

**Finding a Mate? The Marital and Cohabitation Histories
of Unwed Mothers**

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November 1999

Please direct mail correspondence to Daniel T. Lichter, Visiting Scholar, Russell Sage Foundation, 112 East 64th Street, New York, NY 10021, or phone 212-750-6000. An earlier version of this paper was presented at the Conference on Nonmarital Childbearing, April 29-30, 1999, University of Wisconsin, Madison, WI. This research was supported in part by grants from the National Science Foundation and the Russell Sage Foundation, and by a Population Research Center Core Grant (P30 HD28263-01) from the National Institute of Child Health and Human Development to the Population Research Institute, Pennsylvania State University. The helpful comments of Michael Rendall are gratefully appreciated.

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Abstract

In this paper, we use retrospective family life history data from the 1995 National Survey of Family Growth (NSFG95) to examine union formation processes among American women aged 15-44. We compare the marital histories of teen mothers with those of older unmarried mothers, as well as women without nonmarital births. Our results (from estimated hazards models) indicate that a nonmarital birth is associated with significant reductions in the likelihood of being married at age 35. At age 14, for example, girls who had a nonmarital birth are 58% more likely to be never married at age 35 than girls who did not have a nonmarital birth (i.e., 20.6% vs. 13.0%). Conversely, nonmarital childbearing is positively associated with the subsequent formation of informal or cohabiting unions, but out-of-wedlock childbearing reduces the likelihood that cohabiting unions lead to marriage. Our life table analysis also indicates that only 73.9% of women who had a nonmarital birth can expect to be married by age 40, which is roughly 20 percent lower than women who did not have a nonmarital birth. The lower marriage rate among unwed mothers is not due to selection alone. The cumulative marriage rates of women with unwed pregnancies that are terminated (by miscarriage or abortion) are more similar to women without nonmarital births than to women with nonmarital births. The substantive implication is that causal arguments regarding the long-term negative effect of nonmarital childbearing on subsequent marriage cannot be rejected.

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Introduction

A voluminous literature documents the correlates and consequences of transitions to first marriage among American women and men (e.g., Goldscheider and Waite 1985; Lichter et al. 1991; Oppenheimer 1994). Marriage is linked with adult economic, physical, and psychological well-being, especially for men (Waite 1995; Nock 1998). For women, the transition to marriage is associated with exits from poverty, while marital disruption has negative economic consequences for women and children (Holden and Smock 1991; Peterson 1996). For the most part, studies of unwed teen motherhood center on its short- and long-term economic consequences (or lack thereof), while our understanding of the subsequent marital histories of unmarried mothers, especially teen mothers, is virtually nonexistent (Geronimus and Korenman 1992; Hoffman et al. 1993). This omission is unfortunate. The end of welfare as we know it, especially time limits on welfare receipt, may create new incentives for unmarried mothers to enter marital and nonmarital unions as an adaptation to economic hardship and to cut-backs in the welfare safety net (Edin and Lein 1997; Lichter and Gardner 1997/98).

In this paper, we use retrospective family life history data from the 1995 National Survey of Family Growth (NSFG95) to examine transitions into marital and cohabiting unions among women aged 15-45. Specifically, we compare the marital histories of teen mothers with those of older unmarried mothers, as well as with unmarried women without nonmarital births. Given the relative lack of basic information on this topic, we are interested in several basic questions. What

proportion of unwed mothers (including teen mothers) eventually form marital or nonmarital unions? Which factors (e.g., race, socioeconomic background, and cohabitation status) are associated with differences in union transitions between unmarried mothers and unmarried women without children? Does the observed negative association between unmarried childbearing and subsequent union formation reflect processes of **selection** (e.g., women with low **marriageability** are also more likely to be unwed mothers) or other causal processes? Our life table analysis and estimated hazard models provide a first step toward a better understanding of how nonmarital childbearing shapes the subsequent marital and cohabitation histories of young women.

In general, our study is designed to document the process of entry into first marriage among unmarried mothers, including teen mothers. Our study bridges a large literature on **retreat from marriage** with recent work on welfare incentive effects on family formation (South and Lloyd 1995; Lichter et al. 1997; Moffitt 1995). Indeed, there has been surprisingly little empirical research on the marital and cohabitation experiences of young women following a nonmarital birth. For unmarried teen mothers, the presence of young children undoubtedly creates a new and uncertain set of marital incentives and constraints. Our study provides a point of departure for better understanding the union formation process of young mothers during the current period of uncoupling of marriage and childbearing in the United States (Cherlin 1988).

Union Formation Among American Mothers

The **retreat from marriage** has continued apace in the United States over the past three decades. Between 1970 and 1993, the U.S. marriage rate declined from 140 to 87 per 1000

unmarried women (aged 15-44) -- nearly a 40% decline (U.S. Department of Health and Human Services 1995). In 1996, 68.5% of women aged 20-24 were never-married, compared with only 35.8% in 1970 (Saluter and Lugaila 1998). Delayed marriage is also evident in the rise in median age at first marriage, from 20.3 to 24.8 among U.S. women over the 1950-to-1996 period. For many women, delayed marriage often means never marrying; indeed, the first marriage rate is 41.1 among never-married women aged 35-39, compared with 109.4 among women aged 25-29 (U.S. Department of Health and Human Services 1995). Moreover, life table estimates indicate that 86.6% of young women will ever-marry if current age-specific marriage rates continued indefinitely, a drop from 94.1% observed in 1970 (Schoen and Weinick 1993). Clearly, the retreat from marriage is reflected in continuing declines in marriage rates, increases in average age at marriage, and the rise in the proportions never-married.

