Abstract

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In this dissertation, I use longitudinal data (1997-2011) to explore two types of financial constraints during the transition to adulthood. First, I explore the relationship between parental resources (income and net household worth) and educational transitions among U.S. men and women. I revisit the Mare model of educational transitions which asserts that parental resources decline in importance with each educational transition. I find that, for the current cohort of young adults, parental net worth, in particular, is positively associated with high school graduation, four-year college attendance, and four-year college completion. Yet, the magnitude of the effect of parental net worth does decline with each educational transition. Furthermore, after controlling for parental income and net household worth, non-Hispanic Black and Hispanic students are more likely to graduate from high school and to enroll in college, yet remain less likely to graduate from college. For enrollment into professional or graduate school, the effect of parental resources is statistically nonsignificant. Next, I examine the relationship between parental resources and timing of women's first birth. I find that parental resources impact first birth timing, wherein compared to women from low-resource families, women from middle-resource families have a lower likelihood of first birth through the mid-20s and

women from high-resources families were found to have substantially lower likelihood of having a first birth by age 30 or 31. I find that greater and earlier incidence of Hispanic women's first birth is entirely explained by differences in parental resources and other sociodemographic characteristics. Furthermore, differences in parental resources explain the higher likelihood of first births in teen years, and most of the higher likelihood of first births in the 20s, among Black women. Finally, I consider whether student loan debt delays family formation for men and women attending four-year college. I find that student loan debt is associated with later transitions to marriage and first birth, for both women and men, but that only for women does a statistically significant association remain after controlling for income, family background, and other socio-demographic characteristics, and even then only at low levels of debt.

Parental Resources, Educational Progression, and Family Formation

by

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Chapter One: Introduction

Since Blau and Duncan (1967) documented the intergenerational transmission of social status from parents to children, scholars across many disciplines have questioned how and to what extent intergenerational socioeconomic mobility occurs. Socioeconomic mobility is intrinsically linked with equality of opportunity (Smeeding, 2005). Both intergenerational economic mobility (Aaronson & Mazumder, 2008) and income inequality have increased (Chetty, Hendren, Kline, Saez, & Turner, 2014). Thus, the gaps between the lower, middle, and upper classes are wider than before, so those who are unable to achieve socioeconomic mobility will fare comparatively worse than those who start off in a more advantaged position.

Parental advantage (social status) is transmitted to children through their parents, so that those children from more privileged backgrounds have more advantages in life compared to their peers from less-privileged backgrounds (Lareau, 2003). A key example of this is that families headed by college graduates have a greater income advantage, even after controlling for age, race, and family type (Western, Percheski, & Bloome, 2008). Furthermore, children of mothers with the highest education have the most access to parental resources (i.e., time and money), whereas children of mothers with the lowest education have the least access (McLanahan, 2004). This disparity in resources between highly educated and less educated mothers can last long into adulthood and decrease intergenerational economic mobility (McLanahan & Percheski, 2008).

Social mobility, or shifts in socioeconomic status relative to one's parents, is typically measured by the association of parents' and children's earnings, educational

attainment, or occupational prestige. A high association between parents' and children's social status reflects high inequality in opportunity whereas a low association reflects a low equality of opportunity (Neckerman & Torche, 2007). Occupational prestige is often employed by scholars of intergenerational mobility because it can be reported retrospectively by children without interviewing parents. Occupational prestige remains relatively stable over the lifetime, making it a fairly accurate portrayal of parental occupational prestige (Hauser, 2010). Educational attainment is another standard measure of socioeconomic status and is often included to provide a fuller and more stable picture of one's social standing (Hauser, 2010). Single-year measures of income may be relatively less stable indicators of lifetime earnings (Lee & Solon, 2009), and until recently, measures of parental income were often reported by the respondents' recollection of their parents' income (e.g., Beller & Hout, 2006). Wealth is a particularly important indicator of individual life chances (Shapiro & Oliver, 1995) because wealth can be used as directly economic capital or transferred to cultural or social capital (Bourdieu, 1986). Yet due to data limitations, often neglected in analyses of intergenerational mobility (Keister & Moller, 2000).

This dissertation is similarly motivated by an interest in examining inequality of opportunity and transmission of parental social status. In the first two papers presented here, I examine differences in equality of opportunity by considering the associations of parental income and wealth with children's educational progression and family formation outcomes during the transition to adulthood through their early 30s. In the final substantive chapter, I consider whether, beyond the effects of educational attainment and

parental resources, the burden of loan debt is also associated with further delays in family formation.

I add to the literature on socioeconomic mobility first by providing an updated examination of the influence of parental resources on educational progression. No study since Mare (1979, 1980, 1981) has examined all educational transitions for a single cohort, and none has employed a thorough investigation of the relationship between parental income and parental net worth and educational progression. The additional measure of wealth in an examination of educational progression contributes an indicator of both financial and human capital. Both financial and human capital are influential in academic achievement and educational progression (Orr, 2003). I first examine the importance of parental resources for educational progression in *Chapter Two* (*Parental Resources and Educational Progression*). Mare's (1979, 1980, 1981) analyses of the relationship between parental resources and young men's educational progression showed that parental resources are most important for earlier educational transitions (e.g., high school graduation) and less important for later transitions (e.g., college completion). Yet, the context since Mare's studies has changed. Income inequality (Neckerman & Torche, 2007) and college costs have increased (The College Board, 2012) simultaneously. In the past several decades, the landscape of public and private financing of college education has also changed substantially (TICAS, 2014b). These changing macro-economic and institutional factors can be expected to have had consequences also for the role of parental resources for successive educational transitions.

I find, in both bivariate and multivariate analyses, that parental income is positively associated with high school graduation and college attendance and that

parental net worth is positively associated with high school graduation, four-year college attendance, and four-year college completion. Both parental income and parental worth are most strongly associated with high school graduation and the magnitude of the relationship does not increase in importance with successive educational transitions. Furthermore, after controlling for parental income and net household worth, non-Hispanic Black and Hispanic students are more likely to graduate from high school and to enroll in college, yet remain less likely to graduate from college.

In *Chapter Three* (*Parental Resources and First Birth Timing*), I consider how parental resources impact family formation. The general question of the impact of family background on fertility outcomes has been previously considered by scholars with a focus on various measures of socioeconomic status (e.g., Rindfuss & St. John, 1983). Specifically with respect to the timing of early first births in the United States, Michael and Tuma (1985) show that youth from families with more resources and greater stability are less likely to become young parents, and therefore probably more likely to attain economic stability. In other Western countries, notably Canada and the Netherlands, studies have also shown a divergence in first birth timing by parental socioeconomic background. In Canada, women from higher social status backgrounds have later first births relative to women from lower and middle social status groups (Ravanera & Rajulton, 2006). In the Netherlands, Rijken and Liefbroer (2009) consider family of origin characteristics on first birth timing. The authors show clear evidence that parental resources are influential on first birth timing. As mother's and father's educational attainment and father's occupational prestige increase, children's age at first birth increases.

I contribute to this literature by examining the relationship between family resources and family formation for a recent cohort of U.S. women. Whereas previous analyses focus on specifications of social status described above, such as parental education, my analysis adds parental income and parental net worth measured at late adolescence or early adulthood. Parental income and parental wealth are indicators of the financial safety nets to which young adults might have access. By adding these measures to analyses of family formation, I am shedding light on to what extent financial resources and economic uncertainty influence the timing of family formation. Additionally, this analysis focuses on a recent cohort of women in the U.S. currently making decisions about their own family building processes during this era of increasing inequality. I find that parental resources are inversely associated with first birth timing, wherein women from middle-resource families were found to have a lower likelihood of first birth through the mid-20s and women from high-resources families were found to have substantially lower likelihood of having a first birth by age 30 or 31. I investigate whether earlier first births of Black and Hispanic women than of non-Hispanic White women can be accounted for by differences in parental education. I find that greater and earlier incidence of Hispanic women's first birth is entirely explained by differences in parental resources and other sociodemographic characteristics. Differences in parental resources and other sociodemographic characteristics explain the higher likelihood of first births in teen years, and most of the higher likelihood of first births in the 20s, among Black women.

Finally, in *Chapter Four* (*Student Loan Debt and the Timing of First Marriage and Birth*), I consider one consequence of low parental SES, the accrual of higher student

loan debt (Houle, 2013) and its relationship with family formation. This is a topic that has received little empirical attention in the literature, and then, only with a focus on cohabitation and marriage (Addo, 2013). Student loan debt may be a marker of inequality because those whose parents have fewer resources may have greater levels of student loan debt. On the other hand, student loan debt may be associated with inequalities in the timing of first marriage and first birth because of the financial constraints imposed on young adults by student loan debt. The empirical evidence on the relationship between student loan debt and its effects on markers during the transition to adulthood is limited to anecdotal and single, point-in-time reports that young adults have postponed family formation (Kamenetz, 2006) or homeownership because student loan debt burdens (Demos, 2011).

My contribution, using a nationally representative sample of a recent cohort of young men and women followed annually from the late 1990s through the early 2010s, is a rigorous examination of the relationship between student loan debt and the timing of first marriage and first birth after controlling for sociodemographic characteristics. I find that student loan debt is associated with later transitions to marriage and first birth, but only for women, even after controlling for income, family background, and other socio-demographic characteristics. I also find evidence for the importance of earnings on the timing of first marriage, but not first birth, for both men and women.

Sociologists have long been especially interested in growing gaps between "the rich" and "the poor." More recently, studies of the divergence in family outcomes by education and income (Cherlin, 2010; McLanahan, 2004) have contrasted the least and the most advantaged. Accordingly, (Hogan & Kitagawa, 1985) constructed a three-

category measure comparing the lowest and highest quartiles of mother's and father's educational levels, occupational status, income, housing tenure, and labor force experience comparing the lowest and highest categories in an examination of social class effects on teenage fertility. Similarly, I construct parental income and parental worth measures that contrast the lowest and highest quartiles with individuals in the middle 50% of the income or wealth distribution.

I conclude with *Chapter Five: Conclusion* in which I discuss future research directions and the limitations of these analyses.

Chapter Two: Parental Resources and Educational Progression

Introduction

Completing education is a key step in the transition to adulthood (Shanahan, 2000), and the progression through the transition to adulthood is linked to the level of parental financial support available to children (Settersten & Ray, 2010). Parental resources are important in facilitating the transition to adulthood, both for their ability to prepare children for and to finance a college education. The financial safety net provided by parents, either by paying education costs directly or knowing that parents can help with loan debt later, is an increasingly important factor in college completion (Houle, 2013).

The evidence from multivariate analyses on whether parental income affects progression through schooling is mixed. In a review of 60 studies of the relationship between family income and high school completion, just over half of the studies found that students from low-income families are more likely to drop out of high school (Rumberger & Lim, 2008). For college enrollment, there is some evidence that parental income is important, but not largely. Acemoglu & Pischke (2001) find that a 10% increase in parental income is associated with a less than 2% increase in college enrollment, though these differences in college enrollment by parental income disappear after controlling for high school achievement (Ellwood & Kane, 2000). The importance of parental income increases again among those enrolled in college, as parental income positively impacts college completion. Students from families in the highest income quartile were 13 percentage points more likely to graduate within 6 years of first enrollment than students in the lowest income quartile, though this narrowed to 6

percentage points after controlling for student characteristics (Bowen, Chingos, & McPherson, 2009).

In this paper, I will explore the effects of both parental income and parental wealth on young adults' high school completion, college attendance, college completion, and entrance into professional or graduate school for a recent cohort of U.S. men and women. I hypothesize that the influence of parental resources (both parental income and parental net household wealth) will be positively associated with each educational transition. Furthermore, I hypothesize that influence of parental resources on educational transitions will be increasingly important with each transition. For this examination of the influence of parental resources on educational progression, I use the 1997 cohort of the National Longitudinal Survey of Youth (Bureau of Labor Statistics, 2013). In the next sections, I examine the "Mare model" of educational transitions and its alternatives. I then discuss the empirical evidence on the impact of parental resources on four separate educational transitions: high school completion, college entrance, college completion, and graduate school entrance followed by an outline of three prominent theoretical frameworks of educational transition. Next, I highlight the primary research questions to be addressed and then outline the data, variables, and methodological approach. Last, I present the results and a brief discussion examining the results within the context of the current literature.

The Mare Model

Robert Mare's (1979, 1980, 1981) examinations of the effects of social background on educational transitions in the U.S. were an important contribution to the social stratification literature because these works highlighted the importance of viewing

each educational continuation decision as an independent event. In his study, socioeconomic background was defined as father's and mother's number of grades completed, annual family income when respondent was 16 years old, father's occupational status when respondent was 16 years old, number of siblings, whether the respondent lived with both parents until the age of 16, whether the respondent was born in the south, and whether the respondent lived on a farm at age 16. By including only those who completed the previous school transition in an analysis of subsequent school transitions, Mare showed evidence that the positive association between socioeconomic background and educational transitions declines with each subsequent schooling transition. Mare employed the Occupational Changes in a Generation (OCG) Survey data, a supplement to the 1973 Current Population Survey, to examine the schooling continuation decisions among U.S. men ages 20 to 65 years.

In a separate paper, Mare (1981) examined the stability of parental socioeconomic background on schooling continuation decisions across cohorts. Again, employing the 1973 OCG data and including the same socioeconomic background indicators as the previous paper, Mare divides the sample of men ages 20 to 65 into nine five-year cohorts. He shows that the association between socioeconomic background and schooling transitions increases across cohorts for some (not all) of the schooling transitions. The schooling transitions for which the effect of socioeconomic background increased the most substantially (across cohorts) were the transitions from high school attendance and high school graduation. The transition from high school to college increased as well, but not nearly as substantially. For the last two transitions, college graduation and graduate school attendance, the effect of socioeconomic background on schooling transitions

remained stable across cohorts. He drew these conclusions by examining the R-square goodness-of-fit measure across models. The separate effects of the socioeconomic background variables showed that the positive affect of father's and mother's schooling and parental income increase for high school attendance, high school graduation, and college attendance, and remained stable across the cohorts for all other schooling transitions.

The relationship between socioeconomic background and each schooling transition is therefore *not* uniform. Mare (1980) outlines two reasons for this. First, intervening variables between family background and schooling transition decisions may have stronger effects at different levels of schooling. For example, parents may encourage college attendance more strongly than earlier educational decisions. Second, the family background predictors included in Mare's analysis are reported for when the respondent was age 16. These parental background measures may not accurately describe the socioeconomic conditions of the family as the respondent ages. Thus, the measures of family background at age 16 may best predict the transitions of high school attendance and high school graduation, but not predict as well college attendance or later educational transitions.

Cameron and Heckman (1998, 2001) posit that the declining effects of socioeconomic background on educational transitions are artifacts of two factors. First, they assert that the functional form and parameterization of the logistic regression model are arbitrary. Second, they argue that there is selection on unobserved variables, meaning that individuals in the populations "at risk" of making any given educational transition decision are increasingly selective at each level of educational transition. Nonetheless,

Holm and Jaeger (2011) counter that it is unrealistic to include in a model all of the characteristics that differ between a group that pursues a first educational transition relative to a group that pursues a second educational transition.

Alternatives to the Mare Model

In response to critiques of the functional form of the Mare model by Cameron and Heckman, several other scholars propose alternate modeling strategies to better examine the association between parental background and schooling transitions (Bernardi, 2012; Hauser & Andrew, 2006; Holm & Jæger, 2011; Lucas, Fucella, & Berends, 2011). Using logistic response models, Hauser and Andrew reanalyze the OCG data and reaffirm the results of Mare's educational transition work. The analyses of the association between parental background and schooling transitions of the other scholars employ probit models in an effort to reduce selection bias. The findings of each analysis counter those reported by Mare and Hauser and Andrew and *do not* reaffirm the declining importance of social background with each successive educational transition.

Logistic Response Models

Hauser and Andrew (2006) reanalyzed the data used in Mare's work on educational transitions. The authors estimate a single model across all educational transitions rather than analyzing each transition separately. Hauser and Andrew start with Mare's (1980) logistic response model which is 1) invariant to the marginal distribution of schooling outcomes, and 2) the probability of continuing on to the next level of education are asymptotically independent of one another (Fienberg, 1977). Hauser and Andrew then expand this model by transforming the data to a person-transition level data set in which each transition outcome is coded as 0 if a transition did not occur and 1 if a transition did occur. Each person has a maximum of one record that is equal to 0. The

person-transition level data are then used to estimate one model with one set of regression parameters for each educational transition outcome. The authors note that this model may be insufficient because it will not adequately capture the declining effect of socioeconomic background with each educational transition.

To adequately account for the declining effect of socioeconomic background on educational transitions, Hauser and Andrew suggest a logistic response model with proportionality constraints (LRPC). The LRPC model allows for a different intercept at each educational transition. Thus the LRPC is a single-equation model that is estimated simultaneously for each educational transition risk population. The authors adapt the LRPC model to a logistic response model with partial proportionality constraints (LRPPC). The LRPPC model allows for proportional variation in the effects of socioeconomic background across educational transitions. The results of the authors' reanalysis of the OCG data confirm Mare's findings using the more parsimonious LRPPC model.

Bivariate Probit Selection Model

In a recent attempt to account for selection on unobserved variables in educational transitions research, Holm and Jaeger (2011) propose the bivariate probit selection model (BPSM) as an alternative to the Mare model. The BPSM allows for the consideration of unobserved variables that affect the probability of making an earlier (lower) educational transition to be correlated with those unobserved variables that also affect the probability of making later (higher) educational transitions. In their analysis, the authors examine two educational transitions in the UK: 1) A-level examinations (exams required in order to enroll in higher education), and 2) enrollment in higher education. For these two

educational transitions, the results of the BPSM do not show a declining effect of social background with each successive educational transitions. Instead, the authors find support for the "constant inequality hypothesis," whereby the strong effects of family background on educational transitions remain consistent for both educational transitions in the analysis.

Employing the National Educational Longitudinal Study of 1988 (NELS) and several Follow-up data sets (1990, 1992, 1996), Lucas and colleagues also address concerns with selection bias in their analysis of generation X and generation Y cohorts. Their analyses also employ bivariate probit models with selection. Similarly to Holm and Jaeger (2011), the authors do not find support for the waning importance of family social background on educational transitions. Rather, their results show evidence of the equal importance, and even increasing importance, of social background on successive educational transitions. In other words, the negative influence of a coming from disadvantaged family background does not dissipate with increasing levels of education.

Bernardi (2012) reiterates the importance of taking selection bias into serious consideration when estimating models of educational transitions. To avoid selection bias, Bernardi employs separate probit models in his examination of social background and educational transitions to post-compulsory education in Spain. (Spain is unique in that roughly half of the students in a given birth cohort complete compulsory lower education on time and the other half fail at least one course and must repeat the course.) Bernardi examines the impact of failing a course on the likelihood of dropping out of school rather than staying in school until compulsory education has been completed. The probit models highlight the effect of inequalities in social background on the probability of advancing to

post-compulsory education in the following way: students who failed at least one course during their compulsory education were more likely to move onto post-compulsory education than those who had completed compulsory education on time. The author's interpretation of this finding is that students from well-off backgrounds are more likely to have a second chance relative to students from a less advantaged family background. This finding suggests that the importance of social background remains important, rather than wanes, with subsequent schooling transitions.

Theories of Educational Transition

In addition to many empirical studies expanding, replicating, and questioning the relationship between social background and educational transitions, several theoretical frameworks have emerged from Mare's analysis of educational transitions. Each of these theories are general explanations of the role of educational attainment in the reproduction of social inequality. These theoretical frameworks are helpful in understanding the influence of family background on the individual-level (micro-level) decisions of whether or not to progress to the next educational level.

Maximally Maintained Inequality

A prominent theory to emerge from Mare's work on educational transitions is Raftery and Hout's (1993) maximally maintained inequality (MMI) hypothesis (also referred to as the persistence of intergenerational educational inequality). According to MMI, as the likelihood of achieving a particular level of education increases, the effect of socioeconomic background on transitioning to that level of education will decline. The authors find support for the theory of MMI by examining educational transitions of several Irish birth cohorts before and after tuition for secondary education was abolished and other egalitarian reforms were implemented. Despite increases in secondary school

attendance, inequality is maintained because those from higher socioeconomic backgrounds are able to attain higher levels of education compared to those from lower socioeconomic backgrounds. The effects of socioeconomic background are strongest at educational transitions at lower levels, thereby producing a relatively larger impact on educational attainment at earlier stages.

Raftery and Hout couch their explanation of MMI within a rational choice framework. The authors argue that students and their parents evaluate the costs and benefits of continuing with their education at each transition point. Families in which parents have higher levels of educational attainment may place a higher value on education than families in which parents have lower levels of education. Additionally, the perceived benefit of education may also be impacted by individual preferences or father's occupational prestige. Thus, depending on one's family socioeconomic background, the cost of higher education relative to the benefits of receiving higher education may vary substantially. One proposed mechanism for this relationship is that students from working class backgrounds may be more familiar with apprenticeships and vocation schools, and these pathways are more likely to lead to skilled manual labor jobs. Formal education, on the other hand, could be a diversion from obtaining gainful employment in a skilled labor job.

Effectively Maintained Inequality

Another prominent theory to emerge from Mare's work is Lucas' (2001) effectively maintained inequality explanation. Lucas incorporates the MMI hypothesis into an examination of students' transitions through school within a system of stratified curriculum. A student's location within the stratified curriculum is an important aspect to

educational attainment because it has implications for whether a student will make additional schooling transitions. Lucas asserts that when a level of educational attainment becomes nearly universal (e.g., high school completion in the U.S.), students and their parents from advantaged socioeconomic backgrounds will negotiate within the educational system to achieve the best possible education. This includes decisions about which particular curriculum to pursue (e.g., college preparatory or advanced classes). The decisions made by children and their parents in the universal levels of education may then have a positive influence on later educational transitions.

