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**“Nonmarital Childbearing and Socioeconomic Trajectories for Men and Women”**

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## ABSTRACT

As the proportion of nonmarital births continues to rise, understanding how nonmarital parenthood fits into the life course is increasingly important. Early research on women links unwed motherhood to a range of adverse economic outcomes, but far less is known about how unmarried fatherhood impacts men's long-term socioeconomic trajectories. Due to these gaps, it is unclear how unmarried fatherhood alters men's life course and if unmarried parenthood impacts men's lives differently than women's. Using data from the National Longitudinal Survey of Youth 1979 cohort, we use a propensity score matching model to show the extent to which potentially adverse outcomes occur in response to nonmarital parenthood, and how the effects vary by gender. This study will extend prior research by providing more detailed information about the varying effects of having a child outside of marriage on contemporary men's and women's socioeconomic trajectories.

## INTRODUCTION

As the proportion of births to unmarried parents continues to rise, understanding how nonmarital parenthood fits into and influences the life course has become increasingly important. An extensive literature has shown that unwed, generally teen, motherhood is linked to a range of adverse economic outcomes for women (Geronimus and Korenman 1992; Hoffman, Foster and Furstenberg 1993; Maynard 1997). However, recent scholarship has suggested that the early findings were exaggerated by not adequately accounting for selection, and that in the long-run, many unmarried mothers “recover” from an early birth (Furstenberg 2003; Hotz, McElroy and Sanders 2005).

Far less is known about how unmarried fatherhood impacts men’s life course. The nascent literature suggests that unwed (and typically young) fatherhood is associated with subsequent socioeconomic disadvantage: unwed/young fathers complete fewer years of school, are more likely to be unemployed, work fewer hours, have lower earnings, and are more likely to be poor than men who do not have children outside of marriage, even net of selection into unwed fatherhood (Nock 1998; Sigle-Rushton 2005). However, this research has primarily examined outcomes in early adulthood, potentially before men had time to “recover” from early fathering. Thus, it is unknown how nonmarital fatherhood may affect men’s longer-term socioeconomic trajectories and how the effects of nonmarital parenthood may vary by gender.

In this paper, we provide new, preliminary evidence about how nonmarital childbearing is associated with socioeconomic outcomes for men and women in mid-life by comparing individuals with similar characteristics (except for the birth). Given the growing prevalence of nonmarital births—and the importance of socioeconomic attainment for the wellbeing of adults

and for the future success of their children, this topic has important implications for children's wellbeing and for broader societal inequality.

#### CONCEPTUAL FRAMEWORK AND EMPIRICAL RESEARCH

The life course perspective draws our attention to both social context and developmental stage (or age) as critical to understanding the antecedents and consequences of events (Elder 1994). Unmarried births are typically unplanned, and unmarried mothers and fathers tend to be younger than their married counterparts (see Smock and Greenland 2010 for a review of recent trends). The experience of a nonmarital birth may disrupt socioeconomic trajectories by hastening school drop-out and an earlier transition to the labor market. These *off-time* transitions could then lead to negative socioeconomic consequences for both men and women, with individuals unable to attain the economic status they would have attained in the absence of the birth. Becoming an unmarried parent also may impact subsequent union formation, especially the transition to marriage (Upchurch, Lillard and Panis 2001). Marriage is shown to have socioeconomic benefits for men and women (Waite and Gallagher 2000), so if having a nonmarital birth diminishes future marriage prospects, then negative socioeconomic consequences of a nonmarital birth could be operating via lower marriage probabilities (Nock 1998).

While one might think that having a child—regardless of marital context—is linked to diminished economic prospects (given the time and energy involved with child care), this appears not to be the case for marital births, at least for men. Having a child within marriage is linked to *improved* economic prospects for fathers: Men who become a father within marriage are shown to work harder, earn more, and experience favorable employer 'discrimination' (i.e.,

employers assuming married fathers are hardworking and motivated), while unmarried men do not receive this fatherhood ‘premium’ (Killewald 2013) and may experience unfavorable discrimination (i.e., employers assuming unmarried fathers are irresponsible) (Percheski and Wildeman 2008). For women, motherhood is generally shown to diminish earnings (particularly as women leave the labor force or reduce their work hours to care for their child), but there is conflicting evidence about whether there is a higher “motherhood penalty” for the wages of married women than for unmarried women (Budig and England 2001; Budig and Hodges 2010) or whether there is no difference by marital status (Killewald and Gough Forthcoming; Wilde, Batchelder and Ellwood 2010).

Certainly, the experience of childbearing and childrearing varies notably by gender; hence, we conduct our analyses separately. Women typically take more time off of work after having a baby and are more involved in day-to-day childrearing than men; thus, they may experience greater time and economic consequences of childbearing than men. Among fathers, unmarried men are more likely to live apart from their children within a few years after the child’s birth than married fathers, so parenthood may be less salient or consequential for these men. In other words, unmarried men may experience fewer economic costs of fatherhood because they can more easily avoid parenting responsibilities.

The consequences of nonmarital childbearing could also vary by race/ethnicity within gender. There is greater acceptance and a higher prevalence of nonmarital childbearing among African Americans as compared to other race/ethnic groups (Cherlin et al. 2008; Edin and Kefalas 2005), and black men and women are less likely to marry. Unmarried family formation then, might be more normative among blacks, and thus they may have ‘less to lose’ (with respect to the social stigma and/or economic costs of unmarried parenthood), which diminishes the

consequences of having an unwed birth. (We will examine race/ethnic differences in the next version of this paper.)

Marriage continues to move toward being a “capstone” experience, signaling significant accumulation of financial and relationship success (Cherlin 2009). As part of this process, marriage and childbearing are increasingly separated - those who delay parenthood until after marriage are a more advantaged group (Cherlin 2011; Kennedy and Bumpass 2008). Thus, it is important to note that the negative perceived economic consequences of unmarried parenthood may be in part or entirely due to selection: men and women who become unmarried parents are typically more disadvantaged than married parents prior to the transition to parenthood. Indeed, evidence about a recent urban birth cohort suggests that marital status at birth strongly differentiates the socio-demographic and economic characteristics of parents; married parents are older, have more education, higher earnings, and better mental health (McLanahan 2011). Given the already bleak socioeconomic prospects of unmarried parents, a birth may have little additional consequence. Properly accounting for social selection is an important concern and challenge in this research area.