Most current explanations of declining U.S. marriage rates center on the declining pool of marriageable or economically attractive men (Tucker and Kernan 1995; Oppenheimer 1997), on the growing economic independence women (McLanahan and Casper 1995), and on cultural shifts that emphasize individualism over familialism (Bumpass 1990). None has proven to be completely satisfactory in explaining temporal shifts or subgroup differentials in union formation (e.g., between African Americans and whites) (Mare and Winship 1991; Brien 1998). At the same time, relatively few empirical studies have examined the complex link between union formation and unwed childbearing, a situation we propose to remedy here. We argue that changes in union formation are inextricably linked to recent trends in nonmarital and teen fertility (Lichter 1995; Ventura et al. 1995), especially as nonmarriage among unwed mothers has become more common.

Our guiding hypothesis is that nonmarital childbearing is negatively associated with subsequent union formation -- marriage and cohabitation. But the nature of this association is ambiguous. Indeed, any observed statistical association may reflect the alternative processes of *social causation* or *social selection*, or perhaps both. For example, one causal argument stresses that declines in marriage contributed to the rise in unwed childbearing (Lichter 1995; Smith et al. 1996). Smith et al. (1996) showed, for black women, that virtually all of the rise in the nonmarital fertility ratio (between 1968 and 1985) was due to increases in the percentage of women at risk of a nonmarital birth (i.e., increasing percentages unmarried). At the population level, the substantive implication is clear: the rise in nonmarital fertility ratio is largely a consequence of the changing marital status composition of the population; i.e., it results from delayed marriage or rising nonmarriage (rather than from the rise of nonmarital fertility rates or declines in marital birth rates). At the individual level, nonmarriage places more young women at risk of an unwanted nonmarital birth (even in the absence of changes in nonmarital fertility rates). Some observers also claim that the absence of good marital opportunities, coupled with greater women's economic independence and declining stigma of unwed childbearing, have elevated nonmarital childbearing (rather than marriage) as a key marker of adult status for young women (South 1997; Hogan and Kitagawa 1985). Nonmarital fertility may thus be a behavioral manifestation of difficulties in finding a suitable marriage partner.

An alternative view holds that the rise in nonmarital fertility has instead caused the retreat from marriage. Unwed childbearing presumably reduces the attractiveness or marriageability of young mothers in the marriage market. For male suitors, the additional emotional and social costs of marrying a mother (as opposed to a childless woman) are reflected

in the burden of sharing the mother's time and attention with the mother's child, and in the obligations associated with the newly acquired parental role. The economic costs also increase for potential suitors who, with marriage, bear the obligation of supporting or sharing in the expenses of the household, which include those directed toward the mother's children. It also is an empirical question whether the stigma associated with marriage to an unwed mother may be greater than the stigma from marriage to a divorced mother.

Unwed childbearing also affects mothers' marital search activities. To be sure, children place obvious time constraints on mothers, but they also engender economic and social constraints that limit mothers' exposure to potential marital partners. For example, children absorb resources that might otherwise be directed toward the purchase of personal items (e.g., clothes) or leisure activities (e.g., health clubs) that may enhance the mother's attractiveness in the marriage market. Early nonmarital childbearing may also alter mothers' lifecourse trajectories in negative ways, at least from the perspective of providing opportunities to form intimate relationships. For example, a nonmarital birth may reduce women's attractiveness for marriage by preventing educational goals, increasing poverty and low earnings, and creating new dependencies on extended kin and government transfers, while at the same time reducing access to economically attractive men in school, in the workplace, or in good neighborhoods. The substantive implication is clear: unwed childbearing is expected to reduce the probability of marriage. Indeed, evidence from studies of remarriage indicate that nuptiality rates are lowest among divorced women with the largest number of co-resident children, especially preschool children (where parenting is likely to be especially time-intensive).

Whether unwed childbearing causes delayed marriage or nonmarriage or visa versa is

unclear. Indeed, it remains ambiguous whether any statistical association, if observed, is causal or due to the failure to control other measured and unmeasured factors (Geronimus and Korenman 1992); this is the social selection argument. For example, it may well be that young women who bear children outside of marriage are *bad marriage material* (e.g., poor emotional adjustment, interpersonal problems, economic difficulties, etc.), having characteristics that reduce the likelihood of marriage *regardless of the occurrence of a nonmarital birth or not*. In many ways, the analytic issue here parallels those contained in a contentious literature about the longer-term consequences of adolescence fertility in education and economic well-being (Geronimus and Korenman 1992; Hotz, McElroy, and Sanders 1997). Does early unwed childbearing lead to a disadvantaged later life, or would these young mothers, because of their personal and family circumstances, experience these disadvantages regardless of their childbearing experiences? Several innovative studies have attempted to control for unobserved traits by comparing the socioeconomic achievement of sisters who did and not have a nonmarital birth, or by comparing the later well-being of teen mothers with teenage women who miscarried a pregnancy (who are assumed to be a random selection from the same population). Such studies generally show that the deleterious effects of teen childbearing are substantially reduced when unmeasured variables are taken into account (Geronimus and Korenman 1992).

