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Examining the Antecedents of U.S. Nonmarital Fatherhood

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Abstract

Despite the dramatic rise in U.S. nonmarital childbearing in recent decades, limited attention has been paid to factors affecting nonmarital fatherhood (beyond studies of young fathers). In this article, we use data from the 2002 National Survey of Family Growth and the National Longitudinal Survey of Youth 1979 cohort to examine the antecedents of nonmarital fatherhood, as compared to marital fatherhood. Overall, we find the strongest support across both data sets for education and race/ethnicity as key predictors of having a nonmarital first birth, consistent with prior literature about women's nonmarital childbearing and about men's early/teenage fatherhood. Education is inversely related to the risk of nonmarital fatherhood, and minority (especially black) men are much more likely to have a child outside of marriage than white men. We find little evidence that employment predicts nonmarital fertility, although it does strongly (and positively) predict marital fertility. High predicted earnings are also associated with a greater likelihood of marital childbearing but with a lower likelihood of nonmarital childbearing. Given the socioeconomic disadvantage associated with nonmarital fatherhood, this research suggests that nonmarital fatherhood may be an important aspect of growing U.S. inequality and stratification both within and across generations.

Keywords

Nonmarital childbearing; Men's fertility; Nonmarital fatherhood; First births

Introduction

The prevalence of nonmarital births in the United States has increased dramatically in recent decades, with the fraction of births occurring outside of marriage rising sixfold in the latter

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half of the twentieth century (Ventura and Bachrach 2000). In 2010, fully 41 % of all U.S. births occurred to unmarried parents, with even higher proportions among racial and ethnic minorities: 53 % of Hispanic births and 73 % of black births (Hamilton et al. 2011). The dramatic rise in nonmarital childbearing has generated considerable attention from both researchers and policymakers alike, particularly with respect to the implications for women and children. In turn, an extensive literature has examined the factors associated with women's nonmarital childbearing and found that low socioeconomic resources (measured by income, education, or welfare receipt) predict women having an unwed and/or teenage birth. Far less is known about the antecedents of nonmarital fatherhood, largely because data about men—especially low-income men, who are disproportionately unmarried fathers—have been much less readily available (Nelson 2004). Men—particularly nonresident fathers—are underrepresented in national surveys because most surveys are household-based, and fathers are less strongly attached to households than mothers because of divorce, serving in the military, or incarceration (Garfinkel et al. 1998). Even when interviewed, fathers may not report children who live away and may underestimate their previous fertility, particularly when reporting retrospectively (Lerman and Sorenson 2000; Rendall et al. 1999).

Despite the data limitations, directly examining patterns of overall male nonmarital fertility is important for several reasons. First, with recent changes in family demography (including the disconnection between marriage and childbearing, high rates of union instability, and a growing prevalence of childbearing by more than one partner), men's family and fertility life course may increasingly diverge from women's. Hence, women's experiences may not be a very good proxy for men's experiences, and women may not have complete information about all the children men have fathered. To obtain a complete portrait of male fertility, it is important to ask men directly and to consider men's roles and commitments as factors that may affect childbearing and child-rearing (Goldscheider and Kaufman 1996; Greene and Biddlecom 2000). Second, there is reason to believe that the factors that affect male fertility may not be the same as those affecting female fertility (Michael and Tuma 1985). In particular, because women experience pregnancy, are often more directly involved with child-rearing after the birth (e.g., breast-feeding), and are more likely to take time off from work to care for their child, the opportunity cost (and potential social stigma) of nonmarital childbearing is likely higher for women than for men. Third, from a public policy perspective, given concerns about nonmarital childbearing for children's development and well-being (e.g., Haveman et al. 2001), it is important to understand which men are likely to become unwed fathers in order to develop policies and programs to encourage men to postpone fatherhood until they can support a child and/or to facilitate fathers' financial contributions and involvement after they become fathers.

In this article, we use data from two U.S. national data sets—the National Survey of Family Growth (NSFG) and the National Longitudinal Survey of Youth 1979 cohort (NLSY)—to examine the antecedents of contemporary U.S. nonmarital fatherhood.[1] The NSFG, a retrospective survey, provides a recent portrait of all potential fathers; the NLSY, a prospective longitudinal survey, follows the 1957–1964 birth cohort with repeated

[1]We use the term "father" throughout this article to indicate biological fatherhood. The social role of fathers in family life is also an important topic, but we do not address it here.

observations over several decades. Taken together, these data sets provide a complementary perspective on the factors that affect recent nonmarital fatherhood. Beyond analyzing the full data sets, a direct comparison can be made between the oldest NSFG men (born in 1957–1964) who were ages 38–44 in 2002 (n = 898) to the NLSY men (also born in 1957–1964).

Our study moves beyond teen or young fathers to look at unmarried fatherhood overall—the first study to do so, to our knowledge. Because early/teen fatherhood is a relatively rare event, it is possible that the processes leading up to it differ from the processes predicting nonmarital fatherhood more generally. To the extent that (mostly adult) men's nonmarital fatherhood diminishes their socioeconomic attainment and likelihood of marriage (Nock 1998), this research has important implications for how contemporary fertility patterns may be linked to growing social stratification and economic inequality for men as well as for the women and children in their lives.

Theoretical Perspectives and Empirical Research

We draw mainly on economic and social perspectives about factors that affect decisions and behaviors related to nonmarital childbearing. Nonmarital childbearing is not a single event but results from a chain of events that involve some measure of choice (intentional or not) or behaviors at each stage. Sexual activity, the use (or misuse) of contraception, the decision to abort or carry a baby to term, and the decision to marry before or after conception are all steps along the way to bearing a child outside of marriage. Various factors may affect any stage along the causal chain, although our review here emphasizes factors that affect the ultimate outcome and our focus: having a nonmarital birth.[2] We first describe the economic and social theoretical perspectives, and then summarize the related empirical literature.

Theoretical Perspectives

Economic Theory—Dating from Becker's work in the 1960s, the economic, rational-choice theory of fertility suggests that children can be viewed as durable goods and that higher income will generally increase the demand for children (Becker 1960, 1991). Amidst major changes in family demography in the latter third of the twentieth century, scholars increasingly recognized that fertility decisions may not involve a single household utility function and that economic interests between men and women may diverge (Willis 2000). Specifically for nonmarital childbearing, the likelihood of having a nonmarital birth will be higher when the opportunity cost is lower or the gains to marriage are few (Willis 1999). Thus, individuals born to families with higher socioeconomic status (SES)—and who attain higher SES themselves—will be less likely to have a nonmarital birth because they have higher forgone earnings, income, and economic opportunities; they will be more likely to bear children within marriage because they experience greater gains from marriage (Lam 1988). By contrast, for those at the lower end of the income distribution, the value of children may be the same as (Musick et al. 2010) or higher than (Edin and Kefalas 2005)

[2]Nonmarital childbearing is closely related to unintended childbearing (Musick 2002); we focus on nonmarital births because we are substantively interested in the marital context of childbearing and because data on intendedness in the NSFG and NLSY are not available for all men.

those with greater means; but with limited economic opportunities or expectations of marriage, they have little incentive to defer childbearing (Geronimus and Korenman 1992; Gibson-Davis 2009; Upchurch and McCarthy 1990). We would, therefore, expect greater socioeconomic resources both in the family of origin and for the individual to predict lower nonmarital childbearing. At the same time, economic factors might have less predictive power for men's childbearing than women's: as we note earlier, women bear the physical burden of pregnancy and are typically more directly involved in child care after a baby's birth.