### *Empirical research*

Most of the empirical evidence about the socioeconomic consequences of unmarried childbearing comes from studies of women’s teenage childbearing, which mostly occurs outside of marriage. While the association between teen childbearing and a range of adverse outcomes for mothers and children has been well-documented (Brown and Eisenberg 1995; Geronimus and Korenman 1992; Haveman, Wolfe and Peterson 1997; Hoffman et al. 1993; Klepinger, Lundberg and Plotnick 1995; Levine, Pollack and Comfort 2001; Maynard 1997; Moore, Morrison and Greene 1997), more recent research suggests that early estimates of the consequences were

exaggerated because they did not account for preexisting characteristics correlated with both teen motherhood and disadvantageous outcomes (Furstenberg 2003). A consensus has emerged about the importance of non-random selection into teen motherhood (Brien, Loya and Pepper 2002; Holmlund 2005), as teenage mothers are more likely to come from disadvantaged backgrounds themselves (Furstenberg 2003). Still, even with more advanced methods that adjust for selection, there are disparate perspectives about whether teenage childbearing has negligible/inconsistent consequences (Brien et al. 2002; Geronimus, Korenman and Hillemeier 1994; Hotz et al. 2005) or significant negative effects (e.g., Hoffman 1998; Holmlund 2005; Levine et al. 2001) for maternal and child outcomes, net of background factors. Further, there is limited evidence regarding the longer-term economic consequences of unmarried motherhood among older (non-teenage) mothers. Much of the work in this area focuses on short-term earnings and labor market responses to motherhood (e.g., Budig and England 2001; Budig and Hodges 2010; Killewald and Gough 2012; Wilde et al. 2010), but the long-term economic prospects for (especially unwed) mothers are less clear.

Building on the evidence from women, empirical work on men that also includes advanced methods to account for selection tends to focus on teenage and young fathers. In general, young fathers have completed fewer years of schooling and have lower earnings than men who delayed having children (Brien and Willis 1997; Fletcher and Wolfe 2012). In the short-term, young fathers are more likely to be employed (Fletcher and Wolfe 2012), but the advantage does not last – by the late 20s, young fathers are working fewer hours than other men. Similarly, young fathers (in Britain) are more likely to be receiving subsidized housing and/or other means-tested benefits (Sigle-Rushton 2005). There is also some empirical evidence that

among young fathers, being married at the time of the birth mitigates some of the negative consequences (Brien and Willis 1997; Sigle-Rushton 2005).

Turning to findings related to the consequences of unmarried fatherhood at all ages, Astone and colleagues (2010) and Percheski and Wildeman (2008) find that unmarried—but not married—fathers actually increase their work effort in response to fatherhood, and Dew and Eggebeen (2010) find that all men increase their asset accumulation following the transition to fatherhood. Ethnographic research also suggests that having a child can be a transformative event for men by diminishing risk-taking behaviors and increasing their sense of responsibility (Nelson, Clampet-Lundquist and Edin 2002). In this case then, becoming an unmarried father may lead men to try and improve their human capital formation. In contrast to these positive initial responses to fatherhood, Nock (1998) finds that men who had a premarital birth had significantly lower socioeconomic attainment than other men (when measured at ages 28-35). In fact, as noted earlier, marital fatherhood appears to have positive effects on men's socioeconomic attainment (Nock 1998), and married men earn higher wages after having a child, but there is no evidence that unmarried men reap a similar benefit (Killewald 2013). However, these studies do not account for differential selection into marriage and marital fatherhood.

As with nonmarital motherhood, non-random selection into nonmarital fatherhood may be driving the gaps in socioeconomic outcomes between men with unmarried births and those without. Young men with bleak economic prospects – defined by their socioeconomic background during childhood or their own educational and economic attainment during young adulthood – have a higher likelihood of becoming unwed fathers than men with more socioeconomic advantages (Carlson, VanOrman and Pilkauskas Forthcoming; Hanson, Morrison and Ginsburg 1989; Hynes et al. 2008; Ku, Sonenstein and Pleck 1993; Lerman 1993; Marsiglio

1987; Pears et al. 2005; Thornberry, Smith and Howard 1997; Wilson 1987). The empirical evidence on young fatherhood (and motherhood) suggests that selection accounts for much of the observed gaps between those who do and do not have an early birth; however, these models tend only to take into account fixed socioeconomic and demographic background characteristics and some measures of child and adolescent behaviors. Recent work finds that in addition to these background characteristics, the unfolding process of human capital and economic accumulation during young adulthood impacts the transition into unmarried or married parenthood (Carlson et al. forthcoming).

In this paper, we extend the literature by providing new evidence about how nonmarital childbearing is associated with socioeconomic outcomes for men and women at mid-life, using analytic techniques designed to account for pre-existing differences between those who do—versus do not—have a birth outside of marriage. Future versions of this paper will consider trajectories in socioeconomic status (SES) and the extent to which they appear to differ from the start (selection) or whether a birth disrupts (short-term and/or long-term) what would have otherwise been a given SES trajectory.

## METHOD

### *Data*

We use data from the National Longitudinal Survey of Youth (NLSY79), a nationally-representative prospective study of a cohort of 12,686 men and women born between 1957 and 1964. Men and women were first interviewed in 1979 (at ages 14-21), and subsequent interviews occurred annually through 1994 and biennially thereafter. We follow men and women from the first interview in 1979 until age 40 (1998-2004 interview years). Thus, the NLSY respondents

have been followed over their transition to adulthood, as they finished school, entered the labor market, got married and proceeded through their prime childbearing years. These data capture the first birth for nearly all respondents, their marital status at the first birth and subsequent marital transitions, as well as extensive employment and earnings information from early to middle adulthood. The longitudinal nature of these data are well-suited for this study, as we are able to account for the processes leading to parenthood and to examine how individuals' underlying socioeconomic trajectories change in response to parenthood. We are also able to account for additional life changes, such as subsequent marital transitions.

The sample used in this study includes all men and women who were interviewed in 1979; we exclude those who had a first birth prior to 1980 ( $n=1984$ ) or had a birth before age 16 ( $n=7$ ). We then drop men and women whose date of first birth ( $n=18$ ) or marital status at first birth ( $n=11$ ) cannot be ascertained. Additionally, we lose respondents who were not interviewed at age 40 ( $n=3,934$ <sup>1</sup>). We use listwise deletion to remove observations with missing data on covariates ( $n=1,663$ ), resulting in an eligible sample size of 5,069 men and women. Among men in this sample ( $n= 2,651$ ), 22% were unmarried at their first birth, 56% were married at their first birth, and 22% report no birth by age 40; among women ( $n= 2,418$ ), the respective percentages are 22%, 59%, and 18%.

### *Analytic Plan*

To assess how a nonmarital birth is related to men's and women's socioeconomic status in mid-life, we begin by estimating sex-specific socioeconomic outcomes at age 40 by marital status at first birth and a number of control variables (described later) using OLS and logistic regression. We use these initial estimates as a baseline for how socioeconomic outcomes vary

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<sup>1</sup> The bulk of these non-interviews are due to dropping the nonblack/non-Hispanic economically disadvantaged sample in 1990 and dropping the military sample in 1985.

depending on the marital status at first birth. We estimate all models separately for men and women (and in a future iteration will specifically test whether results are significantly different by gender).