In the current study, we examine the post-birth marital and cohabitation histories of young women. Our multivariate analysis follows closely the recent study by Bennett et al. (1995) on the influence of nonmarital childbearing on subsequent union formation, including cohabitation and marriage as competing outcomes, controlling for observed family background characteristics (e.g., parental education and race). Unlike Bennett et al. (1995), however, our study evaluates

whether this influence differs by prior cohabitation, and our life table analyses document differences by the age of the mother at first birth (e.g., teen motherhood). We also acknowledge that the effects of nonmarital childbearing and subsequent unstable relationships may well be endogenous; both may be selected on the same observed (e.g., grades, family background, etc.) and unobserved characteristics (e.g., temperament or risk-taking personality). Lacking data on siblings in the NSFG95, we nevertheless can compare the prospective marital histories of teens whose pregnancies were brought to term with those whose pregnancies were terminated (i.e., through abortion or miscarriage).

Data and Methods

Cycle 5 of the National Survey of Family Growth (NSFG95) provides detailed retrospective life history information, including family background, marital and nonmarital relationships histories, and fertility experiences, for 10,847 women ages 15 to 44 in 1995. We use this information to create event history files for 10,804 women who were never married at age 14. These files permit prospective analysis of the consequences of nonmarital fertility for subsequent union formation which takes into account both time-invariant background characteristics of the woman and time-varying factors, including her age and the occurrence of non-union and nonmarital fertility, and for analysis of the transition to marriage, nonmarital cohabitation immediately preceding the episode of risk.

Our multivariate discrete time analysis follows that of Bennett et al. (1995). Models of first union transitions include race (African American coded "1" versus all others), mother's education (with less than a high school education serving as the reference group in all models),

rural residence (coded "1" versus nonrural residence), and age at first sexual intercourse (a set of dummy variables indicating first intercourse at age 16 to 18, at 19 to 22, or at 23 or older, with "younger than 16" as the reference group). Our empirical analysis estimates the effects of out-of-union childbearing, a time-varying covariate in multivariate models and a subsample delimiter in life table comparisons. Separate life table estimates are provided for all women, women who had a nonmarital birth, women who had a first birth as a teenager, and women with nonmarital teen first births. For women who experienced a nonmarital first birth, life tables are created which consider that child's living arrangements, and for those who experienced a nonmarital first pregnancy, whether the pregnancy ended with miscarriage or abortion. Distributions for these variables are shown in Table 1 for this nationally representative sample of women.

(Table 1 about here)

Preliminary descriptive analysis of the probability of marrying by age 35 is based upon observed proportions of women at each age who either had a nonmarital birth or not in the following year. All other analyses take advantage of an event history analytical approach. Discrete-time event history modeling evaluates the risk of transition to marriage or cohabitation associated with characteristics described by covariates included in the model. All models control for the woman's age during the period of observation or, for cohort analysis of the consequence of a nonmarital birth, the duration of the period of risk of marriage following that birth. For multivariate analyses, age is collapsed into categories "younger than 18," "18 to 19," "20 to 24," "25 to 29," "30 to 34," and "35 and older." This strategy approximates Cox regression in a continuous-time framework (Blossfeld, Hamerle, and Mayer 1989), where time-dependent covariates are treated as step functions and bias in the estimated effects of covariates is minimized

by specifying a semiparametric form of the baseline hazard function.

All life table analyses are based upon data in person years, and most begin with age 14 and censor with a transition to marriage or the date of interview. Life tables for evaluating cohort effects and the influence of the child's living arrangement begin with the nonmarital birth. Logistic regression models yield transition hazards -- conditional probabilities of experiencing the event of interest during a time interval, given that the event was not experienced prior to the interval in question -- according to the method described by Guilkey and Rindfuss (1987).

Findings

Nonmarital Childbearing and Union Formation

We begin in Table 2 by establishing the relationship between nonmarital childbearing and the likelihood of remaining never-married by age 35 (see Bennett et al. 1995 for similar analysis with the NSFG88). Women are classified by whether they are never-married and childless at age x and either (1) had a nonmarital birth in the following year (column 2) or (2) did not have a nonmarital birth (column 1). Our results have a straightforward interpretation: a nonmarital birth reduces the likelihood of being married at age 35. For example, girls who had a nonmarital birth at age 14 were 58% more likely to be never married at age 35 than girls who did not have a nonmarital birth (i.e., 20.56 vs. 12.99). Similarly, unmarried mothers at age 19 were 59% more likely to be never-married at age 35. For 20-24 year olds, the relationship between nonmarital fertility and subsequent marriage is even stronger. Indeed, 38% of unmarried mothers aged 20-24 were never-married by age 35, compared with 19% of women without a nonmarital birth.

(Table 2 about here)

The transition to first marriage is associated with many factors (e.g., Bennett et al. 1995; Lichter et al. 1992), including nonmarital fertility. Table 3 presents the results from hazards models that include other conventional variables as controls, replicating Bennett et al.'s (1995) analyses for women in the 1980s. The first panel includes all women; the second panel includes results from analyses excluding women who married within six months of their nonmarital birth. This distinction is important, as nonmarital fertility may accelerate the transition to first marriage to the biological father but not to other men. Although we cannot establish paternity or determine whether mothers marry their children's father, following Bennett et al. (1995) we can reasonably assume that marriages that occur within 6 months of the birth of a child will involve the biological father. By eliminating these rapid post-birth marriages, we are able to evaluate whether a nonmarital birth reduces the likelihood of marriage to other men (i.e., non-fathers of the mother's child).

