated with educational, emotional and health problems for children (Creighton et al. 2009; Heymann et al. 2009; Schmeer 2009).

The mechanisms linking migration-related family instability with child outcomes are similar to those posited for parental partnership instability, including decreased parental monitoring, diminished emotional support, stress, and uncertainty about the future (Dreby 2012; Goldberg 2013b; Marteleto et al. 2016). When children are reunited with parents after a

migration-related separation, they may also experience difficulties reestablishing close ties with parents, particularly if they feel resentful about the separation and/or became close to an interim caregiver (Marteleto et al. 2016; Suarez-Orozco et al. 2002). Child wellbeing may be particularly impacted by parental deportation, given the often abrupt nature of the separation, the attendant financial upheaval, and the indefinite long-distance separation from the deported parent (Dreby 2012). Qualitative studies on U.S. immigrants provide texture about the complexities of cross-border parenting and the emotional stress associated with migration-related separations as well as reunifications (Dreby 2010; Menjivar 2012; Suarez-Orozco et al. 2002). If immigrant youth average less parental union instability than native youth, but experience more separations from parents due to migration, the protections afforded by union stability may be diluted or completely negated. Our empirical strategy attempts to tease out these potentially offsetting processes.

2.3 Gender differences

There is ample evidence of different standards of sexual permissiveness for women and men—the so-called "gender double standard"—particularly in major immigrant sending regions like Latin America and Asia (Crawford and Popp 2003; UNAIDS 1999). Because normative expectations related to sexual activity often differ for women and men, the association between nativity and sexual debut also may differ by sex. Gender double standards influence parenting attitudes and practices in immigrant and non-immigrant families in the United States, but there is some evidence that this influence is strongest in immigrant families (Axinn et al. 2011; Espiritu 2001). Several studies show that U.S. immigrant families place much stricter control over their daughters' compared with their sons' activities—particularly behaviors related to dating and heterosexual relationships (Espiritu 2001; Suárez-Orozco and Qin 2006).

If immigrant families control girls' behavior more tightly than non-immigrant families, but control of boys' activities does not differ markedly between immigrant and native families, then nativity differentials in the timing of sexual onset should be larger for women compared with men. In addition to being subjected to greater social control than their male counterparts, immigrant girls also are less likely than boys to face negative peer contexts (Feliciano 2012; Suárez-Orozco and Qin 2006), and tend to surpass immigrant boys in school attachment and achievement (Bachmeier and Bean 2011; Feliciano 2012; Suárez-Orozco and Qin 2006). Prior research has demonstrated links between these circumstances and deferred sexual activity (Resnick et al. 1997; South et al. 2005; Wellings et al. 2001). Evidence of larger nativity differences for women than men in other health-compromising behaviors, such as smoking and substance use, supports our expectation that generational variations in timing of sexual onset will be greater for girls than boys (Kimbro 2009; Lopez-Gonzalez, Aravena, and Hummer 2005).

We also consider gender variations in the association between family instability and the timing of sexual onset; however, existing evidence about the consequences of parent's union instability for girls and boys is mixed. Some studies show that the adverse behavioral consequences of parents' union instability are more severe for boys than girls, at least during early and middle childhood (Cavanagh and Huston 2008; Cooper et al. 2011), but other

studies claim that the behavior of adolescent girls is particularly susceptible to parents' union instability (Fomby and Sennott 2013). Because parenting roles are strongly gendered, the behavioral consequences of migration-related separations from mothers and fathers may differ for sons and daughters (Carling, et al. 2012). Research in sub-Saharan Africa shows that co-residential changes with mothers are more salient for girls and changes in co-residence with fathers for boys (Goldberg 2013a)—a finding we also examine for U.S. native and immigrant youth.

3. Data, measures, and analytic strategy

We use data from the 1997 National Longitudinal Survey of Youth (NLSY97), a nationally representative panel study that follows a cohort of 8,984 youth who were between the ages of 12 and 16 on December 31, 1997. To ensure adequate sample sizes, Latino and black youth were oversampled. Since 1997, respondents have been re-interviewed annually. Particular strengths of the NLSY97 for investigating the consequences of age at migration and family instability include detailed questions on nativity and timing of arrival, as well as exhaustive accounting of parents' union changes and detailed histories of youths' co-residence with parents.

Baseline interviews with 7,936 parents or other primary caregivers collected marriage and migration histories as well as histories of children's living arrangements. The majority of these interviews were conducted with biological or adoptive mothers (84 percent), and the remainder with biological or adoptive fathers (10 percent) and other primary caregivers (6 percent). Beginning in 2002 the NLSY97 administered a "childhood retrospective" module to 1,956 youth, which was designed to supplement information for youth whose parents or caregivers were not interviewed at baseline.[4] As detailed below and in Appendix A, we used the retrospective module to recover family and migration histories for youth lacking baseline parent interviews. Because missing parent interviews were higher among youth with migration backgrounds, information from the retrospective module helps reduce selection biases that result from restricting analyses to youth whose parents or caregivers were interviewed at baseline. In the full analysis sample, 17 percent of youth had foreign-born parents; the comparable share was 35 percent among youth lacking parent or caregiver interviews.[5]

We consider respondents to be "at risk" of sexual debut from age 9 through the year they initiate sexual activity, drop out of the study, or turn 19, whichever comes first. In 2003, the year by which all respondents had turned 19, the study's retention rate was 86.3 percent. We cap the exposure period at age 18 for two reasons. First, our substantive interest is adolescent sexual debut because of its ramifications for subsequent health and wellbeing. Using three criteria—physical maturation of the body; cognitive capacity for making safe, informed, and voluntary decisions; and legal frameworks and international standards—

[4]The retrospective module was also administered to a sub-set of youth whose parents or caregivers were interviewed in order to verify data quality.

[5]Because the childhood retrospective module was not administered until 2002, we could not recover family information on those respondents who dropped out of the study before that time (13 percent of those lacking a parent interview at baseline). Sensitivity analyses indicate that study attrition is not associated with immigrant status; therefore, we do not expect the recovered cases to disproportionately represent native youth.

Dixon-Mueller (2008) argued that age 14 and under is essentially "too young" to transition into sexual behavior; ages 15–17 may or may not be too young, depending on particular circumstances; and by age 18 and older, youth are generally "old enough" to make safe and voluntary transitions. Second, after age 18 youth themselves often initiate changes in living arrangements (for example, to pursue post-secondary education or to work).