Lucas further argues that effectively maintained inequality is not merely the phenomenon that children from privileged backgrounds have better life chances and better placements within a stratified curriculum. Instead, he argues that one's socioeconomic status effectively maintains inequality by providing the example of an average student who advances across a threshold of achievement because of their social background rather than because of inherent ability. His results provide evidence of effectively maintained inequality occurring: students from more advantaged backgrounds were consistently more likely to move from disadvantaged educational track locations to more advantaged positions within the stratified curriculum.

Relative Risk Aversion

A third, oft-referenced framework employed to understand the relationship between socioeconomic background and educational transitions is the theory of relative risk aversion (Breen & Goldthorpe, 1997). Breen and Goldethorpe proposed relative risk aversion as a formal approach framed within a rational action approach as a theoretical exercise to provide a framework for future empirical work rather than as an empirical

analysis. According to the assumptions of relative risk aversion, students aim to avoid downward social mobility when making educational decisions. There is variation between social classes in the perceived necessity (or utility) of pursuing additional education at each level. Additionally, within the framework of relative risk aversion, at each step in the sequence of educational decisions, it is the goal of the student to maintain the social class position from which their family originates. Thus, students from more advantaged social backgrounds will attain higher levels of education compared to their peers from less advantaged backgrounds.

Breen and Goldthorpe outlined several theoretical implications of the relative risk aversion model including the following two. First, they argue that children from less-advantaged backgrounds will have higher expectations of success at each educational level in order to advance to that level than their more-advantaged peers. Second, as students from less-advantaged backgrounds continue on to higher levels of education, class differentials in participation of education at higher levels will become smaller. Thus, they conclude that class differences in educational transitions are consequences of differences in access to resources (Breen & Goldthorpe, 1997).

Empirical Evidence on Socioeconomic Background and Educational Attainment

Many studies have examined the effect of parental socioeconomic characteristics on educational transitions and completed schooling. Parental resources are defined differently depending on data availability, but definitions often include some combination of parental occupational prestige (particularly father's occupation), number of siblings, annual family or parental income, and parental educational attainment. Furthermore,

these studies vary according to the key outcome measure of interest (e.g., high school completion, college entrance, or college completion).

Some have shown that the effect of parental resources decline with each schooling transition, so that family income is more strongly associated with earlier transitions (elementary school completion) than with later transitions (college graduation) (Mare, 1980). Later research on schooling transitions in the United States suggests that parental resources (defined as a combination of parental income, educational attainment, and occupational prestige) do remain important at all schooling transitions, including graduate school (Walpole, 2003). Parental income is important for schooling transitions in other Western countries, most notably in Norway. Among young men and women at risk of transitioning to higher education in 1980 in Norway, parental income and social background affected schooling choices through the tertiary level so that those from the most educated and well-off backgrounds choose professional and academic careers (Hansen, 1997). In a later comparison of college completion between the United States and Norway, parental income measured when students were in the tenth grade was a determinant of college completion, and this relationship was stronger in the United States (Reisel, 2011).

In this section, I review several studies on the influence of social background on educational transitions, each using slightly different definitions of parental resources or focusing on educational transitions at different levels. I focus on each educational transition separately, starting with a discussion of high school completion, college entrance, college completion, and finally, entrance into graduate or professional school.

High School Completion

Though completion of elementary education is not the focus of this paper, one must complete elementary school prior to attending and completing high school (or equivalent). Early work by Mare (1980) has shown that parental income is likely more important in these earlier stages than in later stages of schooling. In his study of educational progression among white men in the U.S., parental income was most strongly associated with completion of elementary school. According to Mare (1980), this suggests that children from the poorest families are the least likely to complete minimal levels of schooling. Among those who attend high school, family income is still positively associated with high school graduation, though the effect of parental income on elementary school completion is stronger.

In a study limited to students in Baltimore schools, students from families with one standard deviation below average levels of socioeconomic status (average of both parents' education, occupational status, and whether respondents ever received meal subsidies, all measured when the students were in the first grade) were more likely to drop out of high school relative to more privileged students (Entwisle, Alexander, & Olson, 2005). Similarly, in a study limited to students in Chicago, those whose family income was below the poverty line in the first grade were less likely to graduate from high school compared to those whose families were not below the poverty line (Ensminger & Slusarcick, 1992).

Finally, in a review of about 200 empirical studies of high school graduation (and dropping out), there is strong evidence that students from families with more resources are less likely to drop out of high school. Of the 200 studies reviewed, 48 analyses

specifically focused on high school graduation versus dropping out. Of the 48 studies, 27 provided evidence for this socioeconomic differential (defined as one or a combination of the following: parents' education, occupational status, and/or income) in the likelihood of dropping out of high school (Rumberger & Lim, 2008). In studies that specifically included family income in their analyses as a control variable, 35 of 60 analyses found that students from high-income families are less likely to drop out of high school than students from low-income families. Furthermore, Rumberger & Lim conclude in their review that the observed relationship between race/ethnicity and the likelihood of dropping out of high school can often be explained by other factors (e.g., socioeconomic status or, specifically, family income).

College Entrance

Despite the decreasing importance of parental income at later schooling stages found in some studies (e.g., Hauser & Andrew, 2006; Mare, 1980), the effect of family income on attending college is still positive. In Mare's (1980) study of U.S. white men a $1,000 difference in parental income (in 1967 dollars) corresponded to less than a 5 percent difference in the odds of attending college. In a later study of a cohort of eighth graders in 1988, Sandefur et al., (2006) find that net of social capital characteristics, parental income is associated with a higher probability of attending a four-year college and a lower probability of enrolling in a two-year or certificate program or not enrolling in postsecondary education at all. Furthermore, the importance of parental income on college attendance and college quality has increased for recent cohorts compared to those entering college in the 1980s (Belley & Lochner, 2007).

In addition to parental income and worth, race and ethnicity might be important in explaining differences in educational progression. In an examination of the effect of family income on high school graduation and college attendance among men from the 1979 National Longitudinal Survey of Youth, Cameron & Heckman (2001) find that after controlling for parental income and other family background characteristics, Black and Hispanic men are substantially *more* likely than White men to graduate from high school and to then attend college. Nonetheless, the cost of college tuition relative to parental income can influence enrollment differently across racial groups and parental income groups. Among high school graduates in the 1980s, a $1,000 increase in tuition corresponded to reduced college enrollment rates for both low-income Black and White students. Among those from high parental income backgrounds, White high school graduates were not affected by a $1,000 increase in tuition, but high-income Black high school graduates experienced a decrease in college enrollment that was almost as large as the decrease observed for low-income Black students (Kane, 1994). Kane argued that tuition increases may differentially affect Black and White college enrollment because Black families at similar income levels to White families have lower median net worth.

Parental wealth may be more influential in educational progression than income with regard to attending college because higher levels of parental wealth are indicative of greater assets for financing higher education. In an examination of the specific effects of wealth among children of the household head in the Panel Study of Income Dynamics (PSID) in 1995, doubling parental wealth resulted in an 8.3% increase in the probability of attending college, conditional on graduating high school (Conley, 2001).

College Completion

The effect of family income on graduation from college is smaller than the effect on college attendance (Mare, 1980). Yet, many have shown that socioeconomic status is still an important predictor of four-year college completion. Low socioeconomic students (SES; SES is defined as an index of parental education, parental occupation, resources in the home that might reflect wealth, and family income) are less likely to complete a four-year degree (Terenzini & Cabrera, 2001). Among students who started college in the 1995-1996 academic year, students from high-income families were the most likely to complete a four-year Bachelor's degree (NCES, 2003a). Similarly, defining family socioeconomic status by parents' income and educational level positively influences college completion (Titus, 2006; Walpole, 2003). As observed with college attendance, parental wealth has important implications for college completion. Among children of household heads in the PSID in 1995, doubling parental wealth resulted in 5.6% increase in the probability of graduating college, conditional on having enrolled in college (Conley, 2001).

There are differences in college completion by race and ethnicity and sex. According to the National Center for Education Statistics (NCES), non-Hispanic Black and Hispanic students are less likely to complete a four-year degree compared to non-Hispanic White students. Furthermore, women are more likely to complete college than men (NCES, 2003a). Persistence in college (versus dropping out before degree completion) varies by race across socioeconomic status groupings. For example, African American college students are more likely to persist than their white peers in the lower and working classes, but this relationship did not hold for students from middle- and upper-income families (Paulsen & John, 2002).

Professional or graduate School Entrance

Family income has been found to be *negatively* associated with attending graduate school among white, male college graduates in the U.S. Mare (1980) suggests that men from the wealthiest families do not require post-graduate training to obtain prestigious or lucrative employment. Later, Stolzenberg (1994) found a similar result in his analysis of college graduates attendance to MBA programs. Parents' socioeconomic status (each parent's years of schooling and occupation as well as family income) was weakly, or not at all, associated with attending an MBA program. These studies were limited to men ages 21-65 in 1973 and for men and women about age 32 in 1986, respectively.

In later decades, the relationship between parental income and professional or graduate school attendance reversed. In Walpole's (2003) examination of graduate school attendance in 1994, parental socioeconomic status (defined as a combination of parental income, educational attainment, and occupational prestige) was positively associated with graduate school attendance for all students. Walpole notes the exception that among low-SES students, women were more likely than men to attend graduate school. Thus, high socioeconomic status students were more likely to be enrolled in graduate school within nine years of entering college and low socioeconomic status students were more likely to be working full time.

Though there are relatively few studies that examine educational attainment beyond college, there is evidence that parental education is somewhat more important than other SES measures in predicting whether one attends professional or graduate school. Broadly, higher levels of parental education are correlated with children's enrollment in professional or graduate education, but the effect varies widely by type of

professional or graduate school. Specifically, for students from the Baccalaureate and Beyond Longitudinal Study who completed their bachelor's degrees in the 1992-1993 academic year, parental education is positively correlated with children's attending professional and doctoral programs, and is somewhat influential on master's program attendance, but is not predictive of entry into MBA programs (Mullen, Goyette, & Soares, 2003).

Statement of the Problem

In this paper, I consider the importance of parental income and parental wealth on four educational transitions for a recent cohort of U.S. men and women. I follow the educational progression of a recent cohort of young adults from early high school up through their young adult years (up to age 32). I examine the educational transitions of high school completion, college entrance, four-year degree completion, and professional or graduate school entrance across parental income and parental household net worth quartiles.

Parental financial resources are particularly important when considering college enrollment and college completion because high tuition and insufficient financial aid in the forms of grants and scholarships limit the ability for low-income students to afford to attend college or to complete college (Rong Chen & DesJardins, 2007). In recent decades, financial aid shifted from grant-based aid to loan-based aid, thereby reducing the likelihood that lower-income students will complete their college education (Paulsen & John, 2002). Because they lack adequate financing to fund college, many low-income students have to work while enrolled in college, yet those who work more than 20 hours per week in the first year of college are more likely to leave college (Bozick, 2007).

An explanation for the influence of parental net household worth on children's educational attainment is that wealth influences the cultural and social capital transmitted from parents to children (Orr, 2003). One reason that socioeconomic status during childhood is so important is because it is correlated with children's activities outside of school, such as museum and library visits as well as access to more educational materials in the home (books and computers or computer software) (Entwisle et al., 2005). Furthermore, parental involvement in their children's academic and other school activities, parental expectations, changing schools, and attending Catholic school are all factors that are positively related to later college enrollment (Sandefur et al., 2006). Though these are not standard measures of social background, it is likely that those parents who are more involved in their children's schooling are from more advantaged socioeconomic backgrounds. Children of parents from more advantaged backgrounds tend to be more comfortable, familiar, and have a better understanding of higher education, including both an understanding of how to pay for higher education and financial support for higher education (Lareau & Weininger, 2008; Lareau, 2003). Parents also parlay their resources to their children by teaching their children important social skills, including how to advocate for themselves and how to negotiate with authority figures (e.g., teachers or doctors) (Lareau, 2003).

I offer the following contributions. First, for the same cohort of men and women, I examine the effect of parental resources on four educational transitions, given that the previous education transition was completed. I am not familiar with any other study since Mare's (1980) study of educational transitions that examines all four of these educational transitions within the same cohort. Second, I focus primarily on parental income and

parental net household worth as key measures of socioeconomic status. Previous research on educational transitions typically includes measures of socioeconomic status operationalized in various ways, but does not focus primarily on parental income and parental net household worth. For example, socioeconomic status may defined as a combined measure of parental income, educational attainment, and occupational prestige (Walpole, 2003), or a combination of parental education, occupational status, and participation in meal subsidy plans (Entwisle et al., 2005). Though these combined measures of socioeconomic status are useful measures for taking stock of several measures of financial wellbeing, they do not allow for the individual examination of the specific effects of parental income and household wealth net of other parental characteristics (e.g., education), family structure (e.g., number of siblings), or race and ethnicity.

My research hypotheses are the following:

Hypothesis 1.) Parental income and wealth will be positively associated with each educational transition.

Hypothesis 2.) Given the increasing importance of parental resources in the financing of higher education, the positive association of parental income and wealth will be stronger at each educational transition.

Data & Methodological Approach

I use the 1997 National Longitudinal Survey of Youth (NLSY97) cohort (n=8,984) to examine educational progression across parental resource groups. The NLSY97 interviews individuals annually. By 2011 (the latest round of data available),

individuals range from age 26 to 31[1]. Though the conventional age at which completed education is examined is 25[2], an average of 38% of undergraduate and graduate students were over the age of 25 from 2009 to 2010 (NSCRC, 2012). The NLSY97 will allow for a more comprehensive view of educational progression by considering educational transitions across the spectrum of parental income and parental household worth levels at all young adult ages.

Unlike most NLSY97 measures, parental income was collected in a separate questionnaire issued to parents of NLSY97 individuals. Parents report their total income from wages, salary, commissions and tips, and when applicable, their spouse's income. After restricting the sample to individuals with non-missing information on parental income and parental net worth, the sample size is reduced to 6,529 men and women. An additional 61 individuals are excluded from the sample because they report their race as mixed-race. The number of mixed-race individuals is too small for analyses stratified by race and parental income and household wealth levels, yet it is unclear whether the mixed-race individuals should be included in analyses with non-Hispanic White, non-Hispanic Black, or Hispanic individuals. I also restrict the sample to individuals that were at least 18 years of age before their last NLSY97 interview, thereby excluding 52 individuals. After excluding individuals with missing responses for number of siblings, number of other children in the household under age 18, parental education, and whether they lived with both biological parents at age 18, the final analytic sample is 5,960 men and women.

[1] As of the 2011 round of the NLSY97, 4 women and 4 men were 32 years old by the time they were interviewed.
[2] Both the United States Bureau of Labor Statistics and the United States Census Bureau follow this convention.

Dependent Variables

Educational progression is measured with four dependent variables: high school completion, four-year college enrollment, four-year college completion, and enrollment in professional or graduate school. All four dependent variables are coded as dummy variables with a value of 1 if the individual experienced that educational transition. High school completion is coded to 1 if the individual's highest degree ever acquired as of a individual's last interview wave is a GED or high school diploma from a regular 12-year program. Four-year college enrollment is restricted to those who have completed high school; it is coded to 1 if an individual was enrolled in a four-year college in any month in a given wave. Four-year college completion is measured only for those who have ever enrolled in a four-year college. Four-year college completion is coded to 1 if an individual's highest degree completed as of the individual's last interview wave was a bachelor's degree or higher. Finally, enrollment in professional or graduate school is coded to 1 if an individual was enrolled in a professional or graduate school in any month in a given wave, among those who graduated from four-year college only.

Key Independent Variables

Parental income is the sum of the primary residential parent's income (typically mother) and the primary residential parent's spouse's/partner's income (if a partner/spouse is present) in 1996[3]. Both are measures of income from wages, salary, commissions, and tips from all jobs before deductions or taxes. If the primary parent or partner of parent reports that they did not receive any income, then their contribution to the combined parental income is 0. If the parent or parent's partner reports an estimated

[3] Household income is reported in the survey year of 1997 and refers to household income in the last year.

(bracketed) income rather than a dollar amount, then I assign a dollar amount to the midpoint of the bracket. For example, if a parent reports that they received income in the range of $10,000 to $25,000, I assign a value of $17,500 to that parent. If their partner reports that they received no income, or if there is no other parent present, then the parental income for that household is $17,500. On the other hand, if the parent's partner reports a specific income, for example, $30,000, then the parental income for that household is $47,500. After parental income is determined, I assign individuals to income quartiles based on the sample-weighted parental income distribution of all the individuals in the sample. I then categorize the quartiles into three categories: the lowest quartile represents men and women from a low-parental income background, the two middle quartiles represent women from a middle-parental income background, and the highest quartile represents women from a high-parental income background.

One limitation parental income in the NLSY97 data is that it is only measured at the baseline interview. In general, measures of parental income over a longer time period are better measures than a single-year measure of parental income with regard to questions of intergenerational mobility. Thus, the NLSY97 single-year measure of income may lead to a downward bias in the association between parental resources and children's outcomes (see Lee & Solon, 2009). Nonetheless, this may be offset by the age at which parental income was collected in the NLSY97. A recent study on the association of parental income and children's college enrollment found that parental income is more strongly associated with a child's future college enrollment if it is measured during a child's school-going years (Mazumder & Davis, 2013).

Parental net household worth is the net worth of the household reported by the main parent respondent as of the 1997 wave of the NLSY97 (round 1). Wealth ranges from -$935,251 to $600,000[4]. Using the same method as with parental income, I first assign NLSY97 individuals to parental worth quartiles. After assigning individuals to parental worth quartiles, I then assign individuals from low-parental worth backgrounds to the low-worth category. Men and women whose parental worth level is within the middle two categories are assigned to the middle-parental worth background category. Finally, individuals whose parental net household worth is in the highest quartile are assigned to the high-parental worth category.

Control Variables

Parental education may be related to parental attitudes toward children's behavior and schooling (Michael & Tuma, 1985). The NLSY97 reports parental education as the highest grade completed. I determine the highest grade completed by the residential mother and residential father (if present), and then construct measures of each parent's highest level of education. Highest level of education is coded into five dummy variables: less than high school (fewer than 12 grades completed), 12 grades completed (high school graduate), 13-15 grades completed (some college), 16 grades completed (bachelor's degree), and 17 or more grades completed (graduate work). The highest levels of education for each parent are then combined into a measure of highest level of education completed by either residential parent. Therefore, in a family where the residential mother has completed some college and the residential father has a bachelor's degree, the parental education level would be bachelor's degree.

[4] The net worth of household variable was top-coded at $600,000.

Whether an individual has non-residential siblings can influence the level of parental resources available to the individual. I include measures of the individual's total number of siblings and the number of other children under 18 in household at the first interview wave. I construct the total number of siblings by summing the number of siblings reported on the household relationship roster with the number of siblings reported on the non-household relationship roster. The number of household members under age 18 is reported by the individual at each wave. In this analysis, I use the number of household members under age 18 from the first interview wave[5]. I create two dummy variables indicating whether there are two children under age 18 in the household or three or more children under age 18 in the household.

Family instability has implications for financial well-being. One proxy for family stability is whether an individual lives with both biological parents. I include a dummy variable that is equal to 1 if an individual lived with both biological parents at age 2. Finally, I include controls for race/ethnicity and sex. Race/ethnicity is coded as three dummy variables into the following categories: non-Hispanic White, non-Hispanic Black, and Hispanic. Sex is a dummy variable coded to equal 1 if the individual is male.

Methodological Approach

To address my hypotheses, I first estimate the following four logistic regression models: 1) the likelihood of graduating high school, using the sample of all NLSY97 individuals that did not attrit by age 18, 2) the likelihood of enrolling in four-year college, conditional on graduating from high school, 3) the likelihood of completing four-year college, conditional on ever enrolling in college; individuals must be observed at least

[5] One respondent was 18 at the first interview wave; this respondent was coded as "no other children under 18 in the household."

three waves[6] beyond the wave in which they are first enrolled in college to remain in the sample, and 4) the likelihood of enrolling in professional or graduate school, conditional on completing four-year college. To be included in the final sample of the likelihood of enrolling in professional or graduate school, individuals must be observed in the final 2011 wave (round 15) to be included in this analysis. I include this restriction to best avoid the issue of right censoring. I estimate these regressions for men and women combined and separately. The regressions are unweighted and the standard errors are clustered at the household level. From each logistic regression model, I average the results over the covariates by parental income and worth, separately for men and women as well as combined, to produce the conditional progression probability of each educational transition. Rather than estimating separate regressions by race/ethnicity, I average the regression results over the covariates for each racial/ethnic group by parental income and parental net household worth categories to produce conditional progression probabilities for each racial/ethnic group, separately for men and women. Finally, analogous to the life tables calculated to estimate household composition changes (Raley & Wildsmith, 2004), I use multiple-decrement life tables to produce the "survival" probability of graduating from high school, attending four-year college, and completing four-year college. This involves producing estimates of the likelihood of transitioning from one educational level to the next, conditional on completing the initial level of education. I do not include enrolling in professional or graduate school in the multiple-decrement life tables because the youngest individuals in the latest wave of available data

[6] Because NLSY97 survey dates span across a calendar year (for example, round 15 survey dates for 2011 started in June 2011 and ended in September 2012), some respondents could complete college after three survey waves.

(2011) are as young as 26 years of age, thus introducing a right censoring issue within the cohort's lifetime.

Results

I present the sample-weighted distribution of parental resources and sociodemographic characteristics of the sample in Table 2.1. Consistent with the allocation of individuals from the two middle-income and two middle-worth quartiles to middle-resource categories, about half of the individuals' parents are middle income at baseline, and about half of the individuals come from middle net household worth families. Nearly one third of the cohort's parents' highest level of education was a high school degree, another quarter of individuals' parents had obtained some college. About 15 percent were college graduates, and another 13% had any professional or graduate training. About half of the individuals did not live with both biological parents at age 2. The majority of the individuals are non-Hispanic White (74%).