We begin in model 1 of panel 1 by noting that the odds of marriage among African American women is only 46 percent of nonblack women. The lower marriage rates among black women clearly are not due to the lower marriageability associated with high rates of nonmarital fertility (see also Lichter et al. 1992). Women from higher education backgrounds have a lower risk of marriage than women whose mothers have less than a high school education. And rural women are 44% more likely to marry than non-rural women, a result clearly consistent with past research (McLaughlin et al. 1995). The positive zero-order effect (.25) of a nonmarital birth on subsequent marriage is eliminated when these variables are controlled in model 1.

(Table 3 about here)

When women who married within 6 months of their nonmarital birth are excluded from

the analyses (model 3), the negative effect of a nonmarital birth indicates that unmarried mothers tend to marry their child's father rapidly, other mothers have slow transitions to marriage. A nonmarital birth reduces the likelihood of marriage to other men by one fifth (i.e., the odds ratio is .80), confirming that Bennett's findings first observed for the 1980s (reproduced here in columns 2 and 6 Table 3) continue to apply, albeit less strongly, in the 1990s (Bennett et al. 1995).

Manning (1995) has shown that nonmarital childbearing among cohabiting couples is associated with subsequent transitions to marriage. Going beyond Bennett et al. (1995), when we include a variable for cohabitation in our model (Model 2), which takes into account the fact that roughly 40% of all nonmarital births occur to cohabiting couples (Bumpass and Lu 1998), nonmarital childbearing appears as an important negative predictor of marriage ($b = -.46$). The likelihood of marriage among unwed mothers is only .63 of that of other women, and it is even lower if we exclude marriages that occurred within 6 months of childbirth (.51). Clearly, these results reinforce the view that nonmarital childbearing is a major impediment to subsequent marriage among American women.

The negative effect of nonmarital childbearing on union formation **C** both formal and informal **C** is further revealed in the results presented in Table 4. Here we fit hazards models to first union (either marital or nonmarital), first formal union (i.e., marriage), and first informal or cohabiting union. The models include out-of-union births, as well as several standard control variables, including age at first intercourse as a control for sexual development. Bennett et al. (1995) reported that out-of-union births were negatively associated with first union formation (including cohabitation), but that the effect was negative for first marriage but positive for first informal union. The substantive implication is that nonmarital childbearing is associated with

cohabitation at the expense of marriage. This also implies that nonmarital fertility places unwed mothers on a track of subsequent family instability, given the currently observed high dissolution rates and short durations of most cohabiting unions (Bumpass and Lu 1999).

(Table 4 about here)

Indeed, the results in Table 4 generally corroborate the previous results of Bennett et al. (1995). Our results show that nonmarital fertility has a statistically significant negative effect ($b = -.25$) on the likelihood of forming unions. But this finding is due entirely to its effects on marriage rather than cohabitation. Like Bennett et al.'s (1995) study, we find at the bivariate level (model not shown) that nonmarital fertility increases the risk of transitions into cohabiting unions.¹ However, unlike Bennett et al.'s study, we show an inconsequential net effect of nonmarital childbearing on informal union formation (model 4). More specifically, bivariate results (not shown) indicate that unwed mothers are 1.55 times more likely to form informal coresidential unions than are other women, but this effect is explained entirely by antecedent background characteristics of the mother. When the analysis is restricted to cohabiting women (model 3), a nonmarital birth has a significant negative effect on marriage transitions; cohabiting women are 15% less likely to marry if they have a child out-of-wedlock than if they delay fertility. Clearly, nonmarital childbearing alters the post-birth marital histories of young women.

Life Table Estimates of Marriage

¹The risk set for analyses excludes women who were cohabiting at the time of the birth of their first child.

In Table 5, our life tables estimates, based on the entire NSFG95 sample of women aged 14-45, indicate that 87.2% will ever-marry by age 40. Most (82.9%) of these women, given current age-specific first marriage rates, are expected to be married by age 30. If the sample is restricted to women with no nonmarital birth, 88.3% are expected to marry by age 40. Obviously, these estimates are confounded by cohort trends in marriage and nonfertility, but nevertheless reflect the lived experiences of women currently aged 14-45 in 1995.

(Table 5 about here)

In contrast, only 71.7% of women who had a nonmarital birth will have married by age 40. Women with nonmarital births have cumulative marriage rates at age 40 that are roughly 20 percent lower than women who did not have a nonmarital birth. While at every age the cumulative percentage ever-married are lower for unwed mothers than women without out-of-wedlock children, differences seem greatest at younger ages. For example, unwed mothers were 38% less likely to be married at age 25 than their counterparts who delayed childbearing until after marriage (i.e., 67.5% vs. 43.1%). At the age 20, women with nonmarital births are about 40% less likely to be ever-married than women bearing a first child only subsequently to marriage. Such results are consistent with earlier results reported in Tables 2-4.

The bottom two rows (Table 5) provide life table estimates of cumulative percentages who marry for women with teen births and with teen nonmarital births. Not surprisingly, the marriage rates of women with any teen birth (both marital and nonmarital) are quite high C 56% are married by age 20 and 85% are expected to be married by age 40. When the sample is restricted to women with nonmarital teen births (bottom row, Table 5), only about 28% become married by age 20, 69% by age 30, and 73% by age 40. As before, the marriage rates among

unmarried mothers C including teen mothers C are very low in comparison to all women and women without unwed births.