Social Theory

Sociological arguments point to the role of cultural values and social institutions as key factors expected to affect nonmarital childbearing. Along with the dramatic rise in nonmarital childbearing since the 1960s has come increasing social acceptance and declining stigma toward both sexual activity and childbearing outside of marriage (Axinn and Thornton 2000). Yet, certain background factors may encourage or discourage more traditional family formation: men who did not live with their father growing up are more likely to have an early (typically nonmarital) birth (Furstenberg and Weiss 2000), and men with working mothers may have been more sexually active because they received less after-school supervision (Muller 1995). By contrast, a strong religious background (particularly conservative Protestant) may deter sexual activity outside of marriage or encourage marriage before (or after) a birth (Thornton and Camburn 1989; Wilcox and Wolfinger 2007).

Race/ethnicity is an important factor in nonmarital childbearing. There is greater acceptance and a higher prevalence of nonmarital childbearing among African Americans compared with other racial/ethnic groups (Cherlin et al. 2008; Edin and Kefalas 2005), and within poor urban neighborhoods, the "code of the street" may encourage sexual conquest (Anderson 1989). Also, poor job prospects for black men in disadvantaged communities have reduced the number of so-called marriageable men (Moynihan 1965; Wilson 1987) and lowered the opportunity cost of nonmarital childbearing (Willis 1999).

Military service and incarceration are two social institutions that may also affect whether, and in what context, men become fathers. The military's strong social policies and cultural norms that encourage marriage (Lundquist and Smith 2005) may increase (decrease) the chances that military men become fathers within (outside of) marriage. Active-duty military service is shown to be particularly salient for black men's family patterns, diminishing the black-white marriage gap (Teachman 2007). Incarceration may also affect patterns of fatherhood because prior incarceration reduces men's attractiveness on the marriage market and decreases the chances of getting/staying married (Lopoo and Western 2005). Although incarceration rates are much higher for blacks than whites, incarceration appears to be more detrimental to marriage for whites than for blacks or Hispanics (Huebner 2007).

Empirical Research

Most research on the antecedents of nonmarital fertility has focused on women, and related research for men has mostly analyzed the antecedents of teenage fatherhood or the characteristics of men as partners of teenage mothers. Some studies include both married

and unmarried teen/young fathers (e.g., Hanson et al. 1989), and some focus solely on young unwed fathers (e.g., Lerman 1993). Yet, in 2010, only 20 % of unwed births occurred to teenage women (i.e., under age 20) (Hamilton et al. 2011), down from 52 % in 1975 (Ventura and Bachrach 2000). An even smaller proportion of unwed births occur to teen fathers because men are typically a few years older than their partners (Elo et al. 1999). Therefore, teen births represent a small subset of contemporary nonmarital childbearing, especially for men.

Economic Factors—The bulk of the empirical evidence suggests that better economic prospects diminish early fatherhood. Young men with higher family incomes have a lower risk of teenage fathering (Ku et al. 1993; Lerman 1993), as do young men with higher-SES parents (defined by education and occupation) (Pears et al. 2005). Men whose parents have low education (especially having dropped out of high school) are more likely to have a teen birth (Hanson et al. 1989; Hynes et al. 2008; Marsiglio 1987; Thornberry et al. 1997).

Young men's own economic trajectories also affect the likelihood of having an early birth because school enrollment and higher levels of completed education decrease the risk of teen unwed childbearing (Lerman 1993; Marsiglio 1987), whereas being behind in school or having low test scores increase the likelihood of young fathering (Glick et al. 2006; Ku et al. 1993; Pears et al. 2005; Thornberry et al. 1997). Also, among young men, unemployment and low employment opportunities increase nonmarital fertility (Lerman 1993; Wilson 1987), while employment increases the chance of marriage after a nonmarital conception (Zavodny 1999). By contrast, two studies suggest that among disadvantaged male adolescents, higher earnings or work hours may actually increase nonmarital fatherhood (Anderson 1989; Ku et al. 1993) because those with more resources can afford to go on dates and have romantic relationships (Ku et al. 1993).

Social Factors—Social and cultural factors are salient for men's early or nonmarital childbearing, although the empirical evidence is inconsistent. Some studies have found that young men who did not live with both biological parents at age 14 are more likely to have an early birth (Hynes et al. 2008; Ku et al. 1993; Marsiglio 1987); other studies have found no such association after controlling for socioeconomic factors (Hanson et al. 1989; Hofferth and Goldscheider 2010; Thornberry et al. 1997). Maternal employment is linked to higher levels of youth sexual activity (Ruhm 2008). Military service and religious attendance are each associated with a reduced likelihood of unwed fatherhood and an increased likelihood of marriage (Lerman 1993). Incarceration is also associated with lower marriage rates, but imprisoned men are just as likely to have children as men outside of prison (Lopoo and Western 2005). Race has consistently been identified as a key factor: black men have a higher risk of young/nonmarital fathering compared with other racial/ethnic groups (Hanson et al. 1989; Hynes et al. 2008; Lerman 1993; Lerman and Sorensen 2000; Marsiglio 1987; Thornberry et al. 1997).

In this article, we extend the literature by analyzing the antecedents of nonmarital fatherhood using two large national data sets. We focus on nonmarital fatherhood—a growing demographic phenomenon—because having a child outside of marriage has been linked to diminished well-being for men (Nock 1998), women (Wu and Wolfe 2001), and

children (McLanahan 2011). We provide new information about the factors that predict which men overall (as opposed to just young men) will have a child outside of marriage—the first study to do so, to our knowledge.

Data and Methods

We use two major national data sets with information about U.S. men. First, we use data from the National Survey of Family Growth (NSFG). In 2002, the NSFG first conducted in-person interviews with 4,928 men ages 15–44 (born 1957–1987), providing information on a recent cross-section of men about their sexual activity, partnerships, and fertility; the male fertility data were collected in the context of relationship histories, which appears to improve recall (Lindberg et al. 1998). Nearly one-half of the (weighted) NSFG male respondents reported having had a child by the 2002 survey.

Second, we use data from the National Longitudinal Survey of Youth 1979 cohort (NLSY), which provides information about a cohort of 6,403 men born 1957–1964. The men were first interviewed in 1979 (at ages 14–21), and we use data through 2006 (when they were ages 41–48); interviews occurred annually through 1994 and biennially thereafter (n = 3,738 in 2006) (Center for Human Resource Research 2006). These men have been followed through their prime childbearing years, so the data capture the first birth for nearly all men.

Analytic Strategy

We use multinomial logistic regression models within a discrete-time hazard framework to examine the factors that influence whether men have a first birth outside of marriage versus within marriage, as compared with not having had a birth by the observation period. These models can incorporate time-varying covariates and account for right-censoring, given that some men (particularly in the NSFG) have not yet had children at the time of the survey. A number of identical variables are constructed across the NSFG and the NLSY to allow for direct comparison of the antecedent factors, adjusting for differences in period and age resulting from study design; we also include some additional measures available only in the NLSY. Following guidance in the survey documentation (CHRR 2008; National Center for Health Statistics 2004), we weight the descriptive statistics but not the multivariate results.[3]

Dependent Variable

Our dependent variable reflects the timing of men's first birth and their marital status at first birth. The quality of male fertility data is a known concern. We use the augmented NLSY male fertility file (Mott and Gryn 2001) to resolve inconsistencies and ambiguous data about fatherhood in the main file, which limits (but does not eliminate) underreporting. Joyner et al. (2012) estimated that the NLSY captures 89 % of all young male births (at ages 15–24), compared with vital statistics.