The final sample includes 4,340 girls and 4,533 boys, who contribute 35,273 and 34,444 person-years, respectively, to the analysis data file. We exclude 8 youth missing data on the timing of first sex and 103 youth for whom we could not determine immigrant generation. We use multiple imputation techniques to preserve cases missing data on other variables (Allison 2002). Multiple imputation methods are superior to alternative strategies to deal with missing data, such as listwise deletion, substitution with constants, or other forms of single imputation (Allison 2002; Little and Rubin 1987). Although missing data for any single item does not exceed 10 percent, the potential loss of observations due to aggregation of nonresponse items is considerably greater. In addition, there is some evidence of bias in item nonresponse by immigrant generation, which is eliminated in the data set with imputed values. Using Stata *mi* commands, we created 30 imputed data sets, 15 each for the young women and young men.[6]

3.1 Measures

3.1.1 Sexual onset—The key outcome is a dichotomous variable measured at each age that denotes whether respondents had experienced heterosexual intercourse by that age.[7] At each study wave, respondents were asked whether they had become sexually active, until reporting sexual initiation. In the wave in which they reported sexual activity for the first time, youth were also asked the month and year of first intercourse; in subsequent waves, respondents were not again asked about timing of sexual onset. To minimize social desirability bias, respondents entered their answers to these questions directly into a laptop, rather than interacting with an interviewer. Respondents who did not recall the month and year of first sex were asked for their age at sexual initiation. Because in any given survey wave between 8 and 23 percent of respondents could not recall the exact month they first had sex, we use person-years rather than person-months in the analyses described below. As Table 1 shows, over three-quarters of girls and boys initiated sexual activity before age 19, indicating that our exposure period captures the bulk of first heterosexual intercourse among NLSY97 youth. Almost one-quarter of boys and 18 percent of girls reported first sex at age 14 or younger.

3.1.2 Immigrant generation—We operationalize immigrant generation as a two-dimensional construct that combines birthplace of youth and their parents and, for foreign-born youth, the age they migrated to the United States. Following convention (Rumbaut

[6]The imputation models include all covariates used in the statistical models, as well as region of origin, co-resident adults at baseline, last wave interviewed, and several indicators associated with the dependent variable of interest or the key independent variables. Inclusion of the outcome and immigrant generation variables in the imputation models ensures that imputed values have the same relationship with these variables as observed values.

[7]The NLSY97 only asks about *heterosexual* sexual intercourse, defined as "making love, having sex, or going all the way with a person of the opposite sex." Moreover, because the question does not refer specifically to penile-vaginal intercourse, it is possible that some teen reports encompass behaviors short of intercourse, such as oral sex (Bersamin et al. 2007).

2004), we classify youth as first generation, second generation, or third generation or higher using information on parents' and respondents' birthplace. Responding parents and caregivers were asked in 1997 about their country of birth and that of non-responding biological parents.[8] In addition, beginning in 2001, all youth were asked about their own country of birth.[9] Table 1 shows that between 11 and 12 percent of respondents are second generation, and approximately 5 percent were born overseas.

To investigate whether age at migration is consequential for sexual initiation, we further divide foreign-born youth based on self-reports about the age when they first came to the United States and stayed for six months or longer. Because respondents were between the ages of 12 and 16 at the time of their baseline interview, the maximum age of arrival is 16 years. We distinguish between those who migrated before and after the start of adolescence using age 10 as a cut-point because prior work shows significant differences between youth who migrate before and after roughly this age across several outcomes (Beck et al. 2012; Bleakley and Chin 2010; Corak 2012). Our categorical measure of immigrant generation thus includes categories of third-plus generation (reference), second generation, first generation with arrival before age 10, and first generation with arrival between ages 10 and 16. Table 1 shows that approximately 4 percent of female respondents, and 3 percent of male respondents, were foreign-born and immigrated to the United States before the age of 10. Between 1 and 2 percent migrated during adolescence.

3.1.3 Family instability—To portray family structure and living arrangements, we construct time-varying dichotomous measures that indicate whether respondents co-resided with biological mothers and fathers in each person-year until sexual onset or right censoring, as well as yearly dichotomous measures of mother's marital status (married or unmarried). For each person year we measure *instability* in family structure and living arrangements with counts indicating the cumulative number of marital status and co-residential changes since the respondent's birth. Movements in and out of marriage, and parental separations and reunions, are distinct changes. That the NLSY97 did not collect full cohabitation histories restricts our assessment of union instability to formal marriages; this data limitation renders our analyses of parental union instability conservative.[10] The empirical models also include an indicator variable designating whether youth co-resided with their biological father at birth.

From the baseline interview forward, we use information collected prospectively from the youth on their mother's marital status and their household composition; however, for years prior to baseline (before 1997), it was necessary to piece together several survey items to identify family structure and living arrangements retrospectively (Appendix A elaborates

[8]The 963 youth whose parents or caregivers were not interviewed at baseline, and who were not lost to follow-up, were asked in 2005 to report their biological mother's and father's birthplace. For these youth, we use this information to designate their parents' nativity status.

[9]The NLSY97 lost 302 youth to follow-up before administering questions on respondents' place of birth. Nevertheless, using information about parents' birthplace and timing of arrival to the United States, we determine immigrant generation for all but 61 of these cases. Youth with a foreign-born mother who migrated later than the child's year of birth were classified as first generation.

[10]The NLSY97 data do not permit distinctions between types of marital status transitions: marriage, remarriage, separation/divorce, and spousal death; however, prior literature indicates that all shifts in marital status produce changes in parents' supervision, family roles and relationships, and levels of stress for offspring, which we hypothesize influence the likelihood of sexual onset.

decision rules for these measures). The parent interviews, which record spells of three months or longer spent apart from the index child between birth and the baseline survey, permit retrospective measurement of changes in parental co-residence. For youth lacking a parent interview completed by a mother/father, we retrieve information about respondents' early living arrangements from the "childhood retrospective" module, which records living arrangements at birth and changes in parental co-residence lasting six months or longer until the baseline interview. For each year of the exposure period, we measure whether respondents experienced a spell of non-residence with parents, as well as the cumulative number of family transitions between birth and each person-year. We record mother's marital status for the years before the baseline interview using information from the parent interview and childhood retrospective module. As with co-residential change, for each person-year we also measure the cumulative number of mothers' marital status changes from respondents' birth through a given year.

3.1.4 Non-English language use in the home—Use of a non-English language at home often signals connection to the culture of origin (Greenman and Xie 2008; Van Hook and Baker 2010), and for both first and later generation youth is a measure of the strength of attachment to origin country cultural norms. Greenman and Xie (2008) show that for first and second-generation adolescents, English language use in the home is associated with earlier initiation of first sexual intercourse (see also McDonald et al. 2009; Upchurch et al. 2001). The NLSY97 baseline parent interview records whether a non-English language was used at home at the time of interview. For youth whose parents were not interviewed in 1997, we use youths' reports from the retrospective module to ascertain whether a non-English language was spoken in their usual place of residence during childhood. We operationalize non-English language use at home as a dichotomous variable. Table 1 indicates that between 16 and 18 percent of youth lived in households where a language other than English was spoken.