These cumulative marriage rates (based on the entire sample of NSFG95 women) may misrepresent current marriage experiences of young women in light of observed marriage trends among more recent cohort of young mothers. Bumpass and Lu (1999), for example, report a decline in the proportion of women who legitimize nonmarital births through marriage over the 1960-64 to 1985-90 nonmarital birth cohorts. Table 6 provides life table estimates of the cumulative percentages of women experiencing first marriage, by nonmarital birth cohort. Column 1 shows the percentages of unmarried mothers (for successive nonmarital birth cohorts) who married within 1 year of a nonmarital birth. These results corroborate those of Bumpass and Lu (1999). Older cohorts of unwed mothers were more likely to marry during the child's first year than is the case among today's younger cohorts. For example, among unwed mothers in 1970-74, 12.4 % married within 1 year of the birth of the child. Among the most recent cohort (i.e., 1990-1995), only 6.0% married within 1 year. Moreover, 44.6% of the older cohort (i.e., 1970-74) married within 5 years, compared with 30.2% among the most recent cohort (i.e., 1990-1995).

(Table 6 about here)

We also observe rather large differences between pre-1975 cohorts and post-1975 cohorts in the proportions of unwed mothers who ultimately married. For example, for pre-1975 cohorts, 75% became married within 15 years after a nonmarital birth (i.e., before most children leave home). For the 1975-79 and 1980-85 cohorts, less than two-thirds became married within 15 years of a nonmarital birth. The implication is clear: Nonmarital childbearing is becoming more

strongly associated over time with persistent nonmarriage.

One common argument is that nonmarital fertility C especially for older women C may increasingly be viewed as a marker of adult status, especially if opportunities to marry are limited by shortages of potential marital partners or other barriers to marriage. Most nonmarital fertility in the United States occurs to women over the age of 20 (Ventura et al. 1995). It is therefore reasonable to argue that older unwed mothers will be less likely to subsequently marry than younger unwed mothers. On the other hand, teen mothers (compared with older unmarried mothers) may have other personal or economic problems that reduce their attractiveness in the marriage market (e.g., lower education, neighborhood dislocations, etc.). Our results are ambiguous on this issue. For older cohorts (pre-1975), older unwed mothers tended to have higher rates of marriage than young unwed mothers, but this pattern has reversed among more recent cohorts. For example, for the 1985-89 cohort of unwed mothers, 35.1% of teen mothers married within 5 years, compared with 31.6% among mothers aged 20 or older.

Moreover, if these data are reevaluated in terms of cumulative marriage rates by a particular age (say age 30), then teen unwed mothers are substantially more likely to marry than their older counterparts. As a simple illustration, younger unwed mothers in the 1985-89 cohort after 10 years can be compared with older unwed mothers after 5 years (when they are roughly the same age). This comparison indicates that 57.4% of teen mothers ever-marry by age 25-29, compared with only 31.6% of the older women. Clearly, in this comparison, the impediments to marriage are substantially higher among older unwed mothers than among younger unwed mothers. Or, alternatively, unwed motherhood *results* from the limited prospects for marriage or other unmeasured traits, an issue of endogeneity to which we now turn.

Issues of Endogeneity

Our results suggest a strong association between unwed childbearing and union formation, but it is difficult to make strong causal assertions. Unmarried mothers may have many observed and unobserved characteristics that are associated with both nonmarital fertility and nonmarriage (e.g., women who have difficulty maintaining interpersonal relationships). Obviously, we cannot observe the counterfactual case, i.e., whether mothers who stayed unmarried would have become married had they not had an unwed child.

We approach this analytical problem in two ways. First, we compare our life table marriage estimates for women with a nonmarital birth with those of women who became pregnant but either miscarried or aborted the pregnancy. For purposes here, we make the reasonable assumption that pregnant women (regardless of how the pregnancy is resolved) are drawn from the same population of women. This random assignment of pregnant women to experimental (i.e., childbearing women) and control groups (i.e., miscarriage) controls for unmeasured confounding variables (Hotz et al. 1997). Thus any observed marriage differences between unwed mothers and women whose pregnancies ended in miscarriage are due to unwed childbearing. Obviously, this is not true in the case of abortion, but we include life table estimates for this population subgroup for purposes of comparison.

Second, we compare unwed mothers who keep their children in the children live in the mother's home with unwed mothers whose children do not live at home. Previous research on remarriage (Sweeney 1998) shows that divorced women with children are much less likely to remarry than childless divorced women. The usual inference is that children create disincentives

(i.e., including financial and childrearing costs) for prospective male partners, and that children restrict mothers' search activities for partners, although Bennett et al. (1995) conclude that this is not the case. We therefore expect that unwed mothers who maintain custody of their children will have significantly lower marriage rates than mothers who relinquish custody.

Table 7 provides life-table based cumulative ever-marriage rates for women who lost a nonmarital pregnancy (row 1), miscarried the nonmarital pregnancy (row 2), and aborted a nonmarital pregnancy (row 3). For these three subpopulations of pregnant women, the percentages marrying by a given age are remarkably similar; roughly 83% can expect to marry by age 40. The more interesting comparison, however, is with cumulative marriage rates at age 40, previously reported in Table 5, for women *with* (71.7%) and *without* a nonmarital birth (88.3%). These results suggest that selection into unwed childbearing accounts for only a small fraction of the large marriage difference between unwed mothers and women without nonmarital births. In fact, women with unwed pregnancies that are terminated (by miscarriage or abortion) are more similar to women without a nonmarital birth than to women with a nonmarital birth, regardless of age at first conception. The substantive implication is that causal arguments regarding the effect of nonmarital childbearing on subsequent marriage cannot be rejected.