[Insert Table 2.1 about here]

I present in Table 2.1 the weighted percentage of the sample making each educational transition by parental resources distribution and sociodemographic characteristics. For each educational transition, those from middle parental income and middle net household worth backgrounds are more likely to complete an educational transition than those from low parental income and low parental net household wealth backgrounds. Likewise, those from high parental income and high net household parental wealth backgrounds are more likely than those from the middle-resource backgrounds to experience each educational transition. There is one exception to this pattern: those from

low parental household net worth backgrounds are the most likely to attend professional or graduate school.

As parental educational attainment increases, so too does the percentage of individuals who complete the next educational transition. The association between number of other children under the age of 18 in the household and total number of siblings appears to be curvilinear. Those with the fewest siblings and the fewest other children in the household, as well as those with a greater number of siblings and other children under age 18 in the household, are the least likely to complete each educational transition. Those who lived with both biological parents at age 2 were more likely to complete each educational transition except for attending professional or graduate school. Non-Hispanic Whites were the most likely to graduate from high school, attend college, and graduate from college, whereas, conditional on having graduated from college non-Hispanic Blacks were the most likely to attend professional or graduate school. Hispanic individuals were the least likely to graduate high school or conditional on having graduated from high school, attend college.

Parental income and parental net household worth are likely highly correlated, wherein those whose parents are low-income are also most likely to be among the low parental household net worth group. Table 2.2 presents the joint distribution of the cohort across nine parental wealth categories by parental income categories. With one exception, the cohort is clustered along the diagonal so that individuals are most likely to be in low-income, low-worth, middle-income, middle-worth, or high-income, high-worth groups. The largest percentage of the cohort falls into the middle-income, middle-worth category (31%), the second largest percentage is the high-income, high-worth group (19.1%), and

the third largest is the middle-income, high-worth group (11.1%). The low-income, low-worth group is the fourth largest at 10.2%.

[Insert Table 2.2 about here]

In Table 2.3, I present the results from the logistic regression models estimating the likelihood of completing each educational transition. Among the pooled sample of men and women, middle parental income and middle parental worth are positively and significantly associated with high school completion. Middle parental worth is associated with college enrollment. High parental income and high parental worth are positively and significantly associated with high school completion, college enrollment, and four-year college completion. The magnitude of the effect of parental income and parental worth decreases with each educational transition. Neither parental income nor parental worth were predictive of enrollment in professional or graduate school.

[Insert Table 2.3 about here]

Parental education is positively and significantly associated with educational transitions after controlling for parental income and parental worth. For the first two transitions, high school completion and college enrollment, individuals with parents who have at least a high school degree are substantially more likely to complete these transitions. This same pattern occurs for the transition to enrolling in professional or graduate school, except that the coefficients for parents with a high school degree and some college are only marginally significant. When considering the likelihood of college graduation, only those with at least one college graduate parent or one parent with professional or graduate school training are more likely to complete college.

Finally, men are significantly less likely than women to complete each educational transition. On the other hand, after controlling for parental income and worth, net of other household structure controls, non-Hispanic Black men and women are significantly more likely than non-Hispanic White men and women to complete high school, and enroll in college, but less likely than non-Hispanic Whites to complete college.

Given the differences in educational transitions between men and women, I estimate the models presented in Table 2.3 separately for men and women. The results are presented in Appendix Tables A2.1 and A2.2. From the model coefficients, I construct predicted probabilities of completing high school, attending college, and completing college separately for men and women for each combination of parental income and parental worth. I present these in Appendix Tables 3 and 4. I present the results from low parental income-low parental worth, middle parental income-middle parental worth, and high parental income-high parental worth groups because these are the most prevalent combinations of the income-worth pairing in the general population (see Table 2.2). From the predicted probabilities, I estimate survival probabilities for each transition by racial/ethnic group, separately for men and women. I present the survival probabilities separately for women in Figures 2.1, 2.2, and 2.3 and for men in Figures 2.4, 2.5, and 2.6.

Broadly, for men and women of all three racial/ethnic groups, those from high parental income and high parental worth backgrounds are the most likely to complete college, whereas those from low parental income and low parental worth backgrounds are the least likely to complete college. Comparing non-Hispanic White women (figure 2.1)

to non-Hispanic Black women (figure 2.2), non-Hispanic Black women have a higher likelihood of graduating high school and attending four-year college than White women in all three parental resource categories. High resource White and Black women have equal chances of graduating from college, but middle- and low-resource Black women have a lower likelihood of graduating from college compared to White women. Hispanic women, on the other hand, are about equally likely to complete high school as White women, but less likely to attend college or complete college compared to both non-Hispanic White and non-Hispanic Black women.

[Insert Figures 2.1, 2.2, & 2.3 about here]

With few exceptions, within each parental resource category, men's likelihood of completing each educational transition is lower compared to women within the same racial/ethnic group. Among men, non-Hispanic White and Black men are about equally likely to complete high school and attend college within each parental resource group, and only high-resource Hispanic men are about as likely as White and Black men to complete high school. White men are somewhat more likely than Black and Hispanic men to complete college, particularly among those with middle-level parental resources. Hispanic men are less likely than White and Black men to complete high school, but almost as likely as Black men to enter college and just as likely as Black men to complete college.

[Insert Figures 2.4, 2.5, & 2.6 about here]

Discussion

This analysis has shown that parental resources, particularly parental household net worth, are positively associated with high school graduation, four-year college

enrollment, and four-year college completion, but not with enrollment in professional or graduate school. These findings are in accordance with results from previous studies on earlier cohorts that have shown respectively that parental resources are predictive of completing the educational transitions of high school graduation (Entwisle et al., 2005), college attendance (Sandefur et al., 2006), college completion (Titus, 2006; Walpole, 2003), but only weakly, if at all, to entrance into professional or graduate school (Stolzenberg, 1994). In particular, those studies that have included family income have shown that it is independently and positively influential on schooling transitions. However, none of these studies specifically tested whether parental income and parental wealth are predictive of educational transitions independent of parental education and household structure. By including parental net worth in an examination of educational progression, I find that parental net worth is a stronger predictor than parental income on educational transitions.

Early work on educational transitions typically focused exclusively on men (Mare 1979, 1980, 1981). Yet, more recent work has been more inclusive of women as well as other racial/ethnic groups. According to a study by the U.S. Department of Education, men are more likely to drop out of high school than women, and that non-Hispanic Black and Hispanic students are more likely to drop out than White students (Laird, Kienzl, Debell, Chapman, & Schneider, 2007). Yet, after controlling for parental income, Black and Hispanic men were more likely to graduate from high school and enroll in college than non-Hispanic White men in the 1970s (Cameron & Heckman, 2001). Among those who complete high school, men are less likely to enroll in college than women, and once enrolled in college, men are more likely to drop out than women (Buchmann & DiPrete,

2006). Buchman & DiPrete also show that Black students are less likely than White students to complete college.

My analysis adds to our understanding of the relationship between parental resources and educational transitions by including a specification of parental resources that includes parental income, net household worth, and parental education. Like Laird et al. (2007) and Buchman & DiPrete (2006), my results confirm that men are less likely than women to complete high school, enroll in college, complete college, and enroll in professional or graduate school, even after considering parental income and parental net household worth. My results also show that, after controlling for parental income and parental net household worth, non-Hispanic Black and Hispanic individuals were more likely to graduate from high school and more likely to enroll in college. Yet, non-Hispanic Black and Hispanic individuals remain less likely to graduate from college. However, among college graduates, non-Hispanic Black individuals are significantly more likely than non-Hispanic White individuals to enroll in professional or graduate school.

One explanation for the positive relationship between parental income and parental wealth and educational outcomes may be that income and wealth are protective against factors that might have a negative effect on educational transitions. For example, in a study of the impact of neighborhood stress on school completion, higher levels of family income were protective against dropping out of high school (Crowder & South, 2003). Alternatively, parental income and wealth may be one aspect of the broader concept of social capital. One's family's social capital can work to enhance parental resources (Sandefur et al., 2006), thereby improving the chances that students with more

parental resources will advance to the next level of education, even if their abilities and performance are mediocre (Lucas, 2001).

Theories on educational transition are in disagreement with regard to whether parental resources increase or decrease in their influence on the completion of each educational level. These results show evidence for a general pattern wherein the magnitude of the effect of parental income or parental net worth decreases with each educational transition (see Table 2.3), thereby supporting Raftery & Hout's (1993) theory of maximally maintained inequality. Similarly, the relationship between parental educational attainment and educational transitions follows a similar pattern for the first three transitions. Compared to completing four-year college, the effect of parental education on enrolling in professional or graduate school increases and is significant or nearly significant for each level of parental education. As Mullen et al. (2003) show, parental education is highly predictive of one's own education, but the strength of the relationship varies by type of professional or graduate degree.

These results also highlight the importance of disparities in parental resource levels in explaining differences in educational progression by across racial/ethnic groups. Even after controlling for parental resources, however, the racial/ethnic gap in college completion diminishes but does not disappear for either women or for men. For example, according to the observed probabilities (see Appendix Table A2.5) of completing college, non-Hispanic White men are far more likely to complete college compared to Black and Hispanic men (.32 compared to .13 for Black men and .13 for Hispanic men); the gap in college completion between White and Black or Hispanic men is .19. After controlling for parental resources, the college completion gap compared to non-Hispanic White men

nearly disappears for low-resource Black and Hispanic men, is reduced to .08 for middle-resource Black and Hispanic men, and reduced to .04 for non-Hispanic Black men and .12 for Hispanic men. Similar decreases in the completion gap across race/ethnicity are observed for women (also presented in Appendix Table A2.5). Scholars have posited several explanations for the unexplained portion of the gap in college completion, including institutional context of the university in which they are enrolled (Titus, 2006), academic achievement (Buchmann & DiPrete, 2006), or neighborhood and community context (Crowder & South, 2003). Future research might continue to explore these phenomena while including a fuller specification of parental resources to shed light on how inequality in educational transitions is perpetuated.

Chapter Three: Parental Resources and First Birth Timing

Introduction

Experiencing a first birth is often considered the final step in the transition to adulthood, occurring after completing schooling, leaving home, becoming financially independent, and getting married (Shanahan, 2000). Though the order in which these transition to adulthood markers are listed is the normative progression, there has been increased individualization of the life course wherein young adults are increasingly progressing through the markers of adulthood in a non-normative order (Rindfuss, 1991). Furthermore, the length of time that it takes to complete the transition to adulthood has increased over the past several decades so that progression through the markers is more gradual than it was fifty years ago (Furstenberg, Kennedy, Mcloyd, Rumbaut, & Settersten, 2004).

Inequality in the transition to adulthood is linked to the amount of financial support that parents can provide to their children (Settersten & Ray, 2010). Whether parental resources have an effect on first birth timing is not a new question. Early work examining the social determinants of age at first birth shows that many factors influenced first birth timing, including race, parents' education, religion, region of birth, rural or urban origin, family size, and father's occupational status. According to this earlier work, race and religion are the most influential determinants of age at first: black women have earlier first births and Catholic women have later first births. All other factors influence age at first birth through their influence on education, with father's occupation as the strongest (though indirect) effect on age at first birth (Rindfuss & St. John, 1983). That is, women whose fathers have higher status occupations remain in school for longer, thereby delaying first births. Among black teens, young women from lower social class

backgrounds (an index of father's and mother's educational level, occupational status, labor force status, unemployment, family income, and housing characteristics), are significantly and substantially more likely to experience pregnancy than their peers from middle and upper social classes (Hogan & Kitagawa, 1985).

More recent work confirms that young women from wealthy families are more likely to delay marriage and childbearing, and particularly less likely to experience nonmarital first births (Aassve, 2003). Relatedly, young women who have little hope of social or economic advancement are more likely to chooser childbearing at younger ages and outside of marriage (Edin & Kefalas, 2005). Furthermore, the proportion of women in a cohort that are from economically disadvantaged families is highly correlated with the rate of early childbearing within that cohort (Kearney & Levine, 2010). In later work, Kearney and Levine (2011) assert that young women with fewer economic and social opportunities are more likely to choose early and nonmarital childbearing compared to women with more opportunities. They further speculate that coming from financially strained family backgrounds exacerbates this relationship.

Though there is no question that family resources are important in fertility timing, the effect of parental income and wealth on first birth timing has, until now, not been explored directly even while some studies have controlled for parental income (e.g., Barber 2001a). In two key studies, the amount of financial support available to children in the transition to adulthood has been approximated by examining differences in first birth timing by parental education (Michael & Tuma, 1985; Ravanera & Rajulton, 2006). In each of these studies, the authors find disparities in the timing of first births in that

women whose parents have more education or higher occupational prestige have later first births relative to women with fewer parental resources.

In this paper, I will explore directly the effects of parental income and wealth on the timing of first birth among young women in the United States. I hypothesize that the timing and occurrence of first birth among youth from lower- income and lower-wealth families will be earlier than that for youth from families with middle and higher income and wealth, particularly because women from low-income backgrounds are more likely to experience early, pre-marital first births (Wu, 1996). I hypothesize that higher income women will have earlier first birth timing than women from middle-income and wealth families because higher levels of income and wealth will ease the financial constraints that may delay birth timing. Women from middle-income backgrounds, on the other hand, will have fewer parental resources on which they can rely to facilitate the transition to adulthood. This financial constraints (or "income effect") argument may be seen as consistent with Shang and Weinberg's (2013) finding of higher fertility among higher educated U.S. women in recent cohorts. Additionally, I examine whether parental income and parental wealth are independently influential on first birth timing, net of parental education. Finally, I hypothesize that race/ethnic differences in the distribution of parental resources will explain substantial amounts of the variability in first birth timing by race/ethnicity.

To determine the impact of parental resources on first birth timing, I use the 1997 cohort of the National Longitudinal Survey of Youth (NLSY97). I employ an event-history framework in which I examine several measures of parental resources as predictors of first birth timing. I also include measures of household structure and sibling

information as a way to account for the decreased availability of parental resources in single-parent households or households with multiple children. The layout of this paper is as follows: first, I discuss how parental resources are linked to first birth timing. I follow with a discussion of the ways in which fertility timing varies across family backgrounds and race. Next, I outline the key questions to be addressed and detailed information about the data, variables, and methodological approach.

Literature Review

Parental Resources and Fertility Timing

Surprisingly few studies have considered directly the influence of parental economic resources on timing of first birth. Results from studies that have included measures of parental resources, however, provide strong evidence that parental resources are independently important in first birth timing. In an analysis of early first births in the United States, Michael and Tuma (1985) show that youth from families with more resources and greater stability are less likely to become young parents, and therefore probably more likely to attain economic stability. Rather than including income and wealth measures in their analysis, Michael and Tuma considered parental education, whether both parents were present, whether each parent was employed, and the number of siblings in the household as proxies for parental income available to children. Other studies on the ways in which one's family background influences fertility outcomes have focused on early fertility and early non-marital fertility, as well as numerous mechanisms to explain fertility outcomes. Often, these studies focus on the intergenerational transmission of teenage motherhood (e.g., Kahn and Anderson 1992; Manlove 1997) or the intergenerational transmission of timing of first birth (e.g., Barber 2001b).

In other Western countries, notably Canada and the Netherlands, studies have also shown a polarization in first birth timing by parental socioeconomic background. In Canada, women from higher social status backgrounds have later first births relative to women from lower and middle social status groups (Ravanera & Rajulton, 2006). The authors define social class by ranking mother's education on a scale of 1 to 3 and father's occupational prestige on a scale of 1 to 3, both measured when the respondent was age 15. They then add the two scores together to create a single measure of social status. The data are from the 2001 General Social Survey on Family History, a cross-sectional survey in which respondents' first birth timing and parental social status indicators are obtained from retrospective reports. The women in the sample ranged in age from 15 to 80 and were separated into three cohorts: 1922-1940, 1941-1960, and 1961-1980; thus those born in 1980 were no older than 21 when interviewed in 2001. Nonetheless, the authors found that the differential in age at first birth by social status increased from the earliest cohort to the later cohort.

In the Netherlands, Rijken and Liefbroer (2009) consider family of origin characteristics on first birth timing. These characteristics include both parents' educational attainment, mother's employment status, and father's occupational prestige as proxies for parental income, all measured when the respondent was 15 years old. The authors show clear evidence that parental resources are influential on first birth timing. As mother's and father's educational attainment and father's occupational prestige increase, children's age at first birth increases. Similar to the Canadian study, the women in this study range in age from 18-79 and their fertility reports are from retrospective

accounts. Additionally, measures of parental characteristics are reported retrospectively by the respondent rather than by their parents.

Many other studies that have analyzed first birth hazards in the U.S. do not include parental income and wealth among their predictors (e.g., Schoen et al.'s (2009) examination of social background differences in early family behavior or Martin's (2000) study of first births among women who remain childless to age 30). Several studies of fertility behavior whose substantive focus is not on parental resources nevertheless include controls for various measures of family resources. Though family resources are not the primary focus, results from the following studies are still informative to understanding relationship between social background and timing of first birth. In her study of attitudes toward childbearing among a sample of mother-child pairs from the Detroit area, Barber (2001a) finds that a control for family financial assets (cash, stocks, bonds, life insurance, and real estate) is inversely related to the hazard of first birth (both marital and non-marital) at ages 15 to 31. In a second study on the intergenerational transmission of age at first birth among women ages 15 to 31, Barber (2001b) finds that parental income and maternal education are negatively associated with premarital first births; similarly, the effect of family financial assets is negative but marginal. Among married women, higher levels of maternal education have been found to be associated with a somewhat later age at first birth (marginally significant). In their recent study of family structure and early parenthood, Hofferth and Goldscheider (2010) include the income of mother’s spouse from the 1979 cohort of the National Longitudinal Survey of Youth, averaged over the years that the respondent was between the ages of 0-14. They

found that mother's spouse's income was negatively associated with first birth timing among women ages 14-28.

Very little recent work focuses on the influence of income and wealth on family formation behavior within racial/ethnic groups. A few scholars have urged for demographic researchers to refocus their attention on socioeconomic differences within race/ethnic groups as opposed to focusing on race/ethnic differences in family behavior (Furstenberg, 2007; Schoen et al., 2009). There are a handful of studies in which there is evidence that socioeconomic status, and by extension, parental resources, operates similarly across racial/ethnic groups, including Schoen et al., Landale and Oropesa's (2007) review of Hispanic families, and Wildsmith and Raley's (2006) on nonmarital fertility among Mexican American women.

Parental resources may impact fertility timing in two ways. On the one hand, young women whose parents have more resources may have been socialized to place more emphasis on schooling and a career. The socialization argument is often employed to better understand the relationship between number of siblings and one's own completed fertility, but it has also been drawn upon in a study of the intergenerational transmission of age at first birth (Rijken & Liefbroer, 2009) and studies of the intergenerational transmission of teenage motherhood (Kahn & Anderson, 1992; Manlove, 1997). The underlying mechanisms of socialization are that children may hold values, attitudes, and preferences about fertility timing and quantum as similar to those that their mothers hold because they share similar socioeconomic status backgrounds and experiences (Bengston, 1975).

On the other hand, the way in which young adults' fertility preferences and values are shaped may be specific to the availability of financial resources. Easterlin (1969) predicted that the number of children that a young adult has is negatively related to one's standard-of-living preferences and aspirations. One's material aspirations and preferences are developed while living in the parental home. Thus, those who come from homes with higher parental incomes develop higher consumption preferences, thereby postponing childbearing or choosing to have fewer, higher quality children. Rijken and Liefbroer (2009) argue that this same argument can apply to fertility timing; young adults with higher standard-of-living aspirations will postpone first births until they have achieved their material aspirations.

Finally, there is evidence to suggest that the relationship between parental resources and first birth timing may not be entirely inversely related as Easterlin proposes. Alternatively, the relationship between first birth timing and parental resources may be curvilinear. Children from high-resources families may be able to afford to have earlier first births, as high-income parents are more likely to provide financial support to their adult children compared to lower-income parents (Knijn & Liefbroer, 2006). Children from low-income families, on the other hand, may be unable to afford to obtain higher education. Despite this, young adults from low-income homes are more likely to leave their origin family and start their own families for various reasons. First, young adults with lower levels of education typically become parents earlier (by age 24), likely because they have not obtained higher levels of education and therefore are not particularly invested in their careers (Osgood, Ruth, Eccles, Jacobs, & Barber, 2005). Though they are not in school or invested in careers, remaining in the parental home may

also be an unappealing option to women from low-income families. Therefore, these women are more likely to move out of their parental homes and form their own (Wu, 1996).

Race and Fertility Timing

Though the focus of this paper is on parental resources and first birth timing, it is widely documented that first birth timing varies across racial and ethnic groups. Chen and Morgan (1991) documented a divergence in first birth timing between White and non-White women in the 1970s, wherein White women have later first births, on average. This trend has continued into the 2000s; average age at first birth has increased for all woman, but non-Hispanic White women continue to have later first births relative to Hispanic or non-Hispanic Black women (Matthews & Hamilton, 2009).

Schoen and colleagues (2009) trace the impact of race and maternal education on first birth for hypothetical cohorts of young women up to age 24. Like Ravanera and Rajulton

(2006), Michael and Tuma (1985), and Barber (2000), Schoen et al. find that women whose mothers have higher levels of education are less likely to have a first birth by age 24. Yet they also find a large difference between white and black women: though White women from the lowest maternal education category were more than three times as likely to have a first birth by age 24 relative to those from the highest maternal education category (15.7% vs. 50.9%), the educational gradient for Black women was much narrower (43.3% vs. 73%), and levels of first births were much higher at each maternal educational level. The authors conclude by arguing that the effects of race and social

background are not additive; rather, the patterns or range of social background are often similar, but the magnitude of the effects often differs by race.