3.1.5 Controls—To model duration dependence, the empirical models include respondents' age in each year, measured continuously, as well as its square term.[11] In addition, the models include a continuous measure of age at baseline interview to account for possible higher recall bias and higher likelihood of experiencing sexual onset before the first interview among respondents who were older at the baseline interview. Because the measures of family context, immigration, and language were constructed differently for youth with and without parent or caregiver interviews—and, at times, with different adult kin responding to the interview—the multivariate models also include a categorical variable indicating whether a parent/caregiver interview was conducted at baseline with a biological mother (reference), father, or other caregiver, or no parent interview was administered.

The analyses contain additional controls for family background that may render the association between immigrant generation and early sexual initiation spurious: completed parental education (less than high school graduate; high school graduate, including some college (reference); or college graduate or higher), respondent's race/ethnicity (non-Hispanic

[11]We include age squared to account for the leveling off of the hazard of first intercourse in the later adolescent years, as shown in Figures 1a and 1b. Quadratic treatment of age also improves model fit compared with linear treatment.

white (reference), non-Hispanic black, Hispanic, or other race), and respondent's religious preference (Protestant, Catholic (reference), Baptist, none, or other). Table 1 provides summary measures for all of the control variables.

3.2 Analytic strategy

We use discrete-time survival methods to estimate the probability of sexual initiation occurring at a given person-age.[12] Survival methods are well suited for our purpose because they explicitly incorporate right-censored cases (youth who had not become sexually active by age 19 or before dropping out of the study) and permit inclusion of time-varying covariates that improve temporal ordering around the timing of sexual initiation.

The 10-year exposure period begins at age 9 and continues to respondents' 19th birthday. Youth are censored when they experience first sexual intercourse, drop out of the study, or turn 19, depending on which comes first.[13] To avoid biasing the analytic sample toward youth with later timing of sexual debut, we analyze the full sample of eligible respondents, including youth who experienced first sexual intercourse before the baseline interview (approximately one-fifth of the sample). Detailed sexual behavior and family structure histories permit accurate ordering of key events around sexual onset. Statistical models lag all of the time-varying family structure and instability measures by one year to guard against reverse causality.

The discrete-time logit models take the following form:

$$\ln\{h(t_i|x)/[1-h(t_i|x)]\}=\beta_0+\beta_1\mathbf{X}_1+\ldots+\beta_k\mathbf{X}_k,$$

where $h(t_i \mid x)$ is the conditional probability of initiating sexual activity at age t_i for a given covariate vector $\mathbf{X} = (x_1,\ldots x_k)$. We conduct separate analyses for young women and men to assess whether the covariates operate differently for female and male respondents. In supplementary analyses, we pooled the sample and included interactions between respondent sex and the key covariates. Substantive results related to gender variation were identical to those reported based on stratified models, which have the added advantage of allowing all the covariates to vary by gender. All gender differences discussed below are also statistically significant at conventional levels ($p<0.05$) in the interaction models.

We estimate four models each for the young women and men in order to assess the association between migration background and sexual debut. The first regression models examine associations between immigrant generation (including age at migration) and the likelihood of sexual debut, independent of socio-demographic controls. The second and third models successively add covariates representing parents' union instability and co-residential instability, and the final model adds non-English language use at home to represent cultural attachment to origin country norms.[14] Results are robust to the order in which the covariates are introduced. Descriptive analyses use sample weights supplied by the NLSY97 to adjust

[12] We use discrete-time rather than continuous-time survival methods because complete data on the timing of first sex are available only in yearly intervals.

[13] In the analytic sample, 139 youths who reported sexual debut before age 9 were re-coded to age 9.

for sample design. The regressions (estimated with Stata 14.0) use robust standard errors to adjust for clustering of adolescents within households.[15]

4. Results

Figures 1a and 1b display smoothed hazard estimates of first sexual intercourse for young women and men, respectively, by immigrant generation and age at migration. The estimates are calculated using a weighted kernel-density estimate. The hazard rate is the probability that an individual will experience first sex at a given age, conditional on having not initiated sexual activity before that age.

For young women and men, the hazard of first heterosexual intercourse reaches a maximum at approximately age 17, near the end of the exposure period. Third-plus generation girls exhibit the highest hazard of first sex at all ages. Second generation girls are most similar to the third-plus generation, followed by first generation girls who migrated before age 10; girls who migrated as adolescents experience the latest sexual onset. Similarly, young men who migrated after age 10 have the lowest probability of initiating sexual activity across all ages (Figure 1b); unlike the girls, however, the hazard curves for both pre-adolescent migrant and second-generation boys are similar to those of third-plus generation boys, particularly in early and mid-adolescence. Overall, these hazard estimates provide descriptive evidence that youth with migration backgrounds initiate sexual activity later than youth with native-born parents, with girls and boys who migrate after age 10 experiencing the latest onset.

4.1 Migration background and timing of sexual onset

Tables 2 and 3 present regression coefficients from discrete-time logit models for young women and men, respectively. Checks on proportionality of hazards indicate that the relationships between the nativity measures and the timing of first sex do not differ significantly by age during the exposure period for either girls or boys.

The baseline model estimates reported in Table 2 indicate that foreign-born young women who immigrated both before and after age 10 have a significantly lower likelihood of sexual onset in any given year of the exposure period compared with statistically comparable third-plus generation girls ($p<0.001$). The exponentiated coefficients imply that the odds of initiating sexual activity are 32 percent and 44 percent lower, respectively, for first generation girls who migrated before age 10 and after the onset of adolescence, compared with their peers with US-born parents. Differences between second generation and third-plus generation young women are not statistically significant at conventional levels ($p=0.063$).

Statistical tests for equality between the other nativity coefficients confirm that first generation young women are significantly less likely to initiate sexual activity than their

[14]We do not include results from interactions between the generational status measures and the family instability and language measures because there is no theoretical rationale indicating that these covariates influence immigrant and native youth *differently*. Rather, our empirical specification acknowledges that immigrant and native youth vary in the *extent* of their exposure to these covariates.

[15]Adjusting for clustering of person-years within individuals yields substantively identical results.

second-generation counterparts. Despite the larger coefficient for post-adolescent compared with pre-adolescent arrivals, girls' likelihood of sexual debut does not differ significantly by age at migration. This may indicate low statistical power for the relatively small sample of foreign-born youth, but it may also reflect uniform normative expectations for immigrant girls across origin and destination countries (Espiritu 2006; Suárez-Orozco and Qin 2006).

