Delayed Marriage and Childbearing:
Implications and Measurement of Diverging Trends in Family Timing.

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Introduction

In the United States, the decades from the 1970s to the 1990s have been a time of increasing social and economic inequality, as well as a time when family patterns have diverged across social and economic strata. A well-known changing family pattern is a shift in family *structure* – the dramatic increase in single-parent families that Ellwood and Jencks (2001) discuss elsewhere in this volume, and which has been identified as a factor that exacerbates income inequality (Karoly and Burtless 1996). The other dramatic divergence in family patterns, and the focus of this chapter, is a shift in family *timing* – an increase in the proportion of men and women who postpone marriage and childbearing.

In simplistic terms, the case for a link between single parent families and social inequality rests on two observations; single parenthood is most common among socially disadvantaged groups, and single parenthood appears to compound social disadvantage in numerous ways. This chapter examines the case for a comparable but opposite link between delayed family formation and social inequality; delayed family formation may be most common among socially *advantaged* groups, and it may confer compounded *advantage* in numerous ways. In a review across several disciplines, I find growing evidence for such a link, although neither the distributional patterns nor the consequences of delayed family formation are as clearly aligned with social inequality as is the case for nonmarital family formation.

This chapter contains two parts. In the first part, I review the implications of marriage and birth timing for women, couples and children, based on published findings in the Sociological, Psychological, Economic, and Medical literatures. In the second, I review descriptive studies on the recent divergence in marriage and first birth timing and supplement them with my own descriptive analyses.

Advantages and Disadvantages of Delayed Marriage and Childbearing

Is marrying and having births at a later age a "good" thing for the families that do it, or is it a potentially harmful side effect of other sweeping changes in the life course, such as young women's increasing career orientation and young men's declining earning power? This is a difficult question to answer because delayed marriage and childbearing tend to occur in families with high educational attainment and other clear social advantages. Thus, it is often not sufficient to identify family advantages associated with delayed marriage and childbearing; one must also make a plausible case that such family advantages exist or are larger *because* of marriage and birth timing. Furthermore, delayed family formation has economic, social, psychological, and biological effects that are fundamentally incommensurate, so it is difficult to make a summary assessment of delayed family formation that all interested readers would agree with. However, as I shall argue, the balance of research across several fields shows that advantages of later family formation are increasing relative to the disadvantages, for both parents and children.

Delayed Marriage

Delayed marriage is an unmistakable trend in the United States. By the early 1990s, median marriage age had risen to its highest level in the 20th century, for both women and men (U.S. Bureau of the Census 1992). Hence, whatever consequences follow from delayed marriage are affecting increasing numbers of American couples.

Before I undertake a discussion of delayed marriage, I must acknowledge the potential importance and confounding effects of *cohabitation.* Part of the recent delay in marriage reflects not a delay in union formation, but an increasing proportion of unions that do not begin with a marriage ceremony (Bumpass, Sweet, and Cherlin 1991; Wu 1999). In many respects, cohabitation is more like being single than being married (Rindfuss and VandenHeuval 1990), but sharing a household and a life with one partner is an important respect in which marriage and cohabitation are quite similar. Furthermore, several proposed mechanisms by which delayed marriage supposedly affects life outcomes (such as maturity and length of partner search) may make more sense in relation to *union* timing than in relation to *marriage* timing). Nevertheless, I will proceed with some confidence that the literature on marriage timing and marriage outcomes is providing useful information on unions in general, for two reasons. First, cohabitation is not concentrated in any racial or educational group, but is increasing among couples of all classes in the U.S. (Bumpass and Lu 2000; see also Gaughan 2002). Second, the small amount of research on trends in the timing of *union* formation produce results comparable to other studies on the timing of *marriage* formation (c.f. Raley and Bumpass 2002 in comparison to Castro Martin and Bumpass 1989).

Of the various dimensions and outcomes of marriage that are associated with delayed marriage, the most widely studied is the rate of marital dissolution. Age at marriage is generally

the strongest social predictor of marital stability in a half-century of research on the subject (Monahan 1953; Moore and Waite 1981; Teachman 1983; Larson and Holman 1994). However, this relationship is not linear; in the United States, most of the age differences in marital stability reflect differences between teen marriage and marriage up to the mid-20s, and delaying marriage past age 24 appears to have little relationship to the probability of a marital dissolution (Heaton 2002). In fact, some authors have found that people who marry well past the normative age for their cohort have relatively *higher* rates of marital dissolution (Bitter 1986; Booth and Edwards 1985). Thus, from descriptive statistics alone, one might conclude that recent trends in delayed marriage (which increasingly are pushing marriages into the late 20s and later) might not be associated with any additional advantages in marital stability.

There are at least three mechanisms that can help explain the empirical relationship between marriage timing and marital stability. One is an increase in "maturity" (including qualities of patience, experience, calmness under stress, and willingness to cooperate) that couples may experience when they live more years of their adult lives before marrying (c.f. Booth and Edwards 1985). In support of this perspective, Lee (1977) found a positive relation between age at marriage, spouse's marital role performance, and marital satisfaction. Barr, Chappell and Leigh (1983) were not able to replicate this result, but their study had a fairly low response rate (~59%) and further excluded a large number of couples (~27%) with a previously married spouse, as well as an unknown number of divorced or separated couples.

More recent research indicates that men who marry later tend to do a more significant share of housework (Pittman and Blanchard 1996). However, the notion of increasing maturity at marriage does not explain the observed pattern of no gains in marital stability after age 24 or so.

A second possible explanation for links between delayed marriage and marital stability is that they are simply correlated with the same social variables. The most obvious of these is education; highly educated individuals marry late and tend to have low rates of marital dissolution (Castro Martin and Bumpass 1989). However, empirical patterns suggest that education *does not* explain the effect of age at marriage on marital dissolution rates, although the reverse appears to be true to some extent (Bumpass and Sweet 1972; Martin 2002).

A third possible explanation is that couples who delay marriage have more time to locate a highly compatible marriage partner. The notion of extended search time for a marriage partner has common sense appeal, and it has been theorized in various ways (Becker 1974; Becker, Landes, and Michael 1977; Oppenheimer 1988). In general, extended search time can be seen as reducing uncertainty about a partner, especially in a time when men's and women's earning potential does not become evident until they have established their career trajectories. Oppenheimer (1988) also suggests that as women's earnings increase, their desirability as marriage partners may extend across more years of their lives. This extended search time may allow women to be more selective of their marriage partners, resulting in increasingly compatible and stable marriages. Furthermore, women with extended time available for searching could afford to be most selective early in adulthood, when they can anticipate a large number of potential future partners.

Selectivity due to different search times would suggest that *within* a group of women with a given available search time, those marrying early would have the most compatible marriages, while *between* groups of women with different available search times, the groups with the longer search times should have both later and more stable marriages, on average. (See Appendix A for a full explanation.) These counterbalancing influences on marital stability could explain the

apparent flattening of the relationship between marital stability and marriage timing after age 24. Such patterns could also explain recent findings that suggest that as *educational groupings* of women have increasingly disparate ages at marriage, there have been strongly diverging patterns of marital stability *between these groups* regardless of relative age at marriage within the group (Martin 2002).

Here is a final comment on the potential benefits of delayed marriage. Chandler, Kamo, and Werbel (1994) have reported that delaying marriage significantly increases married women's wages. However, as in most research on income and family formation, it is very difficult to identify the direction of the causal links, and it is very likely that favorable wage trajectories for women lead to lower marriage rates and later marriage (Teachman and Schollaert 1986).

Up to now I have discussed only the potential *advantages* associated with delayed marriage. The literature on the *disadvantages* associated with delayed marriage has also identified several important patterns.

First of all, physical appearance and other factors related directly to age might reduce a woman's ability to enter a marriage if she has postponed childbearing past young adulthood. However, Oppenheimer (1988) has argued that as women increase their labor force involvement, income and other characteristics that increase with age are increasingly important for women's marriage market status. Sweeney (2002) has found evidence supporting this argument.

Other negative consequences of delayed marriage arise when a person postpones marriage later than most of the rest of his or her cohort and encounters a severely depleted marriage market. Persons who delay marriage in this way might face a choice between remaining unmarried or marrying a relatively poor quality partner (see Schoen 1983).

However, this negative consequence of delayed marriage also appears to be diminishing in importance. One reason for this trend is that the shift toward increasing age at marriage that has moved the depletion of the marriage market to a much later point in women's life courses. Another reason is an increasing adaptation to the age distribution of partners – in effect, more persons are ignoring traditional standards for men's and women's appropriate relative marriage ages (NiBhrolchain 2000).

One can compare the current environment of delayed marriage to the U.S. during the baby boom, when universal early marriage arguably created a marriage "trap" which left women with severely depleted marriage opportunities if they postponed marriage past their very early 20s (Goldman, Westoff, and Hammerslough 1984). The option of marrying young or not at all arguably diminished both the quality of marriages and women's opportunities for personal development outside of marriage. (Among poor minority and urban women, there has recently been a marriage squeeze associated with a lack of available men with steady jobs, but delayed marriage has not been an important factor in creating this depleted marriage market.)

Delayed marriage is also linked to at least one negative social outcome that is *increasing* in importance; all else being equal, delayed marriage increases nonmarital childbearing by increasing exposure to the possibility of a nonmarital birth. The proportion of U.S. births occurring out of wedlock has increased to about one in three (Ventura and Bachrach 2000), and much of this increase has been due to the declining proportion of women married at a given age, especially among black women, but also increasingly among white women (Smith, Morgan, and Koropeckyj-Cox 1996).

Of course, nonmarital childbearing is not a necessary consequence of delayed marriage. White college graduate women have very low rates of nonmarital childbearing despite marrying

at relatively old ages. Clearly, women who have access to highly effective hormonal contraceptives (and who wish to avoid nonmarital births) can delay marriage without having nonmarital births. By comparison, cheaper and widely available barrier contraceptives (such as condoms) are not ideal for preventing pregnancies across sexually active spans of five to ten years or more.

In summary, delayed marriage appears to be associated with marital stability and better marital quality. It is not clear how strongly any advantages of delay continue to accrue to women who marry at ages well beyond their mid-20s, but there are clear advantages to having the *capacity* to marry at later ages, even if a marital search happens to produce a compatible match at an earlier age. Of the potential disadvantages of delayed marriage, the relative depletion of the marriage market has turned out to be only a minor problem for recent cohorts of women. However, for women who may not have the means to reliability control their fertility for an extended period of unmarried adulthood, the risk of a nonmarital birth is a growing problem.

Delayed Childbearing

In comparison to postponing a marriage, postponing a first birth is more clearly associated with negative outcomes, including not being able to have a child at all. However, these negative outcomes are becoming less common and less important over time, and delayed childbearing is also associated with positive economic and psychological outcomes. In this section, I review the economic, social/psychological, and biomedical effects associated with childbearing.

Birth Timing and Income

When women take time from their careers to have children, they clearly suffer deficits in income relative to what they would have earned had they not had children. Part of the literature on this "wage gap" for mothers examines whether the deficits in income vary by the age at which women have children. Taniguchi (1999) reported that early child bearers are likely to experience a higher wage penalty, possibly because their career interruptions occur during a critical period of career building. In earlier work, Van Velsor and O'Rand (1984) reported that interrupting a career for childbearing brought a smaller wage penalty than starting a career after childbearing, and that the wage penalty for a woman's career interruption had declined over time. In addition, women who delay childbearing have been more likely to remain in the labor force throughout their working lives (Pienta 1999)

However, the wage penalty is still substantial, even for women who delay childbearing (Grindstaff 1996), and the relationship between maternal age and wage penalty may be both nonlinear and conflated with women's other demographic characteristics. For example, high school dropouts and other women with poor employment prospects (who often have children quite young) experience little or no wage penalty (Anderson, Binder, and Krause 2002; Dex, Joshi, McCulloch, and Macran 1996).

Some studies have analyzed income and the timing of childbearing using a different approach; instead of comparing wages of mothers to comparable non-mothers, these studies compare the wage trajectories of women who have children at different ages. Late childbearers clearly have higher and steeper income trajectories than early childbearers (Hofferth 1984), but they also have other demographic characteristics that would also predict steep income growth

across ages. Attempts to disentangle childbearing age from women's other, unmeasured characteristics have produced ambiguous results (Blackburn, Bloom, and Neumark 1993; Meyer 1999).

One likely explanation for the association between income and age at first birth is that birth timing and income are mutually reinforcing - delaying a first birth increases women's wage rates and higher wage rates increase age at first birth (Mertens et al. 1998). The availability of quality child care could be a crucial element of this reinforcing pattern. Births bring lost work time and lost human capital from a break in employment and from part time work (along with many other factors), and this lost time explains much of the wage penalty of motherhood (Joshi, Paci, and Waldfogel 1999; Phipps, Burton, and Lethbridge 2001). However, women who make enough money to pay for high-quality organized child care out of their wages can greatly reduce their lost career time; thus, economically successful women can have smaller wage penalties even though they have much higher wages at risk of a wage penalty.

Anderson, Binder, and Krause (2002) report findings from fixed-effects models that support this interpretation; among four-year college graduate women (who earn more and have children later in life than other women), most or all of the wage difference between mothers and nonmothers appears to be explained by heterogeneous selection into motherhood. For women with less educational attainment, comparable wage differences between mothers and non-mothers are explained instead by variables consistent with a wage "penalty" – length of job disruption and part-time employment. Findings such as this one suggest potential specification problems for other economic studies that use women's wages as a proxy for the shadow cost of childbearing (c.f. Tasiran 1995).

The above studies comprise an interesting and important discussion about whether delayed childbearing *causes* women to have more favorable income trajectories – a discussion that can help explain some women's motivation to postpone childbearing. However, if one is more interested in how family resources affect children's outcomes, it is more important to simply note that increasing age is *correlated* with higher income. Table 1 shows that the correlation between age and income is persistent and widespread. For men and for women, in 1975 and 1995, and for full-time workers of all educational levels, total money earning are consistently higher at age 35-44 than at age 25-34. It follows that parents with young children will generally have more resources available for their children if the parents have delayed childbearing.

< Table 1 about here >

In addition to the general relationship of higher earnings with age, Table 1 shows two other noteworthy patterns. First, age differences in earnings are stronger for individuals with at least four years of college than for persons of lower educational attainment, and stronger in the 1990s than in the 1970s. Unsurprisingly, the resource advantages of delayed childbearing are most pronounced among the educational groups that are most likely to delay childbearing. Second, earnings declined dramatically from 1975 to 1995 for young working men with less than four years of college, from 32,600 to 27,300 in constant dollars. For such men, the increasing earnings advantage associated with age could be plausibly defined as an increasing earnings *disadvantage* associated with youth (see also Gottschalk 1997). As a final note, the standard use of constant-dollar accounting based on the consumer price index may not properly capture trends

in the relationship between a worker's age and his or her ability to support children, because the economic costs of raising children have been rising (Casper 1995, England and Folbre 1999). Thus, delaying a family may be less of a way for a parent to gain additional *advantages* for his or her children than a strategy for providing comparable relative resources to those he or she had, as a child of younger parents.

After earnings, wealth is another potential indicator of resources for children. Table 2 shows age differences in the total net worth of households, at different times and for different educational levels of the household head. Across time periods, and across educational categories, the total net worth of 35-44 year-old household heads is considerably (and unsurprisingly) much higher than the total net worth of 25-34 year-olds. Thus, Table 2 provides evidence that children of "delaying" parents grow up in relatively wealthier and presumably more financially stable households, regardless of the other characteristics of the parents.

< Table 2 about here >

The above tables clearly suggest that age that older parents have more resources. Several studies have also provided direct evidence that advantages in resources have positive effects on children of "delaying" parents. For example, Mare and Tzeng (1989) report that when other aspects of sons' socioeconomic background are controlled, sons born to older fathers enjoy significantly higher levels of educational and occupational achievement than do sons born to younger fathers. The authors attribute this pattern to the fact that parents' education, employment, and economic wealth improve with age. In the context of families experiencing divorce, Nichols-Casebolt and Danziger (1989) find that children born to older parents suffer

fewer economic consequences of divorce, because both fathers and mothers have higher income and employment rates.

Birth Timing and Social/Psychological Effects of Age

Outside of income effects, there are other direct effects of delayed childbearing on the well-being of parents and children. Older parents may be more emotionally prepared for the particular stresses of parenthood, may have stronger social support networks (Reece 1993), and have educational and other characteristics that may put them at an advantage relative to other parents. On the other hand, older parents may experience disadvantages such as less energy and greater psychological distance from their children (Morris 1988). In addition, much of the research on this topic uses in-depth ethnographic analysis that captures the richness of the concept of "well-being", but also uses small nonrandom samples that sacrifice generalizability. As a result, different studies of the social and psychological effects of delayed childbearing have often produced conflicting results.

Studies of the social and psychological effects of delayed childbearing tend to focus on specific dyads, such as mother-child, father-child, and husband-wife (Parke 1988). The quality of mother-child interactions generally increases with maternal age, with different studies showing correlations between delayed parenthood and positive maternal affect (Ragozin et al. 1982), more positive maternal behavior (and less negative maternal behavior) (Conger et al. 1984), and less anger and frustration during the transition to parenthood (Walter 1986). Most of these studies do not measure nonlinear effects of because they compare only two or three age categories, but Mirowski and Ross (2002) have found that the relation between maternal depression and age is curvilinear, with the lowest predicted depression for women with a first

birth around age 30. These studies tend to focus on the critical time just after a child is born, when the emotionally stabilizing effects of age presumably are most important (see Wilkie 1981).

The father-child dyad also appears to benefit from delayed parenthood. Cooney et al. (1993) found that late fathers are more likely to be highly involved with their children, with positive paternal affect and low depression. Late-time fathers spend more time in leisure activities with their children, have higher expectations of their children's behavior, and are more nurturant toward their children (Heath 1994). Also, while older fathers may engage in less physical play with their children in comparison to younger fathers, older fathers established stronger connections to extra-familial contexts and displayed greater reliance on verbal mechanisms to engage children during play (Neville and Parke 1997).

Research on delayed childbearing and the husband-wife dyad shows more mixed outcomes. Wright, Henggeler, and Craig (1986) report that wife's age is a strong predictor of husband's marital adjustment following a first birth. Helms-Erikson (2001) reports that overall, having a first birth later in a marriage led to a better evaluation of the marriage 10 years after the transition to parenthood, especially if the couple has a nontraditional division of labor. This pattern of marital adjustment may be mediated by housework; late birth timing strongly predicts the father's contribution to household labor (Coltrane and Ishii-Kuntz 1992; Coltrane 1990). However, other studies have found no consistent relation between marital adjustment and childbearing age (Roosa 1988; Garrison, Blalock, Zarski, and Merritt 1997) or a *decline* in marital satisfaction for older parents (Cowan and Cowan 1992). (Cowan and Cowan did find that older parents were *less* likely to experience diminishing self-esteem and feelings of incompetence, relative to younger parents.)

