

Educational and Racial Variation in Women's Transitions into and out of Single Motherhood

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Abstract

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Families continue to be the primary institution for raising children, and family structure plays an important role in children's life experiences. Research suggests that marriage confers benefits to women and children, and living in a household headed by a single mother is negatively associated with education, economic and health outcomes for children. This study investigates women's chances of being a single mother and how those chances vary by race and educational attainment. The study also examines women's transitions out of single motherhood to marriage, and presumably to the benefits of marriage, and to cohabitation, an increasingly popular but less advantaged family form. The findings of this study are consistent with previous research that shows that single motherhood is concentrated among the most disadvantaged women. It also shows that single mothers' access to marriage and cohabitation is stratified by race and education. The results suggest that union formation, particularly marriage, may not be a viable option for the most disadvantaged single mothers, and public and private efforts to promote marriage without altering the social and economic context in which marriage occurs for some and not others may have little impact.

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INTRODUCTION

The value of marriage in U.S. society has been the subject of much debate over the past several years. Changes in patterns of family formation that involve delayed marriage and increased single motherhood as well as cultural shifts in the acceptability of various family structures, such as non-marital cohabitation, have raised concern about the importance of marriage as an organizing structure of adulthood and of American family life. A wealth of research has attempted to discern the relationship between family structure and economic, education and health outcomes. Although it is not possible to demonstrate a causal relationship, this research suggests that children and adults benefit from marriage. Married men and women appear to engage in healthier behaviors and experience less emotional distress (Umberson, 1987; Simon, 2002). Children who grow up in married-parent families report higher grades, are less likely to drop out of high school, and are more likely to graduate from college (Sigle-Rushton & McLanahan, 2004; Amato, 2005).

Concern about the decline in marriage and the potential long-term impact on children has contributed to national interest in marriage promotion, particularly among single mothers. The federal government's effort to promote marriage is exemplified in the passage of the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA). PRWORA aimed to reduce the incidence of out-of-wedlock births; encourage the formation and maintenance of two-parent families; and end the dependence of needy parents on government by promoting job preparation, work *and marriage* (emphasis added). The federal government reinforced its commitment to marriage by allocating major funding for projects that promote healthy marriage as part of both the 2002 Healthy Marriage Initiative (Nock, 2005; Dion, 2005) and 2006 reauthorization of PRWORA. Marriage proponents claim that marriage provides a way to end poverty and welfare dependence for single mothers (Lichter, Qian & Mellott, 2006)

and to enhance the well-being of children through the benefits associated with living in a married-parent household (Kenney, 2004).

Despite efforts to promote marriage, for some women wanting to get married may not translate into marriage, and raising their children without husbands may be the most viable option. This may be particularly true for black women and women with less education. It is among these groups that single motherhood as well as declines in marriage have been most pronounced (Ellwood & Jencks, 2004; Gibson-Davis, 2011). Although the promotion of marriage appears to be in the forefront, the PRWORA seeks to encourage “two-parent families,” which are not necessarily limited to married-parent families. Non-marital cohabitation, which has become more acceptable and more common, is another option for single mothers interested in forming two-parent families. Research has shown that black single mothers are less likely than white single mothers to marry, and lower levels of education are associated with lower rates of marriage among single mothers (Lundberg & Rose, 2003), but it is unclear whether black and less-educated single mothers are more or less likely to cohabit.

This paper investigates how women’s chances of being a single mother – of being an unmarried, non-cohabiting woman raising her own children – are impacted by their educational attainment and race. Given that the retreat from marriage has been most pronounced among the most disadvantaged women, and cohabitation has become increasingly popular among all groups, what are the chances that single mothers with different levels of education and from different racial groups transition to each type of two-parent family? Using data from the 2006-2010 National Survey of Family Growth (NSFG), a nationally representative sample of women between the ages of 15-45 in 2006-2010, I examine these questions.

BACKGROUND

Trends in Marriage and Cohabitation

Women's marriage behaviors have changed dramatically over the past half century (Gibson-Davis, 2011). Women are increasingly postponing marriage, and in 2011 the age at first marriage for women reached a high of twenty-seven (U.S. Census Bureau, 2011). Although most women eventually marry, the proportion ever married has declined across all age groups (Kreider & Ellis, 2011; Goldstein & Kenney, 2001). In 1986, 95 percent of 40-44 year old women had been married at some point, but by 2009, this figure had dropped to 86 percent (Kreider & Ellis, 2001, p. 3).

The decline in marriage rates have largely been offset by an increase in cohabitation. (Bumpass, Sweet & Cherlin, 1991; Bumpass & Lu, 2000). Over the past several years, cohabitation has become the majority experience among men and women of marriageable age (Bumpass & Lu, 2000). The percentage of women of all ages who have ever cohabited increased from 41 percent in 1995 to 50 percent in 2002, and nearly half of marriages are preceded by cohabitation (Chandra, Martinez, Mosher, Abma & Jones, 2005, p. 17). Despite the fact that cohabitation has become a normative feature of the family formation process, little work that examines women's chances of transitioning out of single motherhood has considered cohabitation, distinct from marriage, as a pathway. Studies often examine single mothers' transitions to marriage alone (i.e. Lundberg & Rose, 2003; Gibson-Davis, 2011) or to unions as a whole, whether cohabiting or marital (i.e. Rendall, 1999; Moffitt & Rendall, 1995; Bumpass & Raley, 1995).

There are several reasons for researchers and policy makers to be interested in cohabiting-parent families as a distinct group. Cohabitation is less institutionalized than marriage and, as a result, has less clear family roles, rights and obligations (Brown, 2004; Nock,

2005). Studies have documented differences in how cohabiting and married couples approach domestic relationships; for example, cohabiting couples tend to pool income and divide household tasks differently than married couples do (Kenney, 2004; Blair & Lichter, 1991). Studies have also shown that cohabiting parents tend to be younger and less educated than married parents (Manning & Lichter, 1996). While cohabitation may provide the benefits of co-residence and co-parenting, it simply does not provide the same legal benefits and protections as marriage. Cohabiting relationships are less stable than marriages (Bumpass & Lu, 2000), yet there is no uniform legal system for managing the end of a cohabiting union. In addition, different treatment of cohabitation under the law means that it is unlikely that a single mother and her child will be covered by the health insurance of a cohabiting partner, or that a cohabitor will be able to take family leave if their partner's child is ill.

In addition, research on the relationship between family structure and well-being shows that cohabitation does not confer the same health or educational benefits to adults or children as marriage. Depression is prevalent among cohabiting mothers (Brown, 2000), and single mothers who enter long-term marriages experience greater declines in psychological distress than those who enter long-term cohabitations (Williams, Sassler & Nicholson, 2008). Children living in two-parent cohabiting families experience more behavioral and emotional problems and less school engagement than those living in two-biological-parent married families, even, in most cases, when the cohabiting parents are the child's biological parents (Brown, 2004). In this context of marked differences between the characteristics and behaviors of cohabitating and married couples as well as differences in benefits associated with the two family forms, it may be too simplistic to analyze whether or not single motherhood ends in marriage or ends in a union.

Education, Race/Ethnicity and Single Mothers' Union Formation

There are several theoretical reasons to suspect that the likelihood of being a single mother and forming either a marital or cohabiting union varies across socio-demographic groups. Here I focus on the insights offered by gender role specialization theory, the pool of marriageable men hypothesis, and intersectionality theory.

Gary Becker (1981) has argued that women's access to economic independence through their increased participation in the workforce has made it possible for them to raise their children without fathers. Becker asserts that a couple marries only if the perceived gains to marriage are positive, and they believe they can do better for themselves by uniting forces than by remaining single. He reasons that the gains to marriage are greatest when spouses' specialize in certain family functions, women in domestic production and men in market work, and exchange the products of these different labors. However, women's greater involvement in paid employment and increasing earnings has necessitated changes in the sex-based division of labor, and, as a result, marriage has become less economically advantageous. Becker claims the most important factor underlying the decline in marriage rates is the growth in women's earning power.

Becker's (1981) gender role specialization model suggests that women with greater access to economic independence, presumably those with more education, will find marriage less attractive and choose to raise their children alone because their livelihood is not dependent on a male breadwinner. Thus, women with higher educational attainment will be more likely to be single mothers and to stay single mothers. However, there is little evidence to support this hypothesis (Oppenheimer, 1994). Single motherhood is more common among women with less education (Ellwood & Jencks, 2004), and better labor market position, as measured by education, employment or income, is positively associated with women's entry into marriage (Lichter, McLaughlin, Kephart & Landry, 1992; Goldstein & Kenney, 2001).

Research regarding the relationship between single mother's economic standing and marriage provides some evidence to counter Becker's theory. Lundberg and Rose (2003) find that single mothers with a high school diploma are more likely than those without to marry, but they found no significant differences in rates of marriage between college-educated single mothers and those with less education. Other research has focused on the family structure experiences of children and found that children of single mothers with at least some college education are more likely than children with less-educated mothers to exit to a married-parent family (Bumpass & Lu, 2000; Graefe & Lichter, 1999). Although these results may hint at a positive relationship between a single mother's education and her chances of marriage, we cannot directly apply the results to children's mothers since the unit of analysis is children, not women. Furthermore, the strong relationship between educational attainment and the number of children a woman has potentially confound the results (Matthews & Ventura, 1997).

Graefe and Lichter (1999) also examine children's transitions from single mother headed households to those headed by cohabiting couples. They find the opposite effect of education on children's transitions; children with single mothers who attended two or more years of college are less likely to transition to cohabitation than children with less educated mothers. Again, these results are not directly applicable to single mothers themselves. To my knowledge no study has used single mothers as the unit of analysis to investigate the relationship between their educational attainment and their transitions to cohabitation. Although Becker (1981) did not discuss cohabitation directly, he may consider it to be an arrangement governed by similar principles as marriage. However, an extension of Becker's theory could lead us to reason that single mothers with greater economic resources will be more likely to cohabit as an alternative to marriage because they do not need the economic advantages, like income and health insurance, that marriage confers.

An alternative theoretical perspective regarding mate selection proposes that finding a mate is related to the available supply of suitable partners (Wilson, 1987; Oppenheimer, 1994). Much of the theoretical and empirical work in this area focuses on black women who, over the past few decades, have experienced a substantial increase in the proportion who never marry. In 2009, thirteen percent of black women age 55 and older had never married, compared to less than five percent of white, non-Hispanic women; this is nearly double the proportion from 1999 (Kreider & Ellis, 2011).

Since people tend to marry those who are similar to them, educational and racial homogamy plays an important role in structuring marriage markets (Schwartz & Mare, 2005; Qian & Lichter, 2011), and it plays an important role in Wilson's pool of marriageable men hypothesis. Wilson and Neckerman (1987) argued that black women's access to suitable black male partners was diminishing, and they attributed this to a decrease in the economic standing of young black men who were increasingly under-educated, unemployed, working for low wages, and not in a position to support a family. They showed that decreases in the ratio of employed black men to the population of young women during the 1970s and 1980s were consistent with changes in marriage proportion in most regions in the U.S. Other research has demonstrated that the incarceration of young black men, which also decreases their marriageability, is an important factor in structuring black women's marriage market (Western & Lopoo, 2007).

Subsequent tests of Wilson's (1987) hypothesis has shown that declines in the employment and earnings of black men can explain only a small proportion of the decline in black women's marriage rates (Ellwood & Crane, 1990; McLanahan & Casper, 1995; Wood, 1995), and racial differences in the quantity and quality of available men account for only some of the racial differences in rate of first marriage (Lichter, McLaughlin, Kephart & Landry, 1992).

However, this evidence still indicates that the size of the pool of marriageable men has some impact on women's marriage opportunities.

Because marriage rates for black women have dropped, but fertility rates have not, unmarried motherhood has become prevalent, particularly among low-income black women (Wilson & Neckerman, 1987; Ellwood & Jencks, 2004). Presumably, the constraints of black women's marriage market contribute to both higher rates of entry into single motherhood and lower rates of exit, when compared to white women. Research that examines transitions out of single motherhood confirms that black single mothers are less likely than white single mothers to transition to marriage (Lundberg & Rose, 2003; Rendall, 1999), and those who do marry spend twice as much time as single mothers (Gibson-Davis, 2011).

