Mother's Union Status at Birth and the Risk of Low Birthweight, 1958-2008

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Abstract

This study investigates the changing association over time between union status and low birthweight, an indicator of early child well-being with long-term consequences for physical health, behavior, and cognitive performance. Data are drawn from the five most recent waves of the National Survey of Family Growth (1982-2008) to assess whether the contemporary advantage of being born to a married parent relative to an unmarried parent is stronger or weaker compared to historical periods when marriage was more frequently the context for childbearing in the United States. The study also investigates whether the disadvantage of being born to a cohabiting parent compared to a married parent has diminished over time as childbearing in cohabitation has become a more frequent event in an increasingly heterogeneous subset of the population.

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On a range of physical, cognitive, and socioemotional outcomes, contemporary children born to married parents are advantaged compared to their counterparts born to unpartnered or cohabiting mothers. An established literature documents these advantages from school entry through adolescence (Crosnoe and Cavanagh 2010; McLanahan and Percheski 2008; McLanahan and Sandefur 1994). Recent research has documented that as early as 9 months and 2 years of age, children residing with married parents have higher scores on standardized assessments of cognitive ability, physical health, and positive behavior (Brown 2008; Harknett 2009; Mollborn, Fomby, and Dennis 2010; Rippeyoung 2009), suggesting that any positive attributes of marriage associated with children's development are present shortly after birth.

The proposed study investigates the changing association over time between union status and low birthweight, one of the earliest indicators of child well-being with long-term consequences for physical health, behavior, and cognitive performance. Data are drawn from the five most recent waves of the National Survey of Family Growth (1982-2008) to assess whether the contemporary advantage of being born to a married parent is stronger or weaker compared to historical periods when marriage was more frequently the context for childbearing in the United States. The study also investigates whether the *disadvantage* of being born to a cohabiting parent has diminished over time as childbearing in cohabitation has become a more frequent event in an increasingly heterogeneous subset of the population.

Hypotheses

Two broad hypotheses have been put forward to explain how the benefits of marriage accrue to children. The *protection* hypothesis posits that marriage has protective characteristics that enable parents to invest in young children more effectively than do single or cohabiting parents. Such characteristics of marriage include higher income and/or pooled income from dual earners, more social connectedness and social support, more father involvement, better physical and emotional health, union stability, lower union conflict, more time to interact with or monitor children, and more normative social roles that carry

currency in the public sphere and among kin (Cherlin 1978; Eggebeen 2005; Entwisle and Alexander 1995; Harknett and Knab 2007; Popenoe 2009; Waite and Gallagher 2000). In the context of low birthweight, the protection hypothesis would predict that married women have a lower risk of experiencing low birthweight compared to unpartnered or cohabiting women because marriage provides distinctive benefits that promote a healthy, full-term pregnancy. For example, greater pregnancy intendedness may result in earlier prenatal care, and married couples may be more likely than others to include at least one full-time worker with adequate health insurance to cover pregnancy complications.

The *selection* hypothesis posits that adults who marry are selected on positive traits that carry over to children's well-being. Under the selection hypothesis, it is not the institution of marriage that benefits children, but the attributes of parents who enter into marriage that are transferred to children by environmental or genetic means. These traits include parents' higher education, older age at union formation, family structure in childhood, and pre-existing interpersonal skills, labor force position, and income (Crosnoe and Cavanagh 2010; McLanahan and Percheski 2008; Musick 2007; Smock and Greenland 2010). The selection hypothesis would predict that married women have a lower risk of experiencing low birthweight because traits that are attractive in the marriage market and functional within marriage are also conducive to a healthy, full-term pregnancy. For example, married women may be less likely to have ever smoked or more likely to have educational capital that transfers to knowledge acquisition regarding health practices during pregnancy.

The prevalence of low birthweight singleton births in the population has generally diminished over the last half-century as a result of medical advances that prevent pre-term delivery, broader access to and use of prenatal care, and educational programs to discourage smoking and encourage healthy diets during pregnancy. Recognizing these broad historical changes, the proposed research also considers a third explanation – the *public health* hypothesis. This hypothesis predicts that any historical benefit from marriage may have diminished over time as maternal and child health policies have broadly dispersed into the general population. That is, unpartnered and cohabiting pregnant women may be more likely in recent

cohorts to reflect the health habits of married pregnant women, thus decreasing the risk of low birthweight regardless of a mother's union status.