The results for young men displayed in the baseline model of Table 3 reveal that the life-cycle timing of migration is consequential for boys' age at sexual debut. Compared to their third-plus generation peers, foreign-born boys who migrate after age 10 have significantly later sexual onset ($p<0.01$); the exponentiated coefficients indicate that their odds of initiating sexual activity are 40 percent lower than the third-plus generation. In contrast, pre-adolescent arrivals do not differ significantly from boys with native-born parents. Separate tests for coefficient equivalence reveal that the difference between the two groups of first generation young men is statistically significant ($p<0.05$). Second generation boys also initiate sexual activity significantly later than their third-plus generation counterparts ($p<0.05$) (Table 3), although separate analyses indicate that they do not differ significantly from pre-adolescent migrants.

4.2 Family instability and timing of sexual onset

Figures 2 and 3 illustrate the bivariate relationship between immigrant generation and family instability until respondents experience first sexual intercourse, drop out of the study, or turn 19, whichever comes first. The percentages given in the figures represent conservative estimates of family instability during childhood because over three-quarters of the observations are censored before youth reach age 19. Both figures pool male and female youth because we find no gender variation in the prevalence of family instability.

Foreign-born boys and girls experience more instability in paternal and maternal co-residence than US-born youth (Figure 2). The difference is particularly large for two changes in co-residence, which we expect in most cases to represent a separation from and subsequent reunification with a parent. Partly due to small samples, the 95% confidence intervals for foreign-born youth are large compared to the other groups; nonetheless, results from separate bivariate logistic regressions (available upon request) confirm that compared with the second and third-plus generations, a significantly larger share of foreign-born youth experience two paternal and maternal co-residential changes prior to the end of the exposure period. By the time they initiated sexual activity, dropped out of the study, or turned 19, about one in six youth who migrated after age 10 had experienced two changes in co-residence with fathers, and 18 percent had experienced two maternal transitions.

From the vantage point of youth, marital instability and changes in co-residence with parents are conceptually distinct forms of family instability; shifts in living arrangements often stem from factors other than marital change, and some maternal marital transitions are not accompanied by changes in co-residence with a biological parent (for example, second and higher marriages). In fact, supplementary analyses (not shown) indicate that changes in parental co-residence and maternal marital transitions are weakly correlated ($0.06< < 0.32$).

A comparison of Figures 2 and 3 reveals that third-plus generation adolescents face less instability in parental co-residence than youth with immigrant backgrounds (Figure 2), but more instability in maternal marital status (Figure 3).[16] Approximately 16 percent of third-plus generation youth were exposed to two or more marital transitions by the end of the exposure period, compared with 12 percent of second generation youth, and 10 and 9 percent, respectively, of foreign-born youth who migrated before and after age 10.

As hypothesized, Model 2 (Tables 2 and 3) confirms that heterogeneity in maternal marital instability attenuates associations between migration backgrounds and the timing of sexual debut. Changes in mother's marital status increase the likelihood of sexual onset in any given year for both sexes, independent of mother's current marital status ($p<0.001$). Whether the mother was married in the prior year also is associated with delayed initiation of sexual activity ($p<0.001$).

That the coefficients for second and first generation status are reduced after modeling parents' union instability confirms prior claims about the protections afforded by the stable marriages of foreign-born parents (Perreira and Ornelas 2011). Separate analyses using *suest* (seemingly unrelated estimation) commands confirm that the changes in coefficients between Models 1 and 2 are statistically significant for both first and second generation immigrant youth, with the exception of female adolescent arrivals. Supplementary analyses based on pooled female and male samples that include sex interaction terms indicate that boys derive the most protection from maternal marital stability.

Model 3 introduces the measures of parental co-residence in the previous year and the cumulative number of co-residential changes since birth (Tables 2 and 3), while still controlling for maternal marital status and stability. Co-residing with mothers ($p<0.01$) and fathers ($p<0.01$) is associated with a decrease in the likelihood of girls' sexual onset in a subsequent year (Table 2), affirming the protective benefits of parental presence, as distinct from marital status. Instability in co-residence with mothers, but not with fathers, is associated with an increased likelihood of sexual onset for young women. This latter result is consistent with findings from the South African context that changes in maternal co-residence are particularly disadvantageous for girls (Goldberg 2013a). Although the associations between parental co-residence and co-residential instability and age at sexual onset trend in similar directions for boys, and a Wald test of joint significance indicates that taken together the coefficients for the co-residence variables are significantly different from zero ($p<0.05$), family living arrangements appear to influence boys' sexual onset less than maternal marital status (Table 3). Not having a parent or caregiver interview at baseline, which may also proxy parental presence and/or engagement, is also significantly associated with girls' age at sexual debut, but not boys'.

A comparison of Models 2 and 3 suggests that co-residential instability accelerates sexual onset for first generation adolescents. The gap between boys and girls who migrate during adolescence and their third-plus generation counterparts actually *increases* between models,

[16]Separate logistic regression analyses confirm that the differences between all of the immigrant groups and the third-plus generation are statistically significant. We confirmed the trends for co-residential and marital instability using ordered logit and linear regression models. All of these results are available upon request.

and separate *suest* analyses confirm that these increases are statistically significant. That the coefficients for marital status and instability are attenuated in Model 3 suggests their influence on sexual activity operates partly through their impact on parental (probably father) co-residence. *Suest* tests confirm that the changes in these coefficients between Models 2 and 3 are statistically significant. Nonetheless, in Model 3 the coefficients for maternal marital status and stability remain significantly associated with the likelihood of sexual onset for young men, as does marital stability for young women. These results suggest that parents' partnership instability and parents' co-residential instability exert different influences on the timing of sexual onset.

Overall, the results from Models 2 and 3 indicate that the relative parental marital stability enjoyed by second-generation adolescents delays their sexual onset compared with the third-plus generation. Furthermore, protections afforded to first generation youth by relative parental union stability are at least partially offset by migration-linked changes in co-residence, which increase risks, particularly for girls. *Suest* analyses confirm that for first generation youth, the coefficients in Model 1 (with no family instability variables) and Model 3 (with all of the family instability variables) are not statistically significantly different from each other. Thus, on balance, family stability explains little of the delayed sexual onset observed among the first generation.