The increased maturity associated with delayed childbearing may be offset by several age-related factors; among these are emotional distance from children, lack of energy, and the fact that the transition to parenthood occurred at a non-normative age. Morris (1988) and Rossi (1980) reported that older mothers reported feelings of distance from their much younger children, and children also reported a sense of separation and lack of intimacy when they reached adulthood (see also Daniels and Weingarten 1982; Yarrow 1991; Frankel and Wise 1982). However, this pattern of emotional distance from children may be an artifact of nonrandom samples, and other studies have found opposite effects of delayed childbearing on emotional distance. For example, Heuvel (1988) reported some *positive* effect of delayed childbearing on closeness of adult children with same-sex parents, operating through parents' marital happiness. More convincingly, Finley (1998) used a relatively unbiased sample to test the hypothesis that children born to older parents see greater disadvantages to late childbearing and found that, in contrast to Morris's (1988) study of 22 nonrandom children of older parents, adolescent children perceive older fathers *more favorably* in the parenting role than younger fathers, and older mothers about the same as younger mothers.

As adults age, their energy level drops, and some studies have found that delayed parents encounter an unexpected energy cost, accompanied by role conflict and other problems (Schlesinger and Schlesinger 1989). However, this study did not involve a comparison group, so it is not clear how delayed parents differ from other parents in the stressful transition to parenthood.

A final potentially negative effect of delayed childbearing is its "non-normativeness", both with respect to other parents' birth timing and the usual ordering of life course events. Children of delayed parents often report childhood embarrassment about parents' nonnormative

ages and declining health and physical appearance (Yarrow 1991). However, these responses seem to be diminishing across cohorts as delayed parenthood becomes less unusual (Daniels and Weingarten 1982). For the parents, the problems of being "off-schedule" do not appear to be serious. For example, Soloway and Smith (1987) did *not* find evidence of transitional crises when older, career-oriented parents shifted to a family orientation.

In conclusion, the literature on well-being and birth timing indicates mostly positive effects of delayed childbearing on parent-child relationships, particularly in early childhood when parents need the maturity to cope with new stresses. Potentially negative effects of delayed childbearing, such as emotional distance and "non-normativeness", are not consistently evident across studies and are probably decreasing over time.

Birth Timing and Biomedical Outcomes: The "Less Favored Years for Human Procreation"

While the economic and psychological correlates of delayed childbearing are generally positive, the biological effects are clearly not. In fact, medical care providers have historically recognized delayed childbearing as an important risk factor in maternal and infant health outcomes (Feldman 1927; Bleyer 1958). This part of the literature review surveys the types of poor health outcomes associated with delayed childbearing, along with important trends in those outcomes.

In contrast to studies of psychological well-being, studies of birth timing and biomedical outcomes involve very large numbers of cases, often from vital statistics registries for entire states or nations. These research methods make it much easier to detect statistically significant differences between groups, but statistical significance may belie the relative importance of

group differences in a potential outcome that is extremely unlikely for all parents, such as maternal mortality.

Another difference between biomedical and the social research on delayed parenthood is the definition of "delay". In the social scientific literature, a "delayed" first birth generally means about age 30 or later, but could mean the mid-20s or later. In biomedical research, the commonest standard for "delay" is age 35+, because women who have first births at ages 30-34 generally have medical outcomes indistinguishable from most younger mothers. Hence, the negative biomedical consequences of delayed childbearing apply to a relatively small proportion of the childbearing population

Medical outcomes of a delayed first birth can be divided into two broad classes. One class includes dangerous but potentially remediable circumstances defined broadly as maternal and fetal/infant morbidity, as well as medical complications arising during pregnancy and delivery. Such outcomes occur fairly often, particularly for older mothers. The other class of outcomes includes permanent or long term deficits in maternal or child outcomes, with the most extreme being maternal mortality and fetal and neonatal mortality. These outcomes occur very infrequently, but are more likely to occur to older mothers than to younger mothers.

I will discuss the first class of outcomes at some length. Medical research has linked delayed childbearing to the following dangerous but usually temporary outcomes:

1.) Problems during pregnancy, such as hypertension, hyperthyroidism, gestational diabetes, macrosomia, premature contractions, and uteroplacental bleeding, all of which may lead to a preterm delivery. (van Katwijk and Peters 1998; Ananth, Wilcox, Savitz, Bowes, and Luther 1996; Astolfi and Zonta 1999; Jolly et al. 2000; Dildy et al. 1996).

2.) Problems during delivery, such as postpartum hemorrhage, multiple births, and fetal and maternal distress, reflected in rates operative deliveries such as cesarean sections (Peipert and Bracken 1993; Kullmer, Zygmunt, Munstedt, and Lang 2000; Jolly et al. 2000; Gilbert, Nesbitt, and Danielsen 1999).

3.) Low birth weight (Berkowitz et al. 1990; Aldous and Edmondson 1993; Reichman and Pagnini 1997; Ananth, Misra, Demissie and Smullian 2001; Tough et al 2002).

This list of negative outcomes, while imposing, does not necessarily make a compelling case against delayed childbearing, because most of the outcomes are not directly caused by delayed pregnancy. Instead, the problems are generally due to preexisting conditions such as hypertension and adult diabetes that are more common in mid-adults than in young adults. (Newcomb, Rodriguez, and Johnson 1991; Yuan et al. 2000) Healthy mid-adult women have healthy deliveries, as do healthy young adult women.

Medical researchers differ in their assessments of the individual costs of delayed childbearing and their suggested advice to potential older parents. In the 1970s and earlier, medical care providers tended to be strongly concerned about health consequences of delayed childbearing, and readily volunteered that information to their childless patients. In the more recent papers reviewed in this section, some authors, in recognition of the persistent risks, recommended advising women about the potential hazards of postponing childbearing (Gilbert, Nesbitt, and Danielsen 1999) or at least noting maternal age as a potentially complicating factor (Yuan et al. 2000). Other authors emphasize that delayed childbirth has few if any long-term consequences for women who receive proper health care, and is probably *less* dangerous than most women believe (Windridge and Berryman 1999). However, some researchers have noted

that even though these complicated pregnancies almost always have positive outcomes, they are considerably more expensive than routine pregnancies and deliveries. Because most women who have children at older ages are covered by medical insurance, this added expense of late childbearing becomes an overall social burden (c.f. Tough et al. 2002).

Given that most women who postpone childbearing come from higher educational and social strata, it is important to note that the medical studies cited so far do not consider whether social variables might influence the relationship between delayed childbearing and birth outcomes. The few studies on this topic have reached mixed conclusions. Papers by Geronimus (1996) and Geronimus, Bound, and Waidman (1999) have indicated that low-income black women in Michigan suffer increasing incidence of low-birth-weight first births if they postpone childbearing past their teen years. This finding supports the "weathering hypothesis" that the stressful lives of poor women lead to deteriorating health starting in early adulthood, thus making teen childbearing a rational response to social hardship (Geronimus 1994, Chisholm 1993). However, Ananth, Misra, Demissie, and Smulian (2001) were not able to replicate this finding in a study using nationwide vital registration data for black women. Ananth et al. did not select on poor women (which may weaken their findings) or on first births (which should have no effect on their findings).

The medical outcomes discussed so far are dangerous but generally remediable. Of greater concern are the long-term (or permanent) negative birth outcomes associated with delayed fertility. These outcomes include maternal mortality, fetal mortality, neonatal mortality, long-term negative health consequences for mothers, and long-term negative health consequences for children.

Studies of delayed childbearing and maternal, fetal, and neonatal mortality generally use sample sizes in the hundreds of thousands. Most of these studies find the odds of fetal or neonatal mortality for first-time mothers age 35+ to be about twice the odds for other first-time mothers. (Cnattingius, Forman, Berendes, and Isotalo 1992; Fretts et al, 1995), but some find smaller or unclear effects (Bianco et al. 1996; Prysak, Lorenz, and Kisly 1995). Rates of adverse outcomes for with a first birth at age 30-34 may be slightly higher than for younger mothers, but are clearly lower than the rates for first-time mothers at age 35 or more.

Event if overall rates of fetal and infant deaths are quite low, a doubling in the odds of such deaths may seem to be a serious cost of delayed childbearing. However, this difference in odds in cross-section does not necessarily mean that a woman is increasing her own odds of an infant death by postponing childbearing. A study by Fretts et al. (1995), which encompasses all births at a major Montreal hospital across 33 years, shows that fetal and neonatal death rates have been plummeting over time (more than death rates at any other age), and have indeed fallen more quickly than the increases a woman might experience with advancing age. As shown in Table 3, if a 22-year-old woman became pregnant in the mid-1970s, her predicted age-specific probability of a fetal death would be 7.7 per 1000. However, if she postponed her birth to age 38 and became pregnant in the early 1990s, her predicted age-specific probability of a fetal death would be a slightly lower 5.8 per 1000. Thus, it turned out to be at least as safe to wait until the 1990s to have a baby as to have a birth in young adulthood in the 1970s. (Fretts et al. found essentially identical time trends for neonatal mortality.) Of course, it is not certain that medical improvements will continue to reduce fetal mortality below current levels. However, any future improvements in medical care that reduce the baseline chance of an infant death will further reduce the importance of relative differences by mother's birth age.

< Table 3 about here >

Aside from the relatively remote possibility of maternal mortality, there are some persistent negative effects of delayed childbearing for mothers. These include hormonally mediated effects, such as an increase in breast cancer rates for women who have later or fewer children, compared to women who have more children early in adulthood (White 1987). One available study (Alonzo 2002) examined a range of possible long-term health outcomes does indeed find several outcomes at age 50 associated with having children at age 35 or older. These include systolic blood pressure, blood glucose, physician assessment of patient health, and limited mobility. However, of the women in the sample with a birth at age 35 or older, less than ten percent had a *first* birth at age 35 or older; thus, this was essentially a study of health problems with late age at *last* birth, a variable strongly correlated with large family size for the 1938-1940 birth cohort of mothers in the study. Furthermore, this bivariate analysis did not attempt to control for any social variables that might be associated with having a last birth at age 35 or older. Thus, the most comprehensive study available provides no compelling evidence of overall long-term maternal health consequences of delayed childbearing.

Delayed first birth could have long-term negative effects on *children's* health by several mechanisms, including obstetric complications, fetal and perinatal problems, and a higher likelihood of genetic problems like trisomy, mitochondrial DNA disorders, or inheritable mutation disorders (Tarin, Brines, and Cano 1998). Mutation disorders are perhaps the most widely recognized outcome associated with delayed childbearing, but such disorders are now routinely detected during pregnancy screening. Women generally have the option to terminate these pregnancies, but an abortion is not an acceptable or available choice for some women, so

the association between age at childbearing and mutation disorders should not be discounted completely.

Other long-term health effects are more difficult to measure. One study that attempts to identify possible long-term effects of delayed childbearing on children uses data from a large sample of 10-year olds in Great Britain (Pollock 1996). As in similar studies, a lack of statistical controls limits the strength of the conclusions, but there were no clear adverse outcomes and modest educational and behavioral advantages among 10-year olds with older (age 30+) first time mothers. The educational and behavioral advantages were probably due to the association of delayed childbearing with relative social advantage.

In summary of this section, delayed childbearing has clearly negative biomedical consequences. However, these consequences have become much *less* negative over time, particularly for women with full access to the best and most modern available health care.

Delayed Childbearing and Childlessness

A final concern about delayed childbearing is that many women or couples who postpone a birth might remain involuntarily childless or with fewer children than desired. Coital inability, conceptive inability and pregnancy loss all increase with age, along with some social barriers to childbearing (McFalls 1990), so there is clearly some relationship between fertility delay and unintended childlessness. However, the extent of this effect is less clearly established, and men and women who remain involuntarily childless often do not suffer as devastating an impact as one might suppose.

Menken and Larsen (1986) provide a useful estimate of the proportion of women who postpone a birth who will remain involuntarily childless due to biological subfecundity. In an

analysis of seven historical populations with late marriage ages and little or no deliberate fertility control, the authors counted the proportion of women at each marriage age who remained childless or had but one child by age 50, and attributed the patterns in childlessness to the decline of fecundity due to age. As shown in Table 4, childlessness increased monotonically with age at marriage, and was increasingly pronounced for women marrying in their early 30s (15 percent childless), late 30s (30 percent), and early 40s (64 percent). Women who wait until they are in their thirties to try to have a child will clearly experience an increased probability of remaining childless, but they will still have a high probability of having at least one child.

< Table 4 about here >

These historical populations are not identical to the modern U.S. population of women who postpone childbearing, and McFalls (1990) argues that actual U.S. fecundability should be lower than in this comparison group. However, his arguments (that modern U.S. women are evolutionarily selected for lower fertility, and that sickness killed the historically least fecundible women before age 50) are not convincing. It is much more likely that modern social hygiene, control of communicable diseases, and nutrition have pushed U.S. age-specific fecundability *above* these historical levels.

The levels of fertility suggested by Table 4 far exceed observed patterns of delayed fertility in the United States, because many women who delay childbearing remain childless because of social constraints such as age-specific fertility and marriage norms, a lack of a suitable marriage partner or lack of economic resources for childbearing, and because many others who delay childbearing remain voluntarily childless (Rindfuss and Bumpass 1978). Across most of the 20th century, only 35 to 40 percent of women who remained childless to age 30 had a first birth after age 30 (Rindfuss, Morgan, and Swicegood 1988).

In recent decades, the difference between delayed and foregone childbearing has increasingly depended on a woman's educational attainment. In recent years, the proportion of women childless at age 30 who have births after age 30 has increased to about 50 percent, but only among women with a four-year college degree (Martin 2000). The proportion of delayed childbearers having *two or more* children has also increased, again only among women with a four-year college degree. Thus, it appears that diverging patterns in delayed childbearing are in part explained by diverging fertility outcomes among women who delay childbearing.

A new factor in the association between postponed childbearing and childlessness is the recent increase in the availability and effectiveness of medical reproductive technology. In 1995, 10% of US women age 15-44 reported some form of reproductive impairment, and 44% of these had ever sought medical help or advice (Chandra and Stephen 1998). However, most of the medical help or advice is fairly basic. Only a small fraction of U.S. women opt for involved procedures such as oocyte donation or in vitro fertilization, and less than 1 percent of all U.S. births result from such procedures, though this proportion is increasing rapidly (Stephen 2000). It should be noted that because these procedures involve very high costs (~$10,000 per cycle), are generally not covered by health insurance, and have low success rates per cycle (Szamotowics and Grochowski 1998), only women and couples with substantial resources can afford them. To a small but growing extent, then, the likelihood of involuntary childlessness as a negative outcome of delayed childbearing depends on one's ability to afford medical reproductive assistance.

Various social and medical researchers disagree, often vehemently, about how concerned women should be about the link between delayed childbearing and childlessness. Many authors emphasize the risks of remaining childless (with vivid references to "gambling" and

"reproductive roulette") and argue that women are not sufficiently aware of these risks (Toulemon 1996; Gosden and Rutherford 1996; McFalls 1992; Hewlett 2001). Others argue that these risks are generally overstated, and that women might become more willing to postpone childbearing if they had a realistic estimate of those risks (Menken 1985).

To estimate the probable cost of childlessness associated with delayed childbearing, one needs to know not only the likelihood that delay will lead to childlessness, but also the relative cost for women who become involuntarily childless. The costs of childlessness can include the stress of failed attempts to have a child, a loss of life experiences that cannot be substituted, smaller or weaker social support networks, or the considerable social stigma attached to childlessness by the often strongly pronatalist American culture (May 1995). On the other hand, childless persons avoid the substantial economic and career costs of raising children, can direct their social energies to building support networks not based on lineal descent, can establish relationships with children through extended family ties, adoption, or other means.

Numerous studies have attempted to measure the net costs of childlessness directly, and have produced mixed findings of very mixed quality. The "Psychological Distress" literature on the consequences of childlessness (often based on samples of infertile persons undergoing medical treatment for infertility) show consistent negative associations between childlessness and health, life satisfaction and marital satisfaction, but these studies have been criticized for nonrandom sampling, inappropriate statistical procedures, over-reliance on self reports, and failure to account for the processual and socially conditioned nature of the infertility experience (Greil 1997). The few studies of the long term consequences of childlessness indicate that health and emotional well-being (including loneliness and depression) of older persons are generally not related to childlessness *per se*, but that gender and marriage play important roles. Childless

older women tend to have a comparable quality of life to older women who are mothers, while childless, unmarried older men tend to have a diminished quality of life relative to other men (see Bengel, Carl, Mild and Strauss 2000).

To summarize the literature on delayed childbearing and childlessness, the consequences of delayed childbearing related to involuntary childlessness are certainly negative because delaying a birth necessarily increases the possibility of remaining involuntarily childless, and because involuntary childlessness is by definition not a preferred outcome for those who experience it. However, it appears that increasing proportions of college graduate women are postponing births without remaining childless. Also, advances in medical reproductive technology reduce involuntary childlessness somewhat, although this effect is not yet demographically significant. Lastly, childlessness may have few long-term negative consequences for many individuals and particularly for women, but more research on the life-course effects of involuntary childlessness is clearly needed.

Summary: The Cumulative Advantages or Disadvantages of Delayed Marriage and Childbearing

So far, this chapter has compared delayed family formation to "on-time" family formation, and discussed how delayed marriage and childbearing have advantages and disadvantages across economic, social, psychological and biological dimensions. Although these dimensions are to some extent incommensurable, a review of the literature shows two persistent patterns in delayed family formation that have implications for social inequality:

1.) Over time, the relative advantages of delayed family formation have increased while the relative disadvantages have diminished. Compared to a few decades ago, women and couples who delay family formation are more likely to:

… avoid negative consequences of a depleted marriage market

… have substantial increases in their own and/or their spouse's incomes as they age.

… have medical care that mitigates any pregnancy and birth complications.

… have access to some medical assistance for fertility problems.

2.) For women and couples with higher income and higher educational attainment, the advantages of delay are consistently larger, and the disadvantages consistently smaller, than for other women. Among women who delay family formation, four-year college graduates are the most likely to:

… avoid a nonmarital birth prior to delayed marriage.

… have substantial increases in their own and/or their spouse's incomes as they age.

… have smaller wage penalties for a delayed birth.

… have quality health care to mitigate any pregnancy and birth complications.

… avoid involuntary childlessness, or have a good quality of life should they become childless.

These patterns satisfy some of the conditions for a link between social inequality and marriage and fertility timing. Delaying marriage until one has matured and found a highly compatible mate, and delaying childbearing until the late 20s or early 30s (but perhaps not much later) often provide net advantages for adults and their children. To the extent that families who

are already well-off time their marriages and childbearing later than other families, social differences in birth timing could compound the inequalities that already exist in children's and parents' circumstances.