If we assume that there is not much difference in who qualifies as a marriageable and a cohabitable man, then women who reside in markets characterized by few suitable marriage partners will also face difficulties finding cohabiting partners. Much of the literature on rates of cohabitation focuses on men and women, whether or not they have children, or on children's experiences of cohabiting-parent families. Graefe and Lichter's (1999) work on children's transitions into and from families headed by unmarried cohabiting couples finds that both black and Hispanic children are less likely than white children to transition from single-mother-headed families to cohabiting families. Although these results appear to support patterns we expect based on the pool of marriageable men hypothesis, like education, race is a good predictor of how many children a woman will have (Matthews & Ventura, 1997), so the results are potentially confounded and not directly applicable to single mothers themselves. To my knowledge, no study has examined the association between race and single mothers' rates of cohabitation.

Intersectionality theory provides yet another way of thinking about the impact of socio-demographic characteristics on single motherhood and union formation. The theory proposes that we focus on ways in which systems of advantage and disadvantage mutually construct each other and overlap to co-determine inequality (Choo & Ferree, 2010, Collins, 1998). Proponents of intersectionality theory do not prioritize socio-economic status *or* race as the most important determinant of social context; instead they focus on how the two, along with other socio-demographic characteristics, operate together (Choo & Ferree, 2010). In the context of my study, this theory suggests that women's entry into single motherhood and transitions to marriage and cohabitation are uniquely impacted by the various positions women occupy at the intersections of their socioeconomic and racial identities.

Empirical evidence concerning women's marriage markets demonstrates the importance of this perspective. If we assume that socio-economic status, for example, trumps race, we might assume that college-educated black women would have chances of marriage similar to college-educated white women's. However, Banks (2011) shows that a college-educated black woman is much less likely to marry than a college-educated white woman; she is, in fact, no more likely to marry than a white woman with a high school education. Other research has consistently shown that highly educated black women face the greatest shortage of potential mates with comparable socioeconomic status (Bennett, Bloom & Craig, 1992; South & Lloyd, 1992; Schoen & Kluegel, 1988).

Explaining this phenomenon requires attention to not only the effects of educational attainment on marriage, but also the ways in which it is intertwined with the effect of race. When we consider the difficulties black men face in obtaining a college education and good employment with high earnings compared to other men – difficulties that are, in part, a function of racial disadvantage – the marriage market constraints faced by highly-educated black women

make sense. Higher proportions of black women than black men attend and graduate from college (Ross, Kena, Rathbun, KewalRamani, Zhang, Kristapovich & Manning, 2012); thus, fewer highly educated black men means that the pool of marriageable men for highly educated black women will be constrained.

Attention to the intersection of racial and socioeconomic identities leads to more nuanced expectations about the impact of the marital search process and the characteristics of the marriage market on women's chances of being single mothers and on the likelihood of transitions out of single motherhood. An intersectional framework leads me to believe that highly educated white single mothers who experience privilege in the marriage market on account of both their economic potential and their access to marriageable white men, will be least likely to become single mothers and most likely to marry when they are single mothers. It follows then that black single mothers with low levels of education will be most likely to enter single motherhood and least likely exit because of the ways in which two systems of disadvantage intersect in their lives.

If we assume that white women experience advantages in the both the marriage market and the cohabitation market, compared to black women, and women with less education experience disadvantages in the marriage market but not necessarily the cohabitation market, then less-educated white single mothers will be most likely to cohabit. If college educated black single mothers face advantages in the marriage market, compared to other black women, based on their access to educated, marriageable black men, they may be less likely to cohabit than other black single mothers because they marry instead. However, if college educated black single mothers face a limited quantity of educated, black men available for either marriage or cohabitation, they may be less likely than other college educated single mothers to cohabit.

DATA AND METHODS

Data

To examine these hypotheses, I use data from the 2006-2010 wave of the NSFG, a cross-sectional national probability sample of 12,279 women and 10,403 men between the ages of 15 and 44 years old¹. The NSFG collects women's marital and fertility histories and is one of few surveys to collect detailed cohabitation histories from women across age groups. These histories include beginning and end dates of marriages and cohabiting relationships as well as the births of all children. The cohabitation histories are a feature of the data that make them particularly advantageous for a study of the alternative pathways out of single motherhood.

The NSFG's collection of rich life history data also extends to educational attainment. These histories document the dates that women earned their high school diploma or GED and their bachelor's degree, which allow me to examine the relationship between transitions into and out of single motherhood and educational attainment *at the time of the transition*. Other surveys record only educational attainment at the time of interview, which offer a less precise examination of this relationship.

Another advantage of using NSFG data is that life histories are collected retrospectively, so there are few gaps in the histories. Furthermore, since the data are not limited to a set observation period, life history data for women of all ages extends back to their first marital, cohabitation and birth events, and the problem of left-censoring is alleviated.

While the data offer many benefits, they are also subject to some important limitations. Educational attainment is the best available proxy for women's economic standing because I can determine the variable's value at the beginning of the first single motherhood spell and

¹ The NSFG sampled black and Hispanic women ages 15-24 at higher rates than others but provides sampling weights that adjust for this sampling strategy as well as for response and coverage rates (NSFG, 2010). These weights are used in all analyses so that the data are broadly representative of the national population.

throughout the spell. Information on other socioeconomic factors such as employment and welfare receipt were collected at the time of interview, but no historical information is available. As a result these variables do not measure a woman's socio-demographic characteristics at the time of single motherhood and are less useful for event history analysis.

A second limitation is that the recollection of events that have already occurred creates measurement error because people may not recall exact beginning and end dates. However, events like marriages and birthdays with frequently referenced dates tend to be reported with a high level of accuracy (Brewer, 1994; Thompson, Skowronski, Larsen & Betz, 1996). Perhaps more problematic is the recall of beginning and end dates of cohabitation which may be less clearly defined than dates for marriages. Hayford & Morgan (2008) find that women are more likely to omit cohabitating relationships that occurred in the distant past. Thus, women in the older age groups in my sample may underreport the number of cohabitations they had early in their lives which may result in overestimations of their transitions into single motherhood and underestimations of their transitions out. This would be highly problematic if I were interested in cohort effects on transitions into and out of single motherhood, however, it is not my intention to make comparison between age groups.

A final limitation is that NSFG collected data from women ranging in age from 15 to 44, so no woman's lifetime experience of motherhood and partnership is fully observed. As a consequence, some women who will experience single motherhood or transitions out of single motherhood in the future simply have not had those experiences by the time they are surveyed. Right censoring would be problematic if we used standard regression, which does not distinguish between uncensored and right censored observations and likely leads to misleading results. Event history analysis accounts for both uncensored and censored cases as part of the likelihood

function; uncensored observations contribute information regarding failure times while censored observations only contribute information on survival (Box-Steffensmeier & Jones, 2004).

Analyses

I define a single motherhood spell as a period during which a mother, living with a dependent child, is neither married nor cohabiting. Thus, women become single mothers by giving birth while either unmarried or not cohabiting, or by being a mother and dissolving a marital or cohabiting union. Only women's first spell of single motherhood was selected for the analyses. This approach, which is common in the literature, is based on the idea that the first spell is governed by a different process than subsequent spells, and a first spell will likely exert an impact on subsequent spells, should a woman experience them (Le Bourdais, Desrosiers, Laplante, 1995; Moffitt & Rendall, 1995).

I conduct two discrete-time event history analyses: one examines entry into the first single motherhood spell and the second examines exit from this spell. I estimate these two models with discrete-time logistic regression and multinomial logistic regression, respectively. The unit of analysis is the person-month, which captures month-to-month changes in women's partnership-motherhood status.

The two event history models require two different samples because the women at risk of each event – entering a spell and exiting a spell – are different. Both samples are restricted to white, black and Hispanic women who provided complete, consistent data on the timing of marriage and cohabitation transitions² and to women interviewed during the 2008-2010 time

² Women whose marital and cohabitation histories were either incomplete or overlapping have been excluded. Incomplete histories (n=52) were missing either a start or end date of a cohabitation or marriage due to a respondent's refusal or not remembering. Overlapping histories (n=31) contained: 1) a cohabitation that began before a marriage ended (in either divorce or separation), 2) a cohabitation in the midst of marriage, or 3) a short marriage in the midst of cohabitation.

period, the only two years in the cycle when NSFG collected the date a woman earned her bachelor's degree.

The analysis of women's entry into the first single motherhood spells assumes the risk of being a single mother begins at age 13 and ends when a woman enters single motherhood or at the interview date.³ The sample for this analysis consists of 920,732 person-months with 5,845 women contributing at least one month of risk. For this sample, I use logistic regression to estimate risk of being a single mother. The dependent variable is coded as 0 if a woman is not a single mother and 1 if she is a single mother, for each person-month observation.

The risk of exiting single motherhood begins when a women becomes a single mother. Thus, the analysis of transitions out of the first single motherhood spell is conducted on a sub-sample of the previous sample. It contains 88,245 person-months lived between the start data of single motherhood and the transition out of single motherhood or the interview date if a woman does not transition. A total of 1,884 women become single mothers and contribute at least one month of exposure to this sample. I use a multinomial logistic regression, which is essentially a series of linked logit models, to examine the competing risks of transitioning to three possible states: marriage, cohabitation, or having no children under age 18 living in the household. Here, the dependent variable is coded as 0 if a woman stays a single mother and 1, 2, or 3 if she exited to another state.

Since both the logistic and multinomial logistic regression models may be estimated using maximum likelihood, the parameters are interpretable as logit coefficients. Thus, the estimates give the log-odds of the event occurring for a unit change in the covariate or for a change in a binary covariate from 0 to 1 or vice versa (Box-Steffensmeier & Jones, 2011). In the

³ I also conducted the analysis of entry into single motherhood using age 15 as the beginning of time, and the results were no different. In addition, when women who entered single motherhood before age 15 (n=39) were excluded from the analyses of transitions out of single motherhood spells, the results were no different than when they were included.

tables, I present results using logit coefficients; however, for ease of interpretation, I exponentiate these coefficients and discuss the result in terms of odds ratios, or hazard ratios.

Measures of Education, Race and other Covariates

I am interested in women's entry into and exit from single motherhood as a function of educational attainment and race. Other theoretically relevant covariates are also included in the analyses.

Educational attainment is a categorical measure that takes the form of a set of mutually exclusive, dichotomous variables representing the highest degree received: less than a high school diploma, a high school diploma or GED, and a bachelor's degree. The data do not allow me to determine if a woman has an associate's degree or some college experience, so these women fall into the high school diploma or GED category. I treat educational attainment as time-varying, meaning the covariate may assume a different value for the same respondent over the course of the observation period. For example, a woman who begins single motherhood with a high school diploma but completes college before marrying or cohabiting will be coded as having a high school diploma for the first part of her spell and as having a bachelor's degree for the second part⁴. As a result a woman's monthly hazard of single motherhood is estimated based on her educational attainment in that month.

Race/ethnicity is coded as a series of dummy variables: white (non-Hispanic), black (non-Hispanic), and Hispanic. These dichotomous variables were derived from racial categorizations provided by NSFG which included Hispanic, non-Hispanic white, non-Hispanic black, and non-Hispanic other (Asian American, Native American and multi-racial) categories.

⁴ One hundred sixty women earn high school diplomas while single mothers, and 37 women earn bachelors degrees while single mothers. No women earn both a high school diploma and bachelor's degree while single mothers.

Because the “other” race category was heterogeneous, I excluded the women in this category from the analyses.