4.3 Non-English language use in the home and early sexual initiation

Model 4 adds an indicator for whether a language other than English was spoken in respondents' childhood household, a proxy for adherence to origin culture norms. Living in households where a non-English language is spoken significantly delays young women's sexual onset (Table 2). Moreover, according to separate *suest* tests, accounting for heterogeneity in non-English language use significantly attenuates the differences between immigrant young women of all generational groupings compared with the third-plus generation, which suggests that families' connection to their origin cultures protects young women with immigrant backgrounds from early sexual debut. By contrast to their female peers, residence in a household where a non-English language is spoken does *not* significantly influence the timing of sexual onset for male youth (Table 3).[17] This result is consistent with claims and evidence that immigrant families may convey less stringent norms about sexual behavior to sons compared with daughters and/or exert weaker control over boys' activities than girls' (Espiritu 2001; Suárez-Orozco and Qin 2006).

5. Discussion and conclusion

Our study extends the existing literature on nativity variations in adolescent health and risk behavior in three key ways. First, we examine how both generational status and age at migration are associated with the timing of sexual initiation. Second, we investigate whether parental union instability and co-residential instability accelerate the age at first intercourse for youth and if so, whether and to what extent family instability mediates the relationship

[17]Supplementary analyses that pool the sample of female and male respondents and incorporate interaction terms between respondent sex and use of a non-English language confirm that the association between English language use and sexual onset timing is stronger for girls than boys.

between nativity and sexual behavior. Finally, we consider whether generational status, age at migration, and family instability have uniform consequences for young men and women's sexual initiation. Taken together, our results show that nativity differentials in sexual debut depend not only on immigrant generation and acculturation, as prior studies have indicated, but also on age at migration, co-residence with parents during the formative years, and gender.

The empirical analyses show that young men who migrate after age 10 initiate sexual activity later than their peers who arrived at younger ages. This may signal the importance of context of socialization in shaping boys' sexual behaviors, but may also reflect migration-induced severing of peer networks and language barriers that are crucial for establishing emotional relationships. An alternative interpretation is that boys reared in the United States exaggerate sexual activity more than their counterparts socialized in other countries. This interpretation suggests that context of socialization shapes *reporting* of sexual activity rather than actual behavior; however, this explanation is weakened by cross-national evidence that boys tend to exaggerate sexual pursuits (e.g., Luke, Clark, and Zulu 2011; Nnko et al. 2004).

For young women, the timing of sexual debut varies mostly along generational lines: all first generation young women initiate sexual activity at higher ages than their counterparts who lack migration backgrounds, with no statistically significant difference by age at migration. This suggests that the messages immigrant girls receive about sexual behavior may be relatively consistent, regardless of whether their locus of socialization is the origin or host country. That immigrant boys' sexual behavior more rapidly converges to US norms than girls' may appear at odds with emerging evidence that immigrant girls' educational outcomes converge more rapidly to those of their native peers (Bachmeier and Bean 2011; Feliciano 2012; Suárez-Orozco and Qin 2006). The former likely reflects higher levels of social control by families and less exposure to negative peer contexts among girls (Feliciano 2012; Suárez-Orozco and Qin 2006); it may also reflect greater school attachment (Bachmeier and Bean 2011; Feliciano 2012; Suárez-Orozco and Qin 2006). Gender differences in the association between use of non-English languages at home and sexual onset also are consistent with gendered standards of sexual permissiveness and parenting practices that differentially restrict the social activities of boys and girls in immigrant families.

By broadening the conceptualization of family instability in research on U.S. families and children, we reveal impacts of both marital instability and instability in parent-child co-residence on the timing of sexual debut. These two types of family instability vary in prevalence by generational status. Our findings for *second-generation* youth, particularly boys, are consistent with findings from prior research showing that parental union stability is advantageous to youth with migration backgrounds (Landale et al. 2011). However, the family structure experiences of *first-generation* immigrant children, which include relatively high levels of change in parental co-residence, do not protect against early sexual onset. Maternal co-residential instability accelerates sexual debut for young women, and dilutes protections that might be afforded to the foreign-born by parents' union stability.

Despite novel results about the associations between migration background, family instability, and age at sexual debut, our study has several data-related limitations. First, like most nationally representative surveys, the sample sizes of first-generation youth are small, which hampers disaggregation by origin countries, race, or more fine-grained age at migration categories. Lack of statistical power due to small sample size may also preclude detecting some statistical differences among nativity groups. Further robustness checks by region of origin (available from authors) reveal patterns similar to those reported above, which inspires confidence that immigrants from one or two dominant sending regions do not drive the empirical results.

Second, meaningful measures of family instability from childhood into adulthood require detailed information on respondents' household composition and parents' union status from birth through the end of the exposure period. Migration processes complicate this task due to frequent episodes of family separation and reunification at origin and destination coupled with immigrants' higher prevalence of residence in extended and multi-family households (Landale et al. 2011). Fortunately, the NLSY97 includes a rich set of questions on household composition and parents' partnerships, which, combined with retrospective information both at baseline (provided by parents) and in later waves (provided by youth themselves), helps overcome this limitation to some extent, but not entirely. Our attempt to capture the extent of family instability by piecing together retrospective and prospective information yields downward biased measures of family instability owing to incomplete retrospective information about household composition and episodes of parent-child separation throughout the focal child's life, as well as lack of information on mothers' cohabitations and detail on reasons for parental absence and partnership change. This incomplete measurement renders our estimated associations between family instability and sexual debut conservative, and our understanding of mechanisms imprecise. Data constraints also limited our ability to measure domestic residential mobility (South et al. 2005). This limitation is unlikely to alter the robustness of our results because prior research linking family instability and timing of sexual onset does *not* find domestic residential moves to be associated with sexual debut independent of family change (Goldberg 2013b; Osborne and McLanahan 2007).

As an initial assessment of how both family instability and the timing in life of migration are associated with the age of sexual debut among American youth, our study suggests many avenues for further inquiry. First, with larger samples of youth with migration backgrounds, new research should investigate variation by region of origin and race/ethnicity in family dynamics and sexual behavior. Future work might also examine heterogeneity of sexual behavior across source countries to better understand the strength of cultural continuities across generations (as Fernandez and Fogli (2006) find for fertility and labor force participation). In addition, further research should investigate whether associations between family instability and youth sexual behavior depend on the *reason* for the shift in parental co-residence (e.g., migration or incarceration) and/or parents' union status (e.g., divorce or remarriage). Finally, like most studies using retrospective data, we rely on respondent recall to portray the timing of sexual behavior and family changes. Retrospective reports are subject to recall biases in both the timing and sequencing of events, particularly for

temporally proximate events. Future work should explore opportunities to use calendar or diary methods to minimize these biases (Bolger, Davis, and Rafaeli 2003; Luke et al. 2011).