Reproduction of Inequalities

Previous studies on the influence of parental socioeconomic background and first birth timing typically focus on the intergenerational transmission of age at first birth or teenage motherhood. In these previous works on the intergenerational transmission of fertility, scholars have focused on socialization (Barber, 2000), heritability of genetic traits (Rodgers, Kohler, Kyvik, & Christensen, 2001), and the main focus of this paper, transmission of parental socioeconomic disadvantage (Barber, 2001b; Kahn & Anderson, 1992), as the mechanisms through which parents affect children's fertility preferences.

There are clear instances in which parental disadvantage is transmitted intergenerationally. Children whose parents are in poverty are more likely to be in poverty as adults (Corcoran & Chaudry, 1997), partially because intergenerational earnings mobility in the United States is relatively low (Neckerman & Torche, 2007). Young adults from low socioeconomic status backgrounds tend to complete lower levels of education and earn lower incomes compared to their high socioeconomic status peers (Walpole, 2003). Likewise, children of college-educated parents are more likely to finish college, whereas young adults from economically disadvantaged families are more likely to forego college (Osgood et al., 2005).

A few studies that have examined parental socioeconomic status and children's demographic behavior, moreover, have shown that inequality of demographic outcomes recreates inequality intergenerationally across families. Examples of works that have examined these include studies on the influence of family background and single

parenthood (Musick & Mare, 2004), women's educational attainment and subsequent childbearing in Indonesia (Mare & Maralani, 2006), and the impact of differential fertility by race on occupational achievement (Preston, 1974).

Statement of the Problem

This paper examines the impact of parental resources and family background characteristics on the timing of first birth for a recent cohort of young women in the United States. The results of this paper will offer a clearer picture of how one's social background can influence their own decisions about family formation. The timing of first birth is one part of a larger story on intergenerational socioeconomic mobility and the polarization of families. I draw on the works of Michael and Tuma (1985) and Ravanera and Rajulton (2006) as a foundation for my analysis. Though the work by Michael and Tuma provides important insight about the influence of family background on family formation decisions among young adults by race in the 1980s, it is limited to young adults up to age 22 only and they measure social background with parental education only. Ravanera and Rajulton work provides an important examination of the polarization of timing of first birth by social status for Canadian women, yet the birth years of the women in the sample range from 1922 to 1980 and their measures of social status are limited to mother's education and father's occupation. Both studies by Michael and Tuma and Ravanera and Rajulton lack two key family resource variables: parental income and household wealth.

I offer three contributions to the literature. First, I will shed light on the influence of parental financial resources on children's first birth timing for a recent cohort of United States women. There is evidence to suggest that more economically

disadvantaged women will have earlier first births, but it is unclear if there is differentiation in birth timing between middle-income and high-income women. The relationship between financial resources and first birth timing may be linear in that access to more resources is associated with increases in age at first birth because these women may have higher educational and career aspirations. On the other hand, there may be a curvilinear relationship between parental financial resources and first birth timing in that the least and most advantaged women have earlier first births, but the women from middle-resource families are unable to afford to start families without the financial support of their parents. Second, in addition to more detailed measures of family resources, I will include household structure characteristics as a measure of strain on family resources (e.g., number of siblings, children in the household, and presence of both biological parents vs. only one biological parent). These household structure variables provide insight into the availability of resources for young adults during the transition to adulthood. Finally, it is unclear whether parental resources as a mechanism of first birth timing will operate differentially across race groups. In addition to testing for racial differences in first birth timing net of parental resources, I explore through a regression decomposition analysis the extent to which racial/ethnic differences across a full set of sociodemographic and economic characteristics can account for the large observed differences in first birth timing between non-Hispanic White women and Black and Hispanic women.

I hypothesize the following:

Hypothesis 1.) Women from low-resource families will experience earlier first births relative to women from families with more resources.

Hypothesis 2.) Women from middle-resource families will experience later first births relative to women from high-resource families.

Hypothesis 3.) The pattern of the relationship between parental resources and first birth timing will be similar across racial groups.

Method

Data & Methodological Approach

To address my hypotheses, I use the National Longitudinal Survey of Youth (Bureau of Labor Statistics, NLSY97). The NLSY97 data are a rich source of first birth timing and detailed information on familial sociodemographic characteristics. Respondents range in age from 12 to 18 in the first interview wave in 1997 (though the majority of respondents are between the ages of 12-16). I use each annual wave 1 through 15 (interview years 1997 to 2011). I start by estimating Kaplan-Meier survival estimates to determine the cumulative probability of first birth by age, stratified by race and parental income quartiles as well as by race and parental net worth quartiles. I then employ a discrete time event history method in which a logistic regression model is used to predict the hazard of first birth from age 16 to 32. All of the independent variables in the event history model except age are measured at baseline (the 1997 wave)[7]. Because the NLSY97 contains siblings living in the same household, I calculate the standard errors clustering individuals at the household level. Last, I address the counterfactual question of what Black and Hispanic women's cumulative birth distributions might look like if they had the same baseline characteristics as non-Hispanic White women. I do this

[7] Parental income and household net worth, the two key independent variables, are collected in the parental interview in the first round of interviewing in 1997.

by applying the regression parameter values from Black and Hispanic Models to White women's distribution of observed characteristics at baseline[8].

Dependent Variable

The outcome of interest, whether a first birth occurs at a given age, is coded as a dummy variable that is equal to 1 if a birth occurred at a given age and 0 if no birth occurred. First, I construct the age at first birth by comparing respondents' reports of the birth month and birth year of each of their children to their own birth month and birth year[9]. For example, if a respondent reports a child's birth date as occurring in July of 2004 and the respondent was born in June of 1980, then the respondent's age at first birth is 24 years. For cases in which the respondent's own birth month and the birth month of their first child are the same, I assign the age to the respondent as if she experienced her birthday in that month prior to the birth of her child (that is, if a respondent was born in October of 1981 and had her first child in October of 2008, then her age at first birth is 27).

Key Independent Variables

Parental income is the sum of the primary residential parent's income (typically mother) and the primary residential parent's spouse's/partner's income (if a partner/spouse is present) in 1996. Both are measures of income from wages, salary, commissions, and tips from all jobs before deductions or taxes. If the primary parent or partner of parent reports that they did not receive any income, then their contribution to the combined parental income is 0. If the parent or parent's partner reports a bracketed estimated income rather than a dollar amount, then I assign a dollar amount to the

[8] This is implemented using the SAS version 9.3 procedure PROC SCORE.
[9] The NLSY97 does not provide the calendar date for the day of respondents' birth dates or for the birth dates of their children.

midpoint of the estimate. For example, if a parent reports that they received income in the range of $10,000 to $25,000, I assign a value of $17,500 to that parent. If their partner reports that they received no income, or if there is no other parent present, then the parental income for that household is $17,500. On the other hand, if the parent's partner reports a specific income, for example, $30,000, then the parental income for that household is $47,500. Parental income values range from $0 to $250,000. After parental income is determined, I assign respondents to income quartiles based on the parental income distribution of all women in the sample. I then classify the quartiles into three categories: the lowest quartile represents women from a low-parental income background, the two middle quartiles represent women from a middle-parental income background, and the highest quartile represents women from a high-parental income background.

One limitation of the NLSY97 measure of parental income is that it is only measured at the baseline interview in 1997. It is well-established that a parental income averaged over multiple years is more strongly associated with intergenerational mobility outcomes than a single-year measure (e.g., Lee & Solon, 2009). Nonetheless, the age at which parental income is measured in the NLSY97 is a strength. When parental income is measured during a child's school-going years (ages 6-17), it is more strongly associated with college attendance than when measured at earlier or later ages (Mazumder & Davis, 2013).

Parental wealth is the net worth of the household reported by the main parent respondent in the 1997 wave. For the women in my sample, wealth ranges from -$935,251 to $600,000. Using the same method as with parental income, I first assign

NLSY respondents to income quartiles, then to low-, middle-, and high-household worth backgrounds.

Control Variables

I include several control variables for characteristics that may influence first birth timing or the level of parental resources available to the respondent (the key focus of this study). First, I include a measure of mother's age at first birth. Age at first birth, particularly teenage fertility among women, tends to be transmitted intergenerationally (Kahn & Anderson, 1992). Mother's age at first birth is a linear variable of age at first birth.

Parental education may be related to parental attitudes toward children's behavior and schooling (Michael and Tuma 1985). The NLSY97 reports parental education as the highest grade completed. I determine the highest grade completed by the residential mother and residential father (if present), and then construct measures of each parent's highest level of education. Highest level of education is coded into five dummy variables: less than high school (fewer than 12 grades completed), 12 grades completed (high school graduate), 13-15 grades completed (some college), 16 grades completed (bachelor's degree), and 17 or more grades completed (graduate work). The highest levels of education for each parent are then combined into a measure of highest level of education completed by either residential parent. Therefore, in a family where the residential mother has completed some college and the residential father has a bachelor's degree, the parental education level would be bachelor's degree.

Because family structure has important consequences in the reproduction of inequality (McLanahan & Percheski, 2008), I include the following three measures of

household structure. First, I include whether the respondent was living with both biological parents at age twelve. Not living with a biological parent is associated with earlier childbearing (premarital) and earlier home leaving (Wu, 1996), as well as lower educational attainment (also related to age at first birth, e.g., Hofferth, Reid, and Mott 2001), particularly because children who grow up in single-parent families are more likely to drop out of high school (Painter & Levine, 2000). Second, I include a measure of a respondents' total number of siblings, both residential and non-residential. Similarly to the intergenerational transmission of age at first birth, there is some evidence that parents' completed fertility is correlated with daughters' completed fertility (Dahlberg, 2013). Therefore, including the number of siblings can control for both parental fertility levels and resource availability. I code the number of siblings into a series of four dummy variables, where the variable is equal to 1 if the respondent has the following number of siblings: none, one, two, or three or more. Third, to account for the availability of parental resources (i.e., resource depletion) (Houle, 2013), I include a measure of household members under the age of 18 at the baseline interview in 1997. I code the number of household members under 18 into a series of three dummy variables, where the variable is equal to 1 if the number of household members under 18 is in the following categories: one, two, or three or more.

Additionally, I include the following five demographic controls. I include two race/ethnicity dummy variables, one indicating that a respondent is non-Hispanic Black and one indicating that a respondent is Hispanic (the reference group is non-Hispanic White). Because foreign-born (particularly Hispanic origin) women have children earlier than native-born women (Landale & Oropesa, 2007), I include controls for 1) whether the

respondent was born in the United States, and 2) whether at least one parent is foreign born. Finally, I control for respondents' age[10] by including a measure of age and age squared at each wave. Because I start observing respondents' fertility behavior at age 16, the age variable is age minus 16 and (age minus 16)-squared.

Analytic Sample & Analysis File

The analysis file is a person-year file. A respondent contributes one response to the sample for each wave that she participates in the panel. If a respondent exits and re-enters the survey, she still receives a person-year observation for the missed interviews in the analytic sample. This is possible because all of the independent variables are time-invariant and measured at baseline and because the outcome variable, age at first birth, may be reported retrospectively. For example, if a respondent were to miss waves 6, 7, and 8 of the panel and had her first birth during that time period, she would report it when she re-entered the sample in wave 9.

I enforced the following sample restrictions. 29 women were dropped from the sample because they had already had a first birth prior to the first interview in 1997. An additional 177 women were dropped because their first birth was prior to age 17. Finally, I dropped 43 women because their race/ethnicity was ambiguous (coded as mixed-race, Non-Hispanic).

A description of the sample is presented in Table 3.1. About 78% of the weighted sample is non-Hispanic White. Non-Hispanic Black women were the most likely to have experienced a first birth by 2011. Non-Hispanic White women were the least likely to have a first birth by 2011, as well as at the oldest median age (23). About half of the

[10] In alternate specifications, I added dummy variables for year of birth. The substantive results remained unchanged with the addition of the birth year dummy variables.

NLSY97 women were from middle parental-income families. Similarly, about half of the women were from middle parental net-worth families. Women from high parental-income families and high parental net-worth families were the least likely to experience a first birth by 2011 (at median ages 24 and 25, respectively). Women with three or more siblings had their first births at lower median ages compared to women with fewer or no siblings. Women who did not live with both biological parents at age 12 also exhibit a younger median age at first birth (22 versus 24 among those who lived with both biological parents at age 12).

Missing Data

4,385 women were interviewed in the 1997 wave of the NLSY; 53 women did not return to the panel in subsequent interview years. The sample was also reduced by non-response on several key independent variables and control variables. Due to non-response by respondents' primary parents/guardians in the initial wave, parental income is missing for 700 respondents and household worth is missing for 1,148 respondents[11]. This results in a sample size of 3,570 women in the descriptive analysis of cumulative probability of first birth at each age. The sample size for the discrete event history models and the counterfactual decomposition analysis is 2,372. These additional sample reductions occur due to non-response on the following variables[12]: whether the respondent was living with

[11] In supplementary analyses not reported here, I found that respondents with non-missing parental education have, on average, a similar parental education distribution compared to respondents with non-missing parental income, non-missing parental net household worth, separately and combined.
[12] Note that these missing numbers are not cumulative; instead, they are simply non-response counts per variable among all women in the NSLY97.

both biological parents at age 12 (571), residential parents' nativity (6), residential parents' education (326), and respondents' mother's age at first birth[13] (337).

Results

The curves representing cumulative probability of first birth by age for White, Black, and Hispanic women are presented in Figures 3.1, 3.2, and 3.3. For all three groups of women, the gap in the cumulative probability of first birth between high- and middle-income women remains, whereas the gap between middle- and low-income diminishes with age. In fact, the gap between white women from middle- and low-income families disappears by age 31. Though the patterns by parental income are similar for each racial/ethnic group, there is still observable variability in age at first birth, particularly among women from low parental income backgrounds. For example, among women from low parental income backgrounds, the age at which White women reach a 50% cumulative probability of first birth is 24, whereas Black and Hispanic women each reach the 50% point at age 22. High parental income do not reach the 50% mark until age 29 (White and Black) and 30 (Hispanic). Results for the cumulative probability of first birth by age, race, and parental net worth group were similar (see appendix figures 3.1, 3.2, and 3.3).

[Insert Figures 3.1, 3.2, and 3.3 about here]

The results examining the relationship between parental worth (and parental income) and the timing of first birth presented in Table 3.2. First, I present the discrete time first birth hazard coefficients, standard errors, odds ratios, p-values, and significance

[13] Mother's age at first birth is missing for 320 respondents and younger than the age of 12 for an additional 15 respondents. The NLSY97 documentation urges users to exercise caution with extreme values reported for mother's age at first birth.

for the pooled sample of all three racial/ethnic groups for a model without parental income or parental net worth. These are presented in the main effects model columns. Parental education is substantially and significantly predictive of first birth timing; as parental education increases, the risk of a first birth decreases. Furthermore, there are no statistically significant differences in first birth timing by racial or ethnic group after controlling for parental education and family structure.

In the next set of models, presented in the columns labeled "main effects with parental resources," I examine the association between parental income and parental net worth and first birth timing. Parental income, one of the primary determinants of interest, is monotonically and negatively associated with a reduction in the hazard of first birth. Compared to women from low parental income backgrounds, middle parental income women's odds of first birth in a given year is 13% lower; for women from high parental incomes, the odds of a first birth in a given year is 21% lower. Parental wealth, the second primary determinant of interest, also negatively influences the likelihood of first birth: women from high parental household worth backgrounds have 26% lower odds of experiencing a first birth at a given age. Again, there are no statistically significant differences in first birth timing by race or ethnicity. Nonetheless, the magnitude of the coefficients diminished from the main effects model to the main effects model with parental resources.

[Insert Table 3.2 about here]

Not all of the measures of household structure and resource availability were significantly associated with first birth timing. Across all three models, women who lived with both biological parents at twelve years of age had lower hazards of first birth, as did

women whose mothers' age at first birth was older. Not surprisingly, higher levels of parental educational attainment are associated with lower hazards of first birth at a given age. Furthermore, the magnitude of the effect of parental education increases as level of parental education increases.

Next, I examine several interactions between age and parental income, parental wealth, and race/ethnicity in the model with interactions. I evaluate the BIC and AIC model fit statistics (Burnham & Anderson, 2004) between the main effects model and the models interacting age (linear and age squared) with wealth, age with parental income, age with parental education, age with race/ethnicity, and age with all five effects. The AIC and BIC model-fit statistics are presented in Appendix Table A3.1. Compared to the model with all five interactions, the best-fitting model according to both the BIC and AIC model fit statistic is the model in which age and age squared are interacted with parental worth, parental education, and race/ethnicity but not with parental income. This model is presented in the second set of columns in Table 3.2. Net of all baseline characteristics and interactions, high parental income and high parental worth maintain a negative relationship with first birth hazard. Higher levels of parental education, particularly parents with college or graduate/professional level education, also exhibit a negative relationship with first birth hazard. The interaction coefficients presented are not equivalent to the interaction *effects* (Ai & Norton, 2003). I therefore use predicted probabilities derived from the models including interaction coefficients to generate cumulative probabilities of first birth for non-Hispanic Black and Hispanic women separately applying White women's characteristics.

In Figure 3.4, I present results from counterfactually applying the Black and Hispanic regression parameters[14] to White women's characteristics observed at baseline. The regression parameters are from the regression model "main effects with parental resources." Had Black women had the same level of parental resources and other socio-demographic characteristics as non-Hispanic White women, the Black-White gap in teenage first births (ages 17 to 20) would be completely eliminated. Racial differences in values of the regressors further explain more than three quarters of the first birth difference at age 21 and more than half of the first birth difference at ages 24 to 28. By age 29 (and through age 31), differences in the regressors explain nearly all of the first birth gap between Black and White women. In Appendix Figure A3.4, I counterfactually apply Black and Hispanic regression parameters from the "main effects model" (without parental resources). Though the parental resource variables are independently and substantively significant, the decomposition results do not depend on their inclusion.

[Insert Figure 3.4 about here]

Next, applying Hispanic women's regression parameters to White women's characteristics at baseline, a similar, but not identical, pattern emerges. Had Hispanic women had the same level of parental resources and other socio-demographic characteristics as non-Hispanic White women, the White-Hispanic first birth difference between ages 17 to 21 would be completely eliminated (and therefore observed differences are explained by differences in parental resources and other socio-demographic characteristics). From ages 22 through 27, differences in the regressors continue to explain the majority of the White-Hispanic first birth gap. By age 28, White

[14] Regression parameters are presented in Appendix Table A3.2.

women would have actually had a higher prevalence of first birth compared to Hispanic women.

Discussion

This analysis has identified parental resources as highly predictive of first birth timing for young women in the United States. For all three of the largest race/ethnic groups in the U.S., high parental income and high parental net worth are associated with lower incidences of first birth through women's 20s. Middle levels of resources are associated with first births being delayed in the teens and early 20s, but then caught up by the late 20s and early 30s. That higher parental resources are associated with postponed first birth timing is consistent with results from previous studies. These previous results studies on first birth timing were all suggestive that parental income and wealth would have a postponing effect on women's first birth (Michael and Tuma 1985; Ravanera and Rajulton 2006; and Rijken and Liefbroer 2009). Yet none of these studies specifically tested whether parental income or wealth are independently influential on first birth timing. The results of this analysis show that parental income and wealth are, in fact, related to first birth timing. Specifically, there is a monotonic decrease in the hazard of first birth as parental income and parental resources increase. Thus, I found support for hypothesis 1, that women from low-resource families will experience earlier first births relative to women from families with more resources.

The results of previous studies on first birth timing are mostly agnostic with regard to whether individuals from middle-income and middle-worth families experience differential first birth timing relative to low- and high-resources families. I hypothesized that women from middle-resource families experience later first births relative to women

from high-resource families, but the results did not show support for this. By age 30, the likelihood of having had a first birth is still substantially lower for women from high parental resources than from middle parental resources families. With these data, I am unable to address whether first birth "catch-up" will occur for high-resource women in their 30s.

Finally, previous work has shown that first birth timing ranges widely across racial and ethnic groups. The divergence in first birth timing between white and nonwhite women is widely documented (Chen & Morgan, 1991), and despite average increases of age at first birth for all women, non-Hispanic white women continue to have the latest first births (Matthews & Hamilton, 2009). Work by Schoen et al. (2009) suggests that the relationship between socioeconomic status and timing of first birth would be stronger among white women relative to black women. I find instead no statistically significant coefficients for Black or Hispanic women relative to the reference category of non-Hispanic White women. This holds in both models with and without parental income and parental net worth. Moreover, in regression decomposition analyses, I find that little difference in the pattern of cumulative first birth probability by age remains between non-Hispanic White and Hispanic women, and that about two-third to three-quarters of the differences between non-Hispanic Black and non-Hispanic White women is also explained by differences in women's baseline characteristics. By age 30, moreover, there remain essentially no racial/ethnic differences in likelihood of having had a first birth across the three racial/ethnic group after accounting for differences in baseline characteristics.

The results of this analysis lend support for both the socialization hypothesis and the Easterlin (1969) hypothesis. That women from higher-income and higher-wealth parental backgrounds are delaying their first births relative to women from lower-resource backgrounds suggests that these women may be focusing on career aspirations. Though not the focus of this paper, the analysis results show a clear, monotonic relationship between parental education and young women's timing of first birth in that as parental education increases, the hazard of first birth decreases. According to the socialization explanation of fertility timing, women adopt their parents' fertility preferences and behaviors. The strong relationship between parental education and first birth timing suggests that parents are effectively transmitting their preferences and behaviors to their children. These results also support assertions by Easterlin that women from families with higher income and wealth are more likely to delay their first births. This holds true for women from all three race/ethnicity groups when considering income. Women from low-income families are already accustomed to a lower standard of living, therefore they may not view parenthood to be as financially burdensome as women from higher-income families. Yet, when considering wealth, this is only evident for White and Black women.