To better account for selection, we then use propensity score matching techniques to match respondents who had a nonmarital first birth with similar respondents who did not have a nonmarital first birth (Rosenbaum and Rubin 1983). Propensity score matching aims to create a ‘treatment group’ and a ‘control group’ that are similar across a set of observed characteristics associated with selection into the treatment group and with the outcomes of interest. By reducing dissimilarity across groups, matching can diminish treatment bias, increase the efficiency of estimates, and better isolate the association between treatment and subsequent outcomes (Rosenbaum and Rubin 1983; Smith 1997). Furthermore, matching is particularly advantageous when the treatment is relatively rare – and nonmarital births are relatively rare for men and women in our sample – as better matches can be made due to the large pool from which to draw comparable matches (Smith 1997).

The transition to a first birth and whether the birth occurs to married or unmarried parents is a process that unfolds over time. As individuals enter their childbearing years, fixed characteristics, such as race/ethnicity or parental educational attainment, and time-varying characteristics, such as their own human capital development (e.g., schooling and employment), influence the timing of a first birth as well as whether parents are married or unmarried at the time of the birth (Carlson et al. 2013). In order to incorporate this time-dependent process into our estimation of propensity scores, we use discrete-time hazard models to estimate the conditional probability that respondents have each sex-specific marital-birth status combination at each age. Using the time-varying, age-specific hazard estimates as the propensity score, we

match those with a nonmarital first birth to those without (see Lu 2005). We start with the initial analytic sample (previously described) and construct a person-year (by age) file using data from the start of the risk period (age 16) through age 39. For respondents under age 16 in 1980, we start the risk period at age 16; for respondents ages 16 and older, we start the risk period at their 1980 age. Respondents are censored after reporting a first birth, after attrition, or if they report no birth before age 40. Furthermore, we use listwise deletion to remove person-years that are missing any time-varying covariates. Our final sample consists includes 4,139 cases (841 with a nonmarital first birth), representing 43,134 person years.

Using each sex-specific person-year data set, we then estimate a discrete-time hazard model predicting a nonmarital first birth as a function of a wide range of time-constant childhood background characteristics as well as a several time-varying measures of respondents' socioeconomic development and wellbeing prior to a birth (lagged one year prior to the birth). We use the resulting hazards to estimate the conditional probability (i.e., the propensity score) that respondents will have a nonmarital birth at each age.

A challenging aspect of our research is the definition of the appropriate counterfactual. The time-dependent process leading to a first birth, as well as differences in the processes leading to a nonmarital as opposed to marital birth imply that we could observe different outcomes depending on the choice of who to include in the comparison group and when to measure their characteristics. We consider two different counterfactuals to a nonmarital first birth and develop two comparison groups. First, we include men (women) who never have a nonmarital first birth. For this control group, we matched those who had a nonmarital birth at each age with those who have not yet had a birth and who never go on to have a nonmarital birth, but have similar characteristics at each age as those who had a nonmarital birth. We consider this

control group to be a realistic representation of men's (women's) fertility experiences in the absence of a nonmarital first birth – that is, they have similar characteristics at age X as those who had a nonmarital birth at age X, yet they go on to have a marital birth (or never have a birth) at an older age. However, as men (women) in the control group can (and do) go on to have births at older ages, our estimates of the mean differences between those with a nonmarital first birth and those without could be measuring the combined effect of delaying births to a later age and having a marital first birth, rather than only the impact of having a birth outside of marriage (and thus overestimate the role of a nonmarital first birth on later socioeconomic attainment).

For our second comparison group, in order to more directly isolate the specific role that the marital context of the first birth has, we repeat the matching process to match those who had a nonmarital first birth with those who had a marital first birth at the same age. Marital first births tend to occur at later ages than nonmarital first births; thus, those having a marital birth at the same age as those with a nonmarital birth may be more disadvantaged than the marital first birth population as a whole. Using this narrower conceptualization, we expect the mean differences to be smaller, and to potentially underestimate the effect that a nonmarital birth has on adult socioeconomic attainment. To the extent that we have accurately measured the selection process into nonmarital parenthood, the true effect of having a nonmarital first birth on future socioeconomic wellbeing likely lies between our two estimates.

To conduct the matching, we first limit the sample to those cases that fall within the region of common support (i.e., there is overlap in the propensity scores across the treatment and control groups). We then use the nearest neighbor algorithm to match treated cases to a control case with the most similar propensity score (within a caliper of .025). Matches are matched exactly on age, thus a man (woman) with a nonmarital birth at age 25 is matched to a man

(woman) aged 25 with similar characteristics who has not yet had a birth. As previously stated, in this first matched data set, men (women) can only be matched to men (women) who subsequently have a marital birth or who never have a birth. Furthermore, we match with replacement, so the same control case could be matched to multiple treatment cases (Dehejia and Wahba 2002). Finally, we repeat the matching process five times, so each treatment case is matched to up to five control cases with similar propensity scores. Using the matched samples, we then estimate the difference in socioeconomic outcomes at age 40 between the treatment and control group using OLS and logistic regression. All analyses using the matched samples are weighted to account for matching with replacement as well as the control group's larger size.

We then repeat the hazard estimation and matching process using our second comparison group – those who have a marital birth at the same age as the treatment group members. These results enable us to make a direct comparison between those who had a nonmarital birth (treatment group) versus marital birth (control group) at the same time in the life course (though not necessarily the same stage in terms of other statuses and transitions).

Additionally, we explore the extent to which our findings are driven by early nonmarital births as opposed to all nonmarital births. Using the sex-specific age distribution at first birth, we define early births as those that occur before 25% of all first births occur. For men, early births are those before age 23 and for women, early births are those before age 21. After matching nonmarital births to the control group(s), we then add an indicator of early nonmarital birth to our OLS and logistic regression models.

#### *Outcome measures*

In order to assess how nonmarital births impact men's and women's socioeconomic attainment in adulthood, we use 10 individual and family socioeconomic outcomes, all measured

when the respondent is aged 40. These 10 outcome measures fall into three categories: individual earnings and family income, educational attainment, and employment.

*Individual earnings and family income.* We use two variables to capture individual earnings. First, we use actual reported earnings from salaries and wages. We adjust all earnings to account for inflation – earnings are reported in 2010 dollars. To adjust for skew caused by those with no earnings or those in the upper tail, we also use logged earnings as an outcome. Family income is measured as net family income. It comprises all salaries and wages from all wage earners in the family as well as governmental and nongovernmental transfers. As with individual earnings, the family income measure is adjusted for inflation. We also include a measure of logged family income. In addition to actual measures of family income, we include a constructed variable for whether the family is in poverty or not. This measure is indexed against the federal poverty line and is adjusted for family size. Poverty status is included as a dichotomous measure, where 1 indicates that the family is poor.