It would be premature to conclude from this review that less educated or minority women and couples could improve their family outcomes by postponing marriage and childbearing. As I shall show in the second part of this chapter, women and couples of all groups are postponing marriage and childbearing to some extent, but the outcomes that *follow* delay are diverging across educational and racial categories. Delayed family formation leads primarily to later marriage and marital childbearing for some groups, but it may increasingly to nonmarriage, childlessness, and/or nonmarital childbearing for other groups.

Diverging Trends in Delayed Marriage and Childbearing

Are women of different educational and racial groups time increasingly different in their timing of marriages and births, or is delayed family formation going to become more universal, and existing differences likely to diminish? This question (like the question that motivated the first part of this chapter) turns out to be deceptively difficult to answer. As I shall show, age at marriage and age at first birth are increasing for all groups of women to varying degrees. However, it can be difficult to predict whether these increases in delay will result in orderly transitions to delayed marriage and childbearing, or to increases in non-marriage, childlessness, and nonmarital childbearing.

In this part of the chapter, I briefly summarize research on educational and race differences in delayed marriage and childbearing. I then examine theoretical and empirical distinctions between *delayed* family formation and *declining* rates of family formation. Finally, I analyze data from recent Current Population Surveys on group differences in marriage and family timing in the United States. From this analysis, I argue that women with four-year college degrees are experiencing what can best be described as *delayed* patterns of marriage and fertility timing. In contrast, women with less than four years of college education appear to be experiencing *declining* rates of marriage and fertility. These differences between *delaying* and *declining* family formation produce similar demographic patterns at first, but if they persist, they will increasingly divide the family outcomes of college graduates from those of other women.

Birth and Marriage, Delayed and Foregone

In the United States (and most everywhere else), husbands and wives who delay family formation are better educated than other couples. This pattern persists to a lesser or greater extent across time and across racial and ethnic groups, both for differences in childbearing (Baldwin and Nord 1984, Rindfuss, Morgan and Swicegood 1988) and differences in marriage timing (Dobson and Houseknecht 1998). This pattern has persisted for most of the 20th century and through periods of rising and falling social inequality.

While recent delays in marriage and childbearing are well documented (c.f. Espenshade 1985) there is relatively little work on whether educational or racial differences in family timing have been increasing in recent decades. Rindfuss, Morgan and Offutt (1996) report that educational differences in the timing of fertility increased from 1960 to the late 1980s. However,

much of this divergence occurred in the 1960s, and Rindfuss, Morgan, and Offutt's data show increases in delayed fertility among *all* educational groups of women starting in the 1970s.

To evaluate changes in the timing of marriage and childbearing across more recent time periods, I used data from the combined June 1985, June 1990, and June 1995 Current Population Surveys (CPS), which I discuss in more detail later. Table 5 shows the mean age at marriage for women of different race and educational categories, for 1970-74 and 1990-94. The first time period corresponds roughly to the start of the recent increase in income inequality. Across this two-decade span, mean age at marriage increased by 4.1 years. The increase was smaller for women with no four-year college degree (3.5 years) than for women with a four-year college degree (4.8 years), but was substantial for both groups.

< Table 5 about here >

Interestingly, the increase in mean age at marriage was larger for black women than for whites; much of this increase for blacks was no doubt a consequence of declining marriage rates, as I will discuss later. Detailed breakdowns by education present a problem, because of endogeneities between marriage, childbearing, and the timing of educational attainment. For women with no high school diploma *and* for women with a master's or professional degree, the difference in mean age at marriage across the two time periods is biased by numerous cases censored before they completed their education. The distinction between women with a four-year college degree and women with a four-year college degree is less subject to this sort of bias, so I restrict most of the remaining analyses to this two-category breakdown of education at interview.

The data on delayed childbearing tell much the same story as the data on delayed marriage. As shown in Table 6, mean age at first birth is increasing for all women, but is

increasing more dramatically for women with a four-year college degree than for women with no four-year college degree. A comparison of Table 6 to Table 5 shows that the timing of a first birth is diverging more than the timing of a first marriage. This difference between trends in birth and marriage timing reflects increases in nonmarital first births.

< Table 6 about here >

Compared to the sparse literature on diverging trends in family *timing*, there has been a great deal of research on diverging trends in family *formation*; that is, whether women or couples will *ever* experience a marriage or a birth. These studies are crucial to an understanding of trends in marriage and birth timing, because a common consequence of postponing a marriage or a birth is remaining unmarried or childless.

Studies of trends in family formation can be divided into two categories. On one hand are studies that wait until individuals finish much or all of their adult lives before counting the proportions marrying or giving birth (Bachu 1999, Boyd 1989, Morgan 1991). Because completed marriage and childbearing follows peak marriage and childbearing by two decades or more, studies of this type provide a something of a historical perspective on trends in marriage and childbearing. On the other hand are studies that use data on women of all ages and forecast the proportions of current young adults who will ever marry or bear children. Some authors base their forecasts on complete data from earlier cohorts (Schoen and Standish 2001; Kreider and Fields 2001; Chen and Morgan 1991), while other authors use the observable age-specific event distributions of recent cohorts (say, up to the late 20s or early 30s) and project the age-specific trajectories forward into older (and unobserved) ages (Hernes 1972; Bloom and Bennett 1990; Goldstein and Kinney 2001; Bloom 1982; Bloom and Trussell 1984). Such forecasts necessarily involve some uncertainty.

Table 7 shows estimated proportions of women ever marrying from the most recent study on the subject, by Goldstein and Kinney (2001). Women born in 1945-49 would have had the highest proportions marrying in the late 1960s and early 1970s; for this cohort, women who were college graduates had higher proportions never marrying than women who were not college graduates (8.9 % and 5.5%, respectively). Hence, the groups of women who were most likely to delay marriage were also most likely to forego marriage. By comparison, the projections for the 1960-64 cohort indicate a reversal, with college graduates *less* likely to remain childless than women who were not college graduates (5.4% and 13.6%, respectively).

< Table 7 about here >

In general, as income inequality increased from the 1970s to the 1990s, nonmarriage has shifted from an association with relative social advantage toward an association with relative social disadvantage. However, there are two complications to this simple interpretation. First of all, blacks have been more likely to remain unmarried across all birth cohorts, although the differences have increased over time. Secondly, the forecasts for more recent cohort are not certain, and depend to some extent on the authors' modeling assumptions.

In a comparable analysis of childbearing, Table 8 shows proportions of women remaining childless at age 40-44, from recent Current Population Survey data. In the year 1980, women with a bachelor's degree were about twice as likely to remain childless (17.6 %) as women of lower educational attainment (8.0 to 9.5%). By 2000, childlessness had increased among women of all educational levels, but the gap has closed since 1990 because the odds of remaining childless rose most rapidly for less educated women. Allowing for a 15-20 year lag between peak childbearing years and age 40-44, this period of rising childlessness among less educated women corresponds to the onset of increasing income inequality.

< Table 8 about here >

If recent trends continue, there may be an educational crossover in childlessness similar to the one that appears to be occurring for marriage, producing a positive association between childlessness and social disadvantage. There would be a historical precedent for this sort of crossover. In a study of racial differences across a longer time span, Boyd (1989) reported that childlessness had been very high for all women but particularly for blacks following the Great Depression, but that childlessness rates for blacks dropped below those for whites for cohorts that reached adulthood during the baby boom.

Taken together, Tables 5 through 8 identify a difficulty in interpreting recent trends in the timing of marriage and childbearing. Age at marriage and childbearing is increasing across all groups of women, but it is not clear whether such increases are caused by true *delay*, or a repositioning of marriage and childbearing within the life course, or whether increasing ages are an artifact of *declining* marriage and childbearing, or an increasing proportion of individuals foregoing family formation at any given age. In the rest of this chapter, I present analyses that distinguish *delayed* family formation from *foregone* family formation. My analyses indicate that the main point of divergence across educational and racial groups is that women in groups with relative social and economic advantages are *delaying* family formation, while trends for other women are more likely to be the result of increasingly *foregone* family formation.

The terms "delayed" and "foregone" reflect *static* conceptions of the life course, as if life were a game board and individuals were picking up their marriages and either placing them elsewhere on the board (delaying) or leaving them off the board (foregone). In contrast, modeling age-specific marriage rates is an essentially *dynamic* enterprise, as if individuals decide

each month whether to marry or not. Hence, I need identify dynamic definitions that correspond roughly to the static notions of delayed or foregone marriage.

Given that age specific marriage rates for young adults are decreasing more or less universally across groups of U.S. women, the distinction between delayed and foregone marriage naturally depends on marriage rates in the later adult years. I count marriage rates as consistent with foregone (or declining) marriage if marriage rates at later years show *no change or a decrease* across cohorts. I count *no change* in the same category as a *decrease* because both decreasing cohort trends and stable cohort trends in later adult marriage inevitably produce some decrease in the total proportion married, if there has already been a cohort decline in marriage rates at earlier ages. For now, this leaves cases with *increasing* cohort trends in marriage rates at later ages as *delayed* marriage, but I will further refine this definition.

Dynamic models that implicitly assume *foregone* marriage can make very similar or very different predictions models that implicitly assume *delayed* marriage, depending on the overall marriage rates in a population. In early stages of decline, when marriage rates are high and marriage is almost universal, patterns of declining (or increasingly foregone) marriage produce predictions of total cohort marriage nearly identical to the predictions for patterns of delay with full replacement at later ages, because exposure effects at older ages partly offset the effects of declining rates. However, in later stages of decline, declining marriage patterns produce very different proportions of total cohort marriage than patterns of delay with replacement, because exposure effects become less important.

To give a didactic example of this effect, I measured the age distribution of marriages for white nonhispanic women with no four-year college degree, born in 1940-49. This group of women came closest to universal marriage of any group in my sample; 96.4 % ever married by

age 45 in a life table analysis. I then set up a crude three-parameter discrete hazard model that roughly fits the age distribution of first marriages for these women. The parameters are a rate of relative increase up to age 20, a peak marriage rate at age 20, and a rate of relative decline after age 20. I chose parameters that roughly matched the observed sample: These were an increase of 24% per year up to age 20, a peak marriage rate of .3 per year at age 20, a decline of 10% per year after age 20. These parameters produced a reasonably close approximation of the cumulative total proportion of white nonhispanic women with no four-year college degree marrying for the 1940-49 birth cohort, as well as an approximation of the relative proportions marrying at age 15-24, 25-34, and 35-44.

For the next step in the exercise, I let marriage rates decline by the same proportion at every age, a pattern consistent with a trend toward *foregone* marriage. As marriage declines across these synthetic cohorts, the peak rate at age 20 drops from .3 to .25 to .20 to .15 to .1, and all age-specific rates drop proportionately, as shown in Figure 1.

< Figure 1 about here >.

Table 9 shows the age-specific proportions of women experiencing a marriage for this synthetic exercise, as marriage rates decline across all ages. The key effect involves *exposure* – at later adult years, the age-specific proportions marrying *increase* because the increased proportion of women exposed at later adult years more than counterbalances the declining rate of marriage at these years. (In right-tailed age distributions such as those of marriages or births, exposure effects at older ages typically outweigh rate effects.) For the simulation with a peak rate of .3, 87% of women marry before age 25, and 97% ever marry. For the next column, the peak rate drops to .25, and only 82% of women (=5% less) marry before age 25. However, the proportion marrying at older ages increases, because the more women are exposed to the

possibility of a marriage at these ages. Thus, the change in cumulative total marriages is only a 2% decline. In contrast, of course, a cohort that was purely *delaying* marriage would have no decline at all in the overall proportions marrying. Hence, in the early stages of a marriage *decline* across cohorts, changes in the relative distribution and cumulative total married look very much like those of cohorts that are *delaying* marriage.

< Table 9 about here >

In the next column, for a peak rate of .20, the proportion married at age 15-24 has dropped more rapidly, to .74, or a decline of .08 from the previous column. The proportion marrying at ages 25-34 and 35-44 continues to increase, but not as rapidly as the decline at earlier ages, so the cumulative of total marriages declines more noticeably, from .95 to .91. In the fourth and fifth column, the decline in marriage is well established, and while the proportion marrying after age 25 holds fairly steady, most or all of the decline in the proportion of marriages at age 15-24 is reflected in a decline in the cumulative total of marriages. For the cohort represented in the final column, fully 50% of women remain unmarried at age 25, but only 20% of the cohort (16% + 4%) have a marriage after age 25. Hence, as marriage decline progresses across cohorts, the change in the age distribution and cumulative proportion married becomes very distinct from that of a cohort that is delaying marriage, because increases in exposure at older ages no longer compensate for decreases in age-specific marriage rates.

Distinguishing Delay from Decline

To frame my distinction between *delays* and *declines* in marriage or childbearing, I begin by assuming that age-specific marriage rates in early adulthood are observed, and that they are

declining across cohorts. This assumption holds for essentially all groups of U.S. women marrying from the 1960s through the 1990s.

Whether decreasing event rates in early adulthood represent overall *delays* or *declines* depends on two factors. One factor is whether having a marriage or birth at a given age *x* is less desirable or possible than it has been in the past, compared to not having a marriage or birth at that age. This is the factor I associate with *decline*. There are numerous theoretical perspectives on the family that would predict such a pattern for young adults, such as rising value of women's time (Schultz 1974), lower utility of marriage for women who are not economically dependent on men (Becker 1981; Parsons 1949), declining incomes for young adult men (Oppenheimer, Kalmijn, and Lim 1997), cultural shifts toward an individualist orientation, including dilation of the early adult part of the life course as more adults and particularly women take time for themselves (Dion 1995; Presser 2001), or even a general shift away from collective values in a society (Popenoe 1993). The common element to these perspectives is that there are no effects associated with the declines in age-specific marriage and birth rates in young adulthood that will explicitly increase the age-specific rates in later adult years. Hence, age-specific marriage and birth rates at later ages should *not* rise across cohorts, and the net proportion eventually marrying or having children will necessarily decline across cohorts.

Unmeasured heterogeneity in the marrying or childbearing population complicates this story to some extent. In high-marriage cohorts, very few women who are able and motivated to marry will postpone marriage, so the population of women still unmarried at a later age will largely consist of those who are unable or unmotivated to marry. Then as declining rates at early adult ages increase the proportion of individuals still unmarried or childless at later ages, the *composition* of the exposed population also changes as more women able or motivated to marry

remain unmarried, and observed age-specific marriage rates at later ages tend to rise across cohorts. A similar argument applies to first birth rates.

Unmeasured heterogeneity is always present in event history analyses, and researchers have developed various techniques to statistically control for it (see Heckman and Singer 1984; Palloni and Sorensen 1990; Blossfeld and Hamerle 1992). Thus, I need to restate my earlier assertion about age-specific marriage and birth rates that can be attributable to *declines* in marriage and childbearing. If rates in young adulthood are clearly decreasing, then declines in marriage can be a sufficient explanation for three patterns of age-specific marriage rates at later ages:

1.) rates that are lower than in previous cohorts,

2.) rates that are the same as in previous cohorts, or

3.) rates that are *higher than in previous cohorts but explainable by unmeasured heterogeneity.*

It is important to note that while effects of unmeasured heterogeneity may increase age-specific marriage or birth rates at some ages, and will thereby buffer some of the decline in proportions ever-marrying across cohorts, such effects cannot completely offset decreases in the total proportions of women marrying or having children, and the total proportion marrying will still decline across cohorts.

Aside from unmeasured heterogeneity, another factor that can affect cohorts with declining event rates is that the increased proportions of individuals still exposed at older ages can affect the social circumstances of transitions at those ages. For example, as more women remain unmarried to age 30, any individual unmarried at 30 might have a greater chance of finding social networks of unmarried women at similar ages, a trend which could potentially

increase *or* decrease their subsequent propensity to marry. As another example, social norms about marriage age or the desirability of late marriage could change, as more information (good or bad) about delayed marriages filters through the population from the increasingly large proportion of women who marry later. In short, any number of social changes could occur, with unknown probability, and with unpredictable impact on age-specific marriage rates at older ages. The effects of such social changes can be difficult or impossible to predict.

So far I have set up a working definition for patterns of age-specific marriage rates that are consistent with overall decline. Factors associated with *delay* are quite difficult to identify positively in a dynamic model, so I define *delayed* marriage or childbearing as any pattern in which age-specific marriage and birth rates at later ages are rising too much to be explained by declining rates and attendant effects of unmeasured heterogeneity. At a conceptual level, I identify *delay* factors as those which produce low event rates at an early adult age because having a first marriage or birth at a given age x is becoming *more desirable over time within the individual's life course.* I can restate this concept of delay as follows: A woman who perceives that she would be happier being married than being not married in a given month could still choose not to marry in that month, if she judges that marrying in the ensuing month would be even better than marrying in the current month. Such a circumstance could arise as women reposition marriage within the life course until after their careers and the careers of potential mates are well established, so that they can use better information about partners' incomes to make a better marriage match (Oppenheimer 1988; Iyigun 2000). Extended marriage searches could have a similar effect, in that a woman might choose not to marry a somewhat compatible man early in adulthood if she anticipates a high likelihood of finding a highly compatible man in several more years of searching. These circumstances should produce a common demographic

effect – age-specific marriage rates at later adult ages should increase across cohorts. Furthermore, because these delays are oriented with *improving* conditions for marriage for people already motivated and able to marry, the rising rates in later adulthood should be at least enough to offset declines early in adulthood, and the total cohort proportions ever marrying should stay the same or rise.

Of course, in real life there is less of a clear distinction between processes of delay and decline, and both are often occurring simultaneously. Also, women who delay because the benefit of marrying or having children at age *x* is increasing with age, might remain unmarried or childless because of unforeseen events or imperfect information. (Imperfect information is a serious problem in this case, because individuals considering entry into first marriage have by definition *no prior experience*.) Thus, it is possible that individual behavior that I define as delay could still lead to decreasing proportions marrying across cohorts. With these cautions, I make the basic proposition that *declines* in marriage and childbearing lead necessarily to some decline across cohorts in the proportion ever marrying or having children, and that *delays* in marriage or childbearing lead to stability in the proportion ever marrying or having children across cohorts.

Data and Methods

In these analyses I use the combined June 1985, June 1990, and June 1995 Current Population Surveys (CPS). These surveys each contain a nearly complete marriage and fertility history, and their large samples allow tests for interactions between period trends and educational attainment of respondents. The CPS fertility and marriage histories record the dates of births, marriages, separations, divorces, and remarriages for women age 15 to 65 at interview. The U.S.

Department of Labor (2001) has published a full description of the procedures used in collecting the CPS data. I show separate results for nonhispanic whites women, nonhispanic black women, and all U.S. women, including Hispanic women and women of other racial and ethnic backgrounds. I restrict the sample to women born from January 1940 to December 1969, and I further restrict the sample to women 25 or older at interview, to reduce artificial correlations between age at interview and education at interview. With these cohort and age restrictions, the final sample contains 75,680 women, including 64,206 nonhispanic white women and 7,185 nonhispanic black women.