Underreporting in the NSFG may be more problematic because the study is retrospective and does not include those in jail or those in the military outside the household (i.e.,

[3]The NSFG suggests weighting regressions but says it is acceptable to estimate unweighted regressions. The NLSY recommends not weighting regressions. To be consistent, we estimate unweighted regressions for both.

overseas or on a military base).[4] Although Martinez et al. (2006: Table 3) estimated that the NSFG captures 96 % of births in the five years prior to the 2002 survey (compared with vital statistics), Joyner and colleagues (2012)—who evaluated births across all years but only to men under age 25—contended that underreporting is a much larger problem; Joyner et al. found that the NSFG captures 81 % of births to men ages 15–24. We include births to men of all ages, so the degree of underreporting in our analyses compared with these estimates is unclear. Overall, our NLSY results may be more reliable than our NSFG results; however, because underreporting tends to attenuate the predictors of births (Joyner et al. 2012), any bias will likely be downward.

Independent Variables

Time-Invariant Variables—Given our comparative approach, we focus on time-invariant demographic and background factors that can be measured similarly across both the NSFG and NLSY. Race is specified as non-Hispanic white/other (reference), non-Hispanic black, and Hispanic. Foreign-born indicates that the respondent was born outside the United States. Respondent's father's education is measured as less than high school (reference), high school diploma, some college, or college degree or more; mother's education is a dummy variable indicating that the mother had more education (by degree) than the respondent's father. We use indicators of whether the respondent lived with both biological parents at age 14 and whether a maternal figure in the household worked when the respondent was age 14 (15 in the NSFG). The religion raised is specified as Catholic, Protestant (reference), other (which is mostly Jewish), or none. Frequency of youth religious attendance—available only in the NLSY and measured in 1979—ranges from 1 (never) to 6 (more than once per week).

In some models, we use an additional set of time-invariant variables from the NLSY, all from the 1979 survey.[5] We measure respondent's traditional family attitudes as an average of responses to five items (alpha = .77), ranging from 1 (strongly disagree) to 4 (strongly agree); higher scores indicate more-traditional attitudes. Respondent's educational goals reflect the highest grade he would like to complete, converted to degrees (e.g., 12 years to high school diploma). Expected ability to achieve one's desired occupation has four response categories: poor, fair, good, and excellent. Expected age at marriage is measured as younger than age 20, 20–24, 25–29, 30 or older, or never.

Time-Varying Variables—Respondent's age at initiation of sexual activity is included in both the NSFG and NLSY.[6] A dummy variable indicates early initiation (before age 16). For those who initiated sexual activity at age 16 or later, at each age, a time-varying measure indicates whether sexual activity was initiated in the preceding year.[7]

[4]The NLSY excluded institutionalized individuals at the time of sampling but follows respondents if they become incarcerated or enter the military.

[5]Similar attitudinal measures are available in the NSFG but only at the time of interview. We do not use such measures because they could be endogenous to having become a father.

[6]Wu and Martin (2013) noted the importance of separately considering factors that affect age of sexual onset and that affect the risk of a premarital birth given onset—though they found that variability in the former has a much smaller influence on premarital birth probabilities than differences in the latter. Because our focus here is to provide a descriptive portrait of the factors related to nonmarital fatherhood (rather than to evaluate the mechanisms), we include all men and use control variables to represent the timing of sexual initiation.

[7]The NLSY dropped the age of sexual initiation question after 1985, but very few of the men had not had sex by that time.

Taking advantage of the longitudinal design of the NLSY, we included annual time-varying measures of respondent's education, employment, and predicted earnings. Comparable time-varying variables are not available in the NSFG. Education is measured by the highest grade completed at each interview and converted into less than high school (reference), high school diploma, some college, and college degree or more. Dichotomous indicators of being enrolled in school and being employed are used from each survey. Predicted annual earnings are estimated as a function of men's sociodemographic and employment characteristics (Mincer 1974; Xie et al. 2003) and coded into five categories: zero predicted earnings (reference), and four quartiles of positive earnings. Men who reported active military service at the interview are coded as currently enlisted, and men interviewed in jail/prison are coded as currently incarcerated. All person-years following an observed spell in jail/prison are coded as ever incarcerated; despite missing short prison spells, the NLSY incarceration rates closely match aggregate incarceration trends (Western 2002; Western and Pettit 2000). Regions of residence are Northeast, North Central, West, and South (reference). A dummy variable indicates urban or rural (reference) residence. All time-varying covariates are lagged one year prior to the observation of birth/marital status. To adjust for biennial interviewing starting in 1994, we assign the previous year's reported values (adjusting earnings for inflation) as the missing year's values for the time-varying covariates during noninterview (i.e., odd) years in the 1994–2006 period.[8]

We used multiple imputation (Rubin 1987) to estimate missing time-constant independent variables across the NSFG and NLSY, estimated with the *ice* (imputation by chained equations) command in Stata (Royston 2004). For the NLSY, the proportion of cases with missing data ranges from .02 on maternal employment to .13 on paternal education; for the NSFG, the proportion ranges from to .01 on maternal employment to .11 on age at first sex.[9]

Sample—To examine the transition to first birth, we create person-year (by age) files in which we specify the risk period for a first birth starting at age 17 and follow men in both the NSFG and NLSY samples until the first birth or the end of the observation period. Of the initial sample of 4,928 men in the NSFG, we exclude respondents who had a birth prior to age 17 (n = 42) and those under age 17 at the interview (n = 432). There are no missing data regarding the date of—or marital status at—first birth, so we begin with 4,454 men at risk of a first birth at age 17. We then construct a person-year (by age) file, and men contribute person-years from age 17 until they are censored at first birth or the interview date. This first analytic sample is used to evaluate the (unadjusted) baseline risk of a first birth by age. By imputing missing data on covariates, we can use nearly the entire eligible sample for our multivariate analyses. Our final NSFG analytic sample includes 4,438 men (1,681 with a first birth), representing 43,505 person-years.

We follow a similar strategy for the NLSY. Of the 6,403 men, we exclude men who had a birth prior to 1980 (n = 636)—which allows us to lag the time-varying covariates—and also

[8]In additional analyses (not shown), we estimated models using data only through 1994—hence, not imputing the 1994–2006 odd-numbered years. The results were nearly identical to our main results through 2006, so we present results for the full 1979–2006 period in order to capture a greater proportion of births to this cohort.

[9]We present results using the imputed data in our tables, but we also estimated models using complete cases only, and the results were nearly identical.

those who had a birth prior to age 17 (n = 17). We then drop men whose date of first birth (n = 68) or marital status at first birth (n = 9) cannot be ascertained, resulting in a sample size of 5,673. From this initial analytic sample, we construct a person-year (by age) file, using data from the start of the risk period age through 2006 (when the men were ages 41–48). For men under age 17 in 1980, we start the risk period at age 17. For men ages 17 and older in 1980, we start the risk period at their 1980 age. This method introduces the potential for left-censoring bias, which appears to be minimal (as we will discuss). Men are right-censored after attrition or if interviewed in 2006 with no birth.[10] This initial analytic sample is used to construct (unadjusted) baseline estimates of the hazard of having a first birth by age. As with the NSFG, we impute missing data for our multivariate analyses (but only for time-constant covariates). We exclude person-years with missing time-varying covariates for that year. Our final NLSY analytic sample includes 5,546 cases (3,657 that had a first birth), representing 57,644 person-years.