*Educational attainment.* We measure educational attainment as the highest grade completed by age 40, as well as a dichotomous indicator of whether the respondent has a college education (measured as completing 16 years of schooling or more).

*Employment.* Employment is measured using three variables that capture the intensity of employment. Using constructed variables, we include the total number of weeks worked in the labor force or in active duty in the military during the calendar year in which the respondent turns 40. We also include a measure of the total number of hours worked in the labor force during the calendar year. Using these two measures, we construct a measure indicating full-time employment status. Respondents who reported working at least 30 weeks and at least 1,500 hours during the calendar year are considered employed full-time.

Means on the outcome variables are shown in Table 1. We see that men who had a nonmarital first birth have significantly lower socioeconomic attainment at age 40 than other men. Men who had a marital first birth tend to have the highest levels of socioeconomic attainment, with men who did not have a birth falling in between (results not shown). Men who had a nonmarital first birth earn significantly less than other men; they also have significantly lower family incomes. Men who had a nonmarital first birth have on average, a little over a year less of education; only 7% of men with a nonmarital first birth have completed college age by age 40 compared to 29% of other men. Men who had a nonmarital first birth also have much lower levels of full-time employment (73% vs. 87%), work fewer weeks of the year (40 weeks vs. 47 weeks), and work fewer hours per year (1,871 vs. 2,239).

In terms of individual earnings, family income, and poverty, the findings for women are similar to those for men: women who had a nonmarital first birth have fewer economic resources at age 40 than other women, especially family economic resources. Women who had a nonmarital first birth also have about a year less of education. Turning to levels of employment, however, women who had a nonmarital first birth do not have significantly lower employment levels as compared to other women. Women with a marital first birth tend to have the lowest levels of employment, followed by women who had a nonmarital first birth. Women who did not have a birth have much higher levels of employment (results not shown).

#### *Control variables*

*Time-constant.* We include a wide range of time-invariant demographic and background factors. Race/ethnicity is specified as non-Hispanic white and ‘other’ (reference), non-Hispanic black, and Hispanic. Foreign-born is measured with a dummy variable indicating that the respondent was born outside the U.S. The respondent’s father’s education, measured by highest

grade completed, was converted into highest degree received—less than high school (reference), high school degree, some college, college degree or more. To reduce multi-collinearity and conserve degrees of freedom, we specify the respondent's mother's education as a single 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. The religion in which the respondent was raised is specified as Catholic, Protestant (reference), other (which is mostly Jewish), or none. Frequency of youth religious attendance—measured in 1979—ranges from 1 (never) (reference) to 6 (more than once a week). Those who initiated sex prior to age 16 are indicated on a time-invariant measure of early initiation.

Table 2 displays the social and demographic characteristics of our analytic sample across the treatment and control groups prior to matching. Except where noted, men and women have very similar characteristics. In general, men and women who had a first birth outside of marriage have more disadvantaged backgrounds than those without a birth or with a marital first birth. Just over half of all men and women who have a nonmarital first birth are black, whereas less than a third are white. Over half have fathers with less than a high school education, and less than 10 % have fathers with a college degree or more. Men and women whose first birth occurred within marriage on the other hand tend to have more highly educated fathers – close to two-fifths have a college-educated father. Men and women with a nonmarital first birth are more likely than those without a birth or those with a marital first birth to have grown up in a non-intact family (67/65% vs. 80%). Those with a nonmarital first birth are more likely to have been raised Protestant (65/66% vs. 55/57%), however there is little difference across the groups in the frequency of religious attendance. Finally, overall, men are much likely to have initiated sexual activity at a

young age than women, and men who had a nonmarital first birth are much more likely to have initiated sexual activity by age 16 (56%) than men who did not have a nonmarital first birth (26%). The differences are much smaller among women, where across all groups only 7-9% had initiated sexual activity by age 16.

*Time-varying.* Taking advantage of the longitudinal design of the NLSY, we included several time-varying measures of respondents' own socioeconomic attainment as controls when calculating the propensity score; all are lagged one year (and measured prior to a birth if the respondent reported a birth). Education is measured by the highest grade completed at the time of the interview and converted into degrees (high school degree is the reference category). Dichotomous indicators of being enrolled in school and being employed full-time are measured annually. Earnings are inflation-adjusted (to 2010 dollars) and then divided into quintiles based on the distribution of sex-specific earnings at each age. To incorporate family income, we include a dichotomous indicator of currently being poor, which indicates that the ratio of family income to the federal poverty threshold is less than 1.0.

Additionally, we include time-varying measures of serving in the military, incarceration, region of residence and urban/rural status. Men who report actively serving in the military at the time of the interview are coded as currently enlisted – and are then coded as have ever served in the military for all subsequent years. Men who were interviewed in jail/prison were coded as currently incarcerated – and then 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 data on incarceration trends (Western 2002; Western and Pettit 2000). Region of residence is coded as Northeast, North Central, West and South (reference). An indicator for urban or rural (reference) residence is also included. All time-varying covariates are

lagged one year prior to the observation of birth/marital status. To adjust for biennial interviewing that began in 1994, we assign the previous year's reported values (adjusting predicted annual earnings for inflation) as the missing year's values for the time-varying covariates during non-interview (i.e., odd) years from 1994-2006.

Turning to men's and women's socioeconomic attainment prior to having a birth, Table 3 also shows that those who have a first birth outside of marriage tend to have lower levels of socioeconomic attainment prior to having a birth. Men and women who had a nonmarital first birth are about three years younger than those who had a marital first birth, they are much more likely to still be enrolled in school in the year prior to the birth, and they are more likely to have not completed high school and much less likely to have a college education. Women tend to have a first birth close to two years before men, and as such are more likely to still be enrolled in school prior to the birth, especially for women who had a first nonmarital birth. Less than half of men with a nonmarital first birth are employed full-time prior to the birth compared to over three-quarters of men with a marital first birth. Women tend to have lower levels of employment, but a similar pattern is observed – one-third of women with a nonmarital first birth are employed full-time prior to the birth compared to close to two-thirds of women with a marital first birth. Men and women with a nonmarital first birth are much more likely to be poor before having a birth (24/29% vs. 7/8%). Similarly, those who have a nonmarital first birth are more likely to be in the lowest earnings quintile as compared to men and women without a nonmarital first birth – this is especially true for women.