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APPENDIX A: DETAIL ON MEASURES OF PRE-1997 FAMILY INSTABILITY

For all respondents, we used identical prospectively collected measures to identify family structure and family instability after the 1997 baseline interview. When retrospective information on maternal or paternal co-residence was not available from the parent interview or the childhood retrospective module for the years before 1997, we relied on reports of: (1) the year a youth reports last living with a parent who was not co-resident at baseline; (2) the timing of a parental death; and (3) for respondents not continuously co-resident with the interviewed parent, who they lived with during spells spent apart. In addition, for foreign-born youth whose biological parent migrated to the United States more than a year before or later than the youth, we assumed a parental separation during these years. Because these circumstances do not capture all possible spells apart from parents, they likely resulted in conservative estimates of instability in parental co-residence before the baseline interview. About 10 percent of maternal co-residence histories required use of such auxiliary information due to the lack of both a maternal parent interview and a completed childhood retrospective module. This was the case for approximately two-thirds of paternal co-residential histories due to the small share of parent interviews completed by fathers.

Estimates of paternal co-residential changes are thus likely more conservative than those for maternal changes. Specific decision rules are available on request.

The timing of maternal marital transitions before 1997 was directly retrieved for youth with maternal parent interviews because the parent interviews at baseline collected full marital histories for the responding parent. For youth lacking a mother interview, we recovered mothers' pre-1997 marital histories through information reported by the youth in the childhood retrospective module or through information provided by fathers in paternal interviews. For the remaining 277 respondents whose parent interview was administered to a non-parent adult (N=143), or who lacked a parent interview as well as a childhood retrospective (N=134), we imputed values using multiple imputation techniques. Robustness checks confirm that our substantive results are unaltered by excluding these cases.

Figure 1a.

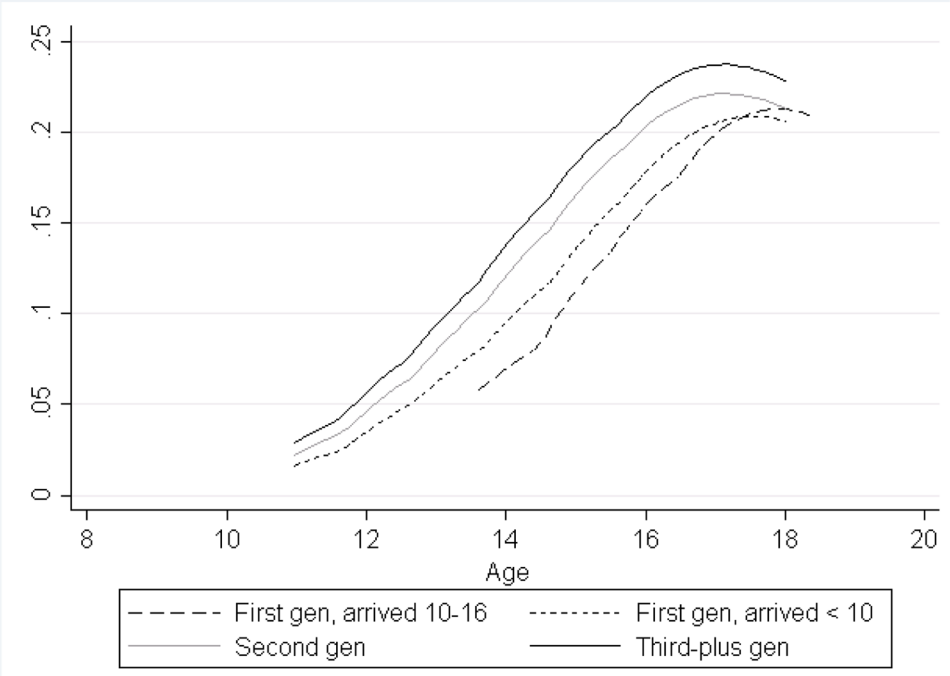

Figure 1b.

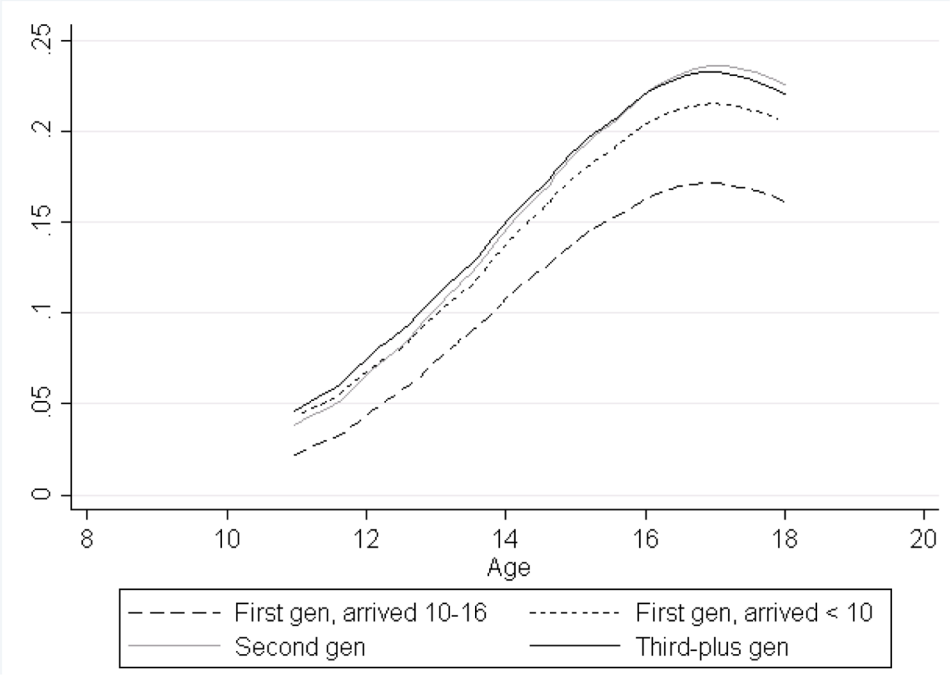

Figure 1.

Figure 1a. Hazard estimates of first sex over exposure period, young women, by immigrant generation and age at migration

Source: 1997 National Longitudinal Survey of Youth, 1997–2010.

Notes: The smoothed hazards are adjusted near the boundaries, and the plotted range of the smoothed hazard function is restricted to within one bandwidth of each endpoint. To fully capture the boundaries of our exposure period, we included in the hazard estimates an exposure period ranging from ages 8–20.

Figure 1b. Hazard estimates of first sex over exposure period, young men, by immigrant generation and age at migration

Source: 1997 National Longitudinal Survey of Youth, 1997–2010.