As a test of these competing hypotheses, I consider the association between mother's union status and the risk of low birthweight in the United States during the last half-century (1958-2008). If benefits of marriage accrue to children through selection mechanisms, then the risk that a child is born low birthweight should diminish over time if the population of people who marry is increasingly selected on positive traits. At the same time, the risk of low birthweight would remain constant or increase for unmarried women as the unmarried population absorbs mothers whose characteristics were selected out of marriage. If benefits of marriage to children operate through protection mechanisms, then the risk of low birthweight should remain roughly constant over time. That is, even as the population of people who marry changes, the status of being married should confer institutional benefits that protect and influence a child's well-being. If the benefit to marriage has diminished because of public health efforts, the probability of low birthweight should decrease over time for all children, regardless of mother's union status. (However, the timing of such a decline may vary by union status if married women are earlier adopters of favorable public health policies.)

Corollary to these hypotheses, I also investigate the association between cohabitation status at birth and risk of low birthweight over time. Historically, children born to or residing with cohabiting parents have been disadvantaged in terms of cognitive performance and behavior compared to married parents, an association largely explained by cohabiting parents' lower educational attainment and income (Artis 2007; Brown 2004; Manning and Lichter 1996). However, the cohabiting parent population has become increasingly large and heterogeneous in recent years, with 18 percent of all births (half of all nonmarital births) occurring to cohabiting parents between 1997 and 2001 (Kennedy and Bumpass 2008). If this increasing heterogeneity among cohabitors has reduced *negative* selection into cohabitation, then the benefit of marriage relative to cohabitation also may be in decline with regard to birthweight.

Data and Methods

Data for this project come from cycles 3 through 7 (1982, 1988, 1995, 2002 and 2006-08)[1] of the National Survey of Family Growth, a periodic, nationally representative survey of women 15 to 44. (Since 2002, men have also been included as respondents.) The survey is designed to gather information on marriage, cohabitation, divorce, pregnancy, infertility, contraception, and health. While the survey instruments are not identical across years, each cycle includes information on union status at birth, child's date of birth and birthweight, mother's smoking behavior in pregnancy and use of prenatal care, and relevant sociodemographic indicators including age at birth, race/ethnicity, years of education, labor force experience prior to birth, religiosity, and family background characteristics. The range of birth years included is 1958-2008. The analytic sample includes 53,447 live singleton births to approximately 40,000 women.

The analysis will also include time-varying national-level data to account for exogenous factors that might influence birthweight in the population over time. These data include information on age-specific smoking rates among women (International Mortality and Smoking Statistics database), abortion rates (Alan Guttmacher Institute), miscarriage and stillbirth rates (Statistical Abstract of the United States), and women's educational attainment (Statistical Abstract).

Models will be estimated in Stata using logistic regression to predict the log-odds that a child is low birthweight as a function of union status and historical time. Interactions between union status and time will test the competing hypotheses. Multilevel models will incorporate time-varying national-level data.

Preliminary results

Table 1 shows that the overall percentage of singleton live births that are low birthweight decreased about 35 percent between 1958 and 2008 with an uptick during the 1990s. However, this

[1] Cycles 1 and 2 (1973 and 1976) are inappropriate for several reasons. First, the sampling frame in each year included only women who ever married (the instrument did collect data on prior nonmarital births). Second, cohabitation status was captured only when women volunteered that they were in an "informal marriage." Third, the survey instruments did not collect data on smoking or prenatal care, two key predictors of low birthweight.

decline has not been evenly distributed by mother's marital status. Figure 1 shows that in 1958, the probability of low birthrate was nearly identical for married and unpartnered women (about .10) and was nearly two times higher for cohabiting women. Over time, both married and cohabiting women have become increasingly less likely to have a low birthweight infant, and probabilities began to converge during the 2000s. This preliminary analysis demonstrates support for the selection hypothesis, suggesting that the pool of women experiencing fertility in marriage or cohabitation has changed over time to become more selective on traits that are predictive of healthy birthweight. The pattern is especially striking for cohabiting women. Among unpartnered women, in contrast, the probability of delivering a low birthweight child has increased about 50 percent over the observed 50-year period. This increase suggests that children born to unmarried women have become increasingly disadvantaged as the composition of the pool of unmarried mothers has changed in response to women's selective entry into cohabitation as a context for childbearing.