Age is measured in century months. In the analysis of entry into a first single motherhood spell, age serves as the duration variable measuring the amount of time until a woman becomes a single mother. Age is also included in the model examining transitions out of single motherhood, but here it serves as a control variable. In this model, the duration of the single motherhood spell is measured using a variable that counts the number of months the woman has been a single mother, for each person-month observation. The log of duration is included in the model to account for the effects of time, or months as a single mother, on the outcome of the spell.⁵

The event at the origin of the single motherhood spell is included as a control variable in the model examining transitions out of single motherhood because studies have indicated that women who become single mothers as the result of an un-partnered birth tend to form unions more quickly than women who become single mothers as a result of union dissolution (Moore, 1989; Le Bordais, Desrosiers & Laplante, 1995). In this study, the event at the origin of the spell is coded as a series of dichotomous variables: un-partnered birth, end of marriage, and end of cohabiting union. Single mothers who began their spell with an un-partnered birth were neither married nor cohabiting at the time of the birth. Single mothers who began their spell with the end of marriage include women whose marriages have ended in separation, divorce or the husband’s death. Single mothers who began their spell with the end of a cohabiting union stopped living with an intimate partner.

⁵ I compared the AIC and BIC for the model containing $\log(t)$ with models containing t and other transformations of t , such as t^2 and t^3 . The AIC and BIC were lowest for models containing $\log(t)$ indicating a better model fit.

DESCRIPTIVE CHARACTERISTICS

Table 1 shows the proportion of women who have experienced motherhood and the proportion of mothers who have experienced single, cohabiting and married motherhood by their age at the time of interview. I estimate that 55 percent of women ages 15-45 in 2008-2010 were mothers, and this figure is similar to the U.S. Census Bureau's (2012) estimate of 53 percent for women in this age range for 2010 (p. 1). Of the women for whom I have the most complete fertility histories, women in the 40-45 age group, 83 percent had become mothers. This figure also closely matches the U.S. Census Bureau's (2012) estimate of 81 percent for 40-45 year old women in 2010 (p. 1).

[Table 1 about here]

The results in Table 1 also indicate that, for most mothers, some part of motherhood is experienced while single. A majority of mothers in all age groups, except the 30-34 and 35-39 age groups, have been single mothers at some point in their lives, but even among mothers in the 30-39 age range, single motherhood is a common experience. As we would expect, the proportion of women who have experienced single motherhood is greater than the proportion who are single mothers at the time of interview. For example, 53 percent of mothers age 25-29 have been single mothers but only 42 percent (not shown) are single mothers at the time of interview. This indicates that single motherhood is a state women transition into and out of at different points in their lives.

Table 2 provides additional information about the sample of women used in the analysis of risk of entry into single motherhood. As expected, black and Hispanic women are over-represented in the NSFG sample, which indicates the importance of using the NSFG's sampling weights. Women in the sample are somewhat younger than women in the U.S. population; women in the U.S. are more evenly distributed among age groups, ranging from 16-17 percent in

each age group. Since the NSFG's oversampling of black and Hispanic women was concentrated in the 15-24 age range, much of the discrepancy will be corrected using sampling weights.

The distribution of educational attainment in the sample is similar to population-level estimates from other surveys. The U.S. Census Bureau estimates that among women age 25 and older, 14 percent had no high school diploma, 58 percent had earned a high school diploma or attended some college, and 27 percent had earned bachelor's degree or above (Ryan & Sieben, 2012). In my sample of women age 25 or older, 19 percent had no high school diploma, 52 percent had earned a high school diploma or attended some college, and 29 percent had earned a bachelor's degree or higher (not shown in table). Although there are differences between the U.S. Census Bureau estimates and the sample, they are within reason, and it is still possible to make generalizations to the population of women. High school educated women appear to be somewhat underrepresented in the sample, so if they are more likely to be single mothers than women with no high school diploma or women with a college degree, transitions to single motherhood may be underestimated.

[Table 2 about here]

Table 3 presents descriptive statistics for the sample of single mothers used in the analysis of transitions out of single motherhood. The experience of single motherhood is almost evenly split between women who have earned high school diplomas or GEDs (50%) and women who have less education than a high school diploma (46%). Only 5 percent of single mothers had earned bachelor's degrees by the beginning of their first single motherhood spell which indicates that women with higher levels of education will be less likely to become single mothers.

[Table 3 about here]

The single mother sample is composed of slightly more white women than black women. However, the proportion of black women from the full sample who become part of the single mother sample is much higher than the proportion of white women who become part of the single mother sample (53% vs. 24%). This suggests that race will have a significant impact on entering single motherhood.

Women in the sample began their first spells of single motherhood at young ages; nearly 70 percent of spells began when she was between the ages of 15 and 24. Likely connected to the age structure of the single mother sample is the event at the origin of the first spell. More than half of first single motherhood spells began with an un-partnered birth, while the remainder began single motherhood with the end of either a marriage (26%) or cohabiting union (20%).

The bottom portion of Table 3 indicates that cohabitation is the most common way of ending a single motherhood spell. More than half of single mothers exited their first spell through cohabitation, but only seven percent ended their first spell with marriage. An even smaller percentage (4%) ended their spell of single motherhood because their child moved out of the household or turned 18 years old. In total, 83 percent of all observed exits from single motherhood were through cohabitation. The high proportion of women who exited their first spell via cohabitation as compared to marriage or no exit suggests that distinguishing cohabitating motherhood from single and married motherhood is an important part of understanding union formation amongst single mothers.

RESULTS

Transitions into Single Motherhood

I now turn to event history analysis to examine differences in rates of transition into single motherhood for women with different educational attainment and racial backgrounds.

Table 4 shows that women with a high school diploma are more likely than those without to be single mothers. However, women with less than a high school education are much more likely than college graduates to be single mothers. It is also clear that single motherhood is disproportionately experienced by black and Hispanic women. Although Hispanic women are one and a half times ($e^b=1.55$) more likely to enter single motherhood, compared to white women, black women are three times ($e^b=3.04$) more likely than white women to be single mothers. These results are consistent with my hypotheses regarding race but not education.

[Table 4 about here]

Table 5 shows results from an analysis that looks more closely at the chances of becoming a single mother for women at various intersections of educational and racial characteristics. The coefficients corresponding to the main effects of education and race are statistically significant. In addition the interaction term for high school diploma and Hispanic is statistically significant which indicates that the positive effect of holding a high school diploma is significantly weaker for Hispanics women than for white women.

[Table 5 about here]

To better understand the result from Table 5, I use them to simulate the risk of entering single motherhood for women with different education-race characteristics. Simulated median ages at first single motherhood are shown in Figure 1. Each point on the figure represents a point estimate, and the extended line, its confidence interval. The point estimates then correspond to the range of ages across the bottom axis – which indicates the age at which a woman with those particular racial and education characteristics is expected to enter single motherhood. When the median age is high, the risk of entering single motherhood is low, relative to other point estimates.

To some degree confidence intervals that do not overlap indicate significant differences in the chances of being a single mother. However, estimating first differences provides more accuracy. When we simulate first difference, we are essentially changing one element of our scenario and determining if that change produces a significantly different result. For example, we can change a less than high school educated woman's race from black to Hispanic and see if the change makes a significant difference in her chances of being a single mother. Figure 2, Panel A shows first differences within education groups, and Panel B shows first differences within racial/ethnic groups. A significant difference is present when the confidence interval corresponding to a particular comparison does not cross zero.

[Figures 1 and 2 about here]

Figure 1 shows a wide degree of variation in the chances of being a single mother by both education and race, and first differences confirm that most of the differences within both educational and racial groups are statistically significant (see Figure 2). The lower likelihood that a woman with a bachelor's degree will be a single mother, compared to women with less than a high school education, persists across racial groups. Among these highly educated women, black women with a bachelor's degree are significantly more likely than white women with a bachelor's degree to become single mothers. Thus, education reduces the risk of entering single motherhood for black women, but still leaves them more likely than similarly educated white women to enter single motherhood.

Among high school graduates, as well as non-graduates, black women are more likely than both Hispanic and white women to be single mothers. Less-educated Hispanic women are also more likely than less-educated white women to be single mothers. Only among white women is there a significant difference between women with and without a high school diploma;

white women with a high school diploma are significantly more likely than other white women to be single mothers.

Together these findings show that attention to women's intersecting educational and racial characteristics reveal nuanced variation in the chances of being a single mother. They suggest that the intersection of privileged educational and racial statuses for college educated white women does inhibit their transitions to single motherhood. The results also confirm the expectation that the most disadvantaged women in terms of both their education and race are the most likely to become single mothers. Since the rate of single motherhood among black women is particularly high compared to other groups, the findings are consistent with Wilson's hypothesis that the pool of marriageable men has diminished and left black women to raise their children alone.

Transitions out of Single Motherhood

Turning to the factors that are associated with transitioning out of single motherhood, Tables 6, 7 and 8 present results from the analysis of single mother's transitions to three possible states: marriage, cohabitation and no children under age 18 living in the household. Transitions to any of these three states are relative to the "non-event" of remaining a single mother. I begin with simple, bivariate models in order to identify patterns in the relationships between each covariate of interest, education and race, and exit from single motherhood.

Results shown in Table 6, Panel A indicate that education impacts transitions to marriage but not to cohabitation. Women with bachelor's degrees, compared to women without high school diplomas, have 173 percent ($e^b=2.73$) higher odds of ending a first spell of single motherhood through marriage. In addition, women with a high school diploma have 176

($e^b=2.76$) percent higher odds than women without a high school diploma of ending a first spell of single motherhood through their child leaving home or turning age 18.

[Table 6 about here]

Race impacts transitions to all three states (see Table 6, Panel B). Black women are 52 percent ($e^b=0.48$) less likely than white women to exit their first spell of single motherhood through marriage and 21 percent ($e^b=0.79$) less likely than white single mothers to form cohabiting unions. Black women as well as Hispanic women are considerably less likely than white women to exit a spell through their children turning 18 or leaving the household. One explanation for this finding is that black and Hispanic women have more children than white women (Matthews & Ventura, 1997). When women have multiple children and do not form unions, their time as single mothers expands, since the spell will end only when the youngest child turns age 18.

In general, the results from the multinomial model with all covariates reinforce the conclusions from the bivariate models. In the multivariate model, educational attainment continues to have a strong influence on single mother's transitions to marriage. College educated single mothers are nearly three times ($e^b = 2.84$) as likely to exit single motherhood through marriage. Thus, single mothers with college degrees appear to have greater direct access to marriage. Insofar as educational attainment is related to economic independence and higher income, this contradicts Becker's gender role specialization theory that leads us to believe women with greater economic resources will be less likely to marry.

[Table 7 about here]

The distinction between educational groups does not apply to single mothers' transitions to cohabitation. I find no significant difference between educational groups in single mothers' chances of forming a cohabiting union. It remains that black women have lower rates of exit

from single motherhood than white women through all possible routes. Black women, compared to white women, have 48 percent ($e^b=0.52$) lower odds of ending the first spell of single motherhood through marriage and 29 percent ($e^b=0.71$) lower odds of ending the first spell through cohabitation⁶. Black single mothers also have a 64 percent ($e^b=0.36$) lower odds of ending the first spell through their children turning age 18 or leaving the household. These findings are consistent with the pool of marriageable men hypotheses that black single mothers face marriage market constraints that reduce their chances of marriage and cohabitation, particularly when compared to white women.

There are other characteristics that impact transitions to cohabitation. Coefficients indicate that divorced single mothers are more likely to transition to cohabitation than single mothers who experienced an un-partnered birth. Age and spell duration are negatively associated with transitions to cohabitation. Women who begin their spells at older ages are less likely to transition to cohabitation, and the longer a single motherhood spell lasts, the less likely a woman is to cohabit.

It is surprising that so few covariates are significant predictors of single mothers' transition to marriage. It may be that the small proportion of single mothers in the sample who marry limits the statistical power to find significant differences for transitions to marriage. However, this data limitation makes it more striking that I find that having a bachelor's degree significantly increases the likelihood that a single mother will marry, and black single mothers are much less likely to end their first spell through marriage.