## RESULTS

### *Men*

The first matched sample includes men who had a nonmarital first birth (treatment) and men without a nonmarital first birth (control) who have similar characteristics. Matching worked well for these cases: All 406 nonmarital fathers were successfully matched to at least one control, resulting in a control group of 1,673 cases<sup>2</sup>. After matching, the two groups have a similar distribution of propensity scores, with an average propensity score difference of .007 between the treatment and control groups (not statistically significant). Furthermore, the data are well-balanced after matching – that is, there are no statistically significant differences between the treatment and control groups on any of the 18 control variables.

The first two columns in Table 4 present the mean differences between men who had a nonmarital first birth and the respective control groups. The top panel displays the results comparing those with a nonmarital first birth to all others without a nonmarital first birth; the first column shows the results for the full sample, and the second column shows the results for the matched sample. The bottom panel then limits the comparison of those with a nonmarital first birth to those who had a marital birth at the same age.

Starting with the first panel, comparing men who had a nonmarital first birth to all other men (the full sample), we find that at age 40, men who had a nonmarital first birth earn close to \$23,000 less than other men. The gap grows when using family income – men who had a nonmarital first birth have just over \$34,000 less in family income. Part of nonmarital fathers' lower earnings likely comes from their lower level of educational attainment (they have on average 1.2 fewer years of education than other men), and part from their lower levels of labor

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<sup>2</sup> The control group includes all person-years before a birth (among those who never have a nonmarital birth). Since we matched with replacement, multiple treatment cases (the year in which a nonmarital birth occurred) can be matched to the same person-year of an individual who never has a nonmarital birth (i.e., the traditional scenario when matching with replacement). Using a comparison group comprised of person-years, however, also means that each individual who is in the control group could have multiple person-years matched to different treatment cases.

force attachment – they work 6.5 fewer weeks and nearly 370 fewer hours over the course of the year than men without a nonmarital birth.

As previously discussed, however, selection into nonmarital fatherhood may be driving much of these socioeconomic differences, so we use propensity score matching to match men who had a nonmarital first birth to comparable men who had not yet had a birth (and who never have a nonmarital birth). By matching on the observed characteristics associated with selection into nonmarital fatherhood, we are able to limit the role of selection in driving the observed socioeconomic gaps at age 40. Indeed, we find that selection notable. Comparing the results for the matched sample to the full sample, we find that the magnitude of the socioeconomic gaps at age 40 narrow considerably, though many of the gaps remain statistically significant. For example, in the matched sample, men who had a nonmarital first birth earn about \$4,500 less than comparable men without a nonmarital first birth, and they have close to \$13,000 less in family income. These differences are considerably smaller than those in the full sample. Similarly, nonmarital fathers have on average have one-third of a year less education and have .44 lower odds of having a college education. Finally, men who had a nonmarital first birth worked 2.3 fewer weeks of the year than comparable men without a nonmarital first birth. These results suggest that net of selection into nonmarital fatherhood, especially selection on socioeconomic attainments prior to the birth, men who had a nonmarital first birth have lower levels of socioeconomic wellbeing at mid-life than men who did not have a nonmarital first birth. The magnitude of the differences between nonmarital fathers and other men, however, is considerably smaller than when selection is not taken into account.

Moving to the bottom panel on Table 4, we now change the comparison group to include just those men who had a marital first birth at the same age as a comparable man who had a

nonmarital first birth. This analysis, thus, holds constant having a birth at a given age and varies only the marital status in which that birth occurred. As compared to the previous comparison group, we are less successful at matching all of the treatment cases. Of the 406 men with a nonmarital first birth, only 257 had a propensity score within the region of common support (i.e., where there the propensity scores of the control and treatment groups overlap). There is good covariate balance, as there are no statistically significant differences between the treatment and control groups on any of the control variables; however, the average difference in propensity scores between the two groups is .16 and statistically significant. Given the small sample size and significant difference in propensity scores between the treatment and control groups, caution should be taken when interpreting these results.

Starting with the full sample of men who had a birth at the same age, we find a similar pattern of socioeconomic disadvantage at age 40 among unmarried fathers as compared to married fathers. The magnitudes of these differences are even larger than those reported in the top panel because men who enter fatherhood when married tend to be more advantaged than men who never become fathers. With the previously-noted caveats in mind, after matching, we find that the gaps between marital fathers and nonmarital fathers narrow considerably, though the magnitudes remain somewhat similar to those in the top panel (but many estimates are not significant due to the considerably smaller sample sizes). Across both comparison groups, men with a nonmarital first birth earn more than \$4,000 less than other men, complete between one-quarter and one-third fewer years of school, work 2-3 fewer weeks per year, and just over 100 fewer hours per year. These persisting differences suggest that the gap in SES between men who have a nonmarital first birth and men who have a marital first birth are not just driven by the later age at first birth among married fathers.

## *Women*

With respect to women, the matching algorithm worked well for women when matching women with a nonmarital first birth to all other women. Only two women with a nonmarital first birth fell outside the area of common support, and all 433 remaining women with a nonmarital first birth were successfully matched to 1,738 controls<sup>3</sup>. After matching, there are no statistically significant differences between the treatment and control groups on any control variable (i.e., good covariate balance), and the difference in the average propensity score (.009) between the two groups is not statistically significant.

Turning to our results, in columns 3 and 4 of Table 4, we find a similar pattern to that of men for women in terms of individual earnings, family income, and educational attainment. Nonmarital mothers earn about \$6,000 less at age 40 than other women, and they have about \$38,000 less in family income. These gaps are reduced by half after matching; this suggests that selection into nonmarital motherhood drives much of the economic gaps at mid-life between women with a nonmarital first birth and other women. Similarly, even after matching, nonmarital mothers have completed fewer years of education and have a lower likelihood of having a college education. In terms of employment, however, women with a nonmarital birth do not have very different levels of employment at age 40 than other women. In fact, the only difference is that women with a nonmarital first birth work about 2.4 fewer weeks per year (at age 40) than comparable women. On the one hand, it seems for women that selection into nonmarital motherhood is responsible for a large portion of the gaps in socioeconomic attainment at age 40, but that net of selection, women with a nonmarital first birth continue to have lower levels of socioeconomic wellbeing. On the other hand, the gaps in earnings cannot be driven by lower

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<sup>3</sup> See previous footnote regarding the composition of the control group.

levels of employment among women with a nonmarital birth; rather, it seems women with a nonmarital first birth may have lower earnings in part due to lower levels of education.

Moving to the second comparison group, women with a nonmarital birth as compared to women with a marital birth at the same age, we find that as with men, the matching algorithm does not do as well in matching all treatment cases. Only 298 women with a nonmarital first birth have a propensity score in the area of common support, and as with men, the resulting difference in average propensity scores between the matched control and treatment groups is .15 and statistically significant. Even with this large gap, however, there are no significant differences between the control and treatment groups on any covariate. As with men, caution should be taken when interpreting these results.