To evaluate bias due to left-censoring, we also construct a subsample of men who were ages 14–16 at the initial NLSY interview, when few men reported a nonmarital birth (n = 2,021) and compare analyses with our full sample (results not shown). We also select a subsample of men with the same birth years as the NLSY cohort (1957–1964) from the NSFG sample, excluding immigrants that entered the United States after 1979 (n = 898). Although the samples are not identical (the NSFG excludes men in jail/prison and those living on a military base/overseas), analyses for this subgroup provide a close comparison across the two data sets.

Comparing the total samples of men in the NSFG and the NLSY by first-birth status (Table 1, columns 1 and 6), we see that the majority of men in both data sets are of white or “other” race.[11] A much higher proportion of men in the NSFG are foreign-born (16 %) than in the NLSY (5 %), which is not surprising given that the NLSY cohort was drawn before the recent waves of U.S. immigration. Comparing the NSFG men that were born in the same years as the NLSY cohort (but excluding immigrants after 1979, column 5) with the full NLSY sample (column 6), we see that they are similar on most characteristics.

Comparing men who had nonmarital, marital, and no births in the NSFG (columns 2–4) and the NLSY (columns 7–9), we find that the patterns are similar across both data sets. Men who had a nonmarital first birth are disproportionately black and Hispanic, are more likely to have fathers with less than high school education, are less likely to have lived with both parents at age 14, and initiated sexual activity at least a year earlier than men with a marital birth or no birth.

Table 2 describes the time-varying characteristics of men in the NLSY sample (averaged across all person-years). Respondent’s educational attainment is lowest among men whose first birth was nonmarital, and school enrollment is highest among those whose first birth was within marriage. Those who had a marital birth or no birth during the observation

[10]We do not censor at marriage because we are interested in the outcome of first nonmarital birth. Although it is not common, men could be married and divorced and then have a nonmarital birth.

[11]Differences discussed in this section about Tables 1 and 2 are all statistically significant based on multiple-comparison tests or t tests ($p < .05$).

period are somewhat more likely to be employed and have much higher predicted earnings than those who had a nonmarital birth. Men who had a nonmarital birth are more likely to have been incarcerated, but there is no difference in military service.

Turning to the additional background measures from the NLSY, one-half of the men reported (in 1979) that they attended religious services infrequently or never, and family attitudes were moderately traditional. More than one-half of the men in the total sample wanted to obtain at least a college degree, although men who went on to have a nonmarital birth had lower educational aspirations than both other groups. Nearly all men expected to marry during their 20s.

Results

Descriptive Hazard Ratios

Figures 1 and 2 show the unadjusted, weighted hazard ratios for the risk of having a nonmarital first birth, a marital first birth, and any birth (i.e., either of the prior two). Within the NSFG (Fig. 1), the majority of very young births are nonmarital, whereas births occurring in the mid-20s and beyond are predominately within marriage. Specifically, the hazard of having a nonmarital first birth starts quite high around age 17 and rises steadily until about age 23, when it begins a gradual (albeit variable) decline. The hazard of having a marital first birth starts at a lower level but rises quite steadily until around ages 30–32 (the dips reflects variability resulting from small cell sizes at particular ages); it then declines, although with somewhat greater variability, but the overall (smoothed) curve is close to normal. Note that the risk of having a nonmarital and marital birth crosses around age 23—as the nonmarital birth line starts to fall, and the marital birth line rises—and the lines do not converge again until the early 40s. The hazard of any birth follows a relatively normal (although very bumpy) curve.

The hazard ratios of births in the NLSY (Fig. 2) follow a generally similar pattern to the NSFG, but the nonmarital birth hazard has a more gradual peak. Also, the hazard of a marital first birth is much higher at younger ages for the NLSY, which would be expected given that marital childbearing was common for this older cohort, and births (and marriage) happened at younger ages. The hazard of having a nonmarital versus marital birth also crosses at a much younger age than in the NSFG—around age 19. The overall hazard of having a birth is higher in the NLSY because this cohort has mostly completed their fertility by the last survey wave (ages 41–48 in 2006). Among men in the NSFG subsample born in the same years as the NLSY men (Fig. 3), the pattern is roughly similar to the latter, although the quite small cell sizes across ages yield notably more variability across ages.

Multivariate Results—Turning to our multivariate analyses, we first compare results for the total samples of the NSFG and the NLSY that use the same time-invariant background characteristics (columns 1–2 versus 5–6 in Table 3). We find that across both data sets, black men are much more likely to have a nonmarital first birth (three to four times higher risk)—and are much less likely to have a marital first birth—than men of white or “other” racial/ethnic background. Hispanic men are much more likely to have a nonmarital first birth

than white/other men as well—about twice the risk. There is no significant difference between foreign-born and native-born men.

With respect to economic and social characteristics, we find that respondents' father's higher education is associated with a lower risk of having a nonmarital first birth across both data sets, and the pattern is quite linear. Father's education is also associated with a somewhat lower risk of having a marital first birth, although the coefficients do not always reach statistical significance. We find that childhood family structure matters in both data sets; the hazard of nonmarital fatherhood is lower among those who lived with both biological parents during adolescence. In the NLSY (but not the NSFG), men whose mothers worked have a lower risk of having a nonmarital first birth. Religious background is linked to birth outcomes only in the NSFG. In both data sets, men who had sex before age 16 have about twice the risk of having a nonmarital first birth. Those who initiated sexual activity in the prior year have a higher risk of a marital birth (in both data sets) and in the NSFG, a higher risk of a nonmarital birth.

Results from the model using the NSFG subsample (columns 3–4) born in 1957–1964 are mostly similar to results for the NLSY men, although some estimates do not reach statistical significance, given the smaller sample size. Stronger effects of respondents' father's education diminishing the risk of a nonmarital birth are observed in the NLSY. The magnitude of the estimates on respondents' mother's working at age 14 (NLSY) or 15 (NSFG) was similar across both data sets, although only the estimate from the NLSY is statistically significant.

In Table 4, we show results that include the time-varying economic and other characteristics available in the NLSY. As shown in column 1, we find a strong negative relationship between respondents' higher educational attainment and nonmarital fatherhood. As with father's education, there seems to be a linear relationship between respondents' higher education and a lower likelihood of having a nonmarital birth. Also, adding respondents' education reduces the magnitude and significance of the coefficients on father's education (i.e., compared with columns 5 and 6 in Table 3) for having a nonmarital birth, suggesting that the effects of father's education partly operate through sons' own educational attainment. This is less true for having a marital birth. Men's current school enrollment is strongly negatively related to becoming a father—both within and outside of marriage.

Respondents' employment is also salient to birth outcomes but only for marital births. Being employed increases the hazard of a marital birth by 71 %, compared with not being employed. High predicted earnings are also strongly linked to an increased hazard of having a marital birth, particularly being in the two highest earnings quartiles. By contrast, high earnings and the risk of a nonmarital birth are negatively related: men in the top earnings quartile have a significantly lower risk of having a nonmarital first birth.[12]

[12]We also estimated models using respondents' actual earnings (lagged by one year) instead of predicted earnings (results not shown); none of the actual earnings variables were significantly related to nonmarital births (although the direction was also negative), but high actual earnings were similarly significantly and positively related to marital births.

With respect to the other time-varying respondent characteristics, being currently incarcerated significantly reduces the chances of becoming a father. There are no significant relationships between ever being incarcerated and either outcome, although the direction of the association differs between nonmarital births (positive) and marital births (negative). Being in the military significantly lowers the risk of having a nonmarital birth and increases the risk of a marital birth. Urban residence is linked to a lower likelihood of having a marital first birth.