Table 8 shows results from the model that includes interactions between the education and race variables. While education is not significantly associated with marriage in this model,

⁶ Changing the reference group in this model to black women shows that white and Hispanic single mothers are both more likely than black single mothers to transition to cohabitation. The difference in rate of transition to marriage remains significant only between black and white women.

race remains a consistent predictor of single motherhood spell exit across exit categories. Black single mothers are less likely than white single mothers to marry and to end single motherhood through their child turning 18 or leaving the household. It appears that black women are also less likely to form cohabiting unions, but a significant interaction term indicates that black and white single mothers with less than a high school education are more different than blacks and whites with a high school diploma.

[Table 8 about here]

To further explore the impact of both education and race on the chances of exiting single motherhood through cohabitation, I conduct a series of simulations that predict the median time to cohabitation for women with different education and race characteristics. These results are shown in Figure 3. As in previous figures, each point in Figure 3 represents a point estimate, and the extended line represents its confidence interval. The point estimates correspond to the range of years across the bottom axis and indicate the median duration of single motherhood for a woman with those particular characteristics. The interpretation of this duration is complicated – does it take white single mothers with no high school diploma four years to cohabit? Yes and no. Nearly three-quarters of *all* single mothers who will end their spells in cohabitation do so within four years. However, it is important to remember that nearly half of single mothers do not experience cohabitation at all. This increases the predicted duration of single motherhood, with regard to cohabitation. In addition, the same single mothers who are at risk of cohabitation each month are also at risk of marriage and of having their children turn age 18 or leave the household. While those experiences are few, they also bias the duration of single motherhood, with regard to cohabitation, upward.

The most straightforward interpretation of the results shown in Figure 3 is that when the duration is long, such as for Hispanic single mothers with bachelor's degrees, the risk of

cohabitation is low, relative to other estimates. Educational patterns in chances of cohabitation appear to vary across racial group, with less than high school educated women, for example, being the most likely to cohabit among white single mothers but the least likely to cohabit among black single mothers. This pattern is substantively interesting, but first differences show that there is little indication that the education patterns within racial group are significantly different (see Figure 4). However, looking at differences across racial groups, black single mothers with less than a high school education are significantly less likely to cohabit than similar white women and Hispanic women.

[Figures 3 and 4 about here]

What is most striking about these results shown in Figure 3 is that Hispanic single mothers with bachelor's degrees appear to have a dramatically lower risk of cohabiting than other single mothers. While there is not a significant difference between college educated, Hispanic single mothers and their black and white counterparts, there is significant variation among Hispanic single mothers; those with bachelor's degree are significantly less likely than those with a high school diploma to cohabit.

Figure 5 shows educational and racial variation in single mothers' time to marriage. We can see that the durations are very long, which indicates that the risk of marriage is quite low. This makes sense given that only seven percent of the single mothers transitioned to marriage (see Table 3). None of the interaction terms are significant in the multinomial logistic regression, but when I estimate first differences, I find that there is some variation educational-racial variation (see Figure 6). Black single mothers with no high school diploma are significantly less likely than similar white single mothers to marry. Among black single mothers, those with no high school diploma are less likely than those with a bachelor's degree to

marry, and among Hispanic single mothers, those with no diploma are less likely to marry than those with a high school diploma to marry.

[Figures 5 and 6 about here]

Simulated median durations of single motherhood with regard to women's exits through their children turning age 18 or leaving the household also produce more statistically significant variation by education-race characteristics than the multinomial logistic regression indicated. Figures 7 and 8 show that black and Hispanic single mothers with no high school diploma are significantly less likely than their white counterparts to end their spell through their child turning age 18 or leaving the household. Significant racial/ethnic differences do not arise among high school and college educated single mothers which suggests that the significant main effects for race found in the multinomial logistic regression results may be driven by single mothers with less than a high school education. In addition, white single mothers with a high school diploma are less likely than white single mothers with no diploma to exit through this pathway, and Hispanic single mothers with a high school diploma are less likely than those with a bachelor's degree to end their spell through their children turning age 18 or leaving the household.

[Figures 7 and 8 about here]

In summary, it is only among single mothers with the least education that black women's chances of marriage and cohabitation are significantly reduced. Thus, black-white differences in single mother's transitions to two-parent families appear to be driven by the experiences of single mothers with low levels of education. Contrary to what I expected, white and black single mothers with bachelor's degree are equally likely to transition to marriage and to cohabitation. Despite arguments that highly educated black women face a shortage of potential mates, it appears that marriage is still more accessible to the most highly educated black single mothers. Perhaps the pool of educated black men is small, but the men in the pool are more likely to be

marriageable, based on our definition. Regardless of the size of the pool of men available for marriage to less educated black single mothers, patterns of racial and educational homogamy mean their pool of men is simply not marriageable.

Interestingly, among Hispanic single mothers, those with high school diplomas have greater chances of marriage and cohabitation. Hispanic single mothers with a bachelor's degree stand out as having particularly low chances of cohabitation, but it does not appear that this is because their chances of marriage are high. More qualitative work with Hispanic single mothers may help us to build theory that leads to a better understanding of the barriers they face to marriage and cohabitation.

Does Risk of Exit Vary for Different Types of Single Mothers?

To explore the possibility that the influence of educational attainment and race on exiting a single motherhood spell differs among women who began their first single motherhood spells in different ways, I set up interactions between education and event at the origin of the single motherhood spell⁷ and race/ethnicity and event at the origin of the spell. Neither model produced significant results for the interaction terms, which suggests that it is the main effects of education and race that influence transitions out of single motherhood spells (see appendix for results).

Is Cohabitation a Stepping-stone toward Marriage?

The finding that women end single motherhood spells predominantly through cohabitation begs the question of what happens to the cohabiting unions formed by single

⁷ In the educational attainment interactions, I used a binary education variable that combines women with high school diplomas and women with bachelor's degrees because there were so few single mothers with bachelor's degrees in each of the categories of the event at the origin of the spell variable.

mothers? Do single mothers who end spells by cohabiting then transition to marriage, and does this vary by education and race?

Table 9 shows results from the multivariate model that examines the outcome of single mothers' cohabiting relationships⁸. Unfortunately, small cell size prohibits the inclusion of interactions in these models. There appears to be no significant difference in rates of transition from cohabitation to marriage for single mothers with different levels of education. However, this may be because the model uses a binary education variable that combines women with bachelor's degrees with women with high school diplomas. I used a binary education variable because of unstable results produced for college educated cohabiting women's transitions to no children under age 18 in their households. Only twenty-four single mothers with bachelor's degrees at the beginning of the spell transitioned to cohabitation, and none of them transitioned from cohabitation to having no children in their household under the age of 18 during the observation period. However, the model containing the full set of education dummy variables showed that college educated cohabiting mothers were more likely than cohabiting mothers with no high school diploma to transition to marriage (see appendix). This result suggests that single mothers with greater earning power or higher levels of education are more likely to marry after cohabitation. It appears that the potential for economic independence due to their level of education does not deter single mothers from marriage.

[Table 9 about here]

Results shown in Table 9 indicate that all women of color are less likely than white women to end their cohabiting motherhood spells through marriage, which suggests that cohabitation is less a stepping-stone toward marriage for black and Hispanic women than it is for

⁸ I also examine the outcome of single mothers' marital unions. This analysis showed no statistically significant variation in outcomes by race/ethnicity or educational attainment. No group of women was more likely than others to return to single motherhood after forming a marital union (see appendix for results).

white women. Black women, compared to white women, have 45 percent ($e^b=0.55$) lower odds of transitioning from cohabitation to marriage following their first single motherhood spell. However, the difference between white women and Hispanic women is even more pronounced. Hispanic women have a 54 percent ($e^b=0.45$) lower odds of transitioning to marriage, but they are also less likely than white women to return to single motherhood after cohabitation. It appears that cohabitation is a more stable state for Hispanic single mothers than it is for white single mothers.

Marriage remains outside the grasp of black and Hispanic single mothers, even when they are in intimate, co-residential relationships. It may be that black and Hispanic women do not consider their cohabiting partners to be marriageable, due to the men's employment and income, or it may be that other barriers to marriage exist. Edin's (2000) interviews with low-income single mothers demonstrate that blacks, more so than whites, cite affordability as a marriage deterrent; they believe marriage requires economic resources that allow them to establish independent households. Low-income black single mothers also equate marriage with a loss of control over their households which makes it less appealing to them; the lack of norms governing cohabiting relationships may provide more flexibility in how women negotiate decision making with their partners. Further research with Hispanic mothers needs to be done to determine if similar concerns arise.

DISCUSSION AND CONCLUSION

Families continue to be the primary institution for raising children, and family structure plays an important role in children's life experiences. Research suggest that marriage confers benefits to women and children, and living in a household headed by a single mother may be associated with a number of poor education, economic and health outcomes for children

(Umberson, 1987; Lillard & Waite, 1995; Simon, 2002; Amato, 2005; Sigle-Rushton & McLanahan, 2004). I examine women's risk of being a single mother and variations in this risk for women with different racial backgrounds and educational attainment. I also examine women's transitions out of single motherhood spells to not only marriage, and presumably to the benefits of marriage, but also to cohabitation, an increasingly popular but less advantaged family form.

I find that race is a consistent predictor of entering a single motherhood spell and staying in that spell, and the most consistent differences exist between black and white women. Black women are more likely to become single mothers and less likely to transition out of single motherhood through all defined pathways. Black women are not only less likely than white women to transition from single motherhood to married motherhood, but they are also less likely to end their first single motherhood spell in cohabitation and to transition from cohabitation to marriage. Attention to the intersections of women's educational attainment and racial backgrounds shows that differences between black and white women's chances of marriage and cohabitation are most pronounced among women with the least education, and college-educated black women do have greater chances of marriage than less educated black women.

These findings are consistent with previous research that examines black and white women's transitions into single motherhood (Rendall, 1999) and research that shows a high prevalence of single motherhood among black women and women with less education (Ellwood & Jencks, 2004). The findings are also consistent with those of Lundberg and Rose (2003) who show that the chances of marriage for black and less educated single mothers is low, relative to white women. However, the current study uses a definition of single motherhood that diverges from Lundberg and Rose (2003) and other scholars (i.e. Ellwood & Jencks, 2004; Gibson-Davis, 2011) by incorporating cohabitation. I find educational and racial differences among single

mothers who are neither married nor cohabiting in their transitions to both marriage and cohabitation. Together, my study and previous literature provide strong evidence that the experience of single motherhood and the chances that a single mother will form a two-parent family are stratified by race and education.

When single mothers from disadvantaged groups marry or remarry less, they and their children are further disadvantaged by missing out on the benefits marriage confers in a society that privileges married-parent families over other family forms. This likely contributes to a cumulative cycle of disadvantage (DiPrete and Eirich, 2006; McLanahan & Percheski, 2008). Spending time in a single mother headed household is not only associated with barriers to children's upward mobility, but also their future access to marriage and its benefits (Sigle-Rushton & McLanahan, 2004). Thus, single mothers' unequal access to marriage is a potentially important factor in the reproduction of inequality and persistence of social hierarchies.

Some scholars and policy makers have purported that encouraging marriage is an important component of strategies to address the inequalities between children raised in homes headed by single mothers and married parents. Whether or not black and less educated single mothers want to marry or would prefer to raise their children in married-parent households, the large, significant and consistent differences I find between black and white women's rate of exit from single motherhood spells suggest that for black women, particularly those with less education, the options for transitioning out single motherhood are slim. Marriage promotion programs implemented across the U.S. consist of media campaigns and relationship skills workshops (Avishai, Heath & Randles, 2012); however, it is not reasonable to assume that increasing the desire to marry or building skills for stable marriage is a particularly useful strategy for disadvantaged single mothers. Simply promoting marriage without altering the

social and economic context in which marriages occur for some and not for others, will likely have no effect.

Marriage promotion programs encourage single mothers to participate in a privileged family form without further examining the social structure that produces advantages for married couples and disadvantages for single mothers. In a social and economic context where two incomes are increasingly necessary to maintain a household, state support for mothers and families is minimal, and participation in such programs carries a stigma, it is not surprising that single mothers and their children face hardships. While I have not directly tested the impact of the quantity and quality of marriageable black men on black single mothers' rate of transition to marriage or cohabitation, my findings are consistent with explanations such as these – ones that are more structural than based in individual interest in marriage or skills to maintain a marriage. Furthermore, my findings also suggest that the systems of disadvantage that intersect in the lives of less-educated women of color produce particularly low chances of marriage and cohabitation. Even if disadvantaged single mothers form two-parent families, it seems unlikely that the less-educated men of color in their lives will have incomes significant enough to raise them out of poverty. Whether less-educated single mothers of color marry or not, the systems that produce and maintain their disadvantage remain.