From the CPS combined birth and marriage histories, I identify women who experience a first marriage and/or a first birth, and record the woman's age at the birth or marriage, to the nearest month. Women's retrospective accounting of the timing of marriage or first birth may be less accurate for events that happened a long time before the interview and for women with multiple marriages; this may create problems for an analysis of trends over time. To test the accuracy of women's retrospective accounts over time, I estimated models separately for the 1985, 1990, and 1995 Current Population Surveys, and found that patterns of marriage and childbearing were substantively the same whether women recalled events across a short (CPS 1985) or long (CPS 1995) time span.

In addition to distinctions by race, I use the educational attainment of the mother at interview as the key explanatory variable. Education at interview is less than an ideal variable for an analysis of family trends and social inequality, for several reasons. First of all, education at interview is increasingly correlated with age at interview, because many women pursue additional years of education across the life course. An endogenous relationship between education, fertility, and marriage may be a particular problem for high school completion or

equivalency, or else for "some" post-high-school college enrollment, so I limit most of my analyses to differences between four-year college graduates and other women, and to women age 25 or older at interview.

Secondly, women's educational attainment has increased across recent decades, so the population of women with a four-year college degree is somewhat different in the 1990s than it was in the 1970s. The sample proportion of all U.S. women over 25 reporting a four-year college degree at interview changed from 22.5 percent of the sample of women born 1940-49 to 25.5 percent of the sample of women born 1960-69; this difference is artificially reduced by the fact that the 1940-49 cohort was older at interview than the 1960-69 cohort. One could make the argument that the latent tendency to marriage has an inverted-U distribution across educational categories, with the lowest marriage levels at the highest and lowest educational levels. In that case, moving a few percent of women into the category of college graduates might increase the proportions ever marrying among college graduates and reduce it among other women. It is unclear how this sort of argument would explain observed patterns in the *timing* of marriage, or to the incidence or the timing of first births.

A final concern with the use of education as an indicator of relative socioeconomic level is that within-educational-groups income inequality increased more quickly than between groups inequality during the 1970s and 1980s (Katz and Murphy 1992; Levy and Murname 1992). This increased variance might dilute any association between education and family outcomes that was mediated by income inequality. However, the increase in within-groups inequality was concentrated among workers of lower educational attainment and was largely explained by declines in organized labor and the stagnation of the minimum wage (Dinardo, Fortin and Lemieux 1996). Thus, any negative effects of increasing within-groups income inequality on

family formation were probably most pronounced at lower educational levels, and comparisons by educational attainment almost certainly capture much of the recent increase in income inequality.

The Current Population Surveys contain large samples but have a limited number of variables suitable for statistical controls. In analyses of age-specific marriage and birth rates, I include no statistical controls. However, in sensitivity analyses (not shown), I estimated models that excluded the few cases with imputation flags for race, education, and the timing of marriages and births.

In the statistical models that control for unmeasured heterogeneity, I use event-history techniques and the aML statistical program (Lillard and Panis 2000) to estimate effects of educational attainment and birth cohort (month and year) of first marital birth on age-specific birth and marriage rates for nonhispanic white women from the 1940-49 and 1960-69 birth cohorts. (I excluded the 1950-59 cohort for clarity of presentation. The event history models estimate the rate or *hazard* of a first marital dissolution for each month. I specify the monthly hazard as a function of fixed variables x_i and time since first marital birth t_1 as represented below:

$$\text{Log } h(t) = \beta_o + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_1 x_2 + \gamma_1 t_1 \qquad (1)$$

The terms x_1 and x_2 represent dichotomous variables for being in the 1960-69 birth cohort and having a four-year college degree at interview, respectively. An interaction coefficient β_3 estimates the extent to which cohort differences in the baseline rate of the event are different for four-year college graduates than for other women.

I employ a nonlinear specification for the estimate of trends over age in first marriage and first birth rates, represented by the γ_1 coefficient. The hazard function for age is a five-piece splined function with separate slopes for ages 15-19, 20-24, 25-29, 30-34, 35-39, and 40+. Various other specifications for these controls did not affect the substantive results.

I model unmeasured heterogeneity in two different ways; first by assuming an unmeasured variable δ normally distributed through the population with a coefficient σ.

$$\text{Log } h(t) = \beta_o + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_1 x_2 + \gamma_1 t_1 + sd \qquad (2)$$

In many heterogeneity analyses, some attempt is made to identify σ based on functional form of the model or multiple observations for an individual, but I make no attempt to do so here. Instead, I construct a hypothetical case, asking in effect: what would be the model coefficients under typical conditions of unmeasured heterogeneity. I use a value of σ that corresponds to a doubling of the hazard rate per unit increase in δ; this value is well within the standard range of σ for heterogeneity models of this sort (Lillard and Panis 2000), and sensitivity models with other values for σ did not substantively affect the results.

The second unmeasured heterogeneity model involves a "mover-stayer" model, which is a simple form of finite mixture heterogeneity. In this model, I assume that some small, unmeasured proportion of the beginning population (3 percent for marriages, 5 percent for births) has no chance of experiencing the event. Sensitivity models in this range of "stayer" probabilities did not substantively affect the results.

Results

Trends in First Marriages

Table 10 shows the relative age distribution of first marriages. For women of all races with no four-year college degree, the proportion marrying at age 15-24 declined from .82 to .73 to .63, or a total of -.19, from the 1940-49 to the 1960-69 birth cohorts. For these same women, the proportion marrying at age 25-34 increased from .10 to .15 to .22, or a total of +.12. The cumulative total ever marrying declined from .95 for the 1940-49 birth cohort to .91 for the 1950-59 birth cohort, and appears likely to decline still more for the 1960-69 birth cohort, barring an unforeseen jump in the proportion marrying at age 35-44.

< Table 10 about here >

In the fifth through eighth rows of Table 10, women with a four-year college degree show even more pronounced changes in marriage timing. For these women, the proportion marrying at age 15-24 declined from .67 to .51 to .40 from the 1940-49 to the 1960-69 birth cohorts, or a total of -.27. The proportion marrying at age 25-34 also *increased* sharply, from .21 to .32 to .42, or a total of +.21. The cumulative proportion marrying is either steady or declining slightly. In comparison to women with no four-year college degree, women with a four-year college degree are having a greater increase in proportions marrying at age 25-34, +.21 versus +.12. However, a straight comparison of percentages may give too little weight to the changes for women with no four-year college degree, who appear to be at an earlier stage of a marriage transition than college graduates. One way to avoid this problem is to compare odds ratios instead of raw percentages. By this measure, the increase from 1940-49 to 1960-69 birth cohorts

in the odds of marrying at age 25-34 is (.22/.78)/(.10/.90) = 2.5 for women with no four-year college degree, and a comparable (.42/.58)/(.21/.79) = 2.7 for women with a four-year college degree. In other words, trends in the distributions of first marriage ages have been rather similar for women of different educational attainment across recent decades.

Table 8 also shows trends in the relative age distributions of marriages for nonhispanic white women and nonhispanic black women. Patterns for nonhispanic white women are very similar to patterns for women of all races, because nonhispanic white women make up a majority of the overall population, especially of the overall population of four-year college graduates. Patterns for nonhispanic black women reflect a later stage of decline in marriage rates, in that the total proportions ever marrying are lower, and are declining more rapidly. In addition, small samples of black women with a four-year college degree make it difficult to estimate marriages at older adult ages. (Fewer than 50 black college graduates remained unmarried at age 35 for either the 1940-49 or the 1950-59 birth cohorts.) Still, there is evidence of increases in delayed marriage at ages 25-34, even among nonhispanic black women of lower educational attainment; from .15 for the 1940-49 birth cohort to .22 for the 1950-59 birth cohort.

One can compare the observed proportion in Table 10 to the simulated proportions in Table 9. The age-at-marriage distributions for nonhispanic white women with no four-year college degree match the simulated distributions for a peak marriage rate of .3 by design. In addition, the age-at-marriage distributions for other populations of women with no four-year college degree match surprisingly well with the simulations for declining marriage rates. These matches include women of all races with no four-year degree in the 1940-49 and 1950-59 birth cohorts (compare the results for peak rates of .25 and .20, respectively), and nonhispanic black women with no four-year college degree in the 1940-49 and 1950-59 birth cohorts (compare the

results for peak rates .15 and .10, respectively). Thus, for women with no four-year college degree, the increases in delayed marriage for the 1940-49 and 1950-59 cohorts are fully consistent with the exposure effect of a decline in marriage. However, it appears that the increases in delayed marriage for the 1960-69 cohorts, as well as those for women with a four-year college degree, are not sufficiently explained by increases in exposure.

I turn next to analysis of marriage timing based on the *age-specific rate* of first marriages for women who have not married, a measure that automatically eliminates exposure effects. Figure 2 shows trends across cohorts for first marriage rates of US women of all races, first for women with no four-year college degree, and next for women with a four-year college degree. For women with no four-year college degree, there is clear evidence of declining first marriage rates for women in their teens and twenties. These rates are apparently not declining for women in their thirties, and may be slightly increasing at age 30+ for the 1960-69 birth cohort. In comparison, women with four-year college degrees have also had declining marriage rates to about age 25, but there have been pronounced rises in the late 20s and 30s for both the 1950-59 and 1960-69 birth cohorts. Thus, age-specific event rates show evidence of a *delaying* as compared to a *declining* pattern of marriage for women with a four-year college degree, with perhaps some evidence of the same pattern for women with no four-year college degree.

< Figure 2 about here >

Figure 3 shows trends across cohorts for first marriage rates of nonhispanic white US women. In the chart for women with no four-year college degree, there is even clearer evidence that some of the increase in marriage around age 30 are explained by *delay*; that is, by rising marriage rates at older adult ages. Marriage rates at older adult ages are more strongly increasing among four-year college graduates. This observation leads to the next exercise: given

that there are some increases in delayed marriage rates for women with four-year college degrees and women with less education, can these increases be explained by the effects of unmeasured heterogeneity?

< Figure 3 about here >

Table 11 shows models that address the question of unmeasured heterogeneity. Table 11 shows coefficients for parameterized event history models of the age-specific first birth rates for white nonhispanic women shown in Figure 3, with only the 1940-49 and 1960-69 birth cohorts retained for the sake of clarity. As I explained in the data and methods section, all models are splined piecewise gompertz models, but I have suppressed the various coefficients for the spline parameters to focus on the main effects. The intercept is set at age 30, and the main effects also show group effects at age 30. Model 1 assumes no unmeasured heterogeneity, and the constant represents the observed monthly first marriage rate for nonhispanic white women with no four year college degree in the 1940-49 birth cohort (exp[-4.90] = .0074 marriages per month at age 30.) The coefficient for 1960-69 indicates that the marriage rates for women with no four year college degree at age 30 was indeed higher for the 1960-69 cohort than for the 1940-49 cohort (difference = exp[0.25] = 1.28 x higher for the 1960-69 birth cohort), and was statistically significant. The coefficient for four-year college degree indicates that, for the 1940-49 cohort, white nonhispanic women with a four-year college degree actually had *the same or lower* first marriage rates at age 30 than white nonhispanic women with less education. Thus, the educational differences in delayed marriage in the 1940-49 cohort had no relation to age-specific marriage *rates*, but were fully explained by exposure differences. Finally, the coefficient for the interaction between a four-year college degree and 1960-69 cohort indicates that there was a statistically significant *difference* between the increases for college graduates and those for other

women. For white nonhispanic women with a four-year college degree, the marriage rate at age 30 was exp[.25 +.36] = 1.84 x higher for the 1960-69 birth cohort than for the 1940-49 cohort.

< Table 11 about here >

The first model in Table 11 simply confirms the observed patterns in Figure 3. The second and third models in Table 11 add controls for unmeasured heterogeneity under two types of fixed assumptions. The second model adds a normally distributed heterogeneity component, while the third model adds a mover-stayer heterogeneity component. In each of these models, the coefficient for 1960-69 cohort ceases to be statistically significant, and it even changes sign in the third model (beta = .02 and -.11, respectively). This means that if unmeasured heterogeneity is present in these populations (and it almost certainly is), then that heterogeneity fully explains the apparent increases in the marriage rate around age 30 for the 1960-69 cohort of women with no four-year college degree. In contrast, the interaction for four-year college degree x 1960-69 remains positive and statistically significant. This means that unmeasured heterogeneity *cannot* explain the cohort increases in age-30 marriage rates for women with a four-year college graduates, relative to the changes for other women. It is thus plausible that the cohort increases in delayed marriage rates for college graduates are at least partly due to true *delays* in marriage rates, while the cohort increases in delayed marriage rates for women of lower education are fully explained by *declines* in marriage rates, buffered to some extent by effects of unmeasured heterogeneity.

To reiterate this finding, I have presented Model 2 in Table 11 graphically in Figure 4. According to this model (which assumes normally distributed unmeasured heterogeneity), white nonhispanic women with no four-year college degree show consistently lower age-specific marriage rates in the 1960-69 cohort than in the 1940-49 cohort, although the decline is smaller

at older ages and essentially vanishes at age 30. In comparison, white nonhispanic women with a four-year college degree have shown a clear crossover across cohorts, with a pattern fully consistent with delayed marriage instead of declining marriage.

< Figure 4 about here >

Figure 5 shows the final findings for trends in age-specific first marriage rates, in this case for nonhispanic black women. For nonhispanic black women with no four-year college degree, marriage rates are clearly low and declining across most or all ages. For nonhispanic black women with a four-year college degree, there is no clear evidence of rising marriage rates for the 1950-59 cohort, but there may be some increase in the 1960-69 cohort starting in the late 20s. However, the sample sizes are too small to permit any firm conclusions. (In separate parametric models for nonhispanic black women, the cohort increases for women with a four-year college degree at age 30 were marginally statistically significant at $p < .1$.)

< Figure 5 about here >

Trends in First Births

Having analyzed the data on delayed marriage in considerable detail, I will move more quickly through the data on delayed childbearing. The data on delayed childbearing tell much the same story as the data on delayed marriage. Table 12 confirms a universal pattern of increasing first births at age 25 and older, which is particularly strong for college graduates at age 30 and older. Table 12 also shows that the proportion of women remaining childless is larger than the proportion never marrying, and appears to be increasing.

< Table 12 about here >

Figures 6, 7, and 8 show the age-specific birth rates for women of different races and educational attainment. Across all these groups, declines in birth rates are evident at young adult

ages. These declines at young adult ages are *least* pronounced for nonhispanic black women with no four year college degree. However, welfare reform and declines in teen childbearing that have accompanied it suggest that this demographic group may have had substantial declines in young adult first birth rates since the mid-1990s (and outside the time frame of these data). At later adult ages, the age-specific first birth rates clearly increase for women with a four-year college degree, and may increase only slightly for women with less education. Finally, Table 13 shows coefficients for hazard models for age-specific first birth rates, under various assumptions about unmeasured heterogeneity. As in Table 11 for marriages, the models for first births show that when unmeasured heterogeneity is assumed to exist, delayed first birth rates are *level or slightly* declining across cohorts for women with no four-year college degree, but are strongly increasing for women with a four-year college degree. Thus, one can draw the same conclusions about delayed births as about delayed marriages. Among women with a four-year college degree, increases in delayed births are true effects of *delay* in the timing of family formation, and can be expected to increase in the future if current trends continue. Among women with less education, increases in delayed births are apparently causes by *declining rates* of family formation, and if current trends continue across cohorts, we will see increases in childlessness rather than in delayed childbearing among these women.

< Figures 6,7, and 8 about here >

< Table 13 about here >

Interactions of Delayed Marriage and Childbearing.

As a supplemental exercise, I explore some interactions between delayed marriage and childbearing. In a traditional life course sequence, marriage precedes a first birth, but as more

women delay both marriages and births, they often have marriages and births in the reverse sequence. I examine two possible effects of this reversal. First, does the fact that more births precede marriage have a depressing effect on the proportion of women ever marrying? Second, as group differences in delayed marriage increase, have there been corresponding differences in the characteristics of delayed marriages; specifically, for whom are delayed marriages more likely to be marriages with a child already present?

Some researchers have argued that nonmarital childbearing is an increasing impediment to subsequent marriage (Lichter and Graefe 2001; Upchurch, Lillard and Panis 2001). At the population level, increased nonmarital childbearing could provide explain a significant proportion of the decline in marriage if two conditions hold: Nonmarital childbearing must occur before marriage normally occurs, *and* it must lower the possibility of a subsequent marriage.

Table 14 shows that early adult childbearing is increasingly correlated with nonmarital childbearing, while late adult childbearing remains predominantly marital childbearing. For example, among nonhispanic white women with no four-year college degree, the proportion experiencing a nonmarital birth by age 24 approximately doubled, from .08 to .16, between the 1940-49 and 1960-69 birth cohorts, while the proportion of these women with a marital first birth by age 25 declined from .61 to .36. For these same women, the proportion experiencing a nonmarital first birth after age 25 also increased, from .01 to at least .03, but most delayed first births are still marital births. Among nonhispanic white women with a four-year college degree, there has been a smaller but comparable shift of young adult births from marital to nonmarital births, while later births remain almost exclusively marital. Nonhispanic black women have rising proportions of nonmarital births at all ages.

< Table 14 about here >

To examine whether nonmarital childbearing lowers the possibility of a subsequent marriage, I estimated a life table model of first marriages, *censoring* on a nonmarital birth. Hence, this life table model describes the cumulative distributions of marriage for different cohorts, *only for women who are still childless at a given age*. This model assumes that if women who have a nonmarital birth had remained childless at each given age, they would have the same marriage rates as the women who did remain childless at that age. Such an assumption may be incorrect if women who have nonmarital births represent an exceptionally family-oriented subpopulation (see Upchurch, Lillard, and Panis), or if such women are a subpopulation that perceives themselves as particularly unlikely to marry (perhaps a more plausible assumption).

Table 15 shows the results of this exercise. Across cohorts, educational groups, and races, the cumulative proportion ever marrying is the same among women who do not have a nonmarital birth as it is in the overall group. This result is particularly surprising for black women, the majority of whom have nonmarital first births. Clearly, then, marriage rates are declining among women who remain childless, just as they are declining in the overall population. Hence, I tentatively conclude that increases in nonmarital childbearing explain little or none of the declines in marriage across recent decades.

< Table 15 about here >

The second possible interaction between delayed marriage and childbearing concerns the effect of nonmarital childbearing on the *nature* of the delayed marriages that occur. Marriages with a child already present have a higher proportion of marital dissolutions than marriages where children are born in marriage (but see Upchurch, Lillard, and Panis 2001 for possible

heterogeneities and endogeneities in this effect). Hence, if increased marital stability is an advantage of delayed marriages, that advantage could be lost if the delayed marriage is preceded by a birth.