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Table 1.

Decade	Probability of low birthweight
1958-1969	.093
1970-1979	.075
1980-1989	.061
1990-1999	.07
2000-2008	.059

Source: NSFG Cycles 3-7

Figure 1.

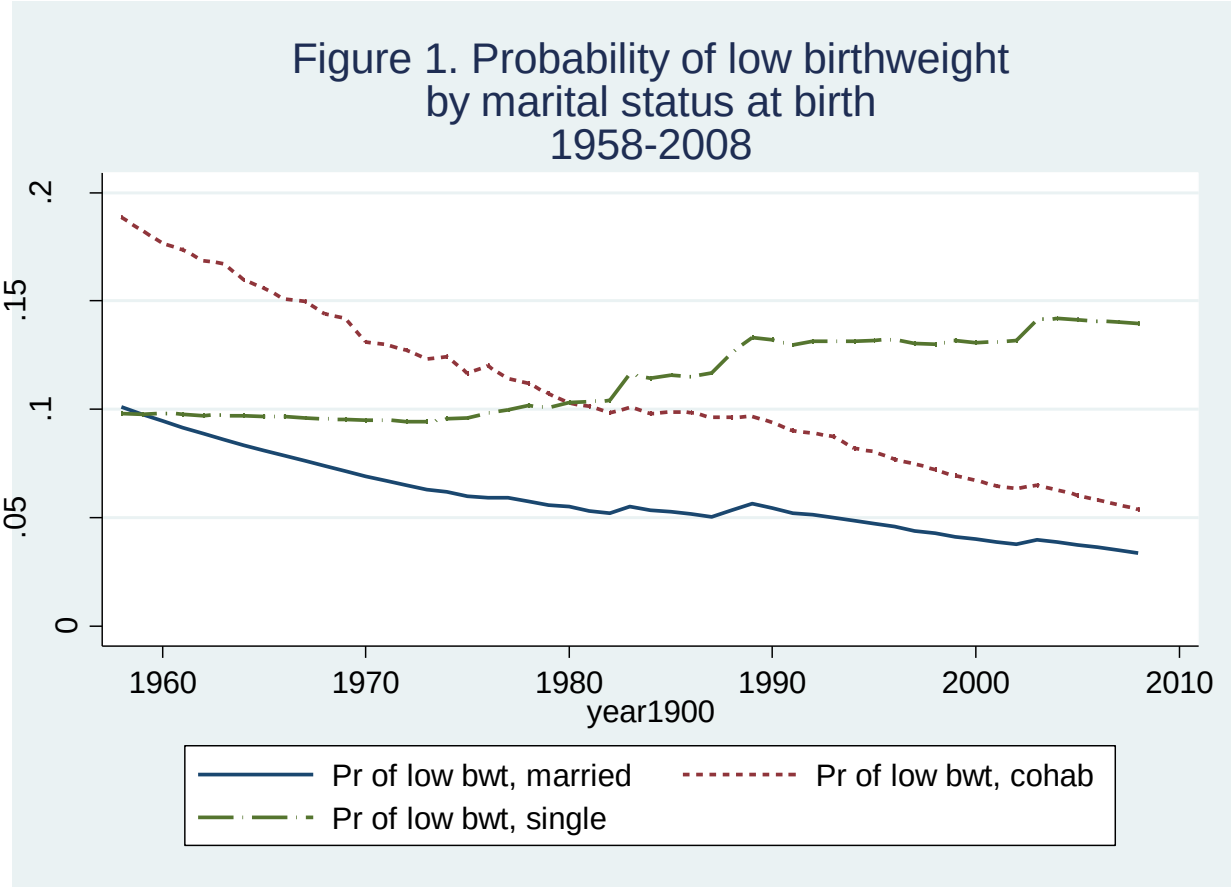
Figure 1. Probability of low birthweight
by marital status at birth
1958-2008
0
.05
.1
.15
.2
1960
1970
1980
1990
2000
2010
year1900
Pr of low bwt, married
Pr of low bwt, cohab
Pr of low bwt, single