An important finding of this study is that forming a cohabiting union is the most common way that single mothers end their first single motherhood spell. Despite this, black single mothers with less education are still less likely than their white and Hispanic counterparts to cohabit. The implications of disadvantaged single mothers' limited access to cohabitation on the generational reproduction of inequality are not entirely clear, but these findings suggest that more research that explicates the role of cohabitation in single mothers' lives and the differences between cohabitation and marriage for single mothers is needed. Cohabitation does not, in

general, confer the same benefits as marriage (Brown, 2002, 2004; Morrison & Ritualo, 2000), and access to it may not have the same impact on cycles of inequality as marriage. However, cohabitation in practice, if not under the law, is usually more like marriage than singlehood is, so there may be some benefits. Furthermore, research does suggest that, for black women in particular, cohabitation is increasingly an alternative to marriage (Manning and Smock, 1995; Raley, 1996). This perspective is further supported by my finding that black single mothers who do cohabit, compared to similar white single mothers, are more likely to remain cohabiting than to marry. This leads to the question of whether fewer privileges and social supports conferred to cohabiting couples, compared to married couples, further disenfranchises couples who are more likely to cohabit than to marry.

Future research should continue to explore racial/ethnic and educational differences in women's transitions out of single motherhood. Other background characteristics and factors measured at the time of the spell may provide additional information about black women's reduced likelihood of transitioning out of single motherhood. Hispanic single mothers are more similar to white single mothers on some accounts but more similar to black single mothers on others, particularly when we look at the least educated Hispanic women. Hispanic single mothers also exhibit marriage and cohabitation patterns of their own, such as the college educated being less likely to cohabit and the high school educated being more likely to marry. These patterns present an opportunity for further theorizing and empirical inquiry.

Future research should also assess the efficacy of marriage promotion programs, particularly for disadvantaged women, and continue to explore structural constraints on single mother's access to marriage. In addition, theories pertaining to the pool of marriageable men and intersectional frameworks may be directly testable using other data sources, and this work would provide important explanatory information regarding the differences my results show.

Here, I have taken a first step by examining single mothers' likelihood of both marriage and cohabitation.

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TABLES AND FIGURES

Table 1. Percentage of Mothers Experiencing Single, Cohabiting, and Married Motherhood, by Age – Female Population in the U.S., 2008-2010

Age at time of interview	Percent Ever Mothers	Percent Mothers Ever Experiencing Motherhood While		
		Single	Cohabiting	Married
15-19	7%	71%	46%	16%
20-24	28%	60%	59%	31%
25-29	55%	54%	61%	60%
30-34	76%	48%	49%	76%
35-39	84%	47%	40%	87%
40-45	83%	52%	40%	90%
Total	55%	51%	48%	75%
<i>N</i>			5,845 persons	

Table 2. Descriptive Characteristics of Sample of All Women, NSFG 2008-2010

	<i>Percentage</i>	<i>N</i>
Highest education at interview		
No high school diploma	29%	1,701
High school diploma or GED	51%	2,968
Bachelor's degree	20%	1,176
Race/Ethnicity		
White, non-Hispanic	53%	3,075
Black, non-Hispanic	21%	1,249
Hispanic	26%	1,521
Age at interview		
15-19	19%	1,083
20-24	17%	996
25-29	20%	1,144
30-34	17%	993
35-39	15%	862
40-45	13%	767
<i>N</i>	920,732 months	5,845

Table 3. Descriptive Statistics for Women Experiencing a First Spell of Single Motherhood, NSFG 2008-2010

	<i>Percentage</i>	<i>N</i>
Education at beginning of first single motherhood spell		
Less than high school diploma	46%	860
High school diploma or GED	50%	935
Bachelor's degree	5%	89
Race/Ethnicity		
White, non-Hispanic	39%	735
Black, non-Hispanic	35%	657
Hispanic	26%	492
Event at origin of first single motherhood spell		
Un-partnered birth	55%	1,031
End of marriage	26%	481
End of cohabitation	20%	372
Age at beginning of first single motherhood spell		
13-19	37%	705
20-24	34%	632
25-29	16%	293
30-34	9%	168
35-39	4%	70
40-45	1%	16
Outcome of first single motherhood spell		
Still single mother	35%	667
Marriage	7%	133
Cohabitation	54%	1,008
Child leaves household or turns 18	4%	76
<i>N</i>	88,245 months	1,884 persons

Table 4. Logistic Regression Analysis of Women Entering a First Single Motherhood Spell
 Entering a Spell vs. Not Entering a Spell

Covariate	B	se
Education		
Less than High School Diploma	--	--
High School Diploma or GED	.224**	.091
College Degree	-1.259***	.184
Race		
White, non-Hispanic	--	--
Black, non-Hispanic	1.113***	.078
Hispanic	.440***	.087
Age	.003***	.0004
Intercept	-7.490	.097
<i>N</i>	920,732 months	5,845 persons
Model χ^2		436.32***
<i>Df</i>		5

*p<.10. **p<.05. ***p<.01.

Table 5. Logistic Regression Analysis of Women Entering a First Single Motherhood Spell
Entering a Spell vs. Not Entering a Spell

Covariate	B	se
Education		
Less than High School Diploma	--	--
High School Diploma or GED	.339**	.138
College Degree	-1.148***	.232
Race		
White, non-Hispanic	--	--
Black, non-Hispanic	1.213***	.123
Hispanic	.595***	.131
Age	.003***	.0004
Interactions		
Less than HS * White	--	--
Less than HS * Black	--	--
Less than HS * Hispanic	--	--
HS Diploma * White	--	--
HS Diploma * Black	-.145	.163
HS Diploma * Hispanic	-.308*	.182
College Degree * White	--	--
College Degree * Black	-.387	.365
College Degree * Hisp	.061	.463
Intercept	-7.553	.107
<i>N</i>	920,732 months	5,845 persons
Model χ^2		433.97***
<i>df</i>		9

*p<.10. **p<.05. ***p<.01.

Table 6. Bivariate Multinomial Logistic Regression Analysis of Single Mothers Exiting First Single Motherhood Spells

Panel A. Educational Attainment

Covariate	Marriage vs. Remaining Single Mother		Cohabitation vs. Remaining Single Mother		No Children <18 in Household vs. Remaining Single Mother	
	b	se	B	se	b	se
Education						
Less than HS Diploma	--	--	--	--	--	--
High School Diploma/GED	.416	.277	-.094	.097	1.090***	.375
College Degree	1.022**	.461	-.386	.253	.394	.662
Duration of Spell – log(t)	-.021	.082	-.121***	.034	.067	.196
Intercept	-6.505***	.401	-3.991***	.132	-6.806***	.644
<i>N</i>	88,245 months				1,884 persons	
Model χ^2					33.08***	
<i>df</i>					9	

Panel B. Race/Ethnicity

Covariate	Marriage vs. Remaining Single Mother		Cohabitation vs. Remaining Single Mother		No Children <18 in Household vs. Remaining Single Mother	
	b	se	B	se	b	se
Race						
White, non-Hispanic	--	--	--	--	--	--
Black, non-Hispanic	-.731**	.299	-.241**	.105	-1.171**	.401
Hispanic	-.287	.278	-.043	.115	-.869**	.415
Duration of Spell- log(t)	-.015	.088	-.115***	.035	.099	.214
Intercept	-6.037***	.313	-4.006***	.129	-6.965***	.694
<i>N</i>	88,245 months				1,884 persons	
Model χ^2					34.42***	
<i>df</i>					9	

* $p < .10$. ** $p < .05$. *** $p < .01$.

Table 7. Multinomial Logistic Regression Analysis of Single Mothers Exiting First Spells of Single Motherhood

Covariate	Marriage vs. Remaining Single Mother		Cohabitation vs. Remaining Single Mother		No Children <18 in Household vs. Remaining Single Mother	
	b	se	B	se	b	se
Education						
Less than HS Diploma	--	--	--	--	--	--
High School Diploma	.416	.328	.045	.108	-1.351***	.379
College Degree	1.044**	.516	-.084	.265	-.045	.775
Race						
White, non-Hispanic	--	--	--	--	--	--
Black, non-Hispanic	-.654**	.320	-.341**	.111	-1.011**	.427
Hispanic	-.127	.306	-.110	.119	-1.107**	.450
Event at Origin of Spell						
Un-partnered Birth	--	--	--	--	--	--
End of Marriage	.348	.332	.417**	.149	.863	.528
End of Cohab. Union	-.255	.474	.257*	.134	.686	.566
Age at beginning of spell	-.003	.002	-.006***	.001	-.0002	.005
Duration of Spell – log(t)	-.001	.088	-.116***	.035	.148	.212
Intercept	-5.690***	.666	-2.616***	.285	-6.857***	1.335
<i>N</i>	88,245 months				1,884 persons	
Model χ^2					101.31***	
<i>df</i>					24	

* $p < .10$. ** $p < .05$. *** $p < .01$.

Table 8. Multinomial Logistic Regression Analysis of Single Mothers Exiting First Spells of Single Motherhood, Race * Education Interactions

Covariate	Marriage vs. Remaining Single Mother		Cohabitation vs. Remaining Single Mother		No Children <18 in Household vs. Remaining Single Mother	
	b	se	B	se	b	se
Education						
Less than HS Diploma	--	--	--	--	--	--
High School Diploma	-.055	.446	-.151	.170	-1.513**	.478
College Degree	.718	.645	-.134	.335	-.346	.957
Race						
White, non-Hispanic	--	--	--	--	--	--
Black, non-Hispanic	-1.480**	.604	-.620***	.184	-1.309**	.627
Hispanic	-.746	.467	-.270	.178	-1.399**	.497
Interactions						
Less than HS * White	--	--	--	--	--	--
Less than HS * Black	--	--	--	--	--	--
Less than HS * Hispanic	--	--	--	--	--	--
HS Diploma * White	--	--	--	--	--	--
HS Diploma * Black	1.030	.712	.428*	.228	.782	.816
HS Diploma * Hispanic	.994	.603	.302	.242	-.021	.915
College Degree * White	--	--	--	--	--	--
College Degree * Black	1.232	1.019	.283	.503	-.139	1.390
College Degree * Hisp	-.200	.903	-.702	.576	1.991	1.298
Event at Origin of Spell						
Un-partnered Birth	--	--	--	--	--	--
End of Marriage	.355	.336	.425**	.150	.906*	.526
End of Cohab. Union	-.311	.486	.234*	.136	.723	.556
Age at beginning of spell	-.003	.002	-.006***	.001	.001	.005
Duration of Spell – log(t)	.009	.087	-.114***	.035	.151	.214
Intercept	-5.326***	.690	-2.494***	.293	-6.720***	1.339
N	88,245 months				1,884 persons	
Model χ^2					126.28***	
df					36	

* $p < .10$. ** $p < .05$. *** $p < .01$.

Table 9. Multinomial Logistic Regression Analysis of Transitions out of Cohabiting Unions formed by Single Mothers

Covariate	Single Motherhood vs. Remaining Cohabiting Mother		Marriage vs. Remaining Cohabiting Mother		No Children <18 in Household vs. Remaining Cohabiting Mother	
	b	se	B	se	b	se
Education						
Less than HS Diploma	--	--	--	--	--	--
HS Diploma or More	-.146	.160	.002	.175	-.778*	.469
Race						
White, non-Hispanic	--	--	--	--	--	--
Black, non-Hispanic	.195	.165	-.601***	.174	-.361	.698
Hispanic	-.628**	.208	-.807***	.193	-.453	.558
Age at beginning of spell	.0005	.001	.001	.001	.012**	.005
Duration of Spell – log(t)	-.016	.058	-.168***	.048	.005	.270
Intercept	-4.574***	.481	-3.937***	.405	-9.732***	2.414
N	36,107 months				1,008 persons	
Model χ^2					95.03***	
df					15	

* $p < .10$. ** $p < .05$. *** $p < .01$.