Why do women from higher parental resource backgrounds postpone their first births to later ages than women with fewer parental resources? One mechanism is through school enrollment. It's likely that women from high-income and high-wealth families are enrolled in school longer (rather than dropping out) and upon completion of higher education, funneling their time and energy into their careers. Despite being in better financial standing because young adults from high-income families typically have

less student loan debt and access to better jobs, young women from higher-resource families are in no rush to start families. The implications of postponing one's first birth to focus on career aspirations are typically positive. As discussed earlier, for each year that a woman delays her first birth, she experiences a 9 percent wage increase (Miller, 2009). Additionally, earlier work has shown that early births can have substantial consequences on a woman's career (Cigno & Ermisch, 1989) because they occur during a time when career investments are critical.

A related explanation proposed by Kearney and Levine (2012) is that of the "culture of despair." Young women from financially-disadvantaged families may perceive that economic success is unachievable and therefore see little reason to postpone a first birth. Young women with more hope of economic success, on the other hand, are more motivated to postpone motherhood. Income inequality exacerbates this difference in perceived hope of economic success. In 2001, 82% of teen pregnancies were reported as "unintended," and the rate of unintended pregnancy among poor women increased between 1994 and 2001 (Finer & Henshaw, 2006). Because poor women have less hope of economic success they may be more likely to embrace motherhood (even if initially unintended) than their more financially-advantaged peers.

Last, an alternative explanation to why women from higher resource backgrounds postpone their first births is that they may have a greater sense of entitlement to their own leisure time. Presser (2001) postulated that as women have spent increasing time spent in higher education and have postponed marriage to later ages, they have developed a greater sense of entitlement to leisure time. She speculates that there is a marked difference in women's entitlement to one's own leisure time according to socioeconomic

status wherein women from lower socioeconomic status backgrounds feel less entitled to leisure time and that children are necessary in achieving meaning in life. Differences in preferences by education are also discussed as potentially important determinants by Hakim (2003).

The key result of this analysis is that parental income and parental net wealth are associated with delays in first birth. Whether women with more parental resources are more able to go to college and thereby postpone family formation, are more career-oriented, or feel more entitled to their own level of leisure, their parental resource background is an important mechanism of birth timing. Parental resources remain independently significant net of parental education and other family background characteristics (e.g., number of siblings). While this analysis focused on characteristics observed while young adults were still living in the parental home, future work could focus on time-varying aspects of the transition to adulthood. For example, whether one attends a four-year college, and then completes four-year college, could be influenced by parental resources. This in turn could have implications for first birth timing.

Chapter Four: Student Loan Debt and the Timing of First Marriage and First Birth

Introduction

Recent trends show that young adults are waiting longer than ever to marry and to have children. According to the Census Bureau, the timing of first marriages in the U.S. has increased steadily for the past 60 years, so that by 2011, the median ages at first marriage for men and women were 28.7 and 26.5, respectively (U.S. Census Bureau 2011). Similar increases in the timing of first births have also been documented (Matthews & Hamilton 2009), and in fact, women's median age at first birth has remained lower than median age at first marriage since 1991 (Arroyo, Payne, Brown, & Manning 2013). These shifts in the timing of family formation are part of a larger set of life course changes in the transition to adulthood. Young adults are taking longer to reach full independence, as they now expect the process of living apart from their nuclear family, reaching financial stability, and forming their own families to span into the mid- to late-twenties (Settersten & Ray 2010).

These changes in the young adult life course have occurred during an era of economic uncertainty and declining public support for higher education, whereby tuition costs have steadily increased, forcing more and more young people to assume large amounts of debt just to complete their education (NCES 2005). The recent Occupy Wall Street protests around the country echo the effects of high rates of unemployment and the burden of student debt on young adults today. According to a recent poll, a plurality of young people believes that they will not be better off than their parents were (Demos 2011). Burdened by these issues, in addition to increased costs of housing and food, young adults may feel that they will have to continue to delay, and possibly forego, settling down and starting a family.

As college attendance has become a more salient aspect of the transition to adulthood, so too has the accrual of student loan debt. Although student loan debt is increasingly prevalent, little is known about whether and how the burden of debt may influence the subsequent lives of young adults beyond exiting college, especially their timing of marriage and parenthood. Because student loan debt is only possible for individuals who attain higher levels of education, it may be linked to later marriage and first births simply because of its association with educational attainment. But the question remains whether, beyond the effects of education, the burden of loan debt is also associated with further delays in family formation. Anecdotal and media reports suggest that the burden of debt weighs heavily on the decisions and opportunities of some young adults (Kamenetz 2006; Lieber 2010), but is this actually the case more generally? To my knowledge, this question has not been addressed before in the scholarly literature. This paper attempts to fill this gap by examining the relationship between student loan debt and family formation using recent data from the National Longitudinal Study of Youth 1997 (NLSY97) which asks respondents about their student loan debt while enrolled in higher education. Using these data, I examine first marriage and first birth experiences of women and men by their level of student loan debt.

In the remainder of the paper, I review the relevant literatures on the transition to adulthood, higher education and student loan debt, and family formation, all of which help to inform my expectations regarding the relationship between student loan debt and family formation. I then describe the data and methods, and finally I present and discuss results.

Background

The Transition to Adulthood

The transition to adulthood is often described in terms of key life course events such as moving away from home and living independently, completing school (increasingly, this means some form of higher education), entering the paid labor force, getting married, and having children. Furthermore, military or voluntary corps service can play an important role in the transition to adulthood, either preceding or substituting for employment or education (Berlin, Furstenberg, & Waters 2010). Research has documented that the transition to adulthood is more gradual than it was fifty years ago, and it is experienced differently by individuals according to gender, race and ethnicity, and social class (Fussell & Furstenberg 2005; Settersten, Furstenberg, & Rumbaut 2005). Some suggest that the transition to adulthood today is similar to the transition experienced prior to industrialization when young adulthood was a period of prolonged semi-independence in which financial stability was a gradual process. However, unlike the twenty-somethings prior to industrialization who might have viewed marriage and childbearing as prerequisites for adulthood, today's young adults view the completion of school, living independently, and acquiring full-time employment as the necessary first steps toward adulthood, whereas marriage and childbearing are considered more optional (Settersten & Ray 2010).

As the discussion of markers of adulthood suggests, the transition to adulthood has become increasingly diverse over the past several decades, shaped by both socioeconomic and historical circumstances. Research has consistently shown that higher socioeconomic status is associated with later pathways to adulthood, as young adults from more affluent families are able to pursue a wider variety of educational and professional opportunities prior to marriage and parenthood (Osgood, Ruth, Eccles, Jacobs, & Barber 2005). Throughout the past several decades, opportunities for higher

education have greatly expanded resulting in college enrollment rates that have risen from about 52% of high school graduates in 1970 to 70% in 2009 (BLS 2010).

Changes in labor market prospects caused by industrial restructuring have severely limited the ability of many young adults to establish financial independence without higher education (Danziger & Ratner 2010). Whereas low-skilled, but well-paying blue-collar jobs have declined in recent decades, high-skilled white-collar jobs that require higher levels of education have increased. Since 2000, adults with a bachelor's degree had median weekly earnings that were nearly 64% higher than those with a high school diploma. The earnings premium for bachelor's degree recipients remained relatively stable throughout the decade; dipping to just under 60% in 2004 and reaching as high as almost 66% in 2010.

The Rise in College Attendance and Student Loan Debt

Americans increasingly view a college education as normative (Goyette, 2008) and a requirement for success and a middle-class lifestyle, yet degree completion remains relatively low (Immerwahr, Johnson, Gasbarra, Ott, & Rochkind 2009). In a survey of nearly 8,000 sixth through twelfth grade students, 94% of students and 96% of their parents reported that the student would obtain additional education after high school, with about half expecting that the next step would be attendance at a four-year college and the remainder considering two-year schools or undecided (NCES 2003). Despite clear advantages of completing an undergraduate degree, the six-year completion rate for a Bachelor's degree was only 52% for the cohort entering college in 1991, and it rose to only 55% for the freshman cohort of 2003. Nontraditional students, such as those who delay entrance to college, those employed full time, or single parents, are even less likely than others to persist with or complete a degree (Choy 2002).

Though the value of higher education is rarely questioned, the cost of a college education raises concerns for many. The cost of college attendance for undergraduates

nearly doubled between the academic years beginning in 1995 and 2007. One's level of student loan debt impacts the likelihood of actually graduating from public universities. Dwyer and colleagues (2012) show that while loan debt under $10,000 increases the likelihood of graduating from college, higher levels of debt (above $10,000) reduce the likelihood of graduating (Dwyer, McCloud, & Hodson, 2012). They also find gender differences in the relationship between debt and college graduation, whereby men drop out with lower levels of debt compared to the levels of debt at which women drop out (Dwyer, Hodson, & McCloud, 2012). The authors argue that men drop out at lower levels of debt because their job market opportunities (e.g., manufacturing or construction) without a college degree are better than those for women, either because of occupational gender segregation or because women do not choose these careers.

Research has shown that student loan debt varies according to gender, race, and type of institution attended. Women are more likely than men to accrue student loan debt, perhaps because men are more likely to drop out (Dwyer, Hodson, et al. 2012). Racial minorities have lower levels of education than whites, but they are more likely than whites to accumulate student loan debt. According to a study Demos (2011), in 2008, 80% of African American college students borrowed compared with only 65% of white students, and African American bachelor's degree graduates had an average of more than $28,000 of debt at graduation compared to less than $25,000 for white college graduates. Furthermore, African American and Latino students are disproportionately represented in for-profit institutions, which traditionally consisted of technical or trade schools, but have more recently expanded to include a broader range of academic programs. Compared with the general population of college students, those who graduate from for-profit institutions are more likely to have student loan debt and to default on their loans (Asher 2010).

Because they are often still undergraduates when they first apply for a student loan, young adults may not realize the future negative consequences of assuming this kind of debt. In fact, some research suggests that young adults may feel empowered when they assume debt to finance their education, because they consider themselves to be informed and in control of their lives (Dwyer, McCloud, & Hodson, 2011). However, the feeling of empowerment early in the transition to adulthood may not translate into increased agency later on and may even further delay the attainment of additional markers of adulthood. A heavy student debt burden may lead to the pursuit of non-career jobs (e.g., waiting tables) rather than entry level positions in one's intended career (Kamenetz 2006), and it may also discourage the pursuit of advanced degrees which are often seen as necessary in a competitive job market. For example, more than 40% of college graduates report not pursuing graduate school because of student loan debt (Baum & O'Malley 2003). Some scholars have likened these students to indentured servants whose future career decisions are impaired by debt (Millett 2003).

The Relationship between Debt and Family Formation

Media reports of broken engagements or avoidance of dating due to student loan debt suggest that carrying a large amount of debt may have negative implications for family formation (Lieber 2010; Ludden 2012). In the book *Generation Debt*, Kamenetz (2006) finds that many women and men with college debt consider the question of marriage and children to be a real dilemma. Some report that they avoid dating because they cannot imagine taking on the financial responsibility of supporting a family in addition to their student debt burden (Kamenetz 2006). Results from the 2002 National Student Loan Survey conducted by the Nellie Mae Corporation suggest that young adults perceive student loan debt as a barrier to childbearing (Baum & O'Malley 2003). Moreover, buying a house may be more difficult because high levels of student debt may make a person a poor mortgage risk (Sullivan, Warren, & Westbrook 2000). If student

debt challenges a young adult's ability to maintain financial stability and independence, then it is reasonable to expect that it will also affect other major life decisions, including whether and when to start a family.

In spite of the increases in student loan debt incurred by many young adults, very little empirical research has explored the relationship of debt and family formation. The well-documented trends in delayed marriage and childbearing (see Cherlin, 2010 or Smock & Greenland, 2010) are often attributed to the broadening of opportunities (especially for women) for higher education and rewarding careers as well as the loosening of norms about adult life, giving both women and men more choice about whether and when to "settle down." However, another body of research has focused on how constraints related to economic uncertainty may encourage people to delay, or even forego, starting a family.

Easterlin's well-known relative income hypothesis was one of the first economic theories to suggest that preferences about family formation may change depending on one's economic circumstances in early adulthood (Easterlin 1978). According to the hypothesis, people who are more optimistic about their ability to achieve a standard of living comparable to what they grew up with will be more likely to start a family at a younger age and to have more children, than would people who are more pessimistic about their economic prospects. Economic uncertainty can be exacerbated by many things, such as broader economic or job market conditions, the high cost of living (and especially of raising a family), and personal financial circumstances including job instability and the burden of personal debt. Indeed, research has shown that high unemployment during economic recessions can influence fertility (Morgan, 1996;

Sobotka, Skirbekk, & Philipov, 2011), and feelings of uncertainty about the economy as well as poor economic prospects may help to explain the very low levels of fertility observed in many European countries (Kohler, Billari, & Ortega 2002).

Although these studies do not look explicitly at the impact of personal debt, their findings are consistent with the expectation that high levels of debt could create sufficient financial uncertainty to discourage young adults from starting a family or having additional children until they are on a more solid economic footing. This expectation forms the basis of my analysis in which I ask whether young adults who accumulate more student loan debt are more likely than other adults to postpone starting a family. I hypothesize that student loan debt will be associated with later first marriages and first births, even after controlling for socio-demographic and family background characteristics.

A Note about Other Forms of Debt

Many young adults also have other forms of debt, including car loan, mortgage, and credit card debt. According to data from the NLSY97, about one-third of men and women had car loan debt at age 25 and nearly one in seven had mortgage debt (from authors' calculations using NLSY97). Credit card debt can also be quite burdensome, though relative to student loan debt, credit card debt among young adults has changed very little over the past several decades. Although the share of 18 to 24 year-old household heads with credit cards increased from 43.0% to 53.4% between 1989 and 2007, the average amount of credit card debt among this age group has remained essentially stable at about $2,500 (Demos 2011). Student loan debt differs fundamentally from mortgage, car loan, or credit card debt because it is often accrued at younger ages, without the careful scrutiny of one's work or credit history (because there is none yet),

and also without any immediate tangible benefits (like a house or a car). Relative to these other forms of debt, student loans are often viewed as an investment in human capital, based on the "hope" for a future payoff in the form of a good job or a higher paycheck. Unlike student loan debt, mortgage and car loan debt are less likely to impede the transition to adulthood because they are, in fact, markers of adulthood. Homeownership signals financial stability, and for many, is part of the family building process. Car loans are prevalent among young adults and may be viewed as a sign of financial stability and independence. Although the excessive burden of any kind of debt may influence major life decisions, I focus on the role of student loans because of their growing prevalence and magnitude in recent years, especially among more vulnerable populations. Student loan debt is particularly salient for this stage of the life course given the increasing pressure to attend college.

Data & Method

I use data from the 1997 National Longitudinal Survey of Youth (NLSY97), a nationally representative sample consisting of a cross-sectional sample of 6,748 respondents and a supplemental oversample of 2,236 Hispanic/Latino or black respondents. This results in a total sample of 4,599 men and 4,385 women who were between the ages of 12 and 16 when first interviewed in 1997, and who have been re-interviewed annually ever since. I use rounds 1 through 15 of data. Round 15 interviews were conducted in 2011 and the respondents range in age from 25 to 32 years old[15]. To my knowledge, the NLSY97 is the only data set to provide detailed measures on all of the major dimensions of the transition to adulthood for this cohort of young people (e.g.,

[15] Only 16 respondents are age 32 in round 15, and none of the respondents who are 32 years old are in the final analytic sample. Therefore, our sample ranges in age from 18-31.

education, marriage, and fertility) as well as detailed information about financial circumstances, including the existence and amounts of student loan debt.

I employ a discrete-time event history analysis to examine the relationship between student loan debt and family formation (as indicated by the separate transitions to first marriage or first birth). The analytic sample consists of individuals who 1) ever enrolled in college, effectively, the population at risk of acquiring student loan debt, 2) were childless or never married at the point they first enrolled in college, 3) remained in the sample for at least one year after enrolling in college so that they could be observed in college at two consecutive time points, 4) and had valid responses to all variables needed for the analysis. After imposing the restrictions necessary to meet the criteria for discrete time event history analysis, the analytic sample for the marriage analysis consisted of 2,320 unmarried women, 1,918 unmarried men, and the sample for the parenthood analysis included 2,131 childless women and 1,897 childless men. There are fewer men than women in each sample because fewer men than women enrolled in college at a given age (according to authors' analysis of NLSY97 data). Exposure to first marriage and first birth begins in the year that respondents were first enrolled in higher education and continued after graduation or dropping out from college, until censoring at last survey interview in 2011 or attrition. Working within the person-year framework necessary for the discrete-time analysis, each respondent contributed an average of about 7.5 person-year records (with a modal value of 9 person-year records) to both analyses; this corresponds to a total of 15,788 female and 13,502 male person years for the marriage analysis and 14,841 female and 13,726 male person years for the first birth analysis.

The two dependent variables are whether a respondent a) experienced a first marriage or b) experienced a first birth in a given year. I examine first marriage and first birth separately. In event history terms, a birth or marriage event is a "failure" and the covariate coefficients are interpreted as effects on the "hazard" of failure. Respondents are censored at the last person-year observation if they do not experience a birth or marriage event. A positive coefficient can be interpreted as an increase in the risk of birth or marriage in a period, translating this into an earlier first birth or marriage.

Variables

The analysis uses two measures of family formation: the timing of first marriage and the timing of first birth, both originally reported by the respondent. The event history analysis results include trajectories reflecting the transition to first marriage and parenthood during the years following first college enrollment for young adults with and without accumulated student loan debt. The key independent variable reflects the cumulative amount of student loan debt that the respondent reported still owing. In each of the annual waves of the NLSY97, for each term that respondents enrolled in higher education, they were asked, "Other than assistance you received from relatives and friends, how much did you borrow in government-subsidized loans or other types of loans while you attended this school/institution?" Respondents were then asked how much is still owed at that survey wave on each loan. I use this amount-still owed as my measure of debt because it depicts an overall measure of school debt accumulated across the college years so far, excluding debt that has already been repaid. All loans that a respondent still owes each year are summed; this approximates a total amount of student loans still owed as of that year while enrolled. Because no questions allowed for

adjusting to debt still owed past college completion[16], the amount of student loan debt still owed when last enrolled is carried forward until a respondent exits the sample. In the multivariate analyses, I use several measures of debt: whether an individual had any student loan debt, the log of summed student loan debt still owed, and categorical amounts of student loan debt still owed.

I include both fixed and time-varying covariates in the discrete-time analysis. Fixed covariates include race/ethnicity, defined as non-Hispanic and non-Black (i.e., mostly non-Hispanic white), non-Hispanic black, and Hispanic; and the respondent's parents' education reflecting the highest level obtained by either parent (less than high school, high school graduate or GED, some college but no four-year degree, and bachelor's degree or higher). Additionally, I include measures of parental income and parental net household worth at baseline (collected from parents during the wave one interview). Parental income is the sum of the primary residential parent's income (typically mother) and the primary residential parent's spouse's/partner's income (if a partner/spouse is present) in 1996[17]. Both are measures of income from wages, salary, commissions, and tips from all jobs before deductions or taxes. If the primary parent or partner of parent reports that they did not receive any income, then their contribution to the combined parental income is 0. If the parent or parent's partner reports an estimated income rather than a dollar amount, then I assign a dollar amount to the midpoint of the

[16] Respondents are issued a series of questions about assets and debts at about age 25 (ages 24-28), however, this measure is not directly comparable with the measure of student loan debt still owed that I constructed.

[17] Household income is reported in the survey year of 1997 and refers to household income in the last year. One limitation of the NLSY97 measure of parental income is that it is only measured at the baseline interview in 1997. It is well-established that a parental income averaged over multiple years is more strongly associated with intergenerational mobility outcomes than a single-year measure (e.g., Lee & Solon, 2009). Nonetheless, the age at which parental income is measured in the NLSY97 is a strength. When parental income is measured during a child's school-going years (ages 6-17), it is more strongly associated with college attendance than when measured at earlier or later ages (Mazumder & Davis, 2013).

estimate. For example, if a parent reports that they received income in the range of $10,000 to $25,000, I assign a value of $17,500 to that parent. If their partner reports that they received no income, or if there is no other parent present, then the parental income for that household is $17,500. On the other hand, if the parent's partner reports a specific income, for example, $30,000, then the parental income for that household is $47,500. After parental income is determined, I assign respondents to income quartiles based on the parental income distribution of the respondents in the sample. I then classify the quartiles into three categories: the lowest quartile represents men and women from a low-parental income background, the two middle quartiles represent women from a middle-parental income background, and the highest quartile represents women from a high-parental income background.

Parental net household worth is the net worth of the household reported by the main parent respondent as of the 1997 wave of the NLSY97 (round 1). Wealth ranges from -$935,251 to $600,000[18]. Using the same method as with parental income, I first assign NLSY97 respondents to parental worth quartiles. After assigning respondents to parental worth quartiles, I then assign respondents from low-parental worth backgrounds to the low-worth category. Men and women whose parental worth level is within the middle two categories are assigned to the middle-parental worth background category. Finally, respondents whose parental net household worth is in the highest quartile are assigned to the high-parental worth category.

Time-varying covariates include geographic region of residence (Northeast, North Central, South and West); metropolitan residence (versus non-metropolitan); enrollment

[18] The net worth of household variable was top-coded at $600,000.

status (a dummy variable coded to equal 1 if a respondent is currently enrolled in undergraduate or graduate school); college graduation (coded to equal 1 in the year that a respondent graduates from college and remains equal to 1 for each year thereafter); and finally, logged annual earnings. I control for respondent's annual earnings because respondents with higher earnings should be able to pay off their student loans more quickly than those with lower earnings. On the other hand, students who work more than 20 hours per week are more likely to drop out (Dwyer, McCloud, and Hodson 2012), which may curb the accumulation of additional debt. In alternative models, controlling for earnings does not substantively affect the relationship between the amount of student loan debt owed and the timing of first marriage and first birth.