In Table 16, I reproduced the relative distributions of first marriages by race, education, and birth cohort, and added an additional distinction by childbearing status at first birth. For nonhispanic white women with no four-year college degree, the proportion entering a childless first marriage by age 24 has dropped from .81 to .60 from the 1940-49 to the 1960-69 birth cohorts, a decline of -.21. These cohorts of women have had an increase in the proportions entering a first marriage at age 25-34, but that increase has only been from .07 to .15, or +.08. This relatively small increase in delayed *childless* marriages compares to a relatively large increase in delayed marriages *with children already present*. For example, in the 1960-69 cohort of white nonhispanic women with no four-year college degree, fully 29 percent of marriages at age 25-34 had a child already present (= .06 / (.06 + .15)). This compares unfavorably to 12 percent of marriages at age 15-24 for the same cohort of women (= .08 / (.08 + .60)), and to 7 percent of marriages at age 25-34 for white nonhispanic college graduates in the 1940-49 cohort (= .03/ (.03+.39). A similar pattern holds for nonhispanic black women with no college degree; although delayed marriages have been increasing in numbers, a rising proportion of those marriages involve children prior to the marriage.

< Table 16 about here >

As a final demonstration of the interactions of marriage and birth timing, I return to an observation from the beginning of the chapter; to a great extent, increases in single-parent families and increases in delayed family formation are opposite aspects of the same social phenomenon. Figures 9A through 9D show how all groups of American women and men are

moving away from patterns of early adult marriage followed by childbearing that were nearly universal several decades ago. The category for delayed births is truncated at age 34, because women born since 1960 were no older than 35 at interview. Note that while nonhispanic white and black women of different educational levels are all moving away from marital first births in young adulthood, those groups are moving in different directions. Nonhispanic black women with no four-year college degree have had the strongest shifts to nonmarital births at early adult ages, with no increase in delayed marital childbearing (Figure 9C). On the other hand, nonhispanic white women have had the strongest shifts to marital births at later adult ages, with little increase in early adult nonmarital childbearing (Figure 9B). Other educational and racial categories fall between these extremes.

< Figures 9A-9D about here >

Discussion*:*

Like the *outcomes* associated with delayed family formation, the *trends* in delayed marriage and childbearing satisfy some but not all of the conditions for a link between social inequality and marriage and fertility timing. This empirical analysis has shown that delayed marriage and childbearing have been increasing among women of all races and educational levels. However, within this general shift, there is some evidence of divergence. Women with a four-year college degree (nonhispanic white and possibly nonhispanic black as well) have had increases in delayed marriage and childbearing consistent with a deliberate shift of family formation from one part of the life course to another. Furthermore, only a very small proportion of these delayed marriages involve a prior nonmarital birth. Conversely, for women with no four-year college degree (both nonhispanic white and nonhispanic black) the increases in

marriage and childbearing at older ages are consistent with *declining* family formation, buffered by exposure effects and effects of unmeasured heterogeneity. In addition, the increases in delayed marriages largely reflect an increase in marriages with children already present, and such marriages may not have many of the advantages associated with delayed union formation.

Why then should one group of women (those with a four-year college degree) to have *delayed* event rates across cohorts, while another group (women with no four-year college degree) has *declining* event rates across cohorts? One possible reason that only women with a four-year college degree would intentionally delay childbearing is that they have the highest expected gains from delaying a marriage or birth, for reasons I discussed in the literature review in the first part of this chapter. Another possible reason could be group differences in the discounting of time preference. It is a common economic observation that the wealthy tend to show more patience than the poor (Fisher 1930). Recently, Becker and Mulligan (1997) have expanded on this observation to postulate a mechanism for it; the greater the future utility and certainty associated with postponing a present act to the future, the more likely a person is to anticipate and visualize the future event, and this visualization can reduce the extent to which future pleasures are discounted. Conversely, poor or uncertain prospects can induce rational actors to heavily discount the future. In the current context, this means that even if persons from disadvantaged backgrounds could expect some net benefit from postponing marriage or childbearing, they would be unlikely to do so because the small expected gains and large uncertainty would reduce their anticipation and planning for that future outcome.

What are the social implications of these findings? For cohorts that have completed most of their marrying or childbearing years, the difference between *delayed* and *declining* family formation can indicate that for some women, a delayed marriage or birth was an optimizing

choice, with optimal outcomes for the children. For other women, a late marriage or birth could indicate "left-over" or less than optimal family formation.

Other implications of this study may apply to future cohorts of young adults. According to the various theoretical perspectives on declining family formation, it is likely that current social factors contributing to decline will continue (c.f. Bumpass 1990). If this happens, then recent increases in delayed marriage and childbearing will be replaced by future increases in nonmarriage and childlessness for women and couples of lower educational attainment.

However, it is also possible that these patterns will not persist in the future. It is premature to assume that college graduates will continue to maintain the same total proportions marrying by increasing marriage rates at later ages. It is possible that the full recovery of marriage for recent cohorts is a transitory phenomenon, as the normative and social obstacles to *delayed* marriage and childbearing are falling more rapidly in the short term than the normative and social barriers to nonmarriage and childlessness.

Similarly, recent trends predict declining family formation among women with no four-year college degree, but effects of exposure and unmeasured heterogeneity will buffer that decline for some time by moving many women into marriages at older ages instead of nonmarriage. As a result of more women experiencing marriage at later ages, some of the social and normative variables that have previously limited women's entry into marriage at later ages could quite easily weaken. One possible example is the weakening of norms about relative marriage ages of women and men (NiBhrolchain 2000). By this argument, college graduates may have different patterns of family timing than other women because they are at a different stage in the transition of marriage; a transition where couples adapt their marriage and parenthood patterns to the new challenges and opportunities presented by modern societies. If

that is so, college graduates could be the first to shift from decline to delay, because they were the first ones to start marrying at later ages. Women of other educational levels could thus experience similar trends that begin as *declines* and change to *shifts in timing*, as increased proportions of group members discover that it is okay, possible, and even advantageous to marry or bear children at older ages. However, there are many social obstacles that must be overcome before this is to happen. Recent trends in marriage among black women show that continued and accelerated decline in marriage is certainly possible, and recent increases in economic inequality may make obstacles to flexible marriage and birth timing all the more formidable.

Perhaps the most important message of this chapter is that the social circumstances of marriage and childbearing are changing for all women and men. Recent decades have brought important changes in the social and cultural foundations of family life. New opportunities and constraints have made the traditional life course pattern of early marriage and marital fertility unworkable for an increasing number of women and men of all educational levels and races.

Across the same time span, income inequality has been increasing. Increases in income inequality have certainly not been a sole or even a primary cause of the decline of early adult marriage and marital childbearing, but inequality appears to be playing an important part in the ways that families adapt to the new opportunities and constraints. Individuals with more resources appear to have more flexibility to time marriages and births across a wider part of the adult life course. Individuals with fewer resources may have less flexibility to adapt their family formation to increasingly complex social conditions, and their family outcomes may be poorer as a result.

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Table 1: Age Differences in Total Money Earnings, by Sex and Education for 1975-1995 (Full-Time Workers)

	Year	
	1975	1995
Men		
Education = 15 or less years		
Mean earnings at age 25-34	32,629	27,316
Mean earnings at age 35-44	36,317	34,400
Percent difference	11 %	26 %
Education = 16 or more years		
Mean earnings at age 25-34	43,879	44,851
Mean earnings at age 35-44	66,087	68,328
Percent difference	51 %	52 %
Women		
Education = 15 or less years		
Mean earnings at age 25-34	20,557	20,940
Mean earnings at age 35-44	20,556	23,913
Percent difference	0 %	14 %
Education = 16 or more years		
Mean earnings at age 25-34	30,140	33,332
Mean earnings at age 35-44	33,205	40,607
Percent difference	10 %	22 %

Source: U.S. Bureau of the Census (1977, 1996).
Tabulations based on March Current Population Surveys.
Total money earnings for full time workers are in constant 1995 dollars.

Table 2: Age Differences in Household Net Worth, by Education of Household Head, 1962 and 1989.

	Year	
	1962	1989
Education = 11 or less years		
Median net worth at age 25-34	840	1,680
Median net worth at age 35-44	14,600	6,455
Percent difference	1,600 %	280 %
Education = 12 to 15 years		
Median net worth at age 25-34	9,100	8,715
Median net worth at age 35-44	45,380	47,855
Percent difference	400 %	450 %
Education = 16 or more years		
Median net worth at age 25-34	24,255	29,715
Median net worth at age 35-44	71,820	107,840
Percent difference	200 %	260 %

Source: Keister (2000).
Author's tabulations based on the Survey of Financial Characteristics of Consumers for 1962 and the Survey of Consumer Finances for 1989.
Household net worth is in constant 1990 dollars.

Table 3: Fetal Death Rates by Decade and Maternal Age.

	Fetal Deaths per 1000 Live Births			
	1960s	1970s	1980s	1900-1993
Mother's age <35	10.8	7.7	4.4	2.7
Mother's age 35+	16.5	12.4	8.1	5.8

Source: Fretts et al. 1995.

Table 4: Percent of Married Women Childless or with One Child at Age 50, by Age at Marriage for Seven Historical Populations.

Age at Marriage	Percent Childless	Percent with 1 child	Percent with 2 or more children
20-24	6	5	89
25-29	9	7	84
30-34	15	11	74
35-39	30	20	50
40-44	64	19	17

Source: Menken and Larsen 1986.

Table 5: Trends in the Mean Ages of First Marriages for US Women: By Race and Education, for Years 1970-74 and 1990-94.

	Year				
	1970-74		1990-94		difference
	mean age	s.d.	mean age	s.d.	
All Races	21.3	(4.0)	25.4	(5.9)	4.1
no 4-year college degree	20.9	(4.1)	24.4	(6.0)	3.5
4-year college degree	22.8	(3.6)	27.6	(5.3)	4.8
White nonhispanic					
no 4-year college degree	20.6	(3.8)	24.1	(5.6)	3.5
4-year college degree	22.8	(3.6)	27.5	(5.1)	4.6
Black nonhispanic					
no 4-year college degree	22.3	(5.4)	27.1	(7.0)	4.8
4-year college degree	22.4	(4.0)	29.7	(5.7)	6.5
All Races, detail by education					
no high school diploma	20.8	(5.4)	22.2	(5.6)	1.4
high school graduate	20.7	(4.0)	24.6	(6.3)	3.8
some college	21.2	(3.4)	24.9	(5.6)	3.8
b.a. only	22.6	(3.5)	27.0	(5.0)	4.5
master's/prof. degree	23.5	(3.8)	29.7	(5.8)	6.2

Source: June 1985/1990/1995 Current Population Surveys. Standard errors are in parentheses.

Table 6: Trends in the Mean Ages of First Births for US Women: By Race and Education, for Years 1970-74 and 1990-94.

	Year				
	1970-74		1990-94		difference
	mean age	s.d.	mean age	s.d.	
All Races	22.6	(4.3)	25.1	(5.8)	2.5
no 4-year college degree	22.0	(4.2)	23.5	(5.3)	1.5
4-year college degree	24.9	(4.1)	29.7	(4.3)	4.8
White nonhispanic					
no 4-year college degree	22.2	(4.0)	24.2	(5.3)	2.0
4-year college degree	25.2	(4.0)	29.8	(4.3)	4.6
Black nonhispanic					
no 4-year college degree	20.8	(4.7)	21.6	(5.3)	0.8
4-year college degree	22.9	(4.0)	28.6	(5.7)	5.7
All Races, detail by education					
no high school diploma	21.3	(5.1)	19.5	(4.1)	-1.8
high school graduate	22.0	(4.1)	23.7	(5.2)	1.7
some college	22.5	(3.8)	25.1	(5.0)	2.6
b.a. only	24.7	(4.0)	29.0	(4.2)	4.3
master's/prof. degree	25.6	(4.3)	31.9	(4.0)	6.3

Source: June 1985/1990/1995 Current Population Surveys. Standard errors are in parentheses.

Table 7: Projected Percent of U.S. Women Never Marrying, By Education, Race, and Year of Birth.

	Birth Cohort			
	1945-49	*1950-54*	*1955-59*	*1960-64*
All Races				
not college graduate	5.5 %	8.5 %	12.0 %	13.6 %
college graduate	8.9	10.2	8.2	5.4
Whites				
not college graduate	4.0	6.8	8.6	7.9
college graduate	8.6	9.9	6.5	3.7
Blacks				
not college graduate	15.4	21.6	34.4	40.5
college graduate	-	-	-	-

Source: Goldstein and Kinney 2001.

Table 8: Observed Percent of U.S. Women Childless at Age 40-44, by Education and Year.

	Year			*Odds Ratio:*	
	1980	*1990*	*2000*	*1990/1980*	*2000/1990*
less than high school	8.0	10.9	15.9	1.41	1.55
high school, 4 years	9.2	12.5	16.8	1.41	1.41
less than bachelor's degree	9.5	15.2	18.4	1.71	1.26
bachelor's degree and above	17.6	25.7	27.3	1.62	1.09

Source: June 1980, 1990, 2000 Current Population Surveys.
Excludes women known to be born outside US.

Table 9: Proportion of Women Entering a First Marriage, Based on a Simulation of Declining Marriage Rates at all Ages: By Marriage Rate at Age 20.

	Peak Marriage Rate (per year) at Age 20				
	.30	**.25**	**.20**	**.15**	**.10**
Proportion of women married under simulated model.					
Age 15-24	.87	.82	.74	.64	.50
Age 25-34	.09	.11	.14	.16	.16
Age 35-44	.01	.02	.03	.04	.04
Cumulative Total	.97	.95	.91	.83	.70
Decline in marriage, compared to previous column:					
Change in proportion married at age 15-24		-.05	-.08	-.10	-.14
Change in proportion married at age 25-44		+.03	+.04	+.02	+.01
Change in cumulative total marriages		-.02	-.04	-.08	-.13

The marriage rate is simulated from age 15 through age 44.
Simulated parameters: The marriage rate rises 24% each year up to age 20, reaches the designated peak rate at age 20, then declines 10% each year after age 20.

Table 10: Proportions of Women Entering a First Marriage, by Age, Education, Race, and Year of (Mother's) Birth.

	Year of Birth		
	1940-49	1950-59	1960-69
All Races			
No 4-year College Degree			
Age 15-24	.82	.73	.63
Age 25-34	.10	.15	.22
Age 35-44	.02	.03	- - -
Cumulative Total	.95	.91	(.84)
4-year College Degree			
Age 15-24	.67	.51	.40
Age 25-34	.21	.32	.42
Age 35-44	.03	.06	- - -
Cumulative Total	.90	.89	(.82)
Nonhispanic White			
No 4-year College Degree			
Age 15-24	.86	.77	.68
Age 25-34	.09	.14	.21
Age 35-44	.01	.02	- - -
Cumulative Total	.96	.94	(.89)
4-year College Degree			
Age 15-24	.67	.52	.41
Age 25-34	.20	.32	.42
Age 35-44	.03	.05	- - -
Cumulative Total	.90	.89	(.83)
Nonhispanic Black			
No 4-year College Degree			
Age 15-24	.66	.49	.36
Age 25-34	.15	.19	.22
Age 35-44	.04	.05	- - -
Cumulative Total	.85	.73	(.58)
4-year College Degree			
Age 15-24	.66	.42	.30
Age 25-34	.19	.27	- - -
Age 35-44	- - -	- - -	- - -
Cumulative Total	(.85)	(.69)	(.30)

Source: June 1985/1990/1995 Current Population Surveys

- - - incomplete data for age interval

Cumulative totals in parentheses are based on partial cohort experience.

Table 11: Coefficients for Hazard Models for Rates of First Marriage at Age 30, For U.S. White NonhispanicWomen in the 1940-49 and 1960-69 Birth Cohorts.

	Model 1: Assume No Unmeasured Heterogeneity	Model 2: Assume Normally Distributed Unmeasured Heterogeneity (exp[sigma] = 2)	Model 3: Assume Mover-Stayer Heterogeneity (p[stayer] = .03)
1960-69 cohort	.25 (.08)**	.02 (.09)	-.11 (.09)
4-year college degree	-.13 (.08)	-.35 (.09)**	-.48 (.09)**
4-year college degree x 1960-1969 cohort	.36 (.13)**	.44 (.14)**	.63 (.13)**
constant	-4.90 (.05)**	-4.17 (.06)**	-4.34 (.06)**
log likelihood	-148115.2	-148064.6	-148106.2

** p < .01 Standard errors are in parentheses.
Model based on a splined piecewise Gompertz specification.
Coefficients represent the change in the log hazard associated with each covariate.
Coefficients for baseline duration parameters are not shown. See text for additional details.
Source: June 1985,1990, and 1995 Current Population Surveys.

Table 12: Proportions of Women with a First Birth, by Age, Education, Race, and Year of (Mother's) Birth.

	Year of Birth		
	1940-49	1950-59	1960-69
All Races			
No 4-year College Degree			
Age 15-24	.69	.59	.55
Age 25-29	.14	.17	.18
Age 30-34	.04	.06	.07
Age 35-44	.03	.02	- - -
Cumulative Total	.89	.85	(.80)
4-year College Degree			
Age 15-24	.33	.20	.14
Age 25-29	.28	.27	.29
Age 30-34	.11	.19	.23
Age 35-44	.05	.07	- - -
Cumulative Total	.77	.72	(.66)
Nonhispanic White			
No 4-year College Degree			
Age 15-24	.69	.57	.52
Age 25-29	.14	.18	.20
Age 30-34	.04	.07	.07
Age 35-44	.03	.03	- - -
Cumulative Total	.89	.84	(.80)
4-year College Degree			
Age 15-24	.32	.18	.13
Age 25-29	.28	.27	.29
Age 30-34	.11	.20	.27
Age 35-44	.04	.06	- - -
Cumulative Total	.76	.72	(.68)
Nonhispanic Black			
No 4-year College Degree			
Age 15-24	.73	.72	.68
Age 25-34	.13	.14	.15
Age 35-44	.02	.03	- - -
Cumulative Total	.88	(.88)	(.83)
4-year College Degree			
Age 15-24	.48	.35	.33
Age 25-34	.30	.33	- - -
Age 35-44	- - -	- - -	- - -
Cumulative Total	(.78)	(.68)	(.33)

Source: June 1985/1990/1995 Current Population Surveys
- - - incomplete data for age interval
Cumulative totals in parentheses are based on partial cohort experience.

Table 13: Coefficients for Hazard Models for Rates of First Birth at Age 30, For U.S. White NonhispanicWomen in the 1940-49 and 1960-69 Birth Cohorts.