(Table 7 about here)

At the same time, the causal mechanisms for such effects are unclear. Does the child itself create new costs or barriers to marriage for the mother? In Table 8, we provide life table estimates of marriage for unwed mothers, distinguishing between those who retain custody of their child and those who are not custodians. The results indicate that cumulative marriage rates are higher among mothers who give up their out-of-wedlock children than among those who

maintain custody. For unwed mothers who give up custody, 63% became married within 10 years.

For unwed custodial mothers, the corresponding figure is lower at 53%. These differences are intriguing and consistent with our causal hypothesis, but they are not conclusive. Mothers who retain custody may be different in uncertain ways from mothers who give up custody of their children (Meyers and Garansky 1993). Fortunately, any differences are likely to *reinforce* rather than negate our causal conclusions. From previous research on child custody orders, we know that mothers without custody exhibit certain traits (e.g., mental health or economic problems) that would arguably reduce rather than enhance their attractiveness in the marriage market.®

(Table 8 about here)

Discussion and Conclusion

Our goal of evaluating the relationship between unwed childbearing and subsequent union formation is increasingly important from a policy standpoint. The new welfare reform bill and resulting public assistance program (TAFN) are targeted at welfare-dependent and nonemployed single mothers. An explicit goal is to discourage nonmarital fertility (e.g., through abstinence programs and rewards to states for reducing unwed childbearing) while supporting childbearing and childrearing within two-parent married-couple families. Faced with time-limits on welfare receipt, unmarried mothers must adapt economically to the new welfare environment in many ways; indeed, in the absence of welfare income, incentives to marry or cohabit may increase among single mothers with minor children. Yet, our understanding of union formation processes among unwed mothers is limited.

Our paper addresses this void. Retrospective family life history data from the 1995 National Survey of Family Growth indicate that a nonmarital childbearing is associated with

significant reductions in the likelihood of being married at age 35. At age 14, for example, girls who had a nonmarital birth were 58% more likely to be never married at age 35 than girls who did not have a nonmarital birth (i.e., 20.6% vs. 13.0%). Nonmarital childbearing, however, is positively associated with the subsequent formation of informal or cohabitating unions, but this is due entirely to family background characteristics. Our life table analysis also indicates that only 72% of women who had a nonmarital birth can expect to be married by age 40, which is roughly 20% lower than women who did not have a nonmarital birth. Moreover, the lower marriage rate among unwed mothers evidently is not due to selection alone. The cumulative marriage rates of women with unwed pregnancies that are terminated (by miscarriage or abortion) are more similar to women without nonmarital births than to women with nonmarital births. The substantive implication is that causal arguments regarding the long-term negative effect of nonmarital childbearing on subsequent marriage cannot be rejected.

To be sure, our study has been largely descriptive. As such, future work must identify and evaluate the specific potential causal mechanisms through which nonmarital childbearing may diminish subsequent prospects for marriage. From the perspective of single mothers, for example, nonmarital childbearing and childrearing may reduce marital search activities, limit exposure to economically attractive prospective partners (if childbearing cuts short women's educational or occupational achievement), or may serve as an alternative route to family formation and reduce the incentive to form traditional husband-wife families (e.g., women with children are less likely than childless women to desire to marry). Any incentive to marry may also be discouraged by the resulting loss of welfare income available to single mothers with children (McLaughlin and Lichter 1997). From the perspective of potential male partners of the mother, the presence of

another man's children in the home may represent a financial and emotional cost that discourages marriage. Children also compete for the mother's time and attention, which also may affect his incentives to marry. Clearly, if marriage is to be a major adaptive response of unwed mothers to the new welfare environment and to low income, our attention should now be focused on the specific constraints faced by unwed mothers in the marriage market.

Whether marriage should be encouraged or not as a specific policy tool has a contentious history (e.g., wed-fare programs). On the one hand, marriage may contribute positively to the economic and emotional well-being of children of single mothers, who may benefit themselves emotionally from marriage to a supportive spouse (e.g., married women report better mental health than single women). On the other hand, marriage may create new economic and emotional dependencies on men which are ultimately unhealthy for both women and children (e.g., abusive relationships). We cannot adjudicate these competing concerns here. Our goal has been more modest **C** to evaluate the prospective marital histories of unwed mothers in a policy environment that increasingly views marriage as a potential panacea.

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Table 1. Descriptive Statistics for NSFG95 Women Who Were Never Married at Age 14
(*n*=10804).

Variable	Weighted Percentage/Mean (sd)	
Had Nonmarital Pregnancy	36.3%	
Had Nonmarital Birth	17.4%	
Had a Teen Pregnancy	23.6%	
Had a Teen Birth	12.9%	
Married within 6 Months of Birth (among women with a nonmarital birth)	7.8%	
Pregnancy Ended with Induced Abortion (among women with a nonmarital pregnancy)	29.9%	
Pregnancy Ended with Miscarriage (among women with a nonmarital pregnancy)	11.5%	
First Child Lives with Mother (among women with a nonmarital first birth)	79.8%	
First Child Relinquished for Adoption (among women with a nonmarital first birth)	0.43%	
Woman's Mother's Education = High School	42.4%	
Woman's Mother's Education = More than High School	27.3%	
Woman's Race = African American	13.7%	
Woman's Age in 1995	30.6 years (8.3 years)	
Rural Residence	14%	
Woman's Age at 1 st Sexual Intercourse	@ <16 years	22.9%
	@ 16 to 18 years	40.7%
	@ 19 to 22 years	19.8%
	@ >22 years	16.5%

Table 2. Percentages of Women Never Married by Age 35.