We find that in the full sample, the gap between nonmarital mothers and marital mothers is similar as in the first panel for family income, poverty status, and education. On the other hand, we find that women who had a nonmarital first birth are more likely to be employed at age 40 than women who had a marital first birth and they work, on average, more hours during the year. Similarly, the gap in individual earnings is much smaller when comparing nonmarital mothers to marital mothers only. Moving to the matched sample, comparing women who had a nonmarital first birth to comparable women who had a marital birth at the same age, we find very few differences between the two groups of women. Indeed, the only significant difference remaining is that nonmarital mothers have \$17,350 less in family income (31% lower) than marital mothers. Across the two comparison groups, results are similar for family income, being employed full-time, and weeks worked per year; the gap in individual earnings between nonmarital mothers and marital mothers, however, is smaller, and positive, than the difference when using the first comparison group.

Additionally, we examined whether having an early nonmarital birth was more detrimental to men's (women's) socioeconomic attainments at age 40 than other nonmarital births (results not shown). For these analyses, we defined early births as those before the age at which 25% of (sex-specific) first births occurred – age 21 for women and age 23 for men. Overall, we find that having a nonmarital first birth at any age is associated with lower socioeconomic wellbeing at age 40. Those who had an early nonmarital first birth, however, tend to fare worse in mid-life than those who had a nonmarital first birth at a later age; this pattern is observed across nearly all outcomes, though is only consistently statistically significant for family income and highest grade completed.

Finally, comparing the extent to which men and women differ in how a nonmarital first birth impacts their socioeconomic outcomes, we find that accounting for selection reduces the magnitude of the socioeconomic gaps more for men than for women. Furthermore, before matching, we find that the earnings and employment gaps are much larger for men than for women, though after matching there are no significant differences. These results suggest that selection into nonmarital parenthood may be a more important driver for men than for women. They also imply that after accounting for selection, the magnitude to which a nonmarital birth impacts men's and women's socioeconomic outcomes may be similar.

## DISCUSSION

In this paper, we have provided new evidence about how having a nonmarital first birth is associated with socioeconomic outcomes in mid-life for both men and women. We extend the literature that has mostly focused on how teenage/young childbearing is related to economic outcomes in the short term or in early adulthood, and we use a matching technique that better

accounts for selection into having a child outside of marriage than more simple regression models. This is a first step in our longer-term objective of examining the underlying socioeconomic trajectories of men and women and the extent to which having a birth (outside or within marriage) may alter those trajectories.

Overall, we find that even after accounting for a host of demographic and socioeconomic characteristics that we can observe before the time of a birth, both men and women who have a first birth outside of marriage are socioeconomically disadvantaged in later life, relative to their counterparts who have a first birth within marriage or who have no birth. Compared to individuals who do not have a nonmarital birth, men and women who have a first birth outside of marriage have lower earnings, lower family income, lower years of education, are less likely to have completed college, and work fewer weeks per year at age 40. Our findings are consistent with prior literature that shows that accounting for selection into young and/or nonmarital childbearing diminishes some—but not all—of the differences between those that have such a birth and those that do not, both for men (Nock 1998; Sigle-Rushton 2005) and for women (Ashcraft, Fernández-Val and Lang 2013; Fletcher and Wolfe 2009; Hotz et al. 2005).

The differences are less clear when we compare individuals who have a birth at the same age outside of versus within marriage; the point estimates are mostly similar in magnitude and direction to those comparing respondents who have a nonmarital birth to all others (i.e., the first comparison group), but they often do not reach statistical significance, likely due to the smaller sample sizes. For men, those who had a nonmarital birth have lower log family income, are more likely to be poor, are less likely to have completed college, and work fewer works per year at age 40 than men who had a first birth at the same age within marriage. For women, those who had a nonmarital first birth have lower family income than those who had a marital first birth at the

same age, but there are no other statistically significant differences. However, we urge caution in interpreting these results, since it was difficult to successfully match individuals who have marital and nonmarital births at the same age; this is not surprising, since we know that unmarried births typically occur at much younger ages than marital births, and that there are notable differences in demographic, social and economic characteristics across these two groups (McLanahan 2011).

With the current analytic strategy, it is difficult to evaluate whether the persistent socioeconomic differences we observe at age 40 between those who have a nonmarital first birth and others may be caused by the birth or are simply due to other unobserved characteristics of individuals for which propensity-score matching cannot account, or some of both. More generally, it is difficult to determine what is the appropriate counter-factual to having a nonmarital birth at a given age. Is it having a marital birth at the same age, a nonmarital birth (or marital birth) at a later age, or never having a birth? In future analyses, we intend to : a) examine differences on SES outcomes at various ages/durations after the birth in order to see whether the socioeconomic gaps by birth status decrease or increase over time; b) utilize fixed-effects models to estimate change over time in SES outcomes before versus after a birth for the same individual; and c) employ latent growth curve models to evaluate the underlying socioeconomic trajectories and the extent to which a birth shifts such up or down, and whether this is short-term and/or long-term. We will also evaluate d) the extent to which subsequent marital status patterns can account for the socioeconomic differences, as Nock (1998) suggests. With these additional analyses, we hope to provide a more nuanced picture about how nonmarital births (as compared to marital births and no birth) may shape the broader life course of those who experience such.

Furthermore, with these preliminary results, we are able to address the extent to which the association between a nonmarital birth and subsequent socioeconomic outcomes differs between men and women. We found that before accounting for selection, men with a nonmarital birth have a more severe socioeconomic gap than women, and that after accounting for selection, the difference in the gaps between men and women narrows considerably. This suggests that selection may be a more important driver of the observed gaps for men between those with a nonmarital birth and those without than it is for women. In other words, the men who have nonmarital births are ‘more different’ than their male counterparts who do not have such a birth as compared to the respective groups of women. However, it may be that our model of selection into nonmarital parenthood does a better job of explaining the selection process for men than for women. Future analyses will aim to address these different explanations.