Given the strong relationship between educational attainment/enrollment and nonmarital fatherhood, we were interested in whether expectations and attitudes measured before any of the men had become fathers could account for this relationship (Model 2). Overall, we found that including these variables does not notably diminish the importance of the educational variables for nonmarital fatherhood. There are few direct and significant associations, except that religious attendance decreases the risk of a nonmarital birth and increases the risk of a marital birth; also, older expected age at marriage decreases the chances of a marital birth (but does not affect the likelihood of nonmarital births).[13]

Finally, to provide more intuitive information about the differences in the hazard of having a nonmarital (and marital) first birth by race/ethnicity and education—two of the primary predictors of nonmarital fatherhood—we estimate predicted cumulative first-birth probabilities to age 40 by subgroup,[14] shown in Table 5, based on Model 2 in Table 4 (holding all covariates. at their means). These estimates show that by age 40, men overall in this cohort had a .31 probability of having a nonmarital first birth. Differences by race are stark: the probability of having a nonmarital birth ranges from .15 for white men to .34 for Hispanic men to .59 for black men. There is less variation by race in the probability of having a marital first birth, which ranges from .45 for black men to .68–.69 for white and Hispanic men.

A clear gradient by education emerges in the probability of having a nonmarital first birth, from .12 for men with a college degree to .50 for men with less than a high school diploma. By contrast, there is less of a gradient by education for marital first births, with probabilities of .60–.68 among the full sample across education groups.[15] Within each racial/ethnic group there is also a strong educational gradient for nonmarital fatherhood, although the levels vary, and black men always have the highest probability of nonmarital childbearing. The most striking differences are observed at the intersection of race and education: the probability that a college-educated black man will have a nonmarital birth (.32) is higher than that for a white man who dropped out of high school (.28). Also, the probability that a black college-educated man will have a marital birth (.51) is lower than the probability for all whites and Hispanics at any level of education (.64–.72).

[13]Our results (not shown) for the age 14–16 NLSY subsample are mostly similar to the total NLSY sample, suggesting that left-censoring is not a major source of bias in our analyses; some coefficients in the subsample do not reach statistical significance, although the magnitudes are similar. The most notable substantive difference is that ever being incarcerated is associated with a diminished chance of a marital birth only in the subsample.

[14]We include only births to age 40, given that few births occur after that age, and the estimates thereafter become unreliable because of small cell sizes

[15]Similar patterns are observed when the respondent's father's education is used instead of respondent's education.

To test the extent to which the social and economic factors were differentially associated with nonmarital fatherhood by race/ethnicity, we also ran models separately for white, black, and Hispanic fathers, and then tested for significant interactions in a pooled model (using Chow tests; results not shown). Overall, we found very few significant differences across racial/ethnic groups. In fact, how educational attainment, employment, and earnings are linked to the likelihood of nonmarital or marital fatherhood is statistically the same across all race groups. A key difference, however, is that school enrollment has a stronger negative relationship with (both nonmarital and marital) childbearing for whites. Also, military service has a stronger positive relationship with marital births for blacks than for whites. Additionally, although there are no significant differences by race in how current incarceration predicts (a lower likelihood of) nonmarital fatherhood, ever having been incarcerated predicts a higher likelihood of nonmarital fathering for whites but not for blacks or Hispanics (no association).

In results not shown, we also examined possible changes in the predictors of nonmarital fatherhood over time by dividing the NSFG sample into three cohorts of approximately 10 birth years (1957–1964, 1965–1974, and 1975–1988). This supplemental analysis was motivated by the secular increase in average age at first birth among men and women over the past 30 years. (We focused on the oldest and middle cohorts because the youngest cohort has not had sufficient time to have births.) We find that the average age at first birth increased by 1 year across the oldest and middle cohorts, but cohort interactions (with Chow tests) revealed essentially no significant differences in the effects of the predictors across these cohorts.

We also evaluated the extent to which the independent variables had different effects across different ages for the NLSY men (results not shown) by dividing the data into age groups of 17–22, 23–30, and 31 and older. There were very few differences in covariate effects by age. For nonmarital fatherhood, school enrollment had a more negative effect at ages 17–22 than at ages 22–30, and high earnings had a greater negative effect for men younger than age 30 than for men ages 31 and older. For marital births, higher educational attainment and school enrollment had a more significant negative effect at the youngest ages; by contrast, high earnings and military service had bigger positive effects at ages 23–30 than at ages 17–22.

Discussion

In this article, we present estimates of the antecedents of nonmarital fatherhood for two contemporary national samples of U.S. men. We extend the literature that has mostly focused on young/early/teen childbearing among men to consider the phenomenon of nonmarital fatherhood more broadly. To the extent that nonmarital fatherhood has consequences for men’s future socioeconomic trajectories and well-being (Nock 1998) and is linked to disadvantaged outcomes for children (McLanahan 2011), this is an important topic that has implications for both research and public policy.

Drawing on economic and social theories, we expected that men with greater economic prospects and/or men with more traditional social values would be less likely to have a first birth outside of marriage. Overall, we find the strongest support for the role of economic

factors (particularly education) as key predictors of nonmarital fatherhood across both the NSFG and the NLSY; this is consistent with prior literature about women's nonmarital childbearing (e.g., Aassve 2003; Musick 2002; Upchurch et al. 2002) and about men's young fatherhood (e.g., Lerman 1993; Pears et al. 2005). The respondent's father's education is shown to have a rather linear relationship with the risk of men's nonmarital birth: each higher level of education is associated with an even lower risk of having a child outside of marriage. Yet, the effect of parental education appears to operate largely through sons' own educational attainment, consistent with a long line of literature on status attainment (Blau and Duncan 1967).

The respondent's educational attainment is a very strong (negative) predictor of having a nonmarital first birth (but is less strongly associated with having a marital birth), and current school enrollment is a significant deterrent to nonmarital (and marital) childbearing. Also, very high predicted earnings are negatively related to lower nonmarital childbearing. These findings provide support for economic theories about the opportunity cost of nonmarital childbearing (Willis 1999). By contrast, being employed is not related to the chance of a nonmarital first birth but does strongly predict childbearing within marriage; high predicted earnings are also strongly and positively related to having a first birth within marriage.

The fact that education remains a strong (negative) predictor of nonmarital fatherhood—even when predicted earnings and employment are controlled—suggests that education is not simply a proxy for earnings capacity but reflects a different set of values and preferences that discourage childbearing outside of marriage; these values and preferences either could be caused by education or were what selected individuals into educational attainment in the first place (or both). Those with higher education have greater incentive to avoid a nonmarital birth because they have more to lose in terms of their socioeconomic attainment, and they may also have higher health literacy and efficacy that enables them to use contraceptives effectively (i.e., to successfully avoid unintended fertility) (Edin et al. 2007; Musick et al. 2010). Because most marital fertility is intended, economic capacities may indeed be a strong, positive predictor of childbearing within marriage, and traditional economic theories work well: individuals plan to have children when they have sufficient resources with which to raise them. By contrast, nonmarital fertility (or at least unintended nonmarital fertility) is more driven by the lack of information, capabilities, or capacities that would otherwise prevent childbearing and is, hence, less a function of positive economic resources than classic theories of fertility would suggest.[16]

In an effort to account for selection factors that may differentiate those who obtain higher education, we estimate models that include measures from young adulthood about religiosity, family attitudes, educational and occupational aspirations, and expected age at marriage. However, none of these factors notably reduce the effect of education on—nor are significantly related to—nonmarital fatherhood. Consistent with the opportunity cost argument (Willis 1999), we suspect that education itself may alter individuals' tastes, values, and career goals, promoting greater vigilance in avoiding a nonmarital birth, but we cannot

[16]We thank an anonymous reviewer for suggesting these useful points.

test that hypothesis here. Understanding how educational attainment affects nonmarital fertility for men would be a useful topic for future research.