Age	No Nonmarital Birth	Nonmarital Birth within a Year of Age x
14	12.99	20.56
15	13.14	16.28
16	13.45	19.50
17	14.17	23.97
18	15.54	34.74
19	17.96	28.71
20-24	18.87	38.12

Table 3. Estimates of the Relationship between Nonmarital Childbearing and the Risk of First Marriage, controlling for Age (odds ratios in brackets).

Variables	Panel 1 Including Women Who Married within Six Months of Their Nonmarital Birth				Panel 2 Excluding Women who Married within Six Months of Their Nonmarital Birth			
	Bivariate Models	(Bennett et al. 1995, Table 2, Panel 1, p. 52)	Model 1	Model 2	Bivariate Models	(Bennett et al. 1995, Table 2, Panel 2, p. 52)	Model 3	Model 4
Nonmarital Birth (time-varying)	.25** [1.29]	-.121*	-.02 [.97]	-.46** [.63]	.07* [1.08]	-.316*	-.23** [.80]	-.67** [.51]
Black	-.64** [.53]	-.695*	-.77** [.46]	-.65** [.53]	-.67** [.51]	-.669*	-.74** [.48]	-.63** [.54]
Mother's Education = HS	.10** [1.11]	-.144*	-.13** [.88]	-.12** [.88]	.11** [1.11]	-.150*	-.14** [.87]	-.14** [.87]
Mother's Education > HS	-.32** [.73]	-.479*	-.47** [.63]	-.42** [.66]	-.31** [.73]	-.496*	-.48** [.62]	-.45** [.64]
Rural Residence	.32** [1.38]	.385*	.37** [1.44]	.34** [1.40]	.33** [1.39]	.388*	.37** [1.45]	.35** [1.41]
Cohabiting in Prior Month (time-varying)	1.77** [5.89]	-		1.48** [4.39]	1.76** [5.81]	-		1.49** [4.45]
-LogL		32993				32171		
-2LogL Intercept Model			85051.786				83310.048	
Full Model			81111.5**	78612.6**			79365.8**	76872.7**
<i>n</i>	1202459 person months	8,345 observations	1202459 person months		1190437 person months	8234 observations	1190437 person months	

* $p \leq .05$ ** $p \leq .01$

Table 4. Estimates of the Influence of Out-of-Union Childbearing on the Probability of a First Union, First Formal Union (Marriage) for All and for Cohabiting Women, and First Informal Union (Nonmarital Cohabitation), Controlling for Age (women age 30 and older).

Variables	First Union		First Formal Union			First Informal Union	
	Model 1	Bennett et al. (1995), Table 4	Model 2 - All Women	Bennett et al. (1995), Table 4	Model 3 - Cohabiting Women	Model 4	Bennett et al. (1995), Table 4
Out-of-Union Birth	-.25** [.77]	-.151*	-.38** [.69]	-.343*	-.16* [.85]	-.01 [.99]	.249
African American	-.75** [.47]	-.507*	-.82** [.44]	-.644*	-.58** [.56]	-.62** [.54]	-.216*
Mothers Education = HS	-.22** [.80]	-.159*	-.15** [.86]	-.104*	.30** [1.35]	-.16** [.85]	-.121#
Mothers Education > HS	-.47** [.63]	-.364*	-.41** [.66]	-.370*	.21** [1.23]	-.26** [.77]	.063
Rural Residence	.24** [1.27]	.237*	.31** [1.36]	-.322*	.15** [1.16]	.08 [1.08]	-.309*
Age at First Intercourse 16-18	-.45** [.64]	.065	-.19** [.83]	.117*	.18** [1.19]	-.65** [.52]	-.013
Age at First Intercourse 19-22	-.90** [.41]	-.471*	-.44** [.64]	-.295*	.29** [1.34]	-1.37** [.25]	-.732*
Age at First Intercourse 23+	-1.86** [.16]	-1.114*	-1.28** [.28]	-.864*	.63** [1.88]	-2.67** [.07]	-1.768*
-LogL		23755		22631			6415
-2LogL Intercept Model	66411.4		63948.3		24014.7	29642.6	
Full Model	62300.5**		60990.9**		23052.9**	27514.9**	
<i>n</i>	667,090	4221	796,390	4221	129,794	663,110	4221
	person months		person months		person months	person months	

#*p* ≤ .10 **p* ≤ .05 ***p* ≤ .01

Table 5. Cumulative Percentage of Women Ever Marrying, by Nonmarital Childbearing Status (Women Never Married at Age 14).