	Model 1: Assume No Unmeasured Heterogeneity	Model 2: Assume Normally Distributed Unmeasured Heterogeneity (exp[sigma] = 2)	Model 3: Assume Mover-Stayer Heterogeneity (p[stayer] = .05)
1960-69 cohort	.04 (.11)	-.12 (.12)	-.15 (.12)
4-year college degree	.24 (.05)**	-.03 (.05)	-.02 (.05)
4-year college degree x 1960-1969 cohort	.53 (.15)**	.59 (.15)**	.68 (.15)**
constant	-5.43 (.03)**	-4.90 (.04)**	-5.01 (.04)**
log likelihood	-138598.0	-138578.1	-138595.6

** p < .01 Standard errors are in parentheses.
Model based on a splined piecewise Gompertz specification.
Coefficients represent the change in the log hazard associated with each covariate.
Coefficients for baseline duration parameters are not shown. See text for additional details.
Source: June 1985,1990, and 1995 Current Population Surveys.

Table 14: Women Experiencing a Marital or Nonmarital First Birth, by Age, Education, Race and Year of (Mother's) Birth.

	Marital First Births, by year of mother's birth			Nonmarital First Births, by year of mother's birth		
	1940-49	1950-59	1960-69	1940-49	1950-59	1960-69
Nonhispanic White						
No 4-year college degree						
age 15-24	.61	.46	.36	.08	.11	.16
age 25-34	.17	.22	.24	.01	.03	.03
age 35-44	.03	.03	- - -	.00	.00	- - -
cumulative total	.80	.71	(.61)	.09	.13	(.19)
4-year college degree						
age 15-24	.29	.13	.09	.03	.03	.04
age 25-34	.37	.45	.51	.02	.02	.02
age 35-44	.04	.07	- - -	.00	.00	- - -
cumulative total	.71	.67	(.60)	.05	.05	(.06)
Nonhispanic Black						
No 4-year college degree						
age 15-24	.34	.23	.12	.39	.49	.56
age 25-34	.09	.07	.06	.04	.07	.09
age 35-44	.01	.01	- - -	.01	.02	- - -
cumulative total	.44	.30	(.18)	.44	.58	(.65)
4-year college degree						
age 15-24	.31	.16	.10	.17	.19	.23
age 25-34	.25	.26	- - -	.05	.07	- - -
age 35-44	- - -	- - -	- - -	- - -	- - -	- - -
cumulative total	(.57)	(.42)	(.10)	(.21)	(.26)	(.23)

Source: June 1985/1990/1995 Current Population Surveys.
- - - incomplete data for age interval.
cumulative totals in parentheses are based on partial cohort experience.

Table 15: Life Table Estimates of the Cumulative Proportions of Women Entering a First Marriage, Censoring at a Nonmarital Birth.

	Year of Birth		
	1940-49	1950-59	1960-69
Nonhispanic White			
No 4-year College Degree			
Cumulative total, censoring at a nonmarital birth.	.96	.93	(.89)
Comparable total, without censoring.	.96	.94	(.89)
4-year College Degree			
Cumulative total, censoring at a nonmarital birth.	.90	.88	(.82)
Comparable total, without censoring.	.90	.89	(.83)
Nonhispanic Black			
No 4-year College Degree			
Cumulative total, censoring at a nonmarital birth.	.86	(.68)	(.58)
Comparable total, without censoring.	.85	(.68)	(.58)
4-year College Degree			
Cumulative total, censoring at a nonmarital birth.	(.84)	(.69)	- - -
Comparable total, without censoring.	(.85)	(.69)	- - -

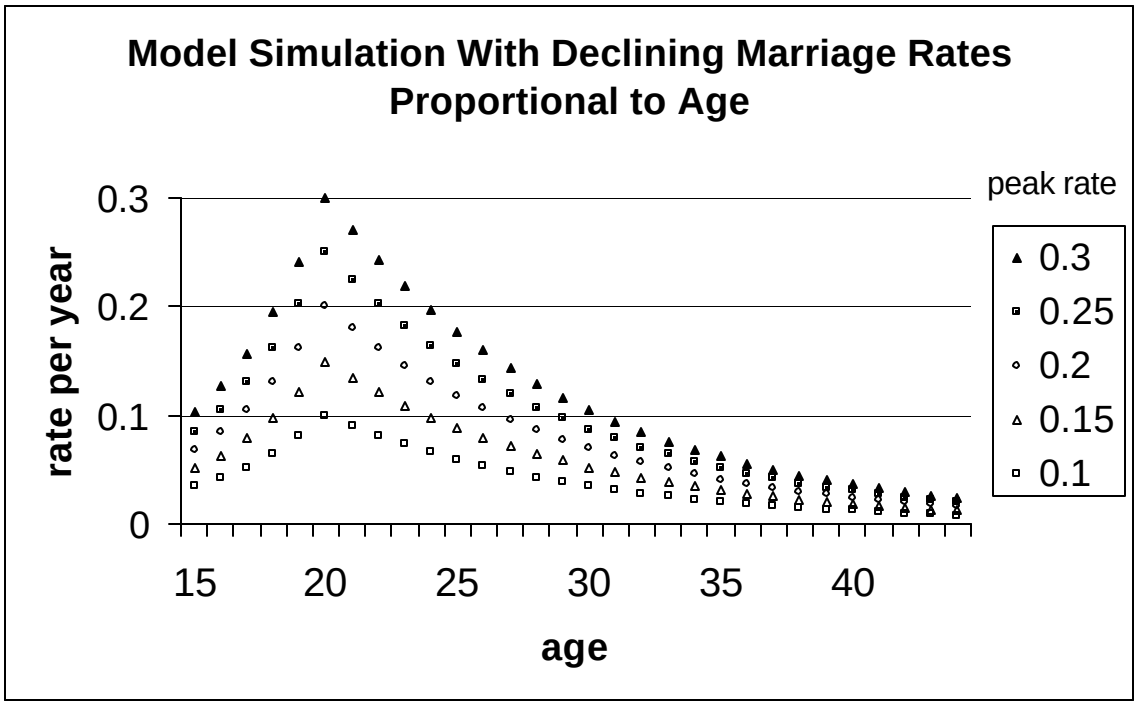
Source: June 1985/1990/1995 Current Population Surveys
- - - incomplete data for age interval
Cumulative totals in parentheses are through age 34 only.

Table 16: Women's Childbearing Status at First Marriage, by Age, Education, Race and Year of (Mother's) Birth.

	Marriage without prior children, by year of mother's birth			Marriage with prior children, by year of mother's birth		
	1940-49	1950-59	1960-69	1940-49	1950-59	1960-69
Nonhispanic White						
No 4-year college degree						
age 15-24	.81	.71	.60	.05	.06	.08
age 25-34	.07	.11	.15	.02	.03	.06
age 35-44	.01	.01	- - -	.00	.01	- - -
cumulative total	.89	.84	(.75)	.07	.10	(.14)
4-year college degree						
age 15-24	.65	.51	.39	.02	.01	.02
age 25-34	.19	.30	.39	.01	.02	.03
age 35-44	.04	.04	- - -	.00	.01	- - -
cumulative total	.87	.85	(.78)	.03	.04	(.04)
Nonhispanic Black						
No 4-year college degree						
age 15-24	.34	.23	.12	.20	.17	.16
age 25-34	.09	.07	.06	.08	.13	.14
age 35-44	.01	.01	- - -	.03	.04	- - -
cumulative total	.44	.30	(.18)	.31	.34	(.29)
4-year college degree						
age 15-24	.56	.35	.24	.10	.07	.06
age 25-34	.14	.21	- - -	.05	.06	- - -
age 35-44	- - -	- - -	- - -	- - -	- - -	- - -
cumulative total	(.70)	(.56)	(.24)	(.15)	(.13)	(.06)

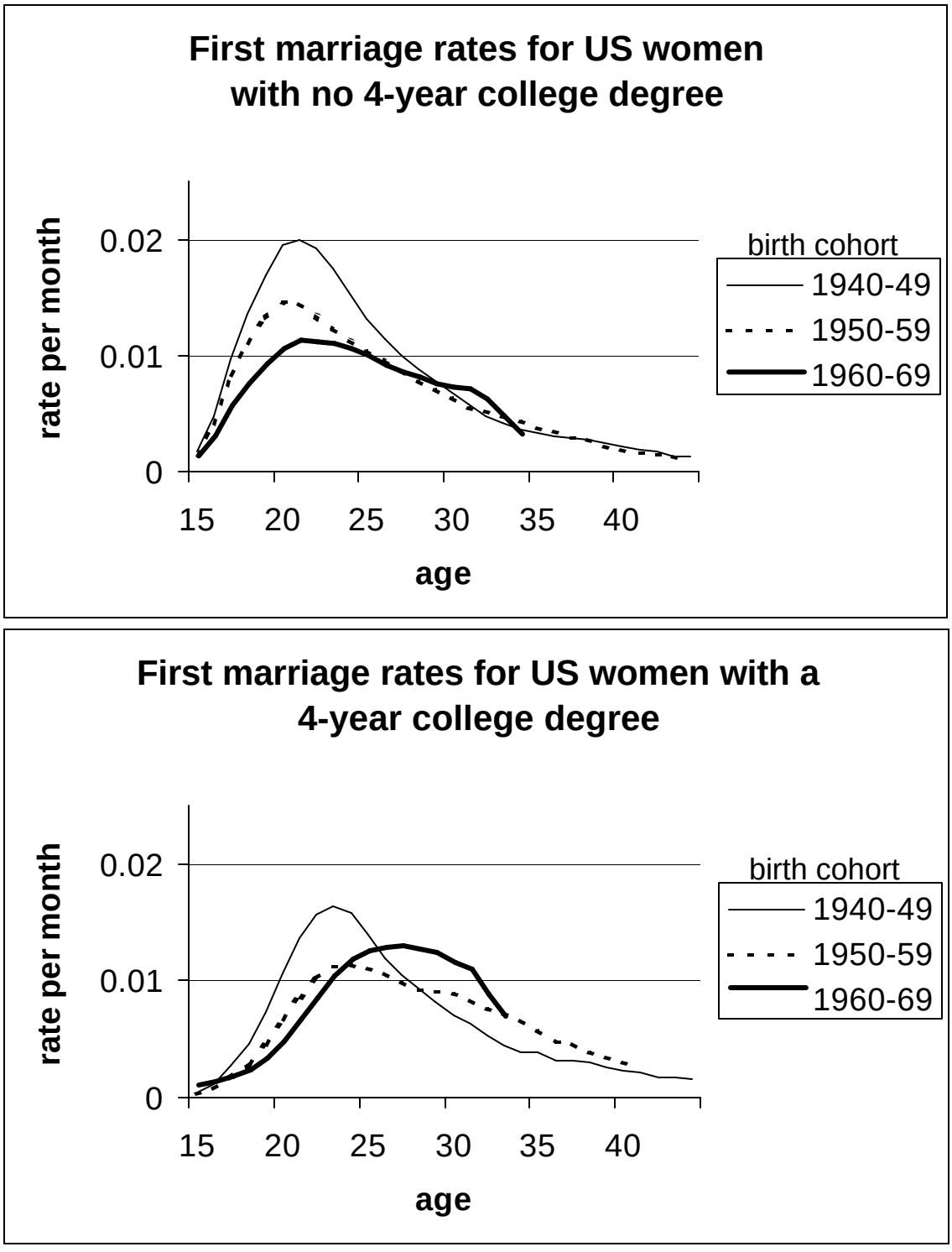
Source: June 1985/1990/1995 Current Population Surveys.
- - - incomplete data for age interval.
cumulative totals in parentheses are based on partial cohort experience.

Figure 1:



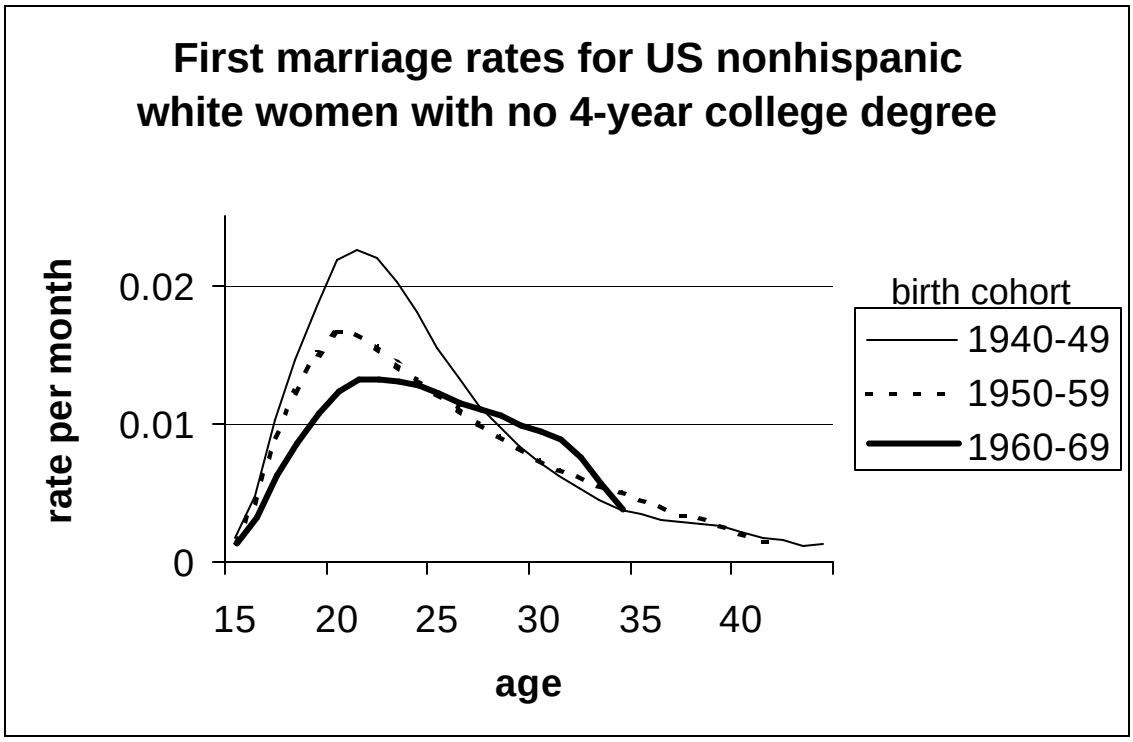
see text for details.

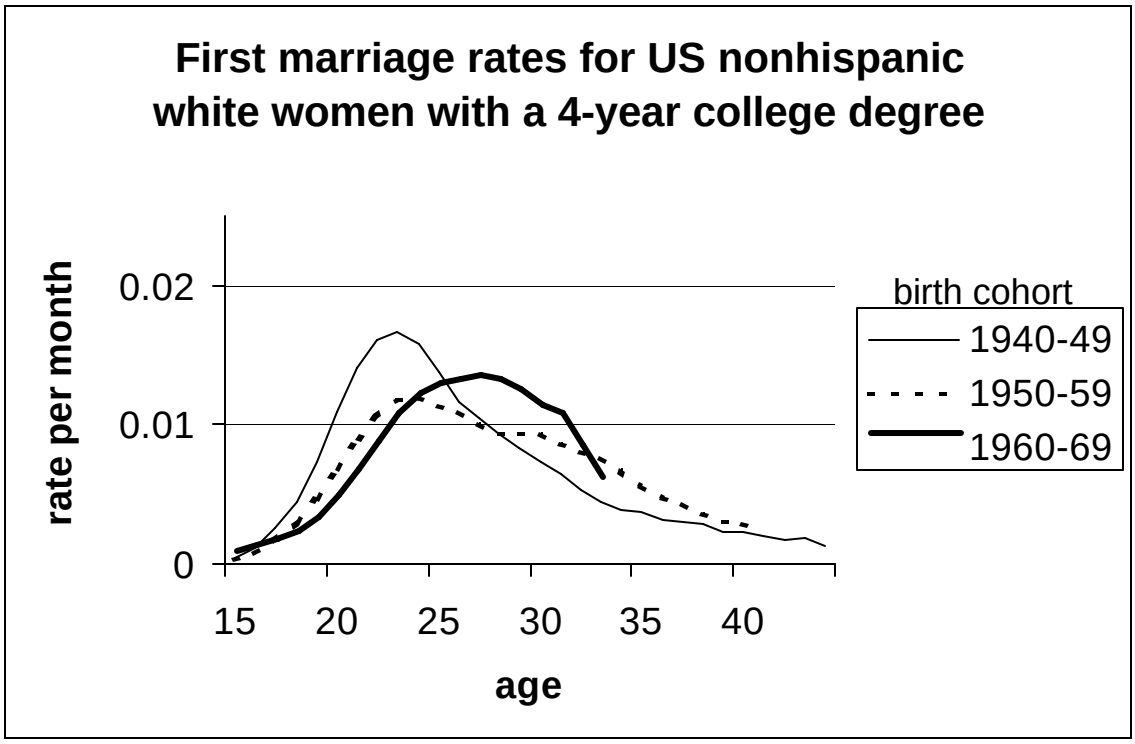
Figure 2A-B



Source: June 1985/1990/1995 Current Population Surveys. See text for details.