With respect to social factors that influence nonmarital childbearing, our findings about family structure and religiosity are quite mixed across the two data sets, which is in accord with research that also finds inconsistent evidence of such variables on teen fatherhood (Hanson et al. 1989). Current incarceration and being in the military are both negatively related to nonmarital childbearing, providing evidence of the important role of these (very different) social institutions in shaping family formation patterns. Young age at sexual initiation is a strong predictor of nonmarital fatherhood, consistent with work about the predictors of early parenthood (Hofferth and Goldscheider 2010). Across both data sets, men who had sex before age 16 had about twice the risk of having a nonmarital first birth. This suggests that getting teens to delay sexual activity and hence to reduce their exposure to the risk of fertility may be a useful programmatic approach to reducing nonmarital fatherhood, consistent with some recent experimental evidence (Jemmott et al. 2010).

Race/ethnicity is shown to be an important characteristic related to nonmarital fatherhood: compared with men of white or “other” race, black men have three to four times higher risk, and Hispanic men have about twice the risk, of having a nonmarital birth. The estimates for black men become even larger when time-varying respondent characteristics are controlled (in the NLSY sample), including education, employment, incarceration, and military status. This indicates that the black-white difference in nonmarital fertility is not only (or primarily) due to the low SES of black men, a finding consistent with prior literature (Hanson et al. 1989; Thornberry et al. 1997), although SES may indeed be part of the story (Wilson 1987). Instead, these results underscore the distinctive family patterns among black Americans, including greater separation between marriage and childbearing and greater acceptance of family forms; in other words, the “package deal” of parent and partner roles occurring within the same union is less common (Mincy and Pouncy 1999, 2007; Tach et al. 2010).

We acknowledge several limitations of this research. First, as with all survey data, one must be aware of concerns about response rates, attrition, and missing data. Further, for men (as noted earlier), underreporting of births is an additional concern. The response rate for men in the 2002 NSFG was 78 %; although higher than many surveys of men, this still excludes more than one-fifth of men ages 15–44. We expect that the omitted group includes some of the least-advantaged men, who are also more likely to have had a nonmarital birth. Thus, as noted earlier, the NSFG figures may underestimate the true number of men who have fathered (nonmarital) children. The fact that the NSFG numbers appear to match the vital statistics data except for ages 15–19 is encouraging (Martinez et al. 2006), and we partially avoid underreporting during these ages by starting our observation period at age 17. In the NLSY, response rates for such a lengthy panel have been very good. As of the 2006 survey, fully one-half of the men who began in 1979 had completed all 22 interviews (CHRR 2006); at the same time, a large number of men are missing by the last survey. Within both surveys, item-missing data are rare, and we used multiple imputation to fill in missing time-invariant covariates; hence, we do not believe that missing data are notably biasing our results.

Second, given the data available—and particularly across both data sets—we are not able to include all variables that might be salient to men's nonmarital fatherhood. In particular, we would have liked to include additional social factors—such as parents' attitudes, values, own family formation behavior, and parental involvement—as well as respondent's sociopsychological well-being and behaviors, contraceptive behavior, and intendedness toward becoming a father. Future research with more nuanced data in these domains could usefully examine these factors and could also consider how nonmarital births that occur within cohabitation may differ from those outside cohabitation.

In sum, this research sheds new light on the processes by which men become unmarried fathers, focusing on key economic and social factors. Despite some limitations, our findings are quite consistent across the two data sets, providing greater confidence in the results. Given the high and rising fraction of births outside of marriage, the instability and low economic resources in nonmarital unions, and the importance of fathers for children's development and well-being, this research suggests that nonmarital fatherhood may be an important aspect of growing U.S. inequality and stratification both within and across generations.

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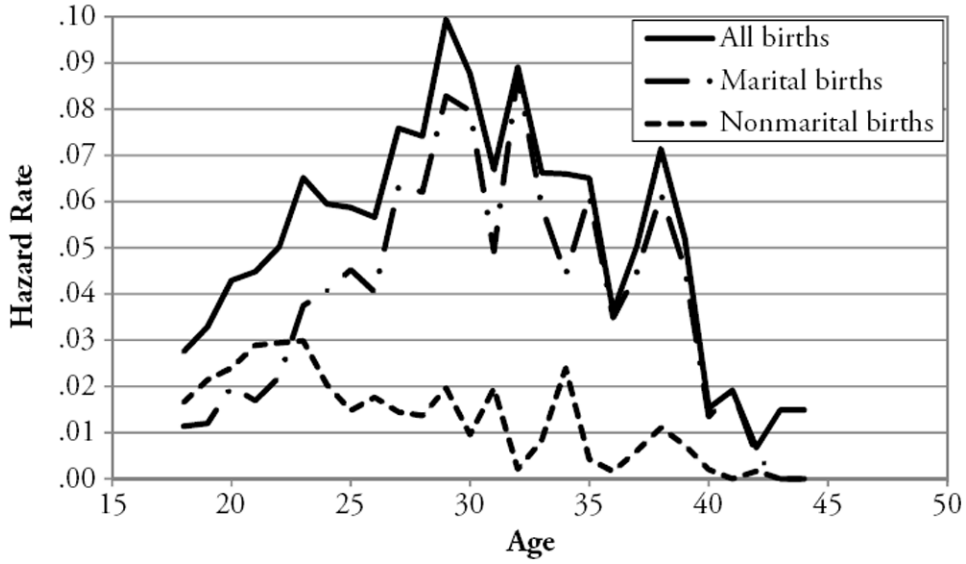

Fig. 1.
NSFG total sample: Risk of first-birth hazard function (weighted)

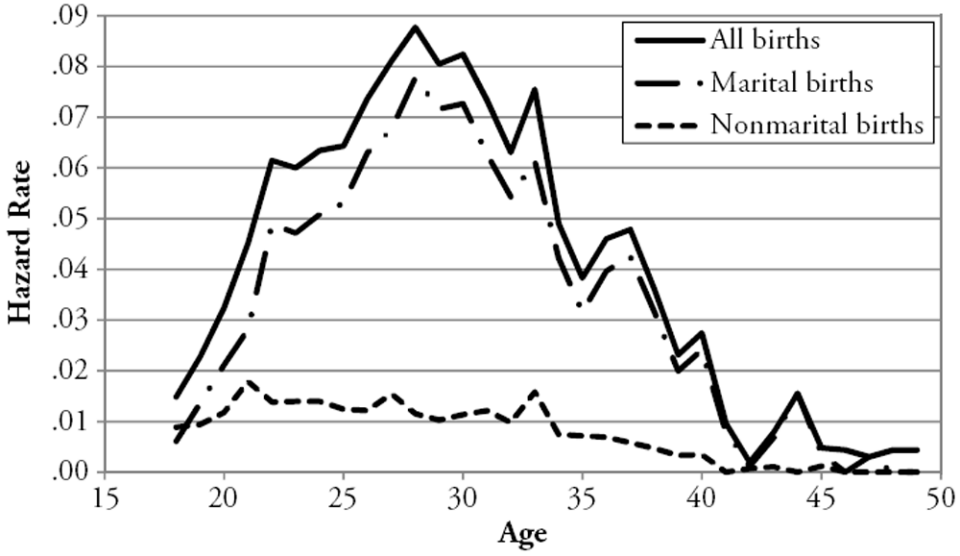

Fig. 2.
NLSY total sample: Risk of first-birth hazard function (weighted)