Figure 1.

Risk of Entering Single Motherhood

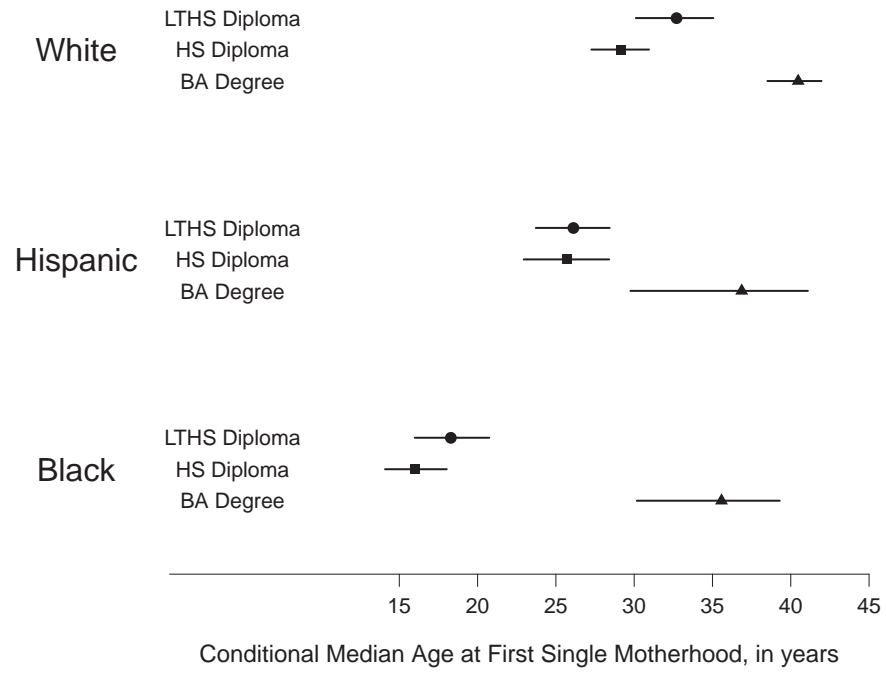
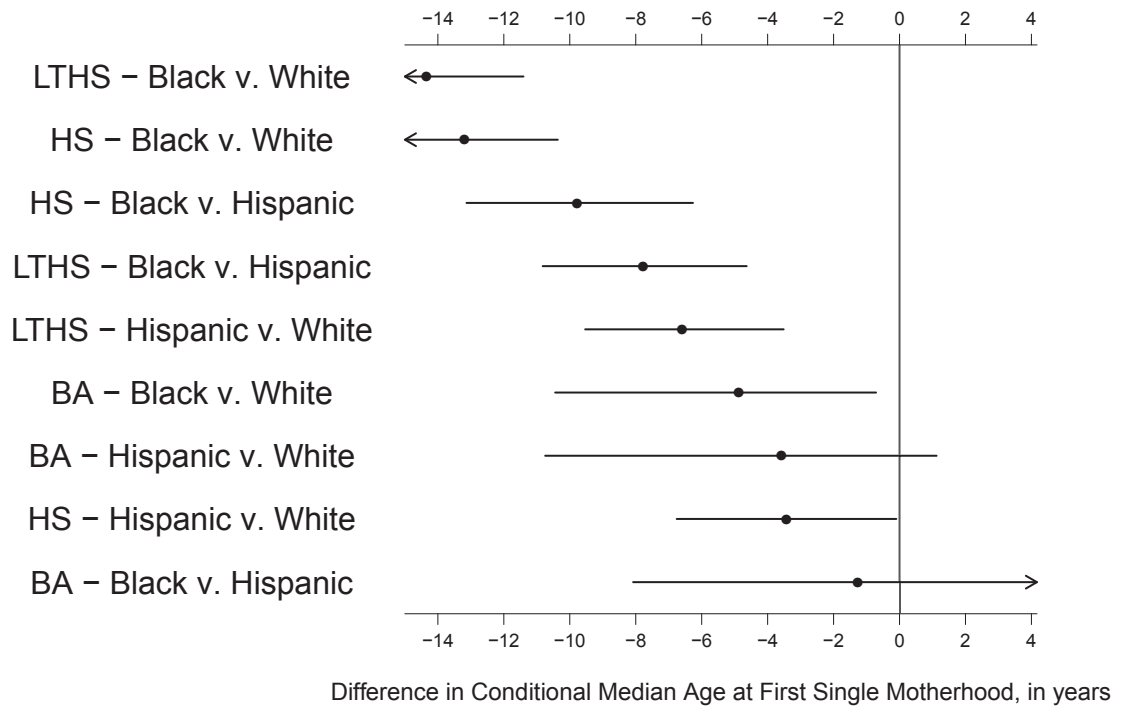


Figure 2.

Risk of Entering Single Motherhood

Significant Racial/Ethnic Differences within Educational Group



Risk of Entering Single Motherhood

Significant Educational Differences within Racial/Ethnic Group

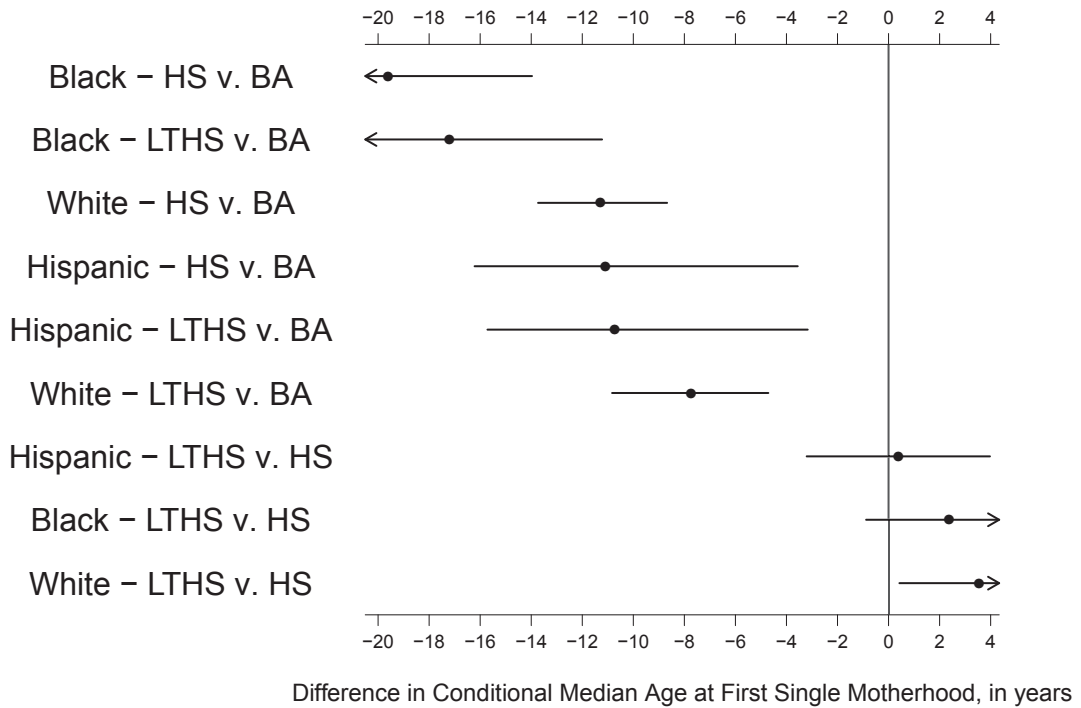


Figure 3.

Forming a Cohabiting Union vs. Staying a Single Mother

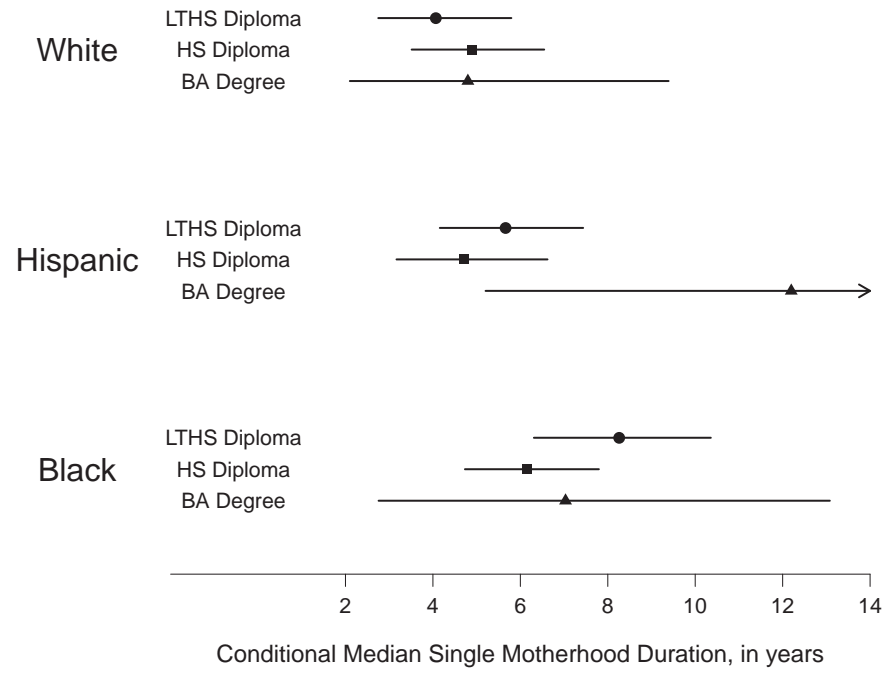
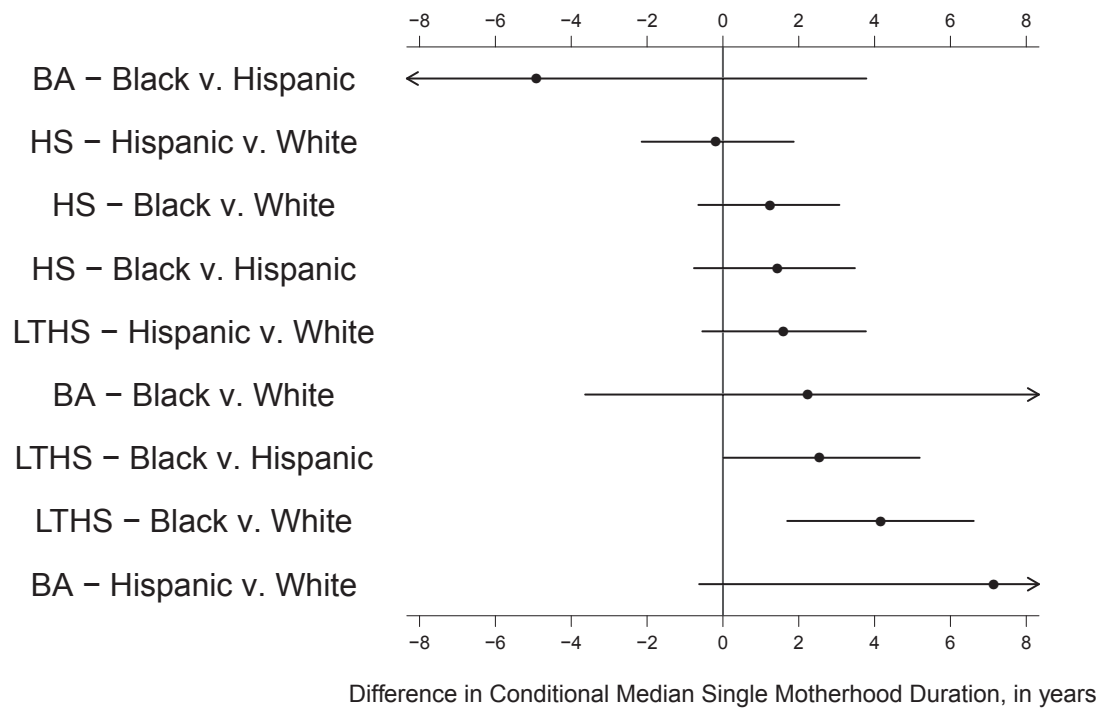


Figure 4.