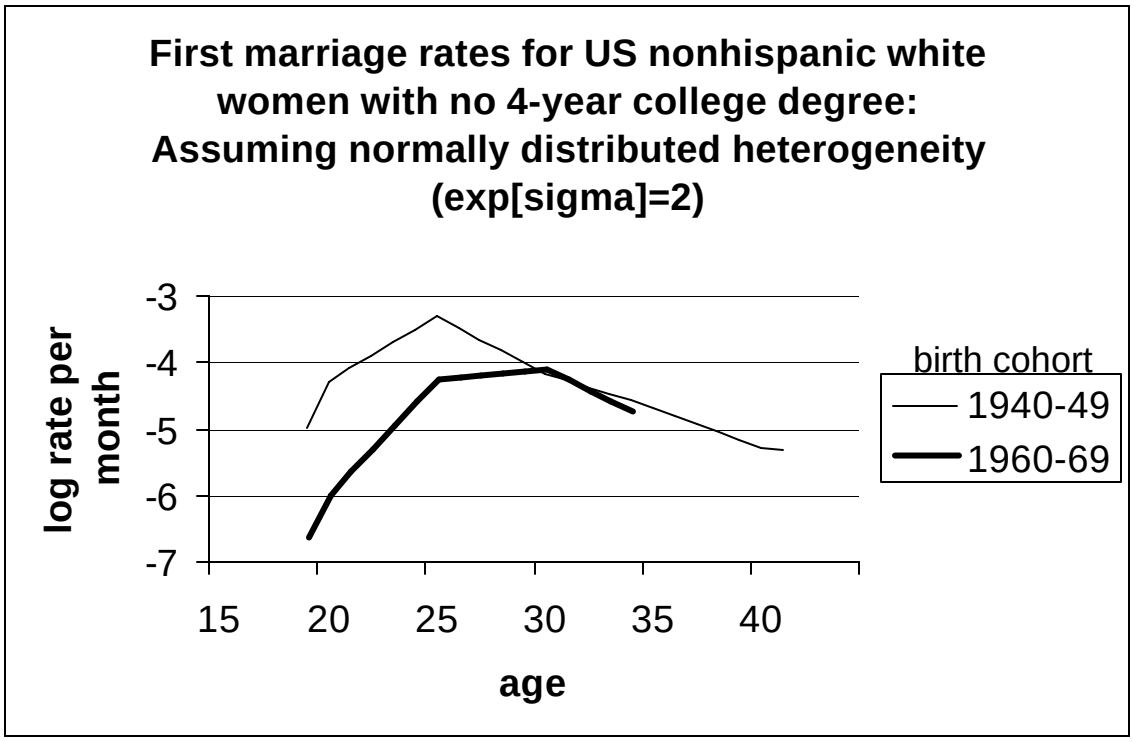
Figure 3A-B

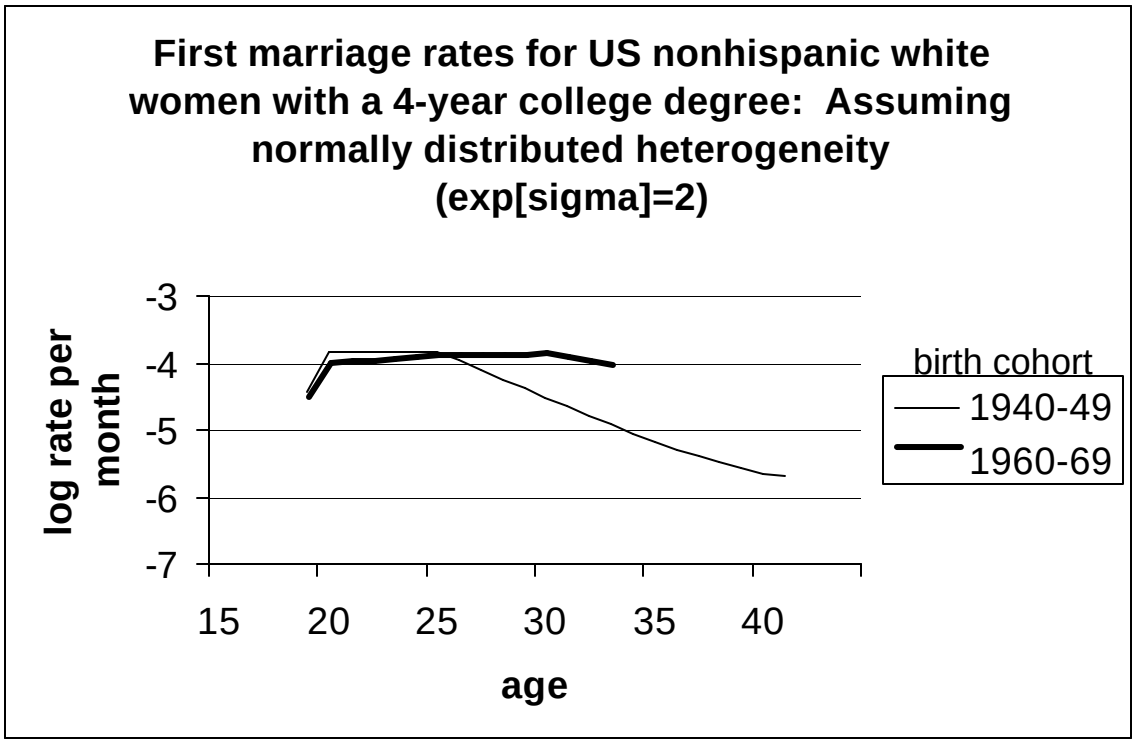




Source: June 1985/1990/1995 Current Population Surveys. See Text for Details.

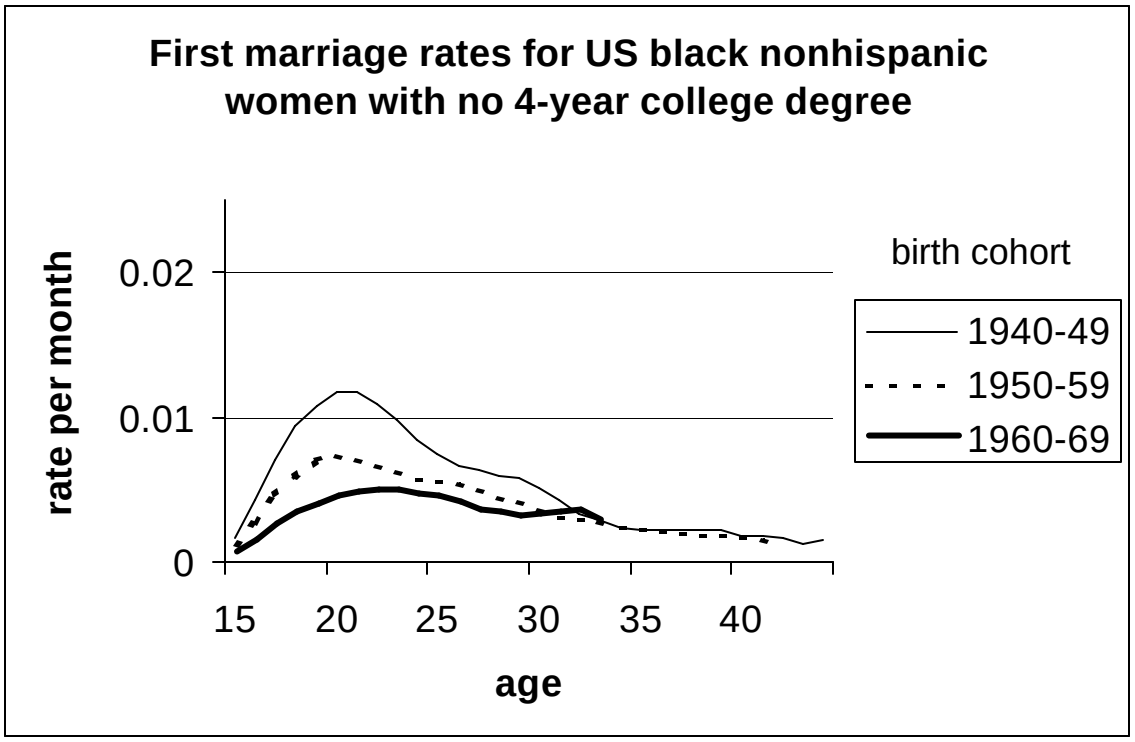
Figure 4A-B

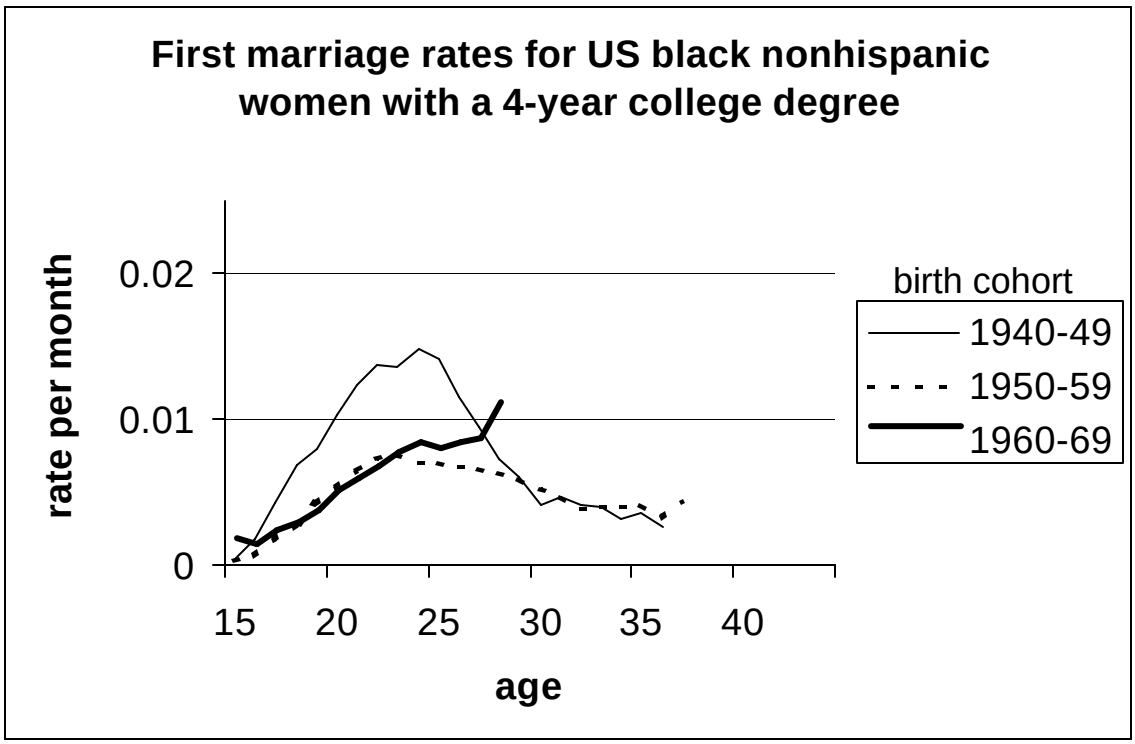




Source: June 1985/1990/1995 Current Population Surveys: See text for details of the data and the hazard model.

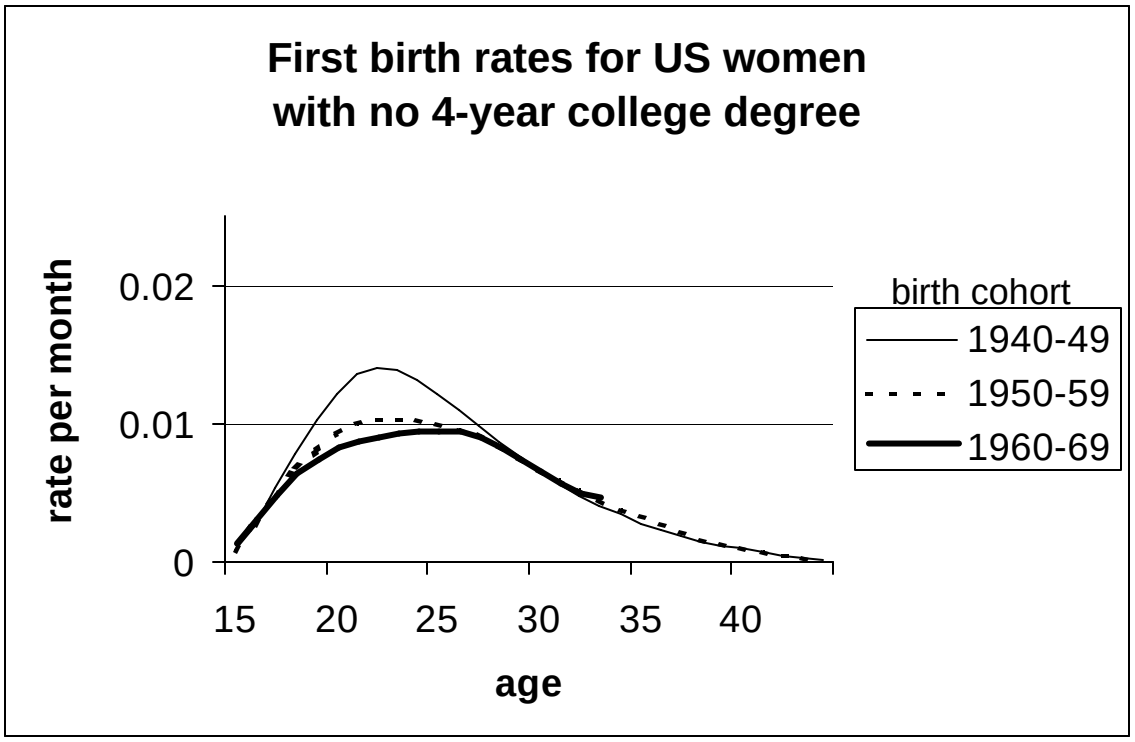
Figure 5A-B

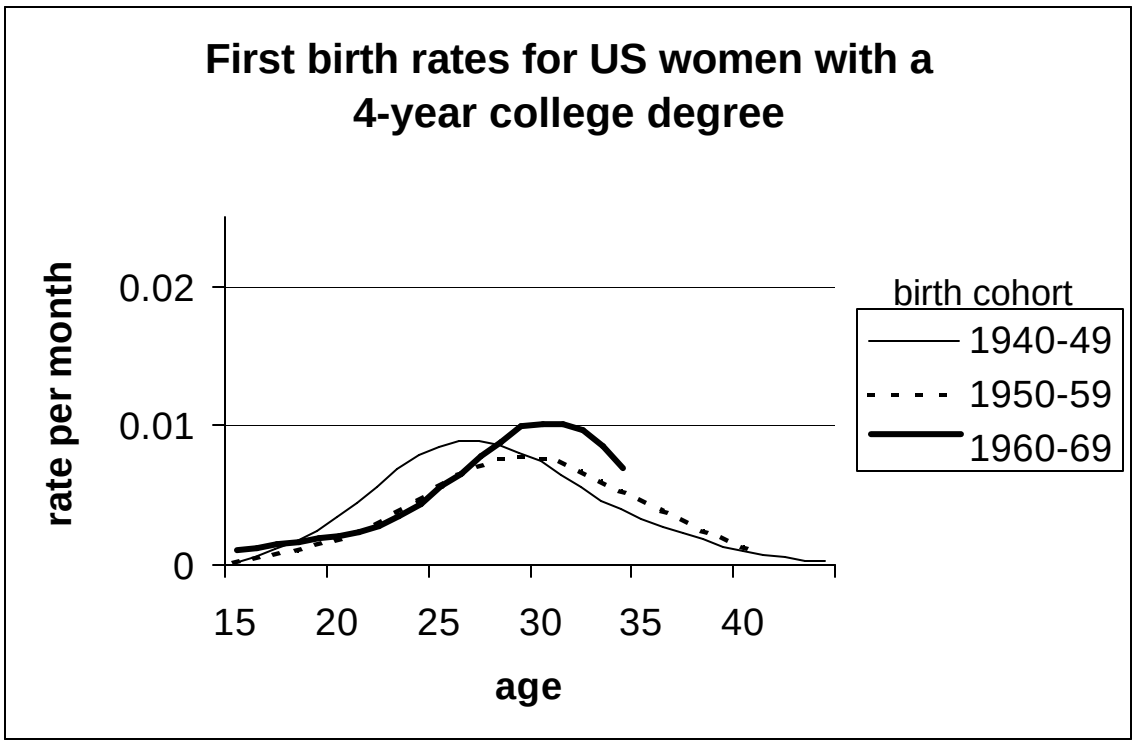




Source: June 1985/1990/1995 Current Population Surveys. See text for details.

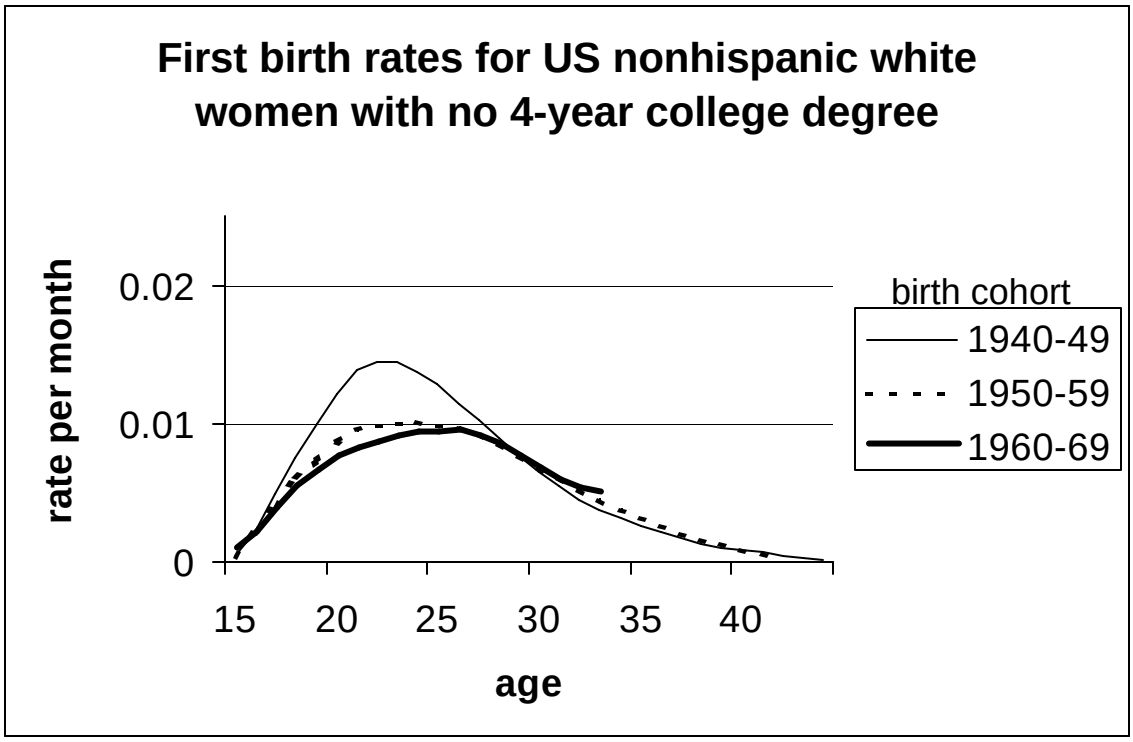
Figure 6A-B

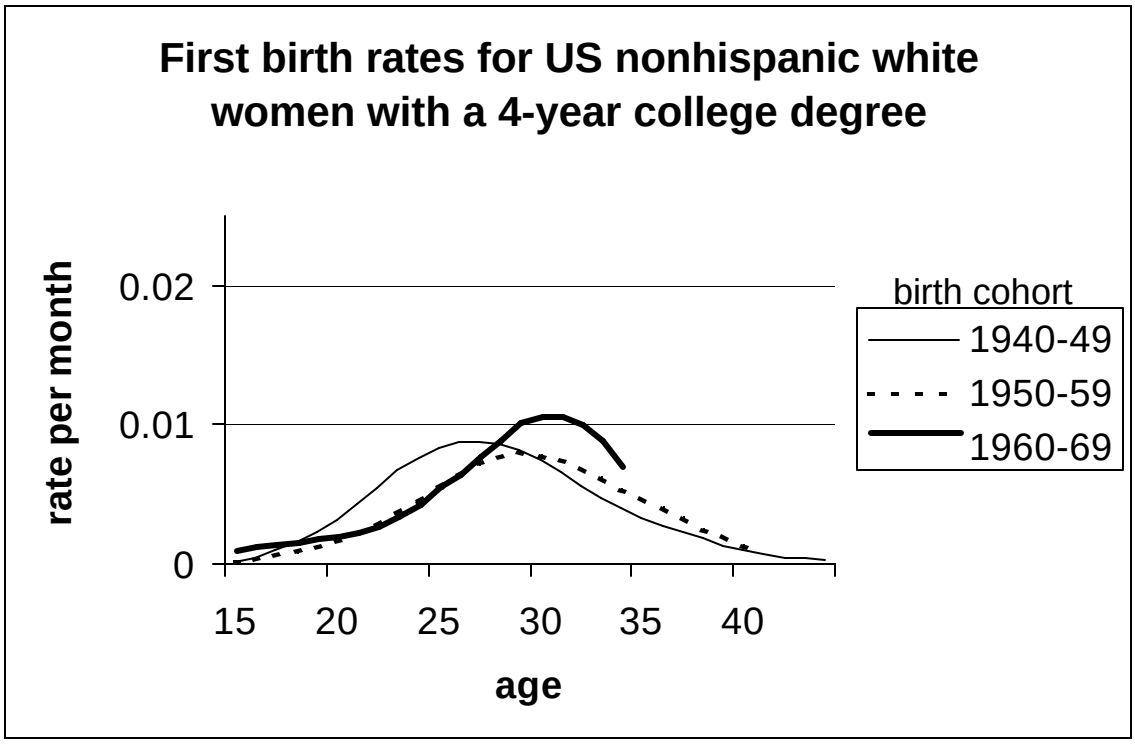




Source: June 1985/1990/1995 Current Population Surveys. See text for details.