Notes: The smoothed hazards are adjusted near the boundaries, and the plotted range of the smoothed hazard function is restricted to within one bandwidth of each endpoint. To fully capture the boundaries of our exposure period, we included in the hazard estimates an exposure period ranging from ages 8–20.

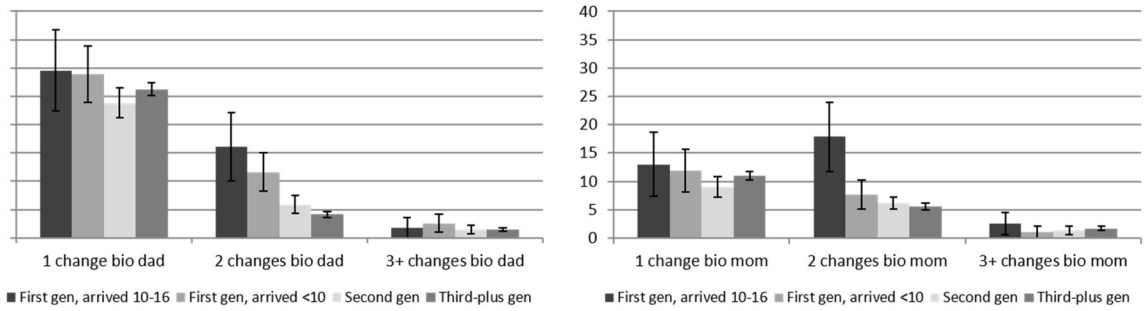

Figure 2. Changes in co-residence with biological fathers and mothers between birth and end of exposure period, by immigrant generation and age at migration

Source: 1997 National Longitudinal Survey of Youth, 1997–2003

Notes: Data are weighted to adjust for sample design. Exposure period ends in the year respondents initiate sexual activity, drop out of the study, or turn 19, whichever comes first. 95% confidence intervals are displayed.

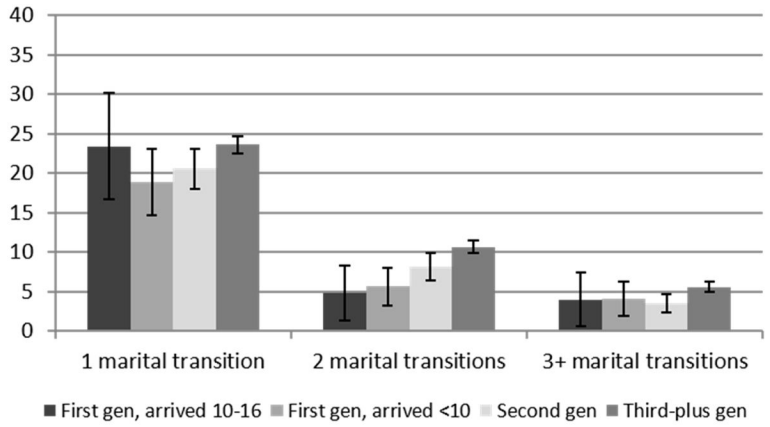

Figure 3. Changes in mother's marital status between birth and end of exposure period, by immigrant generation and age at migration

Source: 1997 National Longitudinal Survey of Youth, 1997–2003

Notes: Data are weighted to adjust for sample design. Exposure period ends in the year respondents initiate sexual activity, drop out of the study, or turn 19, whichever comes first. 95% confidence intervals are displayed.

Table 1

Descriptive statistics for analytic sample (percentages unless otherwise noted)

Characteristic	Women	Men
Sexual behavior		
First sex age 14 or below	17.80	23.92
First sex age 18 or below	76.09	76.93
Immigrant generation and age at migration		
Third-plus generation	83.62	82.62
Second generation	11.11	12.10
First generation, arrived in U.S. before age 10	3.92	3.29
First generation, arrived in U.S. age 10–16	1.35	1.98
Language		
Language other than English spoken in childhood household	16.00	17.61
Family structure and instability		
Mother married at age 14	67.68	71.11
Lived with biological mother at age 14	89.39	89.20
Lived with biological father at age 14	59.97	63.05
Lived with biological father at birth	82.12	82.93
Mean number changes in mother's marital status through age 14	0.59	0.53
Mean number changes in co-residence with bio mother through age 14	0.21	0.22
Mean number changes in co-residence with bio father through age 14	0.34	0.32
Controls		
Mean age at first interview	14.36	14.36
Race/ethnicity		
Non-Hispanic white	67.09	66.32
Hispanic	12.29	13.45
Non-Hispanic black	15.45	15.26
Other race	5.17	4.96
Highest completed education of resident parents in 1997		
Less than high school graduate	16.97	16.98
High school graduate	54.76	53.57
College graduate	28.27	29.45
Religion		
Protestant	37.05	33.22
Catholic	24.88	28.31
Baptist	20.61	17.97
None	11.50	14.12
Other	5.96	6.38
N respondents	**4,340**	**4,533**

Source: 1997 National Longitudinal Survey of Youth, 1997–2010

Notes: Data are weighted to adjust for sample design.

Table 2

Discrete-time survival models predicting sexual onset: young women (age 9 to 18)

	Model 1		Model 2		Model 3		Model 4	
	β	RSE	β	RSE	β	RSE	β	RSE
Immigrant generation and age at migration *(ref: Third-plus generation)*								
Second generation	−0.136	(0.073)	−0.118	(0.073)	−0.103	(0.074)	−0.017	(0.075)
First generation, arrived before age 10	−0.392***	(0.110)	−0.367**	(0.109)	−0.370**	(0.112)	−0.281*	(0.114)
First generation, arrived age 10–16	−0.575***	(0.151)	−0.560***	(0.156)	−0.603***	(0.158)	−0.492**	(0.162)
Language								
Non-English language spoken in childhood household							−0.273**	(0.086)
Family structure and instability								
Parental co-residence in prior year[a]								
Lived with biological mother					−0.239**	(0.089)	−0.235**	(0.089)
Lived with biological father					−0.193**	(0.069)	−0.191**	(0.069)
# changes in co-residence with mother birth-prior year[a]					0.079*	(0.038)	0.081*	(0.037)
# changes in co-residence with father birth-prior year[a]					0.000	(0.046)	−0.001	(0.045)
Lived with biological father at birth					−0.088	(0.068)	−0.092	(0.068)
Mother was married in prior year[a]			−0.187***	(0.048)	−0.043	(0.057)	−0.043	(0.056)
# changes in mother's marital status birth-prior year[a]			0.149***	(0.023)	0.103***	(0.026)	0.101***	(0.026)
Controls								
Age	2.973***	(0.209)	2.953***	(0.209	2.967***	(0.210)	2.966***	(0.209)
Age squared	−0.082***	(0.007)	−0.081***	(0.007)	−0.082***	(0.007)	−0.082***	(0.007)
Age at time of first interview	0.009	(0.013)	0.013	(0.013)	1.016	(0.013)	1.016	(0.013)
Race/ethnicity *(ref: Non-Hispanic white)*								
Hispanic	−0.080	(0.072)	−0.073	(0.072)	−0.084	(0.073)	0.054	(0.084)
Non-Hispanic black	0.187**	(0.055)	0.166**	(0.056)	0.129*	(0.057)	0.130*	(0.057)
Other race	−0.111	(0.135)	−0.115	(0.133)	−0.121	(0.132)	−0.035	(0.135)
Highest completed education of resident parents *(ref: High school graduate)*								
Less than high school graduate	0.182**	(0.057)	0.173**	(0.058)	0.138*	(0.059)	0.153**	(0.059)