Forming a Cohabiting Union vs. Staying a Single Mother

Significant Racial/Ethnic Differences within Educational Group



Forming a Cohabiting Union vs. Staying a Single Mother

Significant Educational Differences within Racial/Ethnic Group

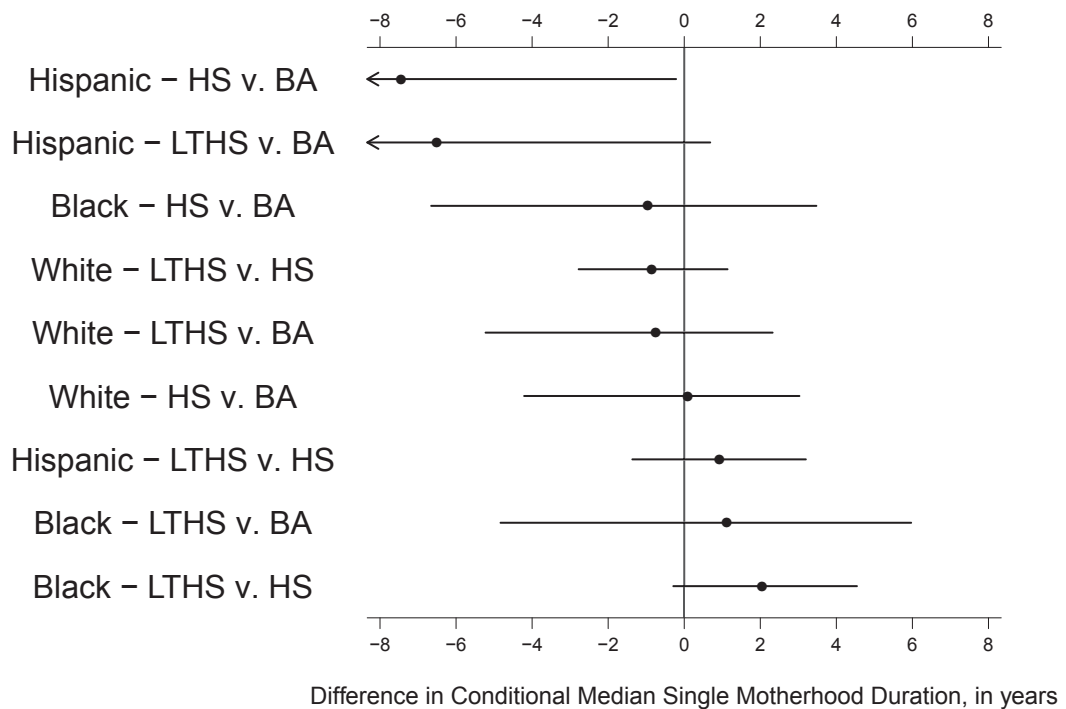


Figure 5.

Forming a Marital Union vs. Staying a Single Mother

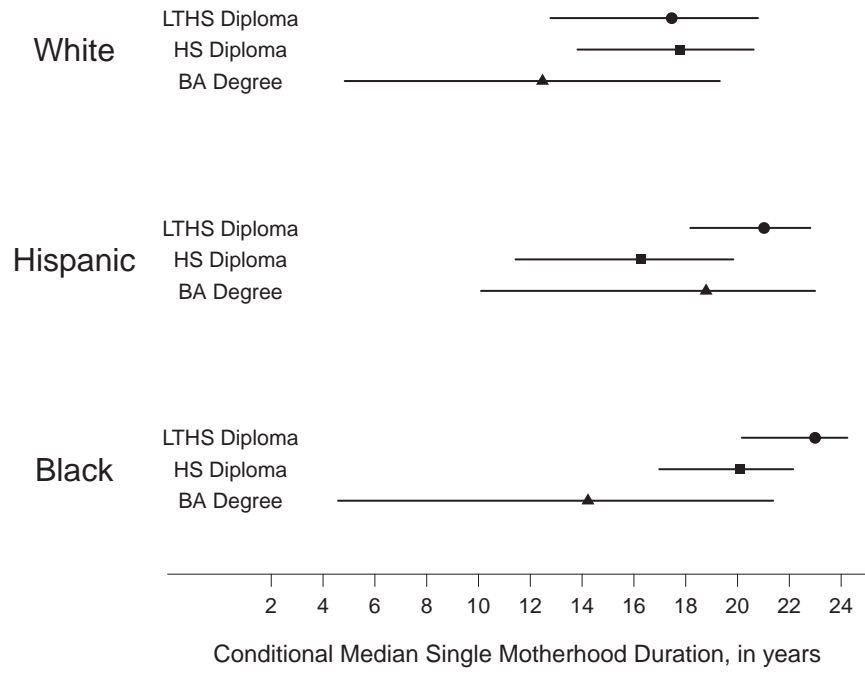
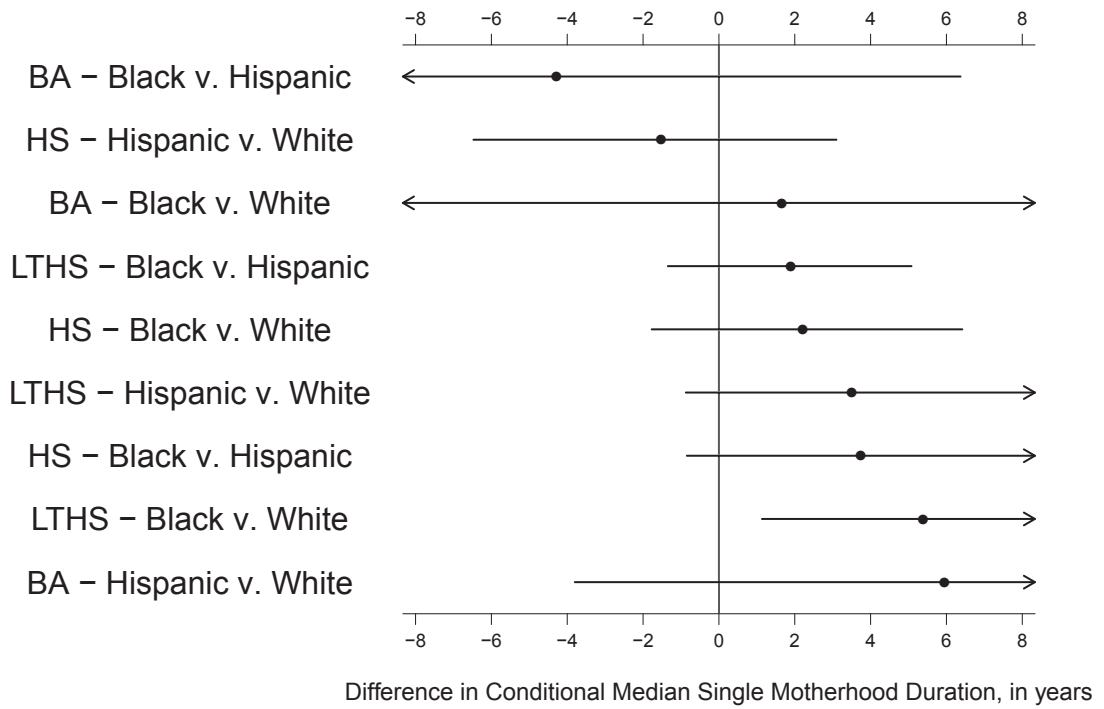


Figure 6.

Forming a Marital Union vs. Staying a Single Mother

Significant Racial/Ethnic Differences within Educational Group



Forming a Marital Union vs. Staying a Single Mother

Significant Educational Differences within Racial/Ethnic Group

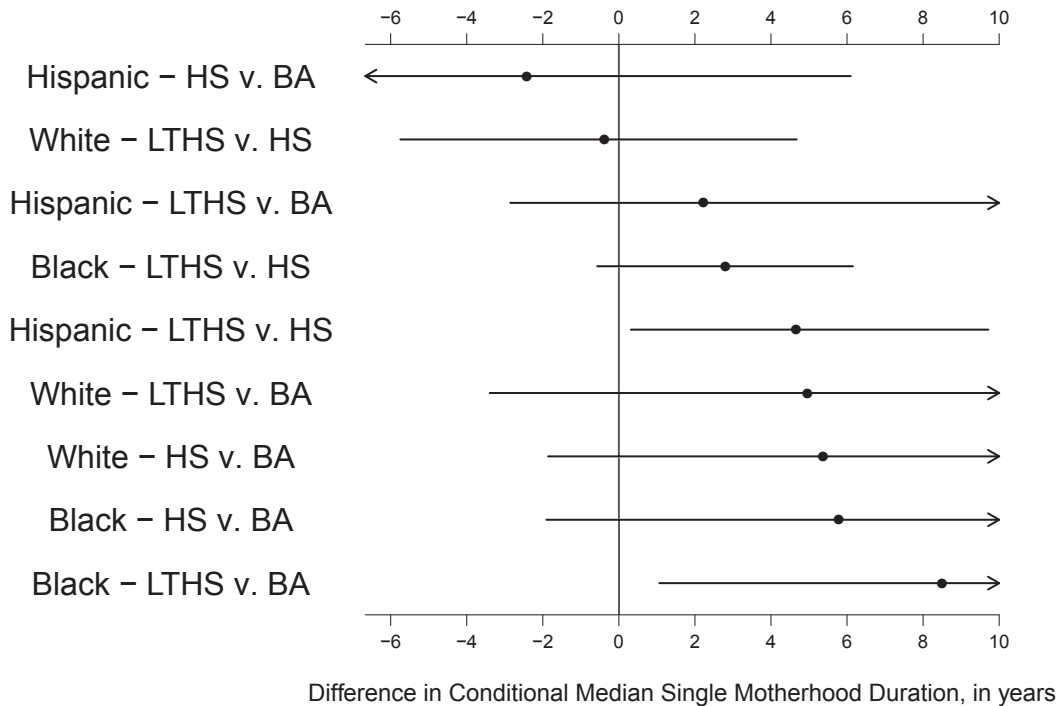


Figure 7.