Results

By definition, respondents who never attended college have not accumulated any college student loan debt. For this reason, this analysis is limited to respondents who have ever attended college. Figures 4.1a and 4.1b show the total amount of student loan debt accumulated by the men and women of the NLSY97 cohort as they age between 19 and 31. The median student loan debt levels are lagged by one year, thus they represent the amount of student loan debt owed in the previous year. Figure 1a presents the median amount of student loan debt by age among those who were unmarried at age 18, and Figure 1b presents the median amount of student loan debt by age among those who were childless at age 18. In both figures, the cumulative amount of student loan debt still owed increases with age. Women have somewhat higher debt than men at all ages except for at the tails of the distribution. At ages 19 and 20, childless and unmarried women have less or equal levels of median student loan debt relative to men. By age 31, men's amount of student loan debt still owed surpasses that of women.

[Insert figures 1a and 1b about here]

Next, I present cumulative probability curves representing the timing of first marriage (Figures 4.2a and 4.2b) and first birth (Figures 4.3a and 4.3b) separately for women (4.2a, 4.3a) and men (4.2b, 4.3b), comparing the timing of family formation for those who ever had student loan debt relative to those who have never had student loan debt. Considering first marriage timing (Figure 4.2a), women who ever had student loan debt are consistently less likely to marry at each age. The difference between women who ever had any debt ranges from as little as 1 percentage point less likely to marry at age 19 to 14 percentage points less likely to marry at age 23, and between 7 and 12 percentage points less likely to marry after age 23. Men (Figure 4.2b) who never had any debt are much more similar to men who have had debt. At ages 19 and 31, there is no difference in the percentage of men who have married by whether or not they have ever had any student loan debt. At all other ages, men who ever had any debt are 1 to 7 percentage points less likely to marry compared to men with no debt.

[Insert Figures 4.2a and 4.2b about here]

The differences in birth timing by loan debt status are larger than for marriage timing (see Figures 4.2a and 4.2b). This is true for both women (Figure 4.3a) and men (Figure 4.3b), though similarly to the cumulative probability of first marriage, the difference between those who never had debt versus those who have had debt in cumulative probability of first birth is larger for women than for men. The cumulative percentage of women experiencing a first birth is as much as 20 percentage points higher for women who never had debt for women (at age 26), whereas the largest difference

between debtors and non-debtors for men is that men at ages 25 and 30 are 9 percentage points more likely to have had a first birth if they never had any debt.

[Insert figures 4.3a and 4.3b about here]

To examine the correlates of family formation more fully, Table 1 shows characteristics for the full sample of men and women who have attended college and who were unmarried at the time they first enrolled in college. These men and women are, on average, 20 years old, they are predominantly white and were living in metropolitan areas. Among the women, 7% were cohabiting when they first enrolled in college, and 8% were already parents by that time. The women's parents were relatively well-educated: 38% had a parent with at least a bachelor's degree, and an additional 29% had a parent who had attended college without completing a 4-year degree. Only 6% of women's parents had less than a high school degree. Among the men, 4% were cohabiting at first enrollment and 3% were already parents. Similar to the women, their parents were well-educated: 45% of men had a parent with at least a bachelor's degree, and only 6% of men's parents had less than a high school education. The patterns for childless men and women look very similar and are not shown here. The main difference is that the sample of childless adults includes ever married individuals: about 4% of women and 3% of men had ever been married by the time they first enrolled in college.

[Insert table 4.1 about here]

In order to see the net association of these covariates with loan debt, Tables 4.2a, 4.2b, 4.3a, and 4.3b present multivariate hazard models predicting the timing of first marriage and first birth, respectively, for men (4.2b, 4.3b) and women (4.2a, 4.3a). I

examine the following four specifications of student loan debt: 1) a model with a dummy variable indicating whether the respondent owed any student loan debt in the previous year, 2) a model with the logged cumulative amount of student loan debt still owed in the previous year; 3) a model with both an indicator for whether the respondent had any debt in the previous year as well as the logged cumulative amount of student loan debt still owed in the previous year, and 4) a model with a series of dummy variables indicating amount of student loan debt still owed in the previous year ($1 to $4,999, $5,000 to $9,999, $10,000 to $14,999, $15,000 to $19,999 and $20,000 or more).

In Table 4.2a (women), model 1, having owed any student loan debt in the previous year is associated with a decrease in the hazard of first marriage; this is significant ($p < .05$) level. The debt specifications in model 2 (logged amount of loan debt still owed) is also significantly associated with a decreased hazard of first marriage in the next year. The specification in model 3 (logged amount of loan debt still owed and an indicator for any debt) are not significantly associated with first marriage hazard. In model 4, I examine the amount of student loan debt still owed in the previous year by level still owed. Those who owe between $1 and $4,999 and between $10,000 and $14,999 in student loan debt are less likely to marry in the next year than are those with no debt. At no level of debt of $15,000 or above, however, is debt a significant predictor of marriage. In all four models, non-Hispanic Black women are less likely to marry compared to non-Hispanic White women. Having cohabited in the previous year increases the hazard of marriage, as do log earnings and having graduated from college prior to the current year.

[Insert Table 4.2a about here]

I replicate these models for men and present them in table 4.2b. Only one specification of student loan debt, level of student loan debt owed in the previous year, is significantly associated with first marriage timing for men. Those who owe between $1 and $4,999 and between $10,000 and $14,999 have a lower hazard of marrying in the first year. Similar to women, non-Hispanic Black men are less likely to marry compared to non-Hispanic White men. Having cohabited in the previous year increases the hazard of marriage, as do higher logged earnings, and having graduated college prior to the current year.

[Insert Table 4.2b about here]

The hazard results of experiencing a first birth for men and women are presented in Tables 4.3a and 4.3b. The results from model 1 in Table 4.3a show that women with any debt in the previous year have a significantly lower hazard of first birth. Likewise, as logged debt in the previous year increases, women's hazard of first birth decreases. In model 4, one of the debt categories is marginally associated with a decrease in birth hazard. There is limited evidence that owing between $5,000 and $9,999 is associated with a decrease in birth hazard. Women whose parents have a bachelor's degree or higher had significantly lower hazards of first birth relative to women whose parents had less than a high school education. Furthermore, the magnitude of the coefficient for parents with a bachelor's degree or higher was much larger than the coefficients for parents with high school degrees or some college. Finally, women from middle and high parental net worth backgrounds have significantly lower hazards of first birth compared to women from low parental net worth backgrounds.

[Insert Table 4.3a about here]

I replicate these models for men, and I find no statistically significant relationship between any of the student loan debt specifications and hazard of first birth. Across all models, non-Hispanic Black and Hispanic men have an increased hazard of first birth relative to non-Hispanic White men. Furthermore, men who were college graduates prior to the current year have significantly lower hazards of first birth in the models controlling for any amount of debt and level of debt, and those who were enrolled in higher education in the previous year also have significantly lower hazards of first birth.

Discussion and Conclusions

This study examined the relationship between student loan debt and the timing of first marriage and first birth. Using data on women and men from the NLSY97 cohort, I examined the timing of first marriage and first birth of women and men at different debt levels after they first enrolled in college. These results highlight a number of interesting findings. First, owing any student loan debt is significantly associated with later first marriage and first birth timing for women but not for men. This result is consistent with bivariate results; the cumulative probability curves for the transition to first marriage and first birth showed that differences by debt status were much greater for women than for men. The multivariate results reveal similarly gendered patterns. However, only at lower levels of accumulated student debt is the hazard of family formation (marriage and first birth) lowered.

These findings corroborate previous findings on the gendered nature of student loan debt. A previous study examining a broader definition of debt (credit card debt in addition to government and private loan debt) has shown that women with educational debt are less likely to marry in a given year (Addo, 2013). Furthermore, just as I find that

student loan debt has non-significant effects on men's first marriage and first birth timing, Addo finds that educational debt is a significant predictor for women's risk of marriage, but not for men. Thus, student loan debt is one mechanism through which inequality may be perpetuated for both genders. Women who are able to complete college without a lot of debt are seemingly in a more advantaged position on the marriage market. Women who accrue a lot of debt may opt instead for cohabitation, as evidenced by Addo's findings.

The fact that student loan debt is not associated with the family building patterns of men may be driven by two factors. First, the NLSY97 cohort is still relatively young. Because men experience first marriages and first births later than women, it was less likely to have observed these transitions among men. Their later transitions also give men more time to reduce their debt burden before making family formation decisions. A second potential explanation may be related to men's being more likely to drop out of college at lower levels of student loan debt compared to women (Dwyer, Hodson, et al., 2012). If men have lower levels of student loan debt overall, then student loan debt may be less influential on their family formation decisions.

That student loan debt is associated with the family building patterns of women only at low levels of debt is also unexpected. It may be that owing low levels of student loan debt is correlated with other factors not controlled for in this analysis. Perhaps women with low levels of debt are more likely to drop out of college (explaining their low levels of debt) and are also more likely to delay family formation (perhaps for the same reason that they did not complete college). One suggested future research direction

is to explore whether student loan debt differentially impacts family formation for college completers compared to those who drop out prior to obtaining a four-year degree.

Another interesting result is that the effect of debt on both marriage and birth timing for women is not mitigated by the addition of own earnings to the models. For men, the effect of student loan debt remains non-significant even when earnings are not included in the models. Furthermore, though earnings was not a focal independent variable, these results provide evidence that earnings are important in determining the timing of first marriage; this is not surprising given the positive association of men's and women's earnings on marriage decisions (Sweeney 2002).

This analysis is limited by both data and theoretical constraints. Because decisions about schooling, the assumption of debt, and family formation are likely to be interrelated for many young adults, it is difficult to draw unambiguous, causal implications from this work. Unfortunately, the measure of student loan debt employed in this analysis is only reported during the years in which respondents attended college, so do not have annual measures of how much student loan debt is still owed after college-attending years. Respondents do report on how much educational debt that they have when they are asked about assets at ages 25 and age 30. Future work could examine measures of debt burden reported at ages 25 and 30 in addition to the cumulative amount of student acquired while enrolled in college.

The findings in this paper provide additional insight into the decisions young adults make regarding the timing of first marriage and first birth. The finding that student loan debt is only significantly associated with women's timing of first marriage and first birth, but not men's, suggests that student loan debt may be a greater burden for women

than for men. Though they are postponing marriage and birth, I do not interpret these results as evidence that women with student loan debt are forgoing marriage or childbearing. Rather, I consider student loan debt as another, less-examined part of the story on the relationship between educational attainment and postponed family formation.

Chapter Five: Summary and Conclusion

Summary

The three papers presented here examine the role of parental resources and financial constraints, in particular student loan debt, on two primary stages of the transition to adulthood: educational attainment and family formation. The analyses within the papers provide a comprehensive analysis of ways in which parental resources facilitate educational progression and family formation, as well as the ways in which student loan debt and limited access to parental resources may negatively affect educational progression while encouraging early first birth timing. All three papers use longitudinal data from the 1997 National Longitudinal Survey of Youth (NLSY97).

In the first substantive chapter, I consider the role of parental resources on the educational progression of young adults (both men and women). I find that parental net worth, in particular, is positively associated with high school graduation, four-year college attendance, and four-year college completion. Furthermore, after controlling for parental income and net household worth, non-Hispanic Black and Hispanic students are more likely to graduate from high school and to enroll in college, yet remain less likely to graduate from college. The relationship between parental resources and educational transitions diminishes with successive transitions. Accordingly, parental income and worth are not significantly associated with entrance into professional or graduate school for men or women.

One limitation of my analysis of parental resources on educational progression is that I restricted the definitions of college attendance and college completion to include four-year college only. In recent years, attendance at public two-year and for-profit two

year schools has increased (College Board, 2012) and student financing issues in two-year colleges are also highly relevant in contemporary policy debates (TICAS, 2014a). Further investigation including students who attend two-year college into analyses of educational progression is likely to be illuminating and raises issues especially with respect to loans and graduation. According to the Chronicle of Higher Education's College Completion Guide (2014), the public two-year college graduation rate is substantially lower than the graduation rate of four-year public colleges. Because students who attend two-year colleges tend to come from low-income backgrounds (e.g., Minnesota Office of Higher Education, 2008), I speculate that including two-year college attenders into the analysis may result in an even stronger association of parental resources on college completion.

In the second substantive chapter, I focus on the next stage of the life course after educational progression: family formation. I examine the relationship between parental resources (income and net household worth) and the timing of young women's first birth. My results show that parental resources are inversely related to first birth timing, wherein women from middle-resource families were found to have a lower likelihood of first birth through the mid-20s and women from high-resources families were found to have substantially lower likelihood of having a first birth by age 30/31. Additionally, I investigate whether earlier first births of Black and Hispanic women than of non-Hispanic White women can be accounted for by differences in parental resources. I find that greater and earlier incidence of Hispanic women's first birth is entirely explained by differences in parental resources and other sociodemographic characteristics. Differences in family socioeconomic background explain the higher likelihood of first births in teen

years, and most of the higher likelihood of first births in the 20s, among Black women. Nonetheless, parental resources are independently and substantively significantly significant in their association with first birth timing.

In the final substantive chapter, I examine the relationship between student loan debt and the timing of first marriage and first birth during the transition to adulthood for both men and women. I find that student loan debt is associated with later transitions to marriage and first birth, for both women and men, but that only for women does a statistically significant association remain after controlling for income, family background, and other socio-demographic characteristics, and even then only at low levels of debt. I find evidence for a positive effect of own earnings on the timing of first marriage, but not first birth, for both men and women.

Again, there are limitations in my analyses. Subsequent work examining the relationship between student loan debt and family formation might benefit by distinguishing between those who complete college relative to those who drop out. Future work may also place more focus on the type of institution attended (two-year vs. four-year schools and public vs. private institutions). The type of school may be particularly important in an examination of debt accumulation given that in some states, as many as 20% of community college students lack access to federal student loans (TICAS, 2014a).

Looking across the three substantive chapters, parental resources, particularly parental net worth, have their strongest impacts on educational progression, and somewhat less influence on family formation timing. Though young women from high-resource parental backgrounds exhibit later first birth timing than low- and middle-resource women, the magnitude of the effect of parental resources on educational

progression is stronger than for first birth timing. Finally, though not the focal independent variable of the analysis, I find evidence of a negative association between parental resources and first birth timing among women who ever attended college. As a whole, these results provide additional evidence that parental advantage is transmitted to children through their parents, so that those children from more privileged backgrounds have more advantages in life compared to their peers from less-privileged backgrounds (Lareau, 2003). This relationship is observed among the general young adult population as well as those who attended college only.

The NLSY97 data provide a rich source of information during the transition to adulthood for a current cohort of young adults. Because NLSY97 respondents are interviewed annually, I was able to observe individuals complete each educational transition and the timing of two focal family formation events: timing of first marriage and timing of first birth. The NLSY97 also allow for a comprehensive definition of parental resources, as NLSY97 individuals' parents provided information on their own earnings, their partner's earnings, and household net worth.

Because the data in this dissertation are longitudinal in nature, I was able to establish a chronological order between predictor variables and educational and family formation outcomes of interest. Nonetheless, because I did not employ explicitly causal designs in my analytical methodology, the conclusions drawn cannot be considered causal. Rather, my methodological approaches allow for a better understanding of the associations between parental resources and educational transitions or first birth or the relationship between student loan debt and family formation and how these differ between major sociodemographic groups in the United States.

Table 2.1. Parental Resources and Sociodemographic Characteristics of Young Men and Women at Risk of, and Experiencing, Four Educational Progressions, 1997-2011

		Conditional on Completing Previous Level of Education			
	% of Total Eligible Sample[a]	% Graduating High School	% Attending College[b]	% Graduating College[c]	% Attending Professional or Graduate[d]
Parental Income[e]					
Low Income	19.8	81.1	34.3	59.3	29.9
Middle Income	49.3	91.0	44.2	63.8	31.0
High Income	30.9	97.7	68.3	77.5	32.0
Parental Household Net Worth[f]					
Low Worth	19.6	80.8	30.7	48.6	38.4
Middle Worth	49.4	91.1	44.1	62.0	31.9
High Worth	31.0	97.7	70.2	80.4	30.4
Parents' Education (Highest Level among Residential Parents)					
Less than High School	13.5	76.5	22.0	45.4	22.9
High School Graduate	30.4	88.9	34.6	55.1	31.6
Some College	27.8	93.1	50.1	64.9	28.5
College Graduate	14.9	98.5	71.3	78.2	30.7
Professional/Graduate	13.4	98.8	82.2	82.6	35.3
Household Structure					
No Other Children < 18	23.5	91.6	54.2	70.4	31.1
Two Children < 18	39.6	92.9	52.8	72.2	28.7
Three or more Children < 18	36.8	88.9	45.3	66.9	35.7
Total number siblings (residential & non-residential)					
No siblings	15.9	90.6	49.5	67.2	36.2
One sibling	40.2	92.7	55.3	71.6	28.9
Two siblings	27.3	91.2	49.2	70.9	31.2
Three or more siblings	16.6	87.6	41.0	65.3	37.4

Table 2.1 Continued

		Conditional on Completing Previous Level of Education			
	% of Sample	% Graduating High School	% Attending College	% Graduating College	% Attending Professional / Graduate
Lived with Both Biological Parents at Age 2	49.5	95.7	60.7	76.3	29.5
Did Not Live with Both Biological Parents at Age 2	50.5	86.6	39.3	57.7	36.6
Race/Ethnicity					
Non-Hispanic White	73.5	92.6	53.9	73.8	30.6
Non-Hispanic Black	14.0	88.1	42.1	53.1	38.2
Hispanic	12.5	85.9	37.8	53.4	33.5
Men	51.1	90.1	45.8	66.0	28.5
Women	48.9	92.2	55.1	73.4	33.7
Sample N	5,960	5,960	5,336	1,757	1,093

Note: Percentages are weighted; sample counts are unweighted

Source: NLSY97, Waves 1-15

[a] Followed until at least age 18

[b] Eligible sample graduated from high school and was followed until at least age 18

[c] Eligible sample attended college and was followed at least three years after year of first college attendance

[d] Eligible sample graduated college and was followed until the final, 2011 wave

[e] Individuals are assigned to income quartiles according to the distribution of the NLSY97 population and then grouped into low-income (lowest quartile), middle-income (middle two quartiles), and high-income (highest quartile)

[f] Individuals are assigned to parental net household worth quartiles according to the distribution of the NLSY97 population and then grouped into low-worth (lowest quartile), middle-worth (middle two quartiles), and high-worth (highest quartile)

Table 2.2. Joint Distribution of Parental Net Household Worth by Parental Income, Men and Women, 1997

	Low Worth	Middle Worth	High Worth
Low Income	10.2	8.7	0.7
Middle Income	7.3	31.0	11.1
High Income	2.3	9.6	19.1
Sample N	1,491	2,978	1,491

Note: Percentages are weighted
Source: NLSY97, Wave 1

Table 2.3. Logistic Regression for High School Graduation, College Enrollment, College Graduation, and Enrollment in Professional or Graduate School by Parental Resources and Sociodemographic Resources, Men and Women Ages 16-32‡

	High School Graduation				4-Year College Enrollment				4-Year College Graduation				Enroll in Professional/Grad			
	Coefficient	Odds Ratio	P-Value		Coefficient	Odds Ratio	P-Value		Coefficient	Odds Ratio	P-Value		Coefficient	Odds Ratio	P-Value	
Intercept	0.842		<.001	***	-1.310		<.001	***	-0.092		0.763		-1.052		0.023	*
Parental Income (ref: low income)																
Middle Income	0.401	1.49	<.001	***	0.128	1.14	0.153		0.137	1.15	0.414		-0.005	1.00	0.984	
High Income	0.997	2.71	<.001	***	0.381	1.46	0.001	***	0.220	1.25	0.247		0.194	1.21	0.437	
Household Worth (ref: low worth)																
Middle Worth	0.317	1.37	0.004	**	0.180	1.20	0.047	*	0.186	1.20	0.316		-0.193	0.82	0.477	
High Worth	0.917	2.50	<.001	***	0.673	1.96	<.001	***	0.692	2.00	0.001	**	-0.283	0.75	0.332	
Parents' Education (Highest Level among Residential Parents, ref: Less than High School)																
High School Graduate	0.527	1.69	<.001	***	0.351	1.42	0.001	**	-0.042	0.96	0.858		0.713	2.04	0.074	†
Some College	0.930	2.53	<.001	***	0.868	2.38	<.001	***	0.326	1.39	0.169		0.655	1.92	0.097	†
College Graduate	2.172	8.78	<.001	***	1.610	5.00	<.001	***	0.790	2.20	0.002	**	0.839	2.31	0.035	*
Professional/Graduate	2.069	7.92	<.001	***	2.192	8.95	<.001	***	0.999	2.72	<.001	***	1.011	2.75	0.012	*
Household Structure (ref: no other children < 18 in HH)																
Two Children < 18	0.106	1.11	0.563		-0.247	0.78	0.031	*	-0.129	0.88	0.514		0.178	1.20	0.439	
Three or more Children < 18	-0.087	0.92	0.686		-0.181	0.83	0.217		-0.390	0.68	0.137		0.627	1.87	0.055	†
Total number siblings (residential & non-residential, ref: none)																
One sibling	0.048	1.05	0.810		0.312	1.37	0.014	*	0.130	1.14	0.581		-0.283	0.75	0.295	
Two siblings	0.021	1.02	0.928		0.030	1.03	0.845		0.240	1.27	0.414		-0.547	0.58	0.118	
Three or more siblings	-0.064	0.94	0.798		-0.060	0.94	0.735		0.198	1.22	0.538		-0.405	0.67	0.315	