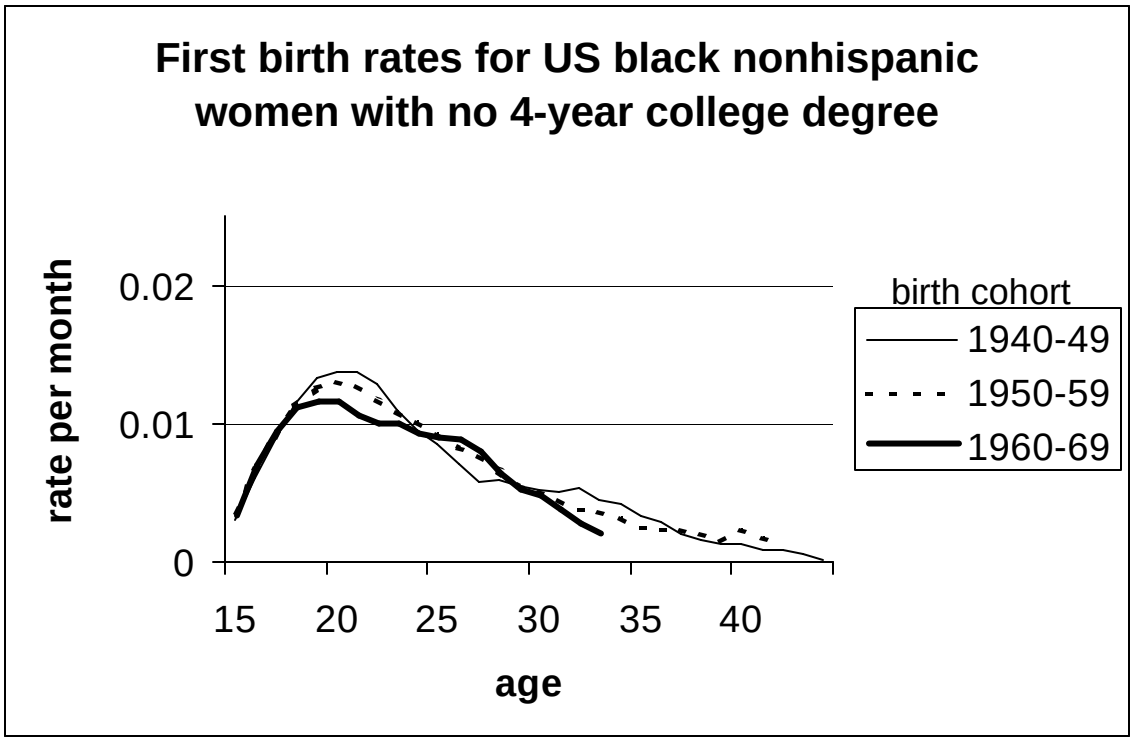
Figure 7A-B

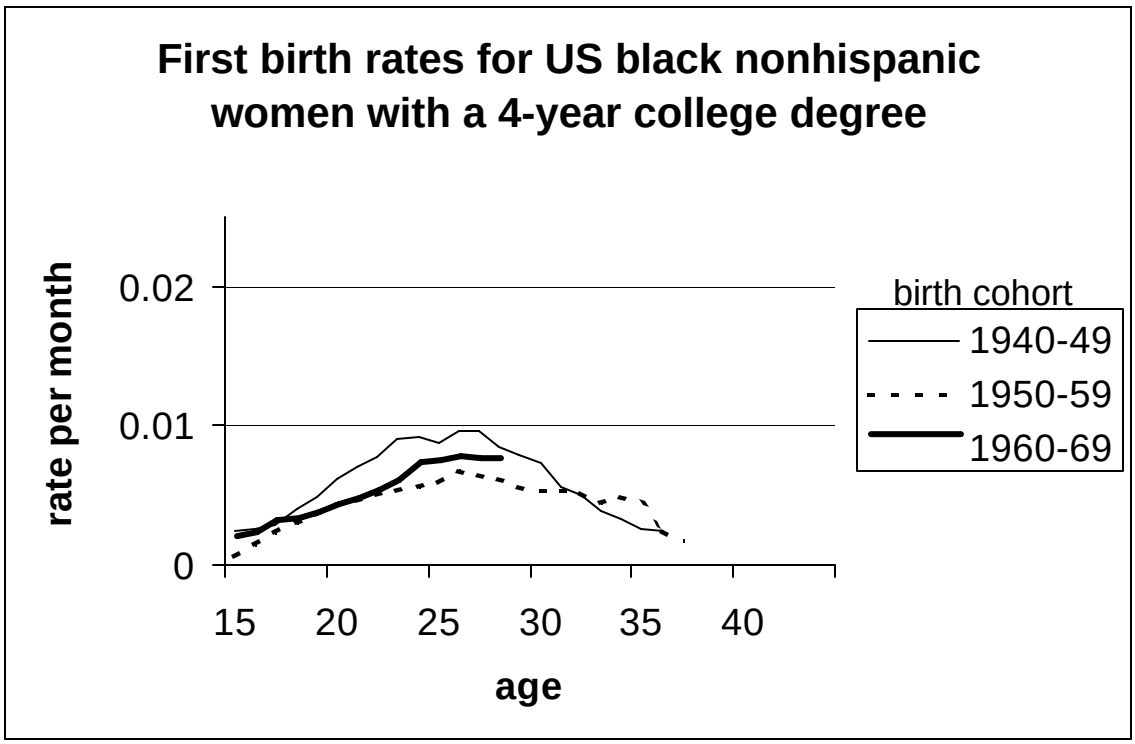




Source: June 1985/1990/1995 Current Population Surveys. See text for details.

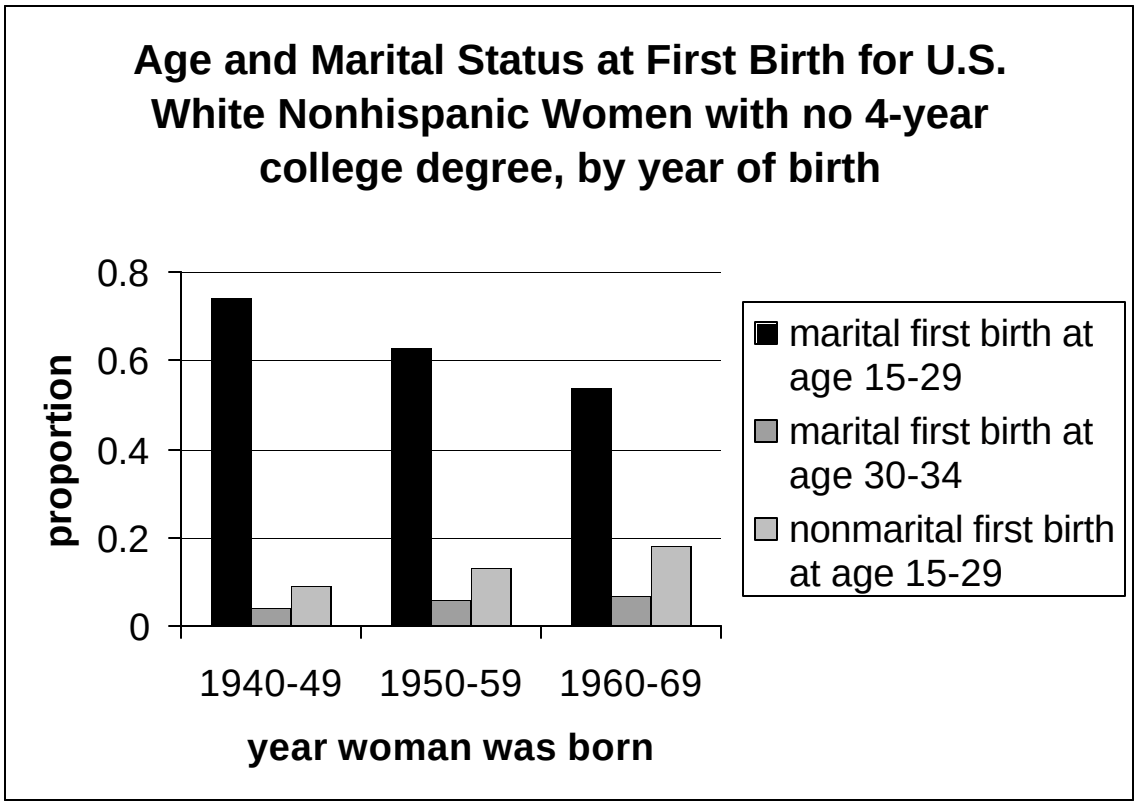
Figure 8A-B

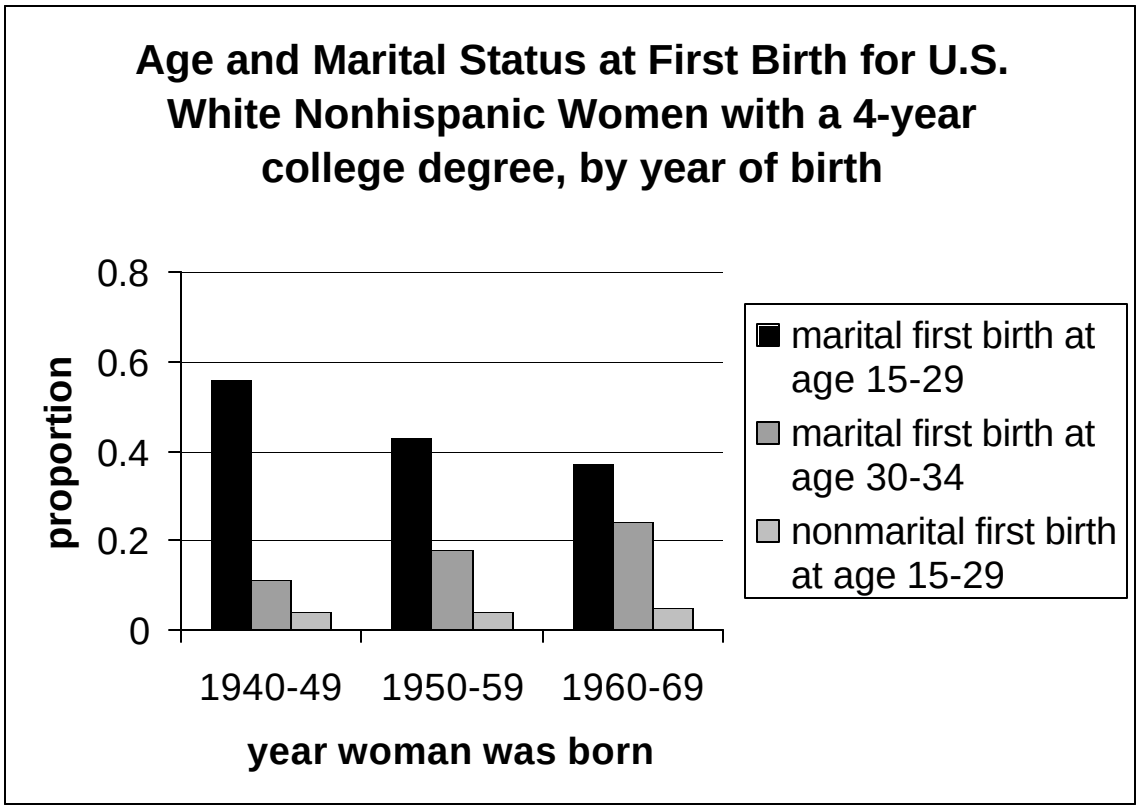




Source: June 1985/1990/1995 Current Population Surveys. See text for details.

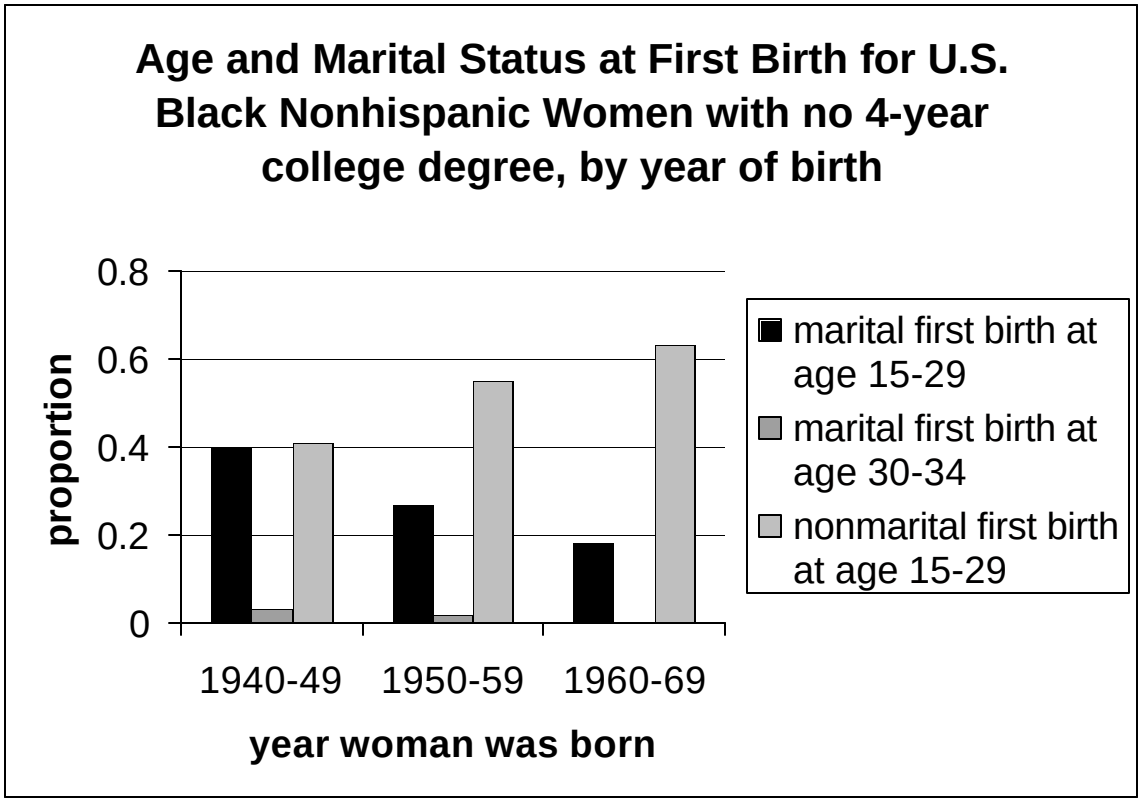
Figure 9A-B

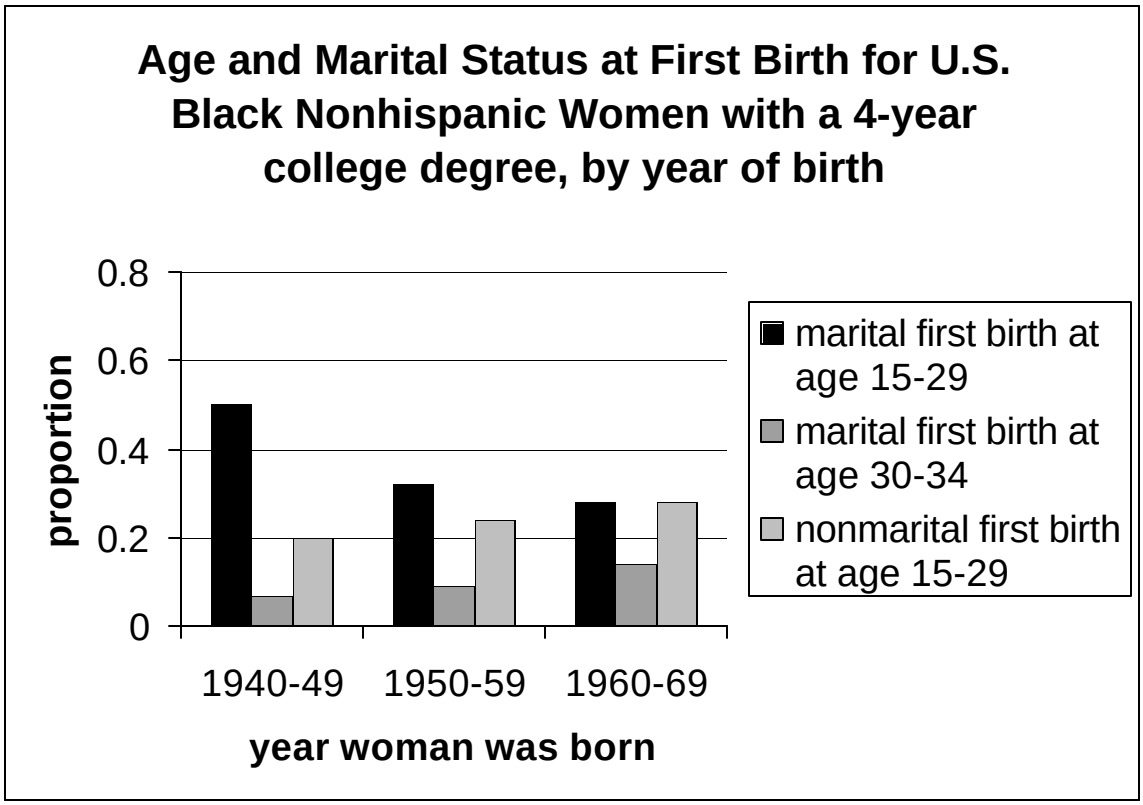




Source: June 1985/1990/1995 Current Population Surveys. See text for details.

Figure 9C-D





Source: June 1985/1990/1995 Current Population Surveys. See text for details.