	Percentage Marrying by Age x										
	18	20	21	22	23	24	25	26	30	35	40
All Women ($n=109,179$ person years)	15.4	28.9	36.7	44.8	52.6	59.7	65.9	71.2	82.9	86.7	87.2
Women with No Nonmarital Birth ($n=76,498$ person years)	15.9	30.0	38.1	46.4	54.2	61.4	67.5	72.6	84.2	87.9	88.3
Women with a Nonmarital Birth ($n=32,681$ person years)	10.6	18.6	23.2	28.1	33.2	38.2	43.1	47.6	61.5	69.5	71.7
Women with a Teen Birth ($n=15,072$ person years)	41.5	55.9	61.8	66.7	70.8	74.1	76.8	78.9	83.3	84.7	84.8
Women with a Nonmarital Teen Birth ($n=12,603$ person years)	17.3	28.5	34.4	40.2	45.7	50.7	55.2	59.0	68.7	72.5	73.0

Table 6. Cumulative Proportion of Women Experiencing a Nonmarital First Birth Who Marry by 1995, by Nonmarital Birth Cohort

Nonmarital Birth Cohort (n, person years)	Percentage Marrying within Year <i>x</i> of Birth																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	20	25	30
1964-1969 (863)	16.5	29.0	38.7	46.2	52.2	57.0	60.9	64.7	66.7	68.9	70.7	72.3	73.6	74.7	75.7	78.8	80.5	81.3
1970-1974 (3249)	12.4	22.6	31.2	38.5	44.6	49.8	54.3	58.2	61.5	64.4	66.9	69.2	71.1	72.9	74.4	80.0	83.4	-
20 or Older at Birth	14.0	25.4	34.7	42.5	49.0	54.5	59.1	63.1	66.4	69.3	71.8	74.0	75.9	77.6	79.1	84.3	87.3	-
Less Than 20 at Birth*	12.0	22.0	30.4	37.5	43.5	48.7	51.1	57.0	60.3	63.2	65.8	68.0	70.0	71.8	73.4	79.0	82.5	-
1975-1979 (3976)	9.0	16.6	23.2	28.9	33.9	38.2	42.0	45.4	43.3	50.9	53.3	55.4	57.2	58.9	60.4	66.1	-	-
20 or Older at Birth	8.9	16.6	23.2	29.0	33.9	38.3	42.1	45.4	48.4	51.0	53.3	55.4	57.3	59.0	60.5	66.1	-	-
Less Than 20 at Birth*	6.0	16.6	23.2	28.9	33.9	38.2	42.0	45.4	48.3	50.9	53.3	55.4	57.2	58.9	60.4	66.1	-	-
1980-1984 (4780)	9.5	17.6	24.6	30.7	35.9	40.5	44.5	48.1	51.2	54.0	56.4	58.6	60.6	62.4	63.9	-	-	-
20 or Older at Birth	10.5	19.3	26.9	33.3	38.9	43.7	47.9	51.6	54.8	57.6	60.1	62.4	64.3	66.1	67.7	-	-	-
Less Than 20 at Birth**	8.8	16.4	23.0	28.7	33.7	38.1	42.0	45.4	48.5	51.2	53.6	55.7	57.7	59.4	61.0	-	-	-
1985-1989 (4105)	5.7	12.3	19.4	26.6	33.5	39.6	44.8	49.0	52.2	54.6	-	-	-	-	-	-	-	-
20 or Older at Birth	5.3	11.5	18.2	25.1	31.6	37.5	42.6	46.6	49.8	52.1	-	-	-	-	-	-	-	-
Less Than 20 at Birth***	6.1	13.2	20.8	28.5	35.7	42.0	47.4	51.7	55.0	57.4	-	-	-	-	-	-	-	-
1990-1995 (1924)	6.0	14.6	21.7	27.0	30.2	-	-	-	-	-	-	-	-	-	-	-	-	-
20 or Older at Birth	6.5	13.9	20.7	25.8	28.9	-	-	-	-	-	-	-	-	-	-	-	-	-
Less Than 20 at Birth*	7.2	15.3	22.7	28.2	31.6	-	-	-	-	-	-	-	-	-	-	-	-	-

Difference between this group and women who were 20 or older at the birth is not statistically significant.

* Difference between this group and women who were 20 or older at the birth is significant at $p=.09$.

** Difference between this group and women who were 20 or older at the birth is significant at $p=.19$.

Table 7. Cumulative Percentage Ever Marrying among Women Who Experienced a Nonmarital First Pregnancy, by Pregnancy Loss and Age at Pregnancy

	Percentage Marrying by Age x										
	18	20	21	22	23	24	25	26	30	35	40
All Women, Pregnancy Lost ($n=20,593$ person years)	9.7	19.1	24.7	30.9	37.5	44.0	50.3	56.2	72.8	80.9	82.7
All Women, Pregnancy Miscarried ($n=5914$)	12.8	26.6	30.0	36.7	43.4	49.8	55.8	61.1	75.2	81.4	82.5
All Women, Pregnancy Aborted ($n=14,679$ person years)	8.8	17.5	23.0	29.2	35.8	42.5	49.1	55.1	72.7	81.4	83.4
Teenaged Women, Pregnancy Miscarried ($n=2506$ person years)	20.9	38.0	47.0	55.4	62.8	69.0	74.0	77.7	85.0	86.5	86.5
Teenaged Women, Pregnancy Aborted ($n=6498$ person years)	13.6	25.6	32.6	39.9	47.1	53.9	60.0	65.2	78.2	83.0	83.7

Table 8. Cumulative Percentage of Women Ever Marrying following a Nonmarital Birth, by Child's Living Arrangement ($n=18,897$ person years).

Child's Living Arrangement	Percentage Marrying within Year x of Birth						
	1	5	10	15	20	25	30
Not in Mother's Home (adopted, deceased, or whereabouts unknown)	10.4	41.7	63.1	71.8	77.8	79.6	80.3
In Mother's Home	7.9	33.3	52.6	62.7	67.5	69.5	70.2