Table 2.3 Continued

	High School Graduation				4-Year College Enrollment				4-Year College Graduation				Enroll in Professional/Grad			
	Coefficient	Odds	P-Value		Coefficient	Odds	P-Value		Coefficient	Odds	P-Value		Coefficient	Odds	P-Value	
Lived with Both Biological Parents at Age 2	0.526	1.69	<.001	***	0.369	1.45	<.001	***	0.404	1.50	0.002	**	-0.337	0.71	0.038	*
Male	-0.493	0.61	<.001	***	-0.548	0.58	<.001	***	-0.538	0.58	<.001	***	-0.359	0.70	0.009	**
Race/Ethnicity																
Non-Hispanic Black	0.389	1.48	0.001	**	0.291	1.34	0.001	***	-0.396	0.67	0.008	**	0.221	1.25	0.275	
Hispanic	0.023	1.02	0.853		0.068	1.07	0.456		-0.339	0.71	0.055	†	0.139	1.15	0.540	
Sample N	5,960				5,336				1,757				1,093			

† < .10, * < .05, ** < .01, *** < .001

‡ Only 8 respondents reach age 32

Source: NLSY97

Note: Standard errors are clustered at the household level; Regressions are unweighted; See Table 2.1 for description of sample eligibility criteria

Table 3.1. Sociodemographic Characteristics, Percentage of Sample Experiencing First Birth by Age 31, and Median Age at First Birth among Women with a First Birth, 1997-2011

	Percent of Sample	Percent Experiencing a Birth	Median Age among Those Experiencing a Birth
Non-Hispanic White	77.9	50.4	23
Non-Hispanic Black	13.3	65.6	21
Hispanic	8.8	61.2	21
Parental Income[a]			
Low Parental Income	19.6	67.6	21
Middle Parental Income	50.2	55.9	22
High Parental Income	30.2	40.3	24
Parental Net Household Worth[b]			
Low Household Worth	18.8	67.9	21
Middle Household Worth	50.0	57.7	22
High Household Worth	31.2	38.1	25
At Least One Residential Parent Foreign Born	7.3	50.6	22
Both Parents Born in the United States	92.7	53.7	22
Respondent Born in United States	97.3	53.4	22
Respondent Foreign Born	2.7	58.5	22
Highest level of Education among Residential Parents			
Less than High School	10.6	73.5	20
High School Graduate	31.0	59.2	22
Some College	29.4	56.6	23
Bachelor's Degree	15.7	42.7	25
Graduate Work	13.3	29.9	25
Mother's Median Age at First Birth	23.0	--	--
Total Number of Siblings (Residential & Non-residential)			
None	16.2	49.7	22
One	42.0	49.4	23
Two	27.1	54.0	23
Three or more	14.7	68.6	21

Table 3.1. Continued

	Percent of Sample	Percent Experiencing a Birth	Median Age among Those Experiencing a Birth
Lived with Both Biological Parents at Age 12	50.0	44.2	24
Did Not Live with Both Biological Parents at Age 12	50.0	62.4	22
Household Structure (Number of Kids under 18 in HH)			
One (respondent only)	23.9	48.7	23
Two	41.4	50.4	23
Three or more	34.8	59.9	22
Sample N	2,351	1,320	

Source: NLSY97, Waves 1-15

Note: Percentages are weighted. Sample consists of all NLSY97 women who had not given birth by the first, 1997 wave and had complete data at the 1997 wave

[a] Individuals are assigned to income quartiles according to the distribution of the NLSY97 population and then grouped into low-income (lowest quartile), middle-income (middle two quartiles), and high-income (highest quartile)

[b] Individuals are assigned to parental net household worth quartiles according to the distribution of the NLSY97 population and then grouped into low-worth (lowest quartile), middle-worth (middle two quartiles), and high-worth (highest quartile)

Table 3.2. Logistic Regression of Annual First Birth Hazard by Parental Resources and Sociodemographic Characteristics, Women Ages 16-32‡, 1997-2011

	Main Effects Model				Main Effects with Parental Resources				Model with Interactions			
	Coefficient	S.E.[a]	O.R.[a]	P value	Coefficient	S.E.[a]	O.R.[a]	P value	Coefficient	S.E.	O.R.	P value
Intercept	-2.217	0.279		<.001 ***	-2.262	0.281		<.001 ***	-2.236	0.324		<.001 ***
Parental Income (ref: low income)												
Middle Income	--				-0.138	0.083	0.871	0.094 †	-0.109	0.079	1.083	0.170
High Income	--				-0.237	0.110	0.789	0.032 *	-0.226	0.111	1.118	0.042 *
Household Worth (ref: low worth)												
Middle Worth	--				-0.012	0.082	0.988	0.881	-0.056	0.189	1.208	0.767
High Worth	--				-0.298	0.112	0.742	0.008 **	-0.790	0.321	1.379	0.014 *
Parents' Education (Highest Level among Residential Parents, ref: Less than High School)												
High School Graduate	-0.207	0.106	0.813	0.051 †	-0.153	0.110	0.858	0.164	-0.125	0.225	1.252	0.579
Some College	-0.303	0.106	0.739	0.004 **	-0.219	0.111	0.804	0.049 *	-0.417	0.251	1.285	0.096 †
College Graduate	-0.527	0.132	0.591	<.001 ***	-0.402	0.137	0.669	0.003 **	-0.905	0.392	1.480	0.021 *
Graduate Work	-0.917	0.152	0.400	<.001 ***	-0.760	0.156	0.468	0.000 ***	-1.200	0.522	1.686	0.022 *
Family Background												
Lived with Both Biological Parents at Age 12	-0.340	0.068	0.712	<.001 ***	-0.238	0.072	0.788	<.001 ***	-0.239	0.072	1.074	<.001 ***
At Least One Parent Foreign Born	-0.055	0.151	0.946	0.714	-0.039	0.152	0.962	0.796	-0.049	0.152	1.165	0.750
Respondent Born in the United States	-0.167	0.201	0.846	0.408	-0.135	0.202	0.873	0.502	-0.097	0.194	1.214	0.618
Mother's Age at First Birth	-0.051	0.008	0.950	<.001 ***	-0.046	0.008	0.955	0.000 ***	-0.047	0.008	1.008	0.000 ***
Household Structure (ref: no other children < 18 in HH)												
Two Children < 18	0.078	0.115	1.081	0.497	0.063	0.117	1.065	0.589	0.104	0.115	1.122	0.368
Three or more Children < 18	0.074	0.150	1.077	0.622	0.060	0.152	1.062	0.694	0.100	0.150	1.162	0.505

Table 3.2 Continued

	Coefficient	S.E.	O.R.	P value	Coefficient	S.E.	O.R.	P value	Coefficient	S.E.	O.R.	P value
Total number siblings (residential & non-residential, ref: none)												
One sibling	-0.070	0.132	0.932	0.594	-0.055	0.133	0.947	0.683	-0.085	0.131	1.139	0.513
Two siblings	0.009	0.162	1.009	0.957	0.017	0.164	1.017	0.918	-0.034	0.161	1.174	0.831
Three or more siblings	0.306	0.179	1.358	0.087 †	0.304	0.180	1.355	0.092 †	0.236	0.177	1.193	0.181
Age and Birth Cohort												
Age (Scaled)	0.350	0.027	1.419	<.001 ***	0.350	0.027	1.419	<.001 ***	0.486	0.094	1.099	<.001 ***
Age Squared	-0.019	0.002	0.981	<.001 ***	-0.019	0.002	0.981	<.001 ***	-0.040	0.009	1.009	<.001 ***
Race/Ethnicity												
Black	0.101	0.078	1.107	0.194	0.033	0.080	1.033	0.683	-0.078	0.195	1.216	0.691
Hispanic	0.042	0.100	1.043	0.678	-0.025	0.103	0.975	0.805	0.036	0.235	1.265	0.877
Age*Resource Interactions												
Age*Middle Worth	--				--				0.012	0.070	1.073	0.859
Age*High Worth	--				--				-0.023	0.097	1.102	0.812
Age Squared*Middle Worth	--				--				-0.001	0.006	1.006	0.898
Age Squared*High Worth	--				--				0.009	0.007	1.007	0.198
Age*High School Graduate	--				--				-0.132	0.095	1.099	0.164
Age*Parents Some College	--				--				-0.089	0.099	1.104	0.369
Age*Parents Bachelors	--				--				-0.106	0.130	1.139	0.419
Age*Parents Post Gaduate	--				--				-0.135	0.154	1.167	0.382
Age Squared*High School Graduate	--				--				0.018	0.009	1.009	0.040 *
Age Squared*Parents Some College	--				--				0.017	0.009	1.009	0.052 †
Age Squared*Parents Bachelors	--				--				0.023	0.011	1.011	0.028 *
Age Squared*Parents Post Gaduate	--				--				0.025	0.012	1.012	0.028 *

Table 3.2 Continued

	Coefficient	S.E.	O.R.	P value	Coefficient	S.E.	O.R.	P value	Coefficient	S.E.	O.R.	P value
Age*Race/Ethnicity Interactions												
Age*Black	--				--				0.129	0.074	1.076	0.080 †
Age Squared*Black	--				--				-0.014	0.006	1.006	0.019 *
Age*Hispanic	--				--				0.013	0.081	1.085	0.873
Age Squared*Hispanic	--				--				-0.003	0.006	1.006	0.692
Person Count	2,351				2,351				2,351			
Person-Year Count	22,117				22,117				22,117			
AIC	9,501				9,501				9,394			
BIC	9,677				9,677				9,698			

† < .10, * < .05, ** < .01, *** < .001

‡ Only two respondents reach age 32

Source: NLSY97, Waves 1-15

Note: Standard errors are clustered at the household level; Regressions are unweighted; See Table 3.1 for sample eligibility criteria

a S.E. = Standard Error; O.R. = Odds Ratio

Table 4.1. Sample Characteristics for Unmarried Men and Women at First Enrollment in College

	Women	Men
Age	19.9	20.2
Race/Ethnicity		
White	75.7	78.7
Black	14.3	10.6
Hispanic	10.0	10.6
Marital Status		
Cohabiting	6.8	4.6
Parent	8.1	3.1
Parents' Education		
Less than High School	6.3	5.5
High School Degree	26.1	21.6
Some College	29.3	28.4
Bachelor's +	38.3	44.4
Region		
Northeast	18.2	17.8
North Central	27.3	31.2
South	32.8	28.9
West	21.6	22.1
Metropolitan Area		
Metropolitan	82.7	82.7
Non-metropolitan	17.1	17.0
Parental Resources		
Low Income	18.8	38.0
Middle Income	50.7	49.0
High Income	30.6	45.0
Low Worth	17.3	37.9
Middle Worth	50.5	49.0
High Worth	32.2	45.4
N	2,320	1,430

Source: NLSY97, Waves 1-15

Note: Percentages are weighted

Table 4.2a. Discrete Time First Marriage Hazard Ceofficients and P-Values for the Effect of Cumulative Amount of Student Loan Debt Owed Women Ages 19-31

	Model 1			Model 2			Model 3			Model 4		
	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.
Intercept	-3.674	<.001	***	-3.681	<.001	***	-3.669	<.001	***	-3.660	<.001	***
Any Debt[a]	-0.213	0.018	*	--			-0.341	0.518		--		
Amount Still Owed[a,b]	--			-0.023	0.022	*	0.015	0.805		--		
Owe $1-$4,999[a]	--			--			--			-0.280	0.027	*
Owe $5,000-$9,999[a]	--			--			--			-0.062	0.649	
Owe $10,000-$14,999[a]	--			--			--			-0.370	0.036	*
Owe $15,000-$19,999[a]	--			--			--			-0.180	0.375	
Owe $20,000 or more[a]	--			--			--			-0.182	0.265	
Born in 1981	-0.199	0.118		-0.197	0.121		-0.200	0.116		-0.202	0.112	
Born in 1982	-0.145	0.257		-0.145	0.256		-0.145	0.257		-0.151	0.238	
Born in 1983	-0.229	0.086	†	-0.228	0.087	†	-0.229	0.085	†	-0.234	0.079	†
Born in 1984	-0.284	0.039	*	-0.283	0.040	*	-0.285	0.038	*	-0.294	0.033	*
Age (scaled)	0.184	0.001	**	0.184	0.001	**	0.184	0.001	**	0.181	0.001	**
Age (scaled and squared)	-0.016	<.001	***	-0.016	<.001	***	-0.016	<.001	***	-0.016	<.001	***
Non-Hispanic Black	-0.927	<.001	***	-0.929	<.001	***	-0.927	<.001	***	-0.923	<.001	***
Hispanic	-0.085	0.504		-0.086	0.500		-0.085	0.505		-0.078	0.540	
Parents High School or Less	-0.145	0.391		-0.142	0.401		-0.147	0.385		-0.153	0.365	
Parents Some College	-0.091	0.590		-0.089	0.599		-0.093	0.582		-0.099	0.560	
Parents Bachelor's Degree or More	-0.143	0.410		-0.142	0.415		-0.145	0.406		-0.153	0.380	
Metropolitan Area[a]	-0.373	0.012	*	-0.371	0.012	*	-0.374	0.012	*	-0.379	0.011	*
Region: South[a]	0.863	<.001	***	0.860	<.001	***	0.866	<.001	***	0.871	<.001	***
Region: West[a]	0.424	0.004	**	0.422	0.004	**	0.425	0.004	**	0.424	0.004	**
Region: North Central[a]	0.616	<.001	***	0.613	<.001	***	0.619	<.001	***	0.621	<.001	***

Table 4.2a. Continued

	Model 1			Model 2			Model 3			Model 4		
	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.
Parents[a]	0.111	0.335		0.111	0.335		0.112	0.332		0.117	0.312	
Cohabited[a]	1.536	<.001	***	1.536	<.001	***	1.536	<.001	***	1.540	<.001	***
Enrolled in College or Graduate/Professional School[a]	-0.145	0.127		-0.144	0.129		-0.146	0.125		-0.149	0.118	
Earnings[a,b]	0.041	0.005	**	0.041	0.005	**	0.041	0.005	**	0.042	0.005	**
College Graduate[a]	0.414	<.001	***	0.422	<.001	***	0.408	<.001	***	0.411	<.001	***
Middle Parental Income	0.210	0.081	†	0.209	0.083	†	0.210	0.081	†	0.204	0.090	†
High Parental Income	0.264	0.068	†	0.265	0.067	†	0.263	0.068	†	0.264	0.068	†
Middle Parental Worth	-0.146	0.241		-0.145	0.244		-0.147	0.237		-0.141	0.258	
High Parental Worth	-0.253	0.093	†	-0.254	0.092	†	-0.252	0.095	†	-0.247	0.102	
N (person-year count)	11,783											
N (person-level count)	1,725											

aVariable is lagged by one year

bVariable is logged

† p < .1, * p < . 05, ** p < .01, *** p < .001

Source: NLSY97

Note: Regressions are unweighted

Table 4.2b. Discrete Time First Marriage Hazard Ceofficients and P-Values for the Effect of Cumulative Amount of Student Loan Debt Owed Men Ages 19-31

	Model 1			Model 2			Model 3			Model 4		
	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.
Intercept	-5.223	<.001	***	-5.221	<.001	***	-5.225	<.001	***	-3.660	<.001	***
Any Debt[a]	0.092	0.383		--			0.310	0.621		--		
Amount Still Owed[a,b]	--			0.010	0.4237		-0.025	0.7243		--		
Owe $1-$4,999[a]	--			--			--			-0.280	0.0268	*
Owe $5,000-$9,999[a]	--			--			--			-0.062	0.649	
Owe $10,000-$14,999[a]	--			--			--			-0.370	0.0362	*
Owe $15,000-$19,999[a]	--			--			--			-0.180	0.3746	
Owe $20,000 or more[a]	--			--			--			-0.182	0.2652	
Born in 1981	0.076	0.602		0.078	0.594		0.073	0.619		-0.202	0.112	
Born in 1982	-0.056	0.714		-0.054	0.721		-0.059	0.699		-0.151	0.238	
Born in 1983	-0.157	0.315		-0.155	0.319		-0.159	0.308		-0.234	0.079	†
Born in 1984	-0.472	0.006	**	-0.471	0.006	**	-0.474	0.005	**	-0.294	0.033	*
Age (scaled)	0.298	<.001	***	0.298	<.001	***	0.298	<.001	***	0.181	0.001	**
Age (scaled and squared)	-0.020	<.001	***	-0.020	<.001	***	-0.020	<.001	***	-0.016	<.001	***
Non-Hispanic Black	-0.433	0.006	**	-0.433	0.006	**	-0.434	0.006	**	-0.923	0.000	***
Hispanic	-0.088	0.562		-0.090	0.556		-0.087	0.566		-0.078	0.540	
Parents High School or Less	-0.264	0.231		-0.264	0.231		-0.263	0.233		-0.153	0.365	
Parents Some College	-0.032	0.884		-0.033	0.882		-0.030	0.893		-0.099	0.560	
Parents Bachelor's Degree or More	-0.228	0.316		-0.228	0.317		-0.228	0.316		-0.153	0.380	
Metropolitan Area[a]	0.095	0.631		0.094	0.635		0.098	0.620		-0.379	0.011	*
Region: South[a]	0.427	0.009	**	0.428	0.009	**	0.423	0.010	**	0.871	<.001	***
Region: West[a]	0.261	0.130		0.260	0.132		0.261	0.131		0.424	0.004	**
Region: North Central[a]	0.416	0.012	*	0.417	0.012	*	0.414	0.012	*	0.621	<.001	***

Table 4.2b. Continued

	Model 1			Model 2			Model 3			Model 4		
	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.
Parents[a]	-0.042	0.796		-0.042	0.795		-0.044	0.787		0.117	0.312	
Cohabited[a]	1.821	<.001	***	1.820	<.001	***	1.821	<.001	***	1.540	<.001	***
Enrolled in College or Graduate/Professional School[a]	0.072	0.526		0.073	0.521		0.074	0.518		-0.149	0.118	
Earnings[a,b]	0.065	0.001	***	0.065	0.001	***	0.065	0.001	***	0.042	0.005	**
College Graduate[a]	0.245	0.060	†	0.243	0.065	†	0.256	0.056	†	0.411	<.001	***
Middle Parental Income	0.058	0.680		0.059	0.676		0.057	0.685		0.204	0.090	†
High Parental Income	-0.101	0.555		-0.102	0.554		-0.102	0.553		0.264	0.068	†
Middle Parental Worth	0.262	0.081	†	0.262	0.080	†	0.261	0.082	†	-0.141	0.258	
High Parental Worth	0.326	0.072	†	0.326	0.072	†	0.324	0.074	†	-0.247	0.102	
N (person-year count)	10,003											
N (person-level count)	1,430											

aVariable is lagged by one year
bVariable is logged
† p < .1, * p < . 05, ** p < .01, *** p < .001
Source: NLSY97
Note: Regressions are unweighted

Table 4.3a. Discrete Time First Birth Hazard Ceofficients and P-Values for the Effect of Cumulative Amount of Student Loan Debt Still Owed, Women Ages 19-31

	Model 1			Model 2			Model 3			Model 4		
	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.
Intercept	-2.932	<.001	***	-2.940	<.001	***	-2.927	<.001	***	-2.934	<.001	***
Any Debt[a]	-0.245	0.012	*	--			-0.377	0.510		--		
Amount Still Owed[a,b]	--			-0.027	0.015	*	0.015	0.815		--		
Owe $1-$4,999[a]	--			--			--			-0.184	0.172	
Owe $5,000-$9,999[a]	--			--			--			-0.271	0.071	†
Owe $10,000-$14,999[a]	--			--			--			-0.315	0.104	
Owe $15,000-$19,999[a]	--			--			--			-0.154	0.472	
Owe $20,000 or more[a]	--			--			--			-0.356	0.058	†
Born in 1981	0.042	0.757		0.044	0.748		0.041	0.764		0.043	0.752	
Born in 1982	0.010	0.941		0.009	0.950		0.011	0.936		0.008	0.954	
Born in 1983	0.000	0.998		-0.002	0.988		0.000	0.998		-0.010	0.948	
Born in 1984	-0.087	0.567		-0.088	0.561		-0.087	0.568		-0.090	0.553	
Age (scaled)	-0.050	0.399		-0.050	0.399		-0.051	0.394		-0.050	0.399	
Age (scaled and squared)	0.006	0.196		0.006	0.194		0.006	0.196		0.006	0.191	
Non-Hispanic Black	0.882	<.001	***	0.881	<.001	***	0.882	<.001	***	0.884	<.001	***
Hispanic	0.310	0.047	*	0.310	0.047	*	0.310	0.047	*	0.307	0.049	*
Parents High School or Less	0.019	0.928		0.020	0.921		0.017	0.934		0.016	0.938	
Parents Some College	0.081	0.694		0.083	0.689		0.080	0.699		0.080	0.698	
Parents Bachelor's Degree or More	-0.244	0.250		-0.244	0.250		-0.244	0.250		-0.248	0.243	
Metropolitan Area[a]	-0.190	0.241		-0.188	0.247		-0.191	0.238		-0.182	0.261	
Region: South[a]	0.239	0.099	†	0.236	0.104		0.242	0.096	†	0.229	0.114	
Region: West[a]	0.119	0.452		0.119	0.454		0.120	0.449		0.117	0.459	
Region: North Central[a]	0.222	0.145		0.218	0.152		0.224	0.141		0.216	0.156	

Table 4.3a. Continued

	Model 1			Model 2			Model 3			Model 4		
	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.
Partnered[a]	1.753	<.001	***	1.752	<.001	***	1.753	<.001	***	1.752	<.001	***
Earnings[a,b]	0.019	0.269		0.019	0.271		0.019	0.269		0.019	0.269	
College Graduate[a]	-0.226	0.051	†	-0.217	0.065	†	-0.233	0.052	†	-0.207	0.086	†
Enrolled in College or Graduate/Professional School[a]	-0.545	<.001	***	-0.544	<.001	***	-0.547	<.001	***	-0.545	<.001	***
Middle Parental Income	-0.032	0.794		-0.031	0.797		-0.032	0.793		-0.031	0.800	
High Parental Income	-0.179	0.242		-0.176	0.250		-0.181	0.238		-0.175	0.255	
Middle Parental Worth	-0.382	0.002	**	-0.382	0.002	**	-0.383	0.002	**	-0.382	0.002	**
High Parental Worth	-0.776	<.001	***	-0.778	<.001	***	-0.774	<.001	***	-0.785	<.001	***
N (person-year count)	11,050											
N (person-level count)	1,581											

aVariable is lagged by one year

bVariable is logged

† p < .1, * p < . 05, ** p < .01, *** p < .001

Source: NLSY97

Note: Regressions are unweighted

Table 4.3b. Discrete Time First Birth Hazard Ceofficients and P-Values for the Effect of Cumulative Amount of Student Loan Debt Still Owed, Men Ages 19-31