	Model 1		Model 2		Model 3		Model 4	
	β	RSE	β	RSE	β	RSE	β	RSE
College graduate	−0.366***	(0.055)	−0.295***	(0.055)	−0.280***	(0.055)	−0.279***	(0.055)
Religion *(ref: Catholic)*								
Protestant	−0.089	(0.057)	−0.121*	(0.058)	−0.127*	(0.058)	−0.155**	(0.059)
Baptist	0.057	(0.068)	0.023	(0.069)	0.008	(0.069)	0.021	(0.069)
None	0.487***	(0.076)	0.430***	(0.076)	0.400***	(0.077)	0.382***	(0.077)
Other	−0.278*	(0.112)	−0.282*	(0.113)	−0.297**	(0.114)	−0.306**	(0.114)
Parent/caregiver interview *(ref: bio mother interviewed)*								
Biological father interviewed at baseline	−0.026	(0.072)	0.001	(0.072)	−0.017	(0.078)	−0.024	(0.078)
Other caregiver interviewed at baseline	0.170	(0.094)	0.188	(0.100)	−0.062	(0.119)	−0.075	(0.119)
No parent/caregiver interview at baseline	0.132*	(0.067)	0.188**	(0.068)	0.149*	(0.070)	0.155*	(0.070)
Intercept	−27.802***	(1.586)	−27.663***	(1.590)	−27.457***	(1.595)	−27.425***	(1.595)

Notes: Robust standard errors (in parentheses) adjust for clustering of individuals within households.

[a]Prior year indicates a lag of one year.

*p<.05;

**p< .01;

***p<.001

Table 3

Discrete-time survival models predicting sexual onset: young men (age 9 to 18)

	Model 1		Model 2		Model 3		Model 4	
	β	RSE	β	RSE	β	RSE	β	RSE
Immigrant generation and age at migration *(ref: Third-plus generation)*								
Second generation	−0.155 *	(0.070)	−0.106	(0.070)	−0.097	(0.070)	−0.093	(0.075)
First generation, arrived before age 10	−0.144	(0.107)	−0.090	(0.107)	−0.113	(0.108)	−0.109	(0.111)
First generation, arrived age 10–16	−0.502 **	(0.148)	−0.427 **	(0.147)	−0.477 **	(0.150)	−0.473 **	(0.154)
Language								
Non-English language spoken in childhood household							−0.011	(0.080)
Family structure and instability								
Parental co-residence in prior year[a]								
Lived with biological mother					−0.140	(0.089)	−0.140	(0.089)
Lived with biological father					−0.134	(0.074)	−0.134	(0.074)
# changes in co-residence with mother birth-prior year[a]					0.060	(0.043)	0.056	(0.043)
# changes in co-residence with father birth-prior year[a]					0.058	(0.057)	0.058	(0.057)
Lived with biological father at birth					−0.088	(0.074)	−0.088	(0.074)
Mother was married in prior year[a]			−0.286 ***	(0.047)	−0.166 **	(0.057)	−0.166 **	(0.057)
# changes in mother's marital status birth-prior year[a]			0.111 ***	(0.025)	0.065 *	(0.028)	0.065 *	(0.028)
Controls								
Age	1.131 ***	(0.118)	1.122 ***	(0.118)	1.113 ***	(0.118)	1.113 ***	(0.118)
Age squared	−0.024 ***	(0.004)	−0.023 ***	(0.004)	−0.023 ***	(0.004)	−0.023 ***	(0.004)
Age at time of first interview	0.016	(0.013)	0.018	(0.013)	0.022	(0.013)	0.022	(0.013)
Race/ethnicity *(ref: Non-Hispanic white)*								
Hispanic	0.360 ***	(0.067)	0.326 ***	(0.067)	0.317 ***	(0.068)	0.323 ***	(0.078)
Non-Hispanic black	0.834 ***	(0.059)	0.773 ***	(0.060)	0.746 ***	(0.061)	0.746 ***	(0.061)
Other race	−0.162	(0.125)	−0.178	(0.127)	−0.186	(0.127)	−0.183	(0.128)
Highest completed education of resident parents *(ref: High school graduate)*								
Less than high school graduate	0.244 ***	(0.058)	0.236 ***	(0.059)	0.219 ***	(0.059)	0.219 ***	(0.059)

	Model 1		Model 2		Model 3		Model 4	
	β	RSE	β	RSE	β	RSE	β	RSE
College graduate	−0.419***	(0.050)	−0.367***	(0.051)	−0.359***	(0.051)	−0.359***	(0.051)
Religion *(ref: Catholic)*								
Protestant	0.090	(0.054)	−0.102	(0.054)	−0.114*	(0.055)	−0.115*	(0.055)
Baptist	0.110	(0.068)	0.090	(0.069)	0.080	(0.069)	0.079	(0.069)
None	0.365***	(0.067)	0.318***	(0.068)	0.301***	(0.068)	0.301***	(0.068)
Other	−0.210*	(0.100)	−0.217*	(0.100)	−0.226*	(0.100)	−0.226*	(0.100)
Parent/caregiver interview *(ref: bio mother interviewed)*								
Biological father interviewed at baseline	0.066	(0.068)	0.067	(0.067)	0.052	(0.074)	0.051	(0.074)
Other caregiver interviewed at baseline	0.065	(0.096)	0.060	(0.101)	−0.129	(0.119)	−0.130	(0.119)
No parent/caregiver interview at baseline	0.074	(0.068)	0.100	(0.068)	0.072	(0.069)	0.072	(0.069)
Intercept	−13.585***	(0.861)	−13.408***	(0.865)	−13.155***	(0.874)	−13.152***	(0.874)

Notes: Robust standard errors (in parentheses) adjust for clustering of individuals within households.

[a]Prior year indicates a lag of one year.

*p<.05;

**p< .01;

***p<.001