Having No Kids Under Age 18 vs. Staying a Single Mother

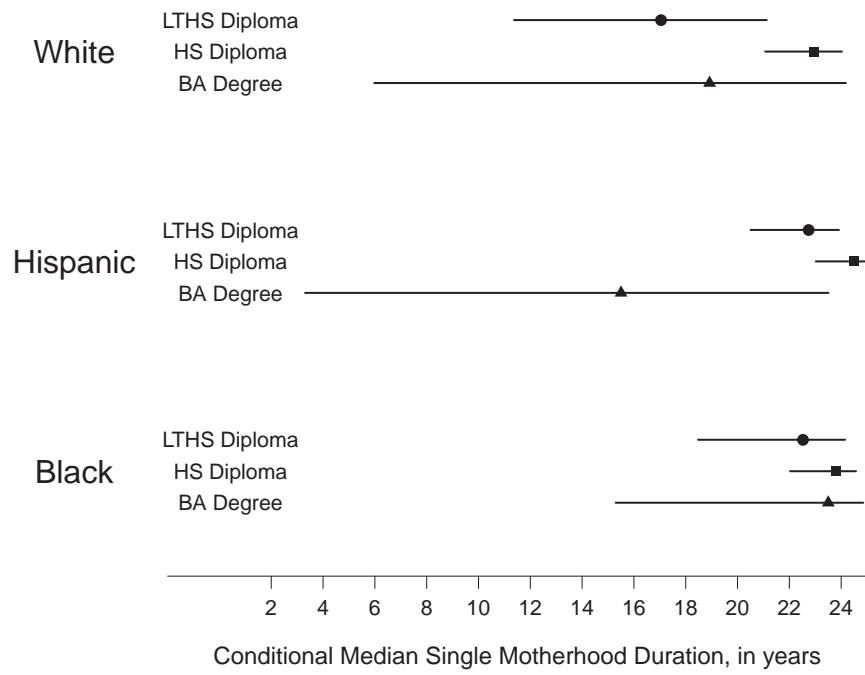
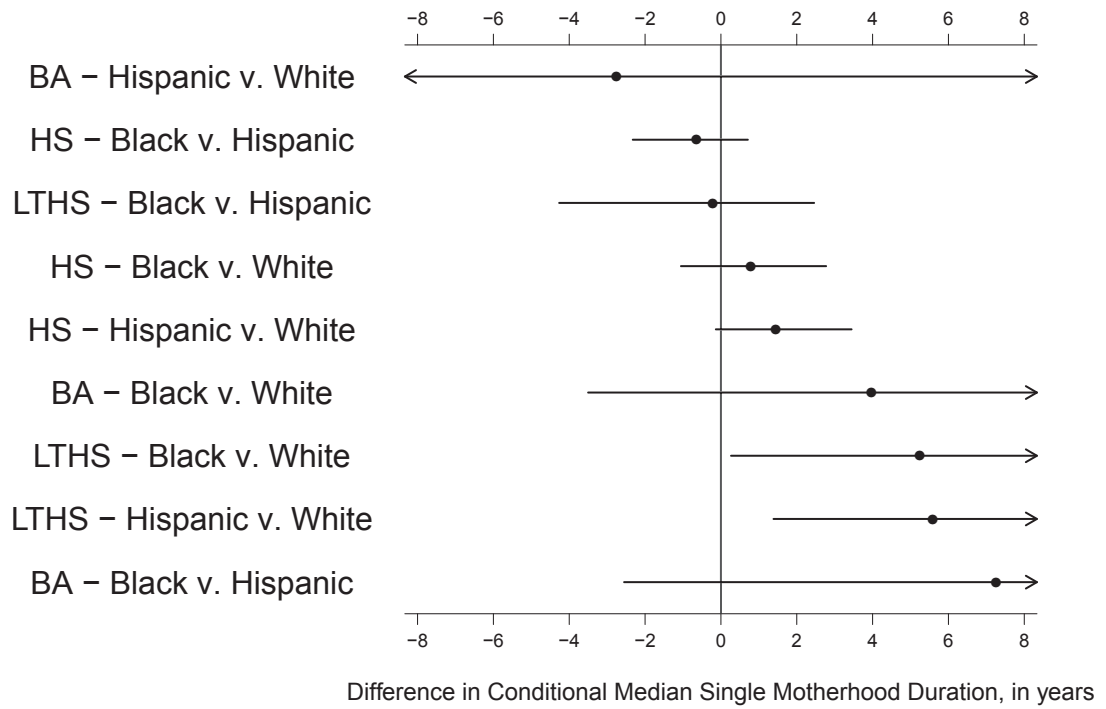


Figure 8.

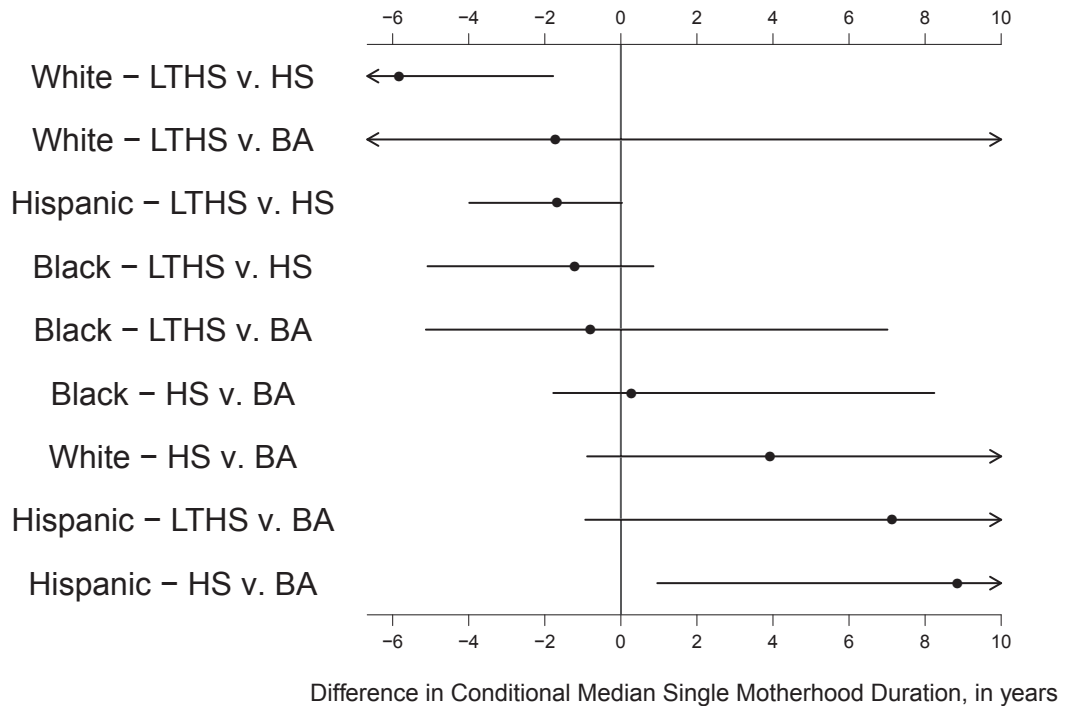
Having No Kids Under Age 18 vs. Staying a Single Mother

Significant Racial/Ethnic Differences within Educational Group



Having No Kids Under Age 18 vs. Staying a Single Mother

Significant Educational Differences within Racial/Ethnic Group



APPENDIX

Table 10. Multinomial Logistic Regression Analysis of Single Mothers Exiting First Spells of Single Motherhood – Interactions between Educational Attainment and the Event at the Origin of the Spell

Covariate	Marriage vs. Remaining Single Mother		Cohabitation vs. Remaining Single Mother		No Children <18 in Household vs. Remaining Single Mother	
	b	se	b	se	b	se
Education ⁹						
Less than High School	--	--	--	--	--	--
More than High School	.252	.338	.113	.128	-.858	.536
Race						
White, non-Hispanic	--	--	--	--	--	--
Black, non-Hispanic	-.676**	.323	-.346**	.112	-1.040**	.435
Hispanic	-.142	.310	-.114	.120	-1.119**	.452
Event at Origin of Spell						
Un-partnered Birth	--	--	--	--	--	--
End of Marriage	.048	.698	.621**	.219	1.195*	.700
End of Cohabiting Union	-.946	.625	.253	.193	.593	.622
Interactions						
< HS*Un-partnered Birth	--	--	--	--	--	--
< HS*End of Marriage	--	--	--	--	--	--
< HS*End of Cohabitation	--	--	--	--	--	--
> HS*Un-partnered Birth	--	--	--	--	--	--
> HS*End of Marriage	.335	.759	-.287	.247	-.765	.776
> HS*End of Cohabitation	.946	.810	.021	.256	.387	1.061
Age at beginning of spell	-.002	.002	-.006***	.001	.0003	.004
Duration of Spell – log(t)	.011	.088	-.118***	.035	.145	.216
Intercept	-5.74***	.649	-2.619***	.284	-7.135***	1.308
N	88,245 months				1,884 persons	
Model χ^2					96.13***	
df					27	

* $p < .10$. ** $p < .05$. *** $p < .01$.

⁹ I used a binary education variable that combines women with high school diplomas and women with bachelor's degrees because too few single mothers with bachelor's degrees who entered single motherhood through the end of cohabitation exited through each pathway. No single mothers with BA who entered single motherhood through the end of cohabitation married, two cohabited, and one exited through her child turning 18 or leaving the household.

Table 11. Multinomial Logistic Regression Analysis of Single Mothers Exiting First Spells of Single Motherhood – Interactions between Race and Event at the Origin of the Spell

Covariate	Marriage vs. Remaining Single Mother		Cohabitation vs. Remaining Single Mother		No Children <18 in Household vs. Remaining Single Mother	
	b	se	b	se	b	se
Education						
Less than HS Diploma	--	--	--	--	--	--
High School Diploma/GED	.424	.332	.042	.109	-1.335***	.382
College Degree	1.039**	.515	-.087	.266	-.055	.769
Race						
White, non-Hispanic	--	--	--	--	--	--
Black, non-Hispanic	-.628*	.359	-.221	.144	-.730	.550
Hispanic	-.005	.377	.025	.168	-.622	.711
Event at Origin of Spell						
Un-partnered Birth	--	--	--	--	--	--
End of Marriage	.394	.408	.555**	.189	1.072*	.570
End of Cohabiting Union	-.101	.689	.333	.211	.965	.721
Interactions						
White*Un-partnered Birth	--	--	--	--	--	--
White*End of Marriage	--	--	--	--	--	--
White*End of Cohab	--	--	--	--	--	--
Black*Un-partnered Birth	--	--	--	--	--	--
Black*End of Marriage	-.046	1.003	-.463	.317	-.040	1.193
Black*End of Cohab	-.042	.983	-.269	.325	-1.494	1.234
Hisp*Un-partnered Birth	--	--	--	--	--	--
Hispanic*End of Mar	-.159	.630	-.410	.281	-1.122	.895
Hispanic*End of Cohab	-.601	.914	-.061	.299	-.470	1.031
Age at beginning of spell	-.003	.002	-.005***	.001	-.0002	.004
Duration of Spell – log(t)	.003	.088	-.115***	.035	.146	.209
Intercept	-5.728***	.659	-2.727***	.294	-7.050***	1.475
<i>N</i>	88,245 person months				1,884 persons	
Model χ^2					107.75***	
<i>df</i>					36	

* $p < .10$. ** $p < .05$. *** $p < .01$.

Table 12. Multinomial Logistic Regression Analysis of Transitions out of Cohabiting Unions formed by Single Mothers – Full Set of Educational Variables

Covariate	Single Motherhood vs. Remaining Cohabiting Mother		Marriage vs. Remaining Cohabiting Mother		No Children <18 in Household vs. Remaining Cohabiting Mother	
	b	se	b	se	b	se
Education						
Less than HS Diploma	--	--	--	--	--	--
HS Diploma or GED	-.147	.160	-.027	.177	-.726	.458
College Degree	-.076	.410	.752*	.387	-22.814***	.552
Race						
White, non-Hispanic	--	--	--	--	--	--
Black, non-Hispanic	.195	.166	-.587***	.175	-.408	.676
Hispanic	-.626**	.209	-.789***	.196	-.500	.548
Age at beginning of spell	.0005	.001	.0009	.001	.012**	.005
Duration of Spell – log(t)	-.016	.058	-.158***	.049	-.016	.266
Intercept	-4.569***	.483	-3.803***	.418	-9.883***	2.404
<i>N</i>	36,107				1,0008 persons	
Model χ^2					8076.48***	
<i>df</i>					18	

* $p < .10$. ** $p < .05$. *** $p < .01$.

Table 13. Multinomial Logistic Regression Analysis of Transitions out of Marital Unions formed by Single Mothers¹⁰

Covariate	Single Motherhood vs. Remaining Married Mother		No Children <18 in Household vs. Remaining Married Mother	
	b	se	b	se
Education				
Less than HS Diploma	--	--	--	--
More than HS Diploma	.239	.322	1.034	.856
Race				
White, non-Hispanic	--	--	--	--
Black, non-Hispanic	-.072	.410	-1.209	1.271
Hispanic	.587	.389	-1.249	1.114
Age at beginning of spell	.0002	.002	.020**	.009
Duration of Spell – log(t)	-.353***	.097	4.138	2.823
Intercept	-4.175***	.823	-32.567***	16.559
<i>N</i>	8,528 months		133 persons	
Model χ^2			42.49***	
<i>df</i>			10	

* $p < .10$. ** $p < .05$. *** $p < .01$.

¹⁰ The dependent variable for this analysis measures former single mothers' transitions from married motherhood back to single motherhood or to having no children under the age of 18 living in the household. No married mothers transitioned to cohabiting motherhood. An education variable that combines women with high school diplomas and women with bachelor's degrees was used in this model.