There are several limitations to this research. First, as noted above, determining the appropriate counter-factual was a significant challenge to estimating our propensity models. We know when (age and year) the ‘treatment’ occurs for those who have a birth and the nature of their characteristics at that time (or in our case, in the year prior), but how do we define an appropriate comparison group—and when do we measure their characteristics—among those who have not yet had a birth (and may never have a birth)? We chose (in our first comparison group) to allow individuals to be matched to various controls over time, as they age, using a complicated time-varying matching algorithm. As such, the same individual may be in the control group multiple times and measured at different points in time; we effectively match on the time-varying characteristics at a given age (person-year). However, this makes for a less ‘clean’ comparison, since individuals can be matched at multiple ages. As such, our analyses effectively compare individuals who have a nonmarital birth to those who have not yet had a

birth *by a given age* and who never go on to have a nonmarital birth. We see this first comparison not as an exact counterfactual analysis of what happens in the absence of a nonmarital first birth, but close to a realistic comparison between those with and without a nonmarital birth, net of differential selection into nonmarital parenthood. Given the large differences in timing between nonmarital and marital first births however, it is unclear how much of our results are being driven by the economic advantage of delaying births rather than the marital context of the birth. A second possibility (which we use as our second comparison group) is to compare to similar individuals that have a nonmarital versus a marital birth at the same age. This, therefore, holds age and birth status constant and simply allows the two groups to vary by marital status. This provides a more ‘clean’ comparison; yet, it was difficult to find individuals who had similar enough characteristics to be matched, since those who have nonmarital versus marital births are actually quite different demographic groups. Those that are somewhat similar (and hence can be matched) may not be particularly representative of their respective group at all, e.g., they are likely the younger people among the married group and the more educated people among the unmarried group. Hopefully, our future analyses using several different analytic techniques will provide a more complete picture of the circumstances in mid-life for those who have a nonmarital birth compared to those who do not.

Second, as suggested above, it is important to note that even with our analytic approach that matches individuals of similar characteristics in order to isolate the extent to which having a nonmarital birth is linked to socioeconomic characteristics in mid-life, we cannot interpret any lingering differences as reflecting causal effects. Propensity-score matching can only use observed characteristics available in the data, and there could be a host of unobserved characteristics that affect whether one has a nonmarital birth or not (e.g., attitudes and values,

motivation, parenting experienced as a child, etc.); as such, our average treatment effect estimates may simply reflect unobserved differences between the two groups that we were simply not able to capture.

A third limitation concerns relatively small sample sizes. Although we follow a large nationally-representative cohort over their childbearing years, we end up with only 406 men and 433 women who had a nonmarital birth and are matched to controls in the larger sample, and these numbers decline to 257 and 298, respectively, when we match to those who had marital births at the same age. These are relatively small numbers of cases for statistical inference.

A fourth and related limitation concerns missing data. A number of respondents have been lost to attrition by the time they are age 40 (37% of the original sample, though some of this is due to the NLSY subsamples that were dropped from the study entirely), and we suspect that those who do not remain in the sample may be less advantaged—and more likely to have had a nonmarital birth—than those who remain in the sample. Also, in this version, we have not yet used multiple imputation in order to include those who are missing information on covariates.

In spite of these limitations, we believe that our research adds to the literature about how demographic events—in this case having a nonmarital birth—have ramifications over the adult life course. We find that those who have a nonmarital first birth have significantly lower socioeconomic attainment as compared to those who do not have a nonmarital birth, whether measured by education, employment, earnings or family income. Given the importance of economic resources for children's development and well-being (Duncan, Morris and Rodrigues 2011), these findings suggest that the children of unmarried parents will also be disadvantaged over their early (and likely later) years, and that nonmarital childbearing may be an important factor increasing inequality at the societal level both within and across generations.

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Table 1. Full Sample: Men's and Women's Socioeconomic Attainment at Age 40 by Marital Status at First Birth

	Men			Women		
	Treatment	Control		Treatment	Control	
	Nonmarital birth	Comparison Group 1 No birth or marital birth	Comparison Group 2 Marital birth	Nonmarital birth	Comparison Group 1 No birth or marital birth	Comparison Group 2 Marital birth
<i>Outcomes at age 40: Unadjusted means</i>	Mean or %	Mean or %	Mean or %	Mean or %	Mean or %	Mean or %
<b>Individual Earnings (2010 \$)</b>						
Earnings	36,349.00	59,106.21	66,437.38	24,072.47	30,154.96	27,140.50
	(SD) (41,391.96)	(53,832.95)	(57,415.25)	(21,812.28)	(32,477.10)	(30,430.29)
(logged) earnings	10.38	10.52	10.93	0.96	10.14	10.03
	(SD) (0.89)	(0.83)	(0.74)	(0.96)	(1.04)	(1.07)
<b>Family income (2010 \$)</b>						
Family income	54,908.81	89,069.48	99,755.47	47,838.13	86,034.54	91,019.81
	(SD) (59,452.86)	(108,055.50)	(110,433.60)	(47,009.16)	(114,037.40)	(121,369.60)
(logged) family income	10.58	11.06	11.21	10.44	11.00	11.08
	(SD) (1.00)	(0.93)	(0.83)	(0.96)	(0.93)	(0.88)
In poverty	0.19	0.07	0.05	0.24	0.09	0.09
<b>Education Attainment</b>						
Highest grade completed	12.41	13.62	13.68	12.86	13.85	13.73
	(SD) (1.89)	(2.55)	(2.61)	(1.84)	(2.44)	(2.40)
College	0.07	0.29	0.30	0.10	0.30	0.28
<b>Employment</b>						
Employed full-time	0.73	0.87	0.90	0.64	0.62	0.57
Total weeks worked (per calendar year)	40.37	46.93	48.28	37.82	40.61	39.24
	(SD) (19.43)	(14.02)	(12.06)	(21.25)	(19.67)	(20.54)
Hours worked (per calendar year)	1,871.55	2,239.20	2,338.89	1,583.11	1,584.77	1,478.88
	(SD) (1,109.08)	(958.28)	(906.62)	(1,073.64)	(1,009.63)	(1,011.48)
N (Individual observations)	406	1,681	1,130	435	1,617	1,200

Note: Sample sizes vary slightly across the outcomes

Table 2. Sample Description of Family and Individual Sociodemographic Background Characteristics

	Men			Women		
	Treatment	Control		Treatment	Control	
		Comparison Group 1	Comparison Group 2		Comparison Group 1	Comparison Group 2
	Nonmarital birth	No birth or marital birth	Marital birth	Nonmarital birth	No birth or marital birth	Marital birth
<i>Time Constant</i>	%	%	%	%	%	%
<b>Race/Ethnicity</b>						
White	30.0	67.4	70.0	30.8	67.9	71.0
Hispanic	18.2	17.1	18.1	18.4	16.5	18.2
Black	51.7	15.5	11.9	50.8	15.6	10.8
Foreign Born	5.4	6.1	6.7	4.4	6.7	7.2
<b>Father's Education</b>						
Less than high school	51.5	37.5	37.1	53.1	36.5	39.3
High school degree	32.5	34.0	33.7	32.4	35.7	33.8
Some college	10.1	10.4	9.7	7.6	10.4	9.6
College graduate	5.9	18.1	19.5	6.9	17.4	17.4
Mom more education than dad	19.7	18.6	18.9	18.6	20.5	20.9
Living with both parents at age 14	68.7	80.4	82.1	65.1	80.5	81.0
Mother working at age 14	54.4	53.8	52.8	54.3	55.7	54.8