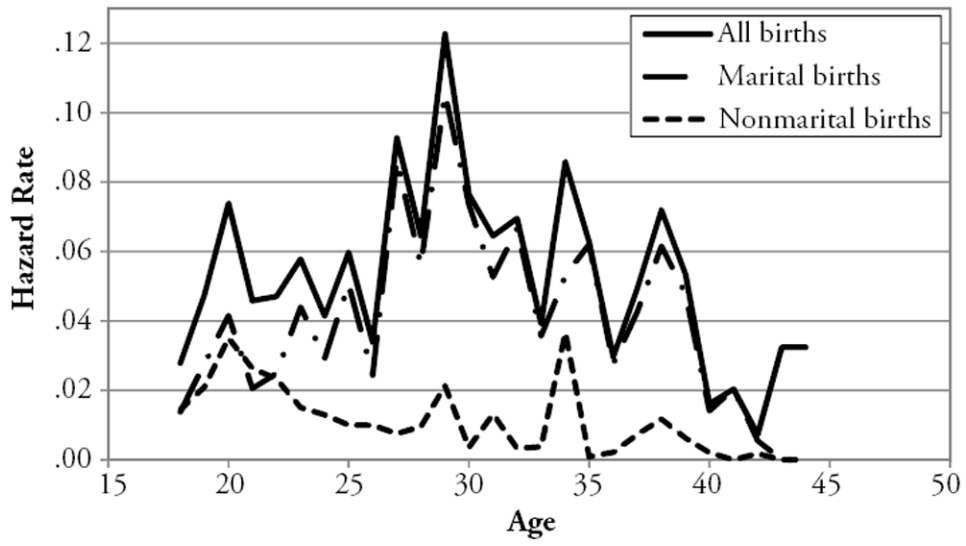

Fig. 3.
NSFG subsample: Risk of first-birth hazard function (weighted)

Table 1

Background characteristics for men in the NSFG and NLSY

	NSFG Full Sample				NSFG Comparable to NLSY Cohort (5)	NLSY Full Sample			
	Total (1)	Nonmarital Birth (2)	Marital Birth (3)	No Birth (4)		Total (6)	Nonmarital Birth (7)	Marital Birth (8)	NoBirth (9)
	M or %	*M* or %	*M* or %	*M* or %	*M* or %	*M* or %	*M* or %	*M* or %	*M* or %
Race									
White, non-Hispanic	72.0	49.5	78.7	75.6	80.9	81.6	51.1	88.1	84.0
Black, non-Hispanic	11.4	23.8	5.8	10.7	11.2	12.4	39.4	6.1	11.0
Hispanic	16.5	26.6	15.5	13.7	7.9	6.1	9.5	5.8	5.0
Foreign-born	15.9	20.4	16.8	13.7	4.7	4.7	4.3	4.7	4.8
Father's Education									
Less than high school	24.4	42.5	25.8	17.5	27.7	31.5	46.8	29.4	29.0
High school diploma	30.5	32.5	31.8	29.1	32.0	36.0	33.5	35.9	37.1
Some college	18.6	14.5	17.9	20.4	16.2	12.2	11.5	11.9	12.9
Bachelor's degree or higher	26.5	10.5	24.6	33.1	24.1	20.4	8.2	22.8	21.1
Mother Has More Education Than Father	21.2	23.2	21.2	20.6	21.6	18.7	20.5	17.9	19.5
Lived With Both Parents at Age 14	74.6	68.3	77.8	74.8	78.4	75.8	61.3	80.4	74.4
Mother Worked at Age 14/15	66.8	65.0	58.7	72.6	56.1	51.8	52.4	51.7	51.8
Religion Raised									
Protestant	49.1	48.6	52.4	47.1	54.6	59.3	67.4	58.8	56.7
Catholic	35.7	42.5	33.7	34.6	32.1	33.3	25.2	34.5	34.8
Other	7.2	3.9	6.7	8.6	6.3	2.9	.9	3.3	3.1
None	8.0	5.0	7.2	9.6	7.0	4.5	6.5	3.3	5.4
Age at First Sex (mean)	17.1	15.9	17.6	17.2	17.4	16.5	15.1	16.8	16.7
(SD)	(3.6)	(3.4)	(3.8)	(3.5)	(3.8)	(2.5)	(2.4)	(2.4)	(2.5)
Never Had Sex/Missing	8.7	.0	.0	17.2	2.0	6.0	1.2	5.2	9.7
First Sex Before Age 16	29.0	46.1	27.7	23.8	25.8	34.2	56.0	28.6	34.1
Unweighted Number of Cases (*n*)	4,438	764	917	2,757	898	5,546	1,100	2,557	1,889

Notes: Values are percentages unless otherwise indicated. All figures are weighted by national sampling weights. SD = standard deviation.

Table 2

Background characteristics for men in the NLSY

	NLSY Full Sample			
	Total[a]	Nonmarital Birth	Marital Birth	No Birth
	M or %	*M* or %	*M* or %	*M* or %
Time-Varying Characteristics				
Respondent's education (all years)				
Less than high school	18.7	41.6	17.7	15.7
High school diploma	38.5	40.2	36.1	40.1
Some college	22.9	14.8	23.8	23.4
Bachelor's degree or higher	20.0	3.4	22.5	20.7
Enrolled in school (all years)	24.1	25.5	32.8	17.0
Employed (all years)	78.9	67.5	80.6	79.5
Predicted earnings (all years)				
None	11.0	28.7	10.2	8.7
Quartile 1 (M: $9,927; SD: $8,933)	17.5	21.6	13.9	19.6
Quartile 2 (M: $22,126; SD: $11,581)	19.5	20.5	17.5	20.9
Quartile 3 (M: $31,674; SD: $12,219)	22.3	17.8	22.4	22.9
Quartile 4 (M: $49,428; SD: $15,991)	29.8	11.5	36.0	27.9
Incarceration				
Currently	.8	2.4	.3	1.0
Ever	2.4	4.2	.7	3.6
Military	3.4	4.3	4.3	2.6
Region				
Northeast	21.6	18.6	21.1	22.5
North Central	28.7	27.5	29.5	28.1
South	30.7	36.3	30.8	29.8
West	18.9	17.4	18.4	19.5
Urban residence	81.7	82.6	82.5	80.9
Unweighted number of person-years	57,644	6,852	20,496	30,296
Additional Background Characteristics				

	NLSY Full Sample			
	Total[a]	Nonmarital Birth	Marital Birth	No Birth
	M or %	*M* or %	*M* or %	*M* or %
Frequency of religious attendance (1979)				
Never	22.3	26.6	19.4	25.5
Infrequently	28.0	28.3	27.6	28.4
Once per month	9.0	10.1	8.8	8.9
2–3 times per month	11.1	11.4	10.9	11.4
Once per week	21.3	17.7	24.0	18.5
More than once per week	8.2	6.1	9.3	7.4
Traditional family attitudes (mean, range = 1–4)	2.3	2.4	2.3	2.3
(SD)	(.5)	(.5)	(.5)	(.5)
Highest grade would like to complete (1979)				
Less than high school	1.4	3.2	.9	1.5
High school diploma	34.4	49.5	32.2	31.4
Some college	12.0	11.3	13.2	10.2
Bachelor's degree or higher	52.2	36.1	53.7	56.9
Expected ability to achieve desired occupation (1979)				
Poor	4.5	5.0	4.1	5.0
Fair	22.6	26.6	21.1	23.2
Good	48.3	45.5	50.0	46.9
Excellent	24.6	22.9	24.9	24.9
Expected age of marriage (1979)				
Less than 20 years	2.5	3.8	2.5	1.7
20–24 years	42.1	37.9	46.6	36.4
25–29 years	42.0	39.0	41.5	44.2
30 or older	10.3	13.4	7.4	13.9
Never	3.2	6.0	2.0	3.8
Unweighted number of cases (*n*)	5,546	1,100	2,557	1,889

Notes: Values are percentages unless otherwise indicated. All figures are weighted by national sampling weights. SD = standard deviation.