Table 2. Con't

	Men			Women		
	Treatment	Control		Treatment	Control	
		Comparison Group 1	Comparison Group 2		Comparison Group 1	Comparison Group 2
	Nonmarital birth	No birth or marital birth	Marital birth	Nonmarital birth	No birth or marital birth	Marital birth
%	%	%	%	%	%	
<i>Time Constant</i>						
Religion raised in						
Protestant	65.0	55.1	53.5	66.2	56.8	54.3
Catholic	28.8	38.3	40.5	29.4	38.0	40.8
Other	0.7	2.6	2.8	0.7	2.1	1.8
None	5.4	3.9	3.2	3.7	3.2	3.2
Frequency of religious attendance						
Never	20.2	19.7	18.1	13.3	13.4	13.0
Infrequently	27.3	28.2	28.0	21.6	26.7	25.7
Once a month	11.8	10.3	10.8	7.6	8.5	8.8
2-3 times per month	13.5	11.7	10.7	18.2	12.6	12.6
Once per week	20.9	22.8	24.1	27.4	26.9	27.7
More than once per week	6.2	7.3	8.3	12.0	12.1	12.3
Early sexual initiation	56.2	26.4	25.0	8.7	6.6	6.7
N (Individual observations)	406	1,681	1,130	435	1,617	1,200

Table 3. Sample Description of Men's and Women's Socioeconomic Attainment Prior to Having a Birth

	Men			Women		
	Treatment	Control		Treatment	Control	
		Comparison Group 1	Comparison Group 2		Comparison Group 1	Comparison Group 2
	Nonmarital birth (year prior to birth)	No birth or marital birth (all person-years)	Marital birth (year prior to birth)	Nonmarital birth (year prior to birth)	No birth or marital birth (all person-years)	Marital birth (year prior to birth)
<i>Time-Varying Characteristics</i>	M or %	M or %	M or %	M or %	M or %	M or %
Age	23.54	25.89	26.58	21.96	25.36	24.92
(SD)	(4.83)	(6.21)	(4.99)	(4.81)	(6.18)	(4.93)
Ever in military	9.4	6.7	7.8	-	-	-
Ever in jail	3.2	2.8	1.1	-	-	-
Enrolled in school	21.2	29.0	12.0	39.8	33.0	18.2
Education Attainment						
Less than high school	35.0	20.1	14.8	39.5	16.3	15.3
High school	42.6	36.0	39.7	36.6	32.8	38.5
Some college	18.5	24.3	20.0	19.1	30.0	23.4
College	3.9	19.7	25.5	4.8	20.9	22.8
Employed full-time	49.0	58.1	78.2	33.1	53.9	62.3

Table 3. Con't

	Men			Women		
	Treatment	Control		Treatment	Control	
		Comparison Group 1	Comparison Group 2		Comparison Group 1	Comparison Group 2
	Nonmarital birth (year prior to birth)	No birth or marital birth (all person-years)	Marital birth (year prior to birth)	Nonmarital birth (year prior to birth)	No birth or marital birth (all person-years)	Marital birth (year prior to birth)
<i>Time-Varying Characteristics</i>	M or %	M or %	M or %	M or %	M or %	M or %
In poverty	24.4	10.8	6.6	29.2	10.6	8.3
Urban	82.5	80.9	78.5	82.1	82.3	81.5
Region						
Northeast	16.7	19.8	17.5	14.0	21.3	17.6
North-Central	22.7	26.6	27.1	21.8	23.7	25.3
South	36.2	33.8	34.4	43.2	37.3	34.7
West	24.4	19.8	21.0	20.9	17.8	22.5
Income Quintile						
Bottom	15.5	12.3	6.5	25.5	10.5	8.4
Low-middle	22.7	18.9	11.1	13.3	9.0	7.5
Middle	26.6	22.8	18.1	23.0	20.3	16.9
High-middle	20.4	22.7	26.1	20.9	26.0	26.8
Top	14.8	23.3	38.3	17.2	34.2	40.4
N (person-years)	406	19,333	1,130	435	15,802	1,200

Table 4. Summary of Average Treatment Effect of Marital Status at First Birth on Men's and Women's Socioeconomic Outcomes at age 40

Comparison Group 1	Men				Women			
	All Others vs. Nonmarital Birth				All Others vs. Nonmarital Birth			
	Full Sample		Matched Sample		Full Sample		Matched Sample	
	B	<i>p</i>	B	<i>p</i>	B	<i>p</i>	B	<i>p</i>
Earnings	-22,757.21	***	-4,547.80	*	-6,082.49	***	-3,727.44	***
Earnings (log)	-0.42	***	-0.03		-0.12	+	-0.08	
Family Income	-34,160.66	***	-12,851.33	**	-38,196.41	***	-17,268.33	***
Family Income (log)	-0.49	***	-0.13	*	-0.57	***	-0.29	***
Poverty status	1.06	***	0.13		1.14	***	0.69	***
Highest grade completed	-1.21	***	-0.34	***	-0.99	***	-0.52	***
College	-1.66	***	-0.82	***	-1.38	***	-0.84	***
Full time employment	-0.86	***	-0.23	+	0.08		0.00	
Weeks worked	-6.56	***	-2.28	*	-2.79	+	-2.44	*
Hours worked	-367.65	***	-107.30	+	-1.67		-25.37	
n treated	406		406		435		433	
n control	1,681		1,673		1,617		1,738	

Note: Sample sizes vary slightly across the outcomes; N sizes in parentheses are number of unique respondents  
+  $p < .1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

Table 4. Con't

Comparison Group 2	Men				Women			
	Marital Births vs. Nonmarital Births				Marital Births vs. Nonmarital Births			
	Full Sample		Matched Sample		Full Sample		Matched Sample	
	B	<i>p</i>	B	<i>p</i>	B	<i>p</i>	B	<i>p</i>
Earnings	-30,088.39	***	-4,345.27		-3,068.04	+	975.57	
Earnings (log)	-0.55	***	-0.12		-0.01		0.11	
Family Income	-44,846.66	***	-9,187.04		-43,181.69	***	-17,353.88	***
Family Income (log)	-0.64	***	-0.18	*	-0.64	***	-0.31	***
Poverty status	1.49	***	0.61	*	1.19	***	0.25	
Highest grade completed	-1.27	***	-0.25		-0.86	***	0.02	
College	-1.72	***	-0.55	+	-1.29	***	-0.23	
Full time employment	-1.20	***	-0.29		0.29	*	0.01	
Weeks worked	-7.91	***	-3.38	*	-1.42		-2.40	
Hours worked	-467.34	***	-110.01		104.23	+	1.29	
n treated	406		257		435		298	
n control	1,130		481		1,200		567	

Note: Sample sizes vary slightly across the outcomes; N sizes in parentheses are number of unique respondents

+  $p < .1$ , \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