[a]Total for the time-varying characteristics is the person-year average.

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Table 3

Odds ratios from discrete-time hazard models for the risk of a first birth for men in the NSFG and NLSY

	NSFG Full Sample		NSFG Comparable to NLSY Cohort		NLSY Full Sample	
Background Characteristics	**Nonmarital (1)**	**Marital (2)**	**Nonmarital (3)**	**Marital (4)**	**Nonmarital (5)**	**Marital (6)**
Race (ref. =white/other)						
Black, non-Hispanic	2.78 ***	0.54 ***	3.20 ***	0.55 **	4.01 ***	0.53 ***
Hispanic	2.23 ***	1.28 *	1.85 *	1.29	2.12 ***	1.01
Foreign-born	0.91	1.20 †	0.71	1.84 **	0.91	1.08
Father's Education (ref. = less than high school)						
High school diploma	0.81 *	0.94	0.85	1.02	0.75 ***	0.88 *
Some college	0.63 **	0.83	0.89	1.02	0.70 *	0.79 **
Bachelor's degree or higher	0.42 ***	0.64 ***	0.44 **	0.85	0.36 ***	0.81 **
Mother Has More Education Than Father	0.85	0.93	0.62 *	1.10	0.91	0.89 †
Lived With Both Parents at Age 14	0.68 ***	1.01	0.60 **	1.04	0.86 *	1.09 †
Mother Worked at Age 14/15	0.99	0.91	0.82	0.95	0.80 **	1.01
Religion Raised (ref. = Protestant)						
Catholic	1.04	0.78 **	1.18	0.82	1.01	0.90 *
Other	0.55 **	0.63 **	0.89	0.84	0.78	0.82
None	0.77	0.71 *	0.75	0.97	1.12	0.72 **
Initiated Sexual Activity Before Age 16	2.09 ***	1.34 ***	2.00 ***	1.21	1.69 ***	0.89 *
Initiated Sexual Activity During the Previous Year	1.49 *	2.67 ***	1.90 †	2.32 **	0.70	1.40 *
Number of Cases (*n*)	43,505		14,287		57,688	

Notes: Exponentiated coefficients. All models include a set of time-varying dummy variables for single years of age.

† $p < .10$;

* $p < .05$;

** $p < .01$;

*** $p < .001$

Table 4

Odds ratios from discrete-time hazard models for the risk of a first birth for men in the NLSY

	NLSY Full Sample			
	Model 1		Model 2	
	Nonmarital (1)	Marital (2)	Nonmarital (3)	Marital (4)
Background Characteristics				
Race (ref. = white/other)				
Black, non-Hispanic	4.30 ***	0.62 ***	4.64 ***	0.66 ***
Hispanic	1.98 ***	1.11	2.01 ***	1.10
Foreign-born	0.90	1.11	0.91	1.12
Father's education (ref. = less than high school)				
High school diploma	0.86 †	0.84 **	0.88	0.85 **
Some college	0.93	0.76 **	0.96	0.77 **
Bachelor's degree or higher	0.57 **	0.78 **	0.61 **	0.82 *
Mother has more education than father	1.02	0.86 *	1.06	0.87 *
Lived with both parents at age 14	0.95	1.02	0.96	1.01
Mother worked at age 14/15	0.82 **	0.99	0.83 **	1.00
Religion raised (ref. = Protestant)				
Catholic	1.00	0.97	1.01	0.98
Other	0.84	0.97	0.89	1.08
None	0.96	0.74 *	0.89	0.82
Initiated sexual activity before age 16	1.59 ***	0.93	1.58 ***	0.94
Initiated sexual activity during the previous year	0.71	1.49 **	0.72	1.47 **
Time-Varying Characteristics				
Respondent's education (ref. = less than high school)				
High school diploma	0.74 ***	0.90	0.79 **	0.91
Some college	0.59 ***	0.80 *	0.68 **	0.84 †
Bachelor's degree or higher	0.27 ***	0.98	0.32 ***	1.03
Enrolled in school	0.42 ***	0.64 ***	0.45 ***	0.66 ***
Employed	1.03	1.71 ***	1.04	1.67 ***
Predicted earnings by age (ref. = none)				
Quartile 1	0.84 †	1.02	0.86	1.01
Quartile 2	0.88	1.16	0.90	1.19 †
Quartile 3	0.95	1.43 ***	0.97	1.48 ***
Quartile 4	0.72 *	1.73 ***	0.74 †	1.81 ***
Incarceration				
Current	0.35 **	0.41 *	0.34 ***	0.41 *
Ever	1.21	0.82	1.15	0.77

	NLSY Full Sample			
	Model 1		Model 2	
	Nonmarital (1)	Marital (2)	Nonmarital (3)	Marital (4)
Military	0.51 ***	1.92 ***	0.52 ***	2.00 ***
Region (ref. = South)				
Northeast	1.06	0.72 ***	1.05	0.73 ***
North Central	1.17 †	0.92	1.18 †	0.91 †
West	1.35 **	0.87 *	1.39 **	0.88 *
Urban residence	1.02	0.80 ***	1.02	0.82 ***
Additional Characteristics (NLSY only)				
Frequency of religious attendance 1979 (ref. = never)				
Infrequently			1.06	1.13 †
Once per month			0.99	1.13
2–3 times a month			0.76 *	1.04
Once per week			0.92	1.16 *
More than once per week			0.70 *	1.26 **
Traditional family attitudes			1.12 †	1.05
Highest grade would like to complete 1979 (ref. = less than high school)				
High school diploma			1.03	1.12
Some college			0.91	1.21
Bachelor's degree or higher			0.80	1.00
Expected ability to achieve desired occupation 1979 (ref. = poor)				
Fair			1.06	1.09
Good			1.13	1.06
Excellent			1.31	1.08
Expected age of marriage 1979 (ref. = less than 20 years)				
20–24 years			0.87	0.72 *
25–29 years			0.80	0.57 ***
30 or older			0.85	0.49 ***
Never			0.86	0.45 ***
Number of Cases (*n*)	57,688		57,688	

Notes: Exponentiated coefficients. All models include a set of time-varying dummy variables for single years of age.

† $p < .10$;

* $p < .05$;

** $p < .01$;

*** $p < .001$

Table 5

Predicted cumulative birth probabilities to age 40 by race/ethnicity and education among men in the NLSY79 full sample (N = 5,546)

	Nonmarital Birth				Marital Birth			
	Total	**White**	**Black**	**Hispanic**	**Total**	**White**	**Black**	**Hispanic**
Total	.31	.15	.59	.34	.64	.68	.45	.69
Respondent's Education								
Less than high school	.50	.28	.75	.51	.62	.69	.42	.65
High school diploma	.37	.19	.64	.37	.63	.68	.44	.69
Some college	.28	.13	.52	.30	.60	.64	.42	.66
Bachelor's degree or higher	.12	.06	.32	.15	.68	.70	.51	.72

Notes: Race/ethnicity-by-education cell sizes range from 116 (Hispanic bachelor's degree or higher) to 1,499 (white high school diploma). Predicted probabilities based on estimates from Model 2 in Table 4.