	Model 1			Model 2			Model 3			Model 4		
	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.
Intercept	-4.400	<.001	***	-4.399	<.001	***	-4.405	<.001	***	-4.407	<.001	***
Any Debt[a]	0.074	0.553		--			0.437	0.548		--		
Amount Still Owed[a,b]	--			0.007	0.618		-0.042	0.613		--		
Owe $1-$4,999[a]	--			--			--			0.152	0.360	
Owe $5,000-$9,999[a]	--			--			--			0.028	0.883	
Owe $10,000-$14,999[a]	--			--			--			-0.103	0.719	
Owe $15,000-$19,999[a]	--			--			--			-0.098	0.770	
Owe $20,000 or more[a]	--			--			--			0.155	0.494	
Born in 1981	-0.057	0.720		-0.056	0.722		-0.059	0.709		-0.058	0.716	
Born in 1982	-0.340	0.058	†	-0.340	0.058	†	-0.342	0.057	†	-0.351	0.051	†
Born in 1983	-0.044	0.805		-0.043	0.807		-0.047	0.793		-0.051	0.775	
Born in 1984	-0.533	0.008	**	-0.531	0.008	**	-0.533	0.008	**	-0.531	0.008	**
Age (scaled)	0.008	0.924		0.009	0.917		0.009	0.911		0.010	0.907	
Age (scaled and squared)	0.001	0.868		0.001	0.874		0.001	0.872		0.001	0.877	
Non-Hispanic Black	1.161	<.001	***	1.161	<.001	***	1.161	<.001	***	1.164	<.001	***
Hispanic	0.548	FALSE	**	0.546	FALSE	**	0.548	FALSE	**	0.548	FALSE	**
Parents High School or Less	0.058	0.829		0.059	0.826		0.059	0.826		0.065	0.811	
Parents Some College	0.253	0.353		0.255	0.350		0.256	0.348		0.253	0.353	
Parents Bachelor's Degree or More	-0.187	0.508		-0.186	0.512		-0.182	0.521		-0.184	0.517	
Metropolitan Area[a]	0.136	0.551		0.135	0.553		0.138	0.545		0.137	0.549	
Region: South[a]	-0.172	0.335		-0.172	0.336		-0.177	0.323		-0.172	0.337	
Region: West[a]	-0.151	0.431		-0.153	0.427		-0.152	0.429		-0.142	0.459	
Region: North Central[a]	-0.005	0.976		-0.004	0.983		-0.010	0.954		0.000	0.998	

Table 4.3b. Continued

	Model 1			Model 2			Model 3			Model 4		
	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.	Coeff	P-value	Sig.
Partnered[a]	2.410	<.001	***	2.409	<.001	***	2.410	<.001	***	2.409	<.001	***
Earnings[a,b]	0.015	0.490		0.015	0.491		0.015	0.496		0.015	0.498	
College Graduate[a]	-0.431	0.004	**	-0.430	0.004	**	-0.417	0.006	**	-0.419	0.007	**
Enrolled in College or Graduate/Professional School[a]	-0.318	0.017	*	-0.316	0.018	*	-0.315	0.018	*	-0.317	0.017	*
Middle Parental Income	-0.097	0.552		-0.097	0.555		-0.098	0.550		-0.099	0.545	
High Parental Income	0.169	0.401		0.168	0.403		0.168	0.401		0.171	0.396	
Middle Parental Worth	0.043	0.796		0.043	0.793		0.040	0.806		0.037	0.822	
High Parental Worth	-0.075	0.710		-0.076	0.707		-0.083	0.682		-0.086	0.672	
N (person-year count)	10,219											
N (person-level count)	1,405											

aVariable is lagged by one year

bVariable is logged

† p < .1, * p < . 05, ** p < .01, *** p < .001

Source: NLSY97

Note: Regressions are unweighted

Appendix Table A2.1. Logistic Regression for High School Graduation, College Enrollment, College Graduation, and Enrollment in Professional/Graduate School by Parental Resources and Sociodemographic Resources, Women Ages 16-32‡

	High School Graduation			4-Year College Enrollment			4-Year College Graduation			Enroll in Professional/Grad		
	Coefficient	Odds	P-Value	Coefficient	Odds	P-Value	Coefficient	Odds	P-Value	Coefficient	Odds	P-Value
Intercept	0.590		0.017 *	-1.287		<.001 ***	0.130		0.754	-1.347		0.016 *
Parental Income (ref: low income)												
Middle Income	0.624	1.87	<.001	0.147	1.16	0.230	0.090	1.09	0.694	0.136	1.15	0.648
High Income	0.703	2.02	0.021 *	0.402	1.50	0.011 *	0.109	1.11	0.682	0.326	1.38	0.308
Household Worth (ref: low worth)												
Middle Worth	0.346	1.41	0.049 *	0.218	1.24	0.073 †	0.060	1.06	0.814	-0.418	0.66	0.204
High Worth	1.010	2.75	0.004 **	0.667	1.95	<.001 ***	0.610	1.84	0.047 *	-0.343	0.71	0.343
Parents' Education (Highest Level among Residential Parents, ref: Less than High School)												
High School Graduate	0.416	1.52	0.018 *	0.339	1.40	0.018 *	0.008	1.01	0.980	0.957	2.60	0.044 *
Some College	0.984	2.68	<.001 ***	0.782	2.19	<.001 ***	0.323	1.38	0.311	0.845	2.33	0.076 †
College Graduate	2.643	14.05	<.001 ***	1.560	4.76	<.001 ***	0.640	1.90	0.065 †	1.163	3.20	0.016 *
Professional/Graduate	2.060	7.85	<.001 ***	2.059	7.84	<.001 ***	1.028	2.79	0.006 **	1.312	3.71	0.007 **
Household Structure (ref: no other children < 18 in HH)												
Two Children < 18	0.014	1.01	0.957	-0.192	0.83	0.222	-0.326	0.72	0.255	0.024	1.02	0.938
Three or more Children < 18	-0.047	0.95	0.879	-0.164	0.85	0.398	-0.510	0.60	0.138	0.299	1.35	0.479
Total number siblings (residential & non-residential, ref: none)												
One sibling	0.025	1.02	0.933	0.142	1.15	0.414	0.165	1.18	0.622	-0.008	0.99	0.982
Two siblings	-0.113	0.89	0.741	-0.163	0.85	0.438	0.214	1.24	0.589	-0.077	0.93	0.863
Three or more siblings	-0.037	0.96	0.917	-0.203	0.82	0.386	0.074	1.08	0.860	-0.094	0.91	0.856

Appendix Table A2.1 Continued

	High School Graduation				4-Year College Enrollment				4-Year College Graduation				Enroll in Professional/Grad			
	Coefficient	Odds	P-Value		Coefficient	Odds	P-Value		Coefficient	Odds	P-Value		Coefficient	Odds	P-Value	
Lived with Both Biological Parents at Age 2	0.690	1.99	<.001	***	0.505	1.66	<.001	***	0.482	1.62	0.009	**	-0.637	0.53	0.002	**
Race/Ethnicity																
Non-Hispanic Black	0.728	2.07	<.001	***	0.441	1.55	<.001	***	-0.338	0.71	0.084	†	0.624	1.87	0.012	*
Hispanic	0.283	1.33	0.133		0.042	1.04	0.738		-0.264	0.77	0.273		0.512	1.67	0.088	†
Sample N	2,915				2,665				963				628			

† < .10, * < .05, ** < .01, *** < .001

‡ Only 4 respondents reach age 32

Source: NLSY97

Note: Standard errors are clustered at the household level; Regressions are unweighted; See Table 2.1 for description of sample eligibility criteria

Appendix Table A2.2. Logistic Regression for High School Graduation, College Enrollment, College Graduation, and Enrollment in Professional/Graduate School by Parental Resources and Sociodemographic Resources, Men Ages 16-32‡

	High School Graduation				4-Year College Enrollment				4-Year College Graduation				Enroll in Professional/Grad			
	Coefficient	Odds	P-Value		Coefficient	Odds	P-Value		Coefficient	Odds	P-Value		Coefficient	Odds	P-Value	
Intercept	0.596		0.006	**	-1.859		<.001		-0.819		0.067	†	-0.905		0.299	
Parental Income (ref: low income)																
Middle Income	0.284	1.33	0.040	*	0.119	1.13	0.356		0.083	1.09	0.753		-0.382	0.68	0.381	
High Income	1.286	3.62	<.001	***	0.304	1.36	0.054	†	0.179	1.20	0.537		-0.241	0.79	0.569	
Household Worth (ref: low worth)																
Middle Worth	0.251	1.29	0.077	†	0.102	1.11	0.443		0.406	1.50	0.161		0.117	1.12	0.821	
High Worth	0.857	2.36	0.002	**	0.710	2.03	<.001		0.902	2.46	0.004	**	-0.044	0.96	0.933	
Parents' Education (Highest Level among Residential Parents, ref: Less than High School)																
High School Graduate	0.595	1.81	<.001	***	0.354	1.42	0.035	*	-0.136	0.87	0.720		0.425	1.53	0.561	
Some College	0.889	2.43	<.001	***	0.970	2.64	<.001	***	0.306	1.36	0.426		0.484	1.62	0.493	
College Graduate	1.948	7.01	<.001	***	1.684	5.39	<.001	***	0.944	2.57	0.017	*	0.529	1.70	0.458	
Graduate Work	2.044	7.72	<.001	***	2.323	10.21	<.001	***	0.973	2.64	0.018	*	0.675	1.96	0.344	
Household Structure (ref: no other children < 18 in HH)																
Two Children < 18	0.211	1.23	0.403		-0.300	0.74	0.069	†	0.082	1.09	0.775		0.303	1.35	0.438	
Three or more Children < 18	-0.055	0.95	0.855		-0.185	0.83	0.399		-0.322	0.72	0.444		1.002	2.72	0.058	†
Total number siblings (residential & non-residential, ref: none)																
One sibling	0.008	1.01	0.975		0.484	1.62	0.010	**	0.112	1.12	0.747		-0.745	0.47	0.116	
Two siblings	0.046	1.05	0.888		0.210	1.23	0.367		0.333	1.39	0.469		-1.207	0.30	0.037	*
Three or more siblings	-0.157	0.85	0.648		0.044	1.05	0.869		0.378	1.46	0.462		-0.851	0.43	0.192	

Appendix Table A2.2 Continued

	High School Graduation				4-Year College Enrollment				4-Year College Graduation				Enroll in Professional/Grad			
	Coefficient	Odds	P-Value		Coefficient	Odds	P-Value		Coefficient	Odds	P-Value		Coefficient	Odds	P-Value	
Lived with Both Biological Parents at Age 2	0.407	1.50	0.006	**	0.230	1.26	0.025	*	0.286	1.33	0.138		0.095	1.10	0.731	
Race/Ethnicity																
Non-Hispanic Black	0.133	1.14	0.398		0.121	1.13	0.324		-0.488	0.61	0.043	*	-0.722	0.49	0.098	†
Hispanic	-0.184	0.83	0.260		0.107	1.11	0.414		-0.473	0.62	0.077	†	-0.440	0.64	0.276	
Sample N	3,045				2,671				794				465			

† < .10, * < .05, ** < .01, *** < .001

‡ Only 4 respondents reach age 32

Source: NLSY97

Note: Standard errors are clustered at the household level; Regressions are unweighted; See Table 2.1 for description of sample eligibility criteria

Appendix Table A2.3. Educational Progression Tables by Parental Income and Parental Net Worth, Women

	Low-Income, Low Worth			Middle-Income, Low Worth Life Table			High-Income, Low Worth Life Table		
	Conditional Progression Probability	"Survival" Probability	Completed Schooling Level Distribution	Conditional Progression Probability	"Survival" Probability	Completed Schooling Level Distribution	Conditional Progression Probability	"Survival" Probability	Completed Schooling Level Distribution
In high school		1.000	0.218		1.000	0.104		1.000	0.066
Graduate High School	0.782	0.782	0.554	0.896	0.896	0.552	0.934	0.934	0.394
Attend 4-year College	0.291	0.228	0.122	0.384	0.345	0.151	0.579	0.541	0.163
Complete 4-year College	0.464	0.106	0.106	0.561	0.193	0.193	0.699	0.378	0.378
	Low-Income, Middle Worth Life Table			Middle-Income, Middle Worth Life Table			High-Income, Middle Worth Life Table		
In high school		1.000	0.141		1.000	0.068		1.000	0.044
Graduate High School	0.859	0.859	0.520	0.932	0.932	0.491	0.956	0.956	0.359
Attend 4-year College	0.395	0.340	0.144	0.473	0.441	0.176	0.625	0.597	0.178
Complete 4-year College	0.575	0.195	0.195	0.600	0.265	0.265	0.703	0.420	0.420
	Low-Income, High Worth Life Table			Middle-Income, High Worth Life Table			High-Income, High Worth Life Table		
In high school		1.000	0.036		1.000	0.027		1.000	0.016
Graduate High School	0.964	0.964	0.325	0.973	0.973	0.346	0.984	0.984	0.214
Attend 4-year College	0.663	0.639	0.111	0.645	0.627	0.123	0.783	0.770	0.125
Complete 4-year College	0.826	0.528	0.528	0.805	0.505	0.505	0.838	0.645	0.645

Source: NLSY97, Waves 1-15

Note: Conditional progression probability is predicted from the regressions of Table 2.1

Appendix Table A2.4. Educational Progression Tables by Parental Income and Parental Net Worth, Men

	Low-Income, Low Worth			Middle-Income, Low Worth Life Table			High-Income, Low Worth Life Table		
	Conditional Progression Probability	"Survival" Probability	Completed Schooling Level Distribution	Conditional Progression Probability	"Survival" Probability	Completed Schooling Level Distribution	Conditional Progression Probability	"Survival" Probability	Completed Schooling Level Distribution
In high school		1.000	0.280		1.000	0.181		1.000	0.042
Graduate High School	0.720	0.720	0.567	0.819	0.819	0.581	0.958	0.958	0.452
Attend 4-year College	0.213	0.153	0.109	0.290	0.238	0.148	0.528	0.506	0.245
Complete 4-year College	0.287	0.044	0.044	0.379	0.090	0.090	0.516	0.261	0.261
	Low-Income, Middle Worth Life Table			Middle-Income, Middle Worth Life Table			High-Income, Middle Worth Life Table		
In high school		1.000	0.189		1.000	0.116		1.000	0.030
Graduate High School	0.811	0.811	0.588	0.884	0.884	0.568	0.970	0.970	0.488
Attend 4-year College	0.276	0.224	0.135	0.357	0.316	0.151	0.497	0.482	0.176
Complete 4-year College	0.395	0.088	0.088	0.521	0.165	0.165	0.635	0.306	0.306
	Low-Income, High Worth Life Table			Middle-Income, High Worth Life Table			High-Income, High Worth Life Table		
In high school		1.000	0.063		1.000	0.054		1.000	0.011
Graduate High School	0.94	0.937	0.412	0.946	0.946	0.424	0.989	0.989	0.274
Attend 4-year College	0.560	0.525	0.151	0.552	0.522	0.150	0.723	0.715	0.154
Complete 4-year College	0.713	0.375	0.375	0.713	0.373	0.373	0.785	0.561	0.561

Source: NLSY97, Waves 1-15

Note: Conditional progression probability is predicted from the regressions of Table 2.1

Appendix Table A2.5. Observed Educational Progression Tables by Race/Ethnicity, Men and Women

	Women				Men			
	Conditional Progression Probability	"Survival" Probability	Completed Schooling Level Distribution	Sample N	Conditional Progression Probability	"Survival" Probability	Completed Schooling Level Distribution	Sample N
	Non-Hispanic White							
Enrolled in High School		1.000	0.070	1,580		1.000	0.078	1,697
Graduated High School	0.930	0.930	0.389	1,468	0.922	0.922	0.463	1,565
Enrolled in College	0.582	0.542	0.125	853	0.497	0.459	0.137	777
Graduated College	0.770	0.417	0.417	474	0.702	0.322	0.322	396
	Non-Hispanic Black							
Enrolled in High School		1.000	0.089	721		1.000	0.148	722
Graduated High School	0.911	0.911	0.459	657	0.852	0.852	0.559	607
Enrolled in College	0.496	0.452	0.185	314	0.343	0.292	0.164	197
Graduated College	0.591	0.267	0.267	116	0.438	0.128	0.128	55
	Hispanic							
Enrolled in High School		1.000	0.113	614		1.000	0.166	626
Graduated High School	0.887	0.887	0.516	540	0.834	0.834	0.550	499
Enrolled in College	0.418	0.371	0.153	218	0.340	0.283	0.151	164
Graduated College	0.586	0.218	0.218	80	0.465	0.132	0.132	44

Source: NLSY97, Waves 1-15

Note: Conditional progression probability is estimated by the weighted sample population.

Appendix Table A3.1. AIC and BIC Model Fit Statistics for Multivariate Logistic Regressions Predicting First Birth among Non-Hispanic White, Non-Hispanic Black, and Hispanic Women, Ages 16 to 32‡

	Model 1[1]	Model 2[2]	Model 3[3]	Model 4[4]	Model [5]	Model 6[6]	Model 7[7]
AIC	9414.7	9410.4 **	9422.3	9431.2	9433.2	9420.7	9411.2 *
BIC	9782.9	9746.5 **	9758.4 *	9735.4 *	9705.4 *	9772.9 *	9763.3 *

* Indicates improved model fit; smaller AIC or BIC indicates better model fit.

** Indicates the best-fitting model with consideration to both AIC and BIC

‡ Only two respondents reach age 32

[1] Model interactions include age and age squared interacted with parental income, parental net worth, parental education, non-Hispanic Black, and Hispanic indicators

[2] Model interactions include all those listed in Model 1 except age and age squared with parental income

[3] Model interactions include all those listed in Model 1 except age and age squared with parental worth

[4] Model interactions include all those listed in Model 1 except age and age squared with parental education

[5] Model interactions include all those listed in Model 1 except age and age squared with parental education and age and age squared with parental income

[6] Model interactions include all those listed in Model 1 except age and age squared with the non-Hispanic

[7] Model interactions include all those listed in Model 1 except age and age squared with the Hispanic indicator

Note: All regression standard errors are adjusted for clustering at the household level; regressions are unweighted

Appendix Table A3.2. Logistic Regression Annual First Birth Hazard by Parental Resources and Sociodemographic Characteristics, Women Ages 16-32‡

	Black			Hispanic			Non-Hispanic White		
	Coefficient	S.E.	P value	Coefficient	S.E.	P value	Coefficient	S.E.	P value
Intercept	-2.240	0.881	0.011 *	-3.635	0.631	<.001 ***	-2.768	0.711	<.001 ***
Parental Income (ref: low income)									
Middle Income	-0.138	0.138	0.315	-0.189	0.173	0.275	-0.153	0.113	0.175
High Income	-0.200	0.295	0.497	-0.433	0.304	0.154	-0.245	0.139	0.078 †
Household Worth (ref: low worth)									
Middle Worth	-0.347	0.359	0.334	1.134	0.490	0.021 *	-0.300	0.339	0.376
High Worth	-1.027	1.104	0.353	0.077	1.050	0.942	-1.007	0.475	0.034 *
Family Background									
Lived with Both Biological Parents at Age 12	-0.269	0.170	0.114	-0.356	0.168	0.034 *	-0.200	0.088	0.023 *
At Least One Parent Foreign Born	-0.486	0.435	0.264	-0.020	0.220	0.929	-0.055	0.244	0.820
Respondent Born in the United States	-0.223	0.749	0.766	-0.320	0.246	0.192	0.750	0.520	0.149
Mother's Age at First Birth	-0.041	0.014	0.005 **	0.007	0.018	0.703	-0.066	0.011	<.001 ***
Household Structure (ref: no other children < 18 in HH)									
Two Children < 18	-0.090	0.218	0.678	-0.227	0.299	0.447	0.232	0.149	0.120
Three or more Children < 18	0.001	0.255	0.998	0.220	0.323	0.497	0.052	0.192	0.788
Total number siblings (residential & non-residential, ref: none)									
One sibling	0.229	0.240	0.341	-0.108	0.340	0.752	-0.201	0.169	0.233
Two siblings	0.348	0.282	0.217	-0.121	0.363	0.739	-0.117	0.205	0.568
Three or more siblings	0.563	0.303	0.063 †	0.195	0.386	0.614	0.166	0.228	0.467
Parents' Education (Highest Level among Residential Parents, ref: Less than High School)									
High School Graduate	-0.203	0.413	0.622	-0.224	0.548	0.683	0.164	0.457	0.719
Some College	-0.526	0.501	0.294	-1.236	0.685	0.071 †	0.002	0.471	0.996
College Graduate	-0.345	0.901	0.702	0.348	1.005	0.729	-1.065	0.658	0.106
Graduate Work	-4.073	2.879	0.157	0.323	1.007	0.748	-0.898	0.743	0.227

Appendix Table A3.2 continued

	Black			Hispanic			Non-Hispanic White		
	Coefficient	S.E.	P value	Coefficient	S.E.	P value	Coefficient	S.E.	P value
Age									
Age (Scaled)	0.387	0.131	0.003 **	0.631	0.142	<.001 ***	0.796	0.181	<.001 ***
Age Squared	-0.033	0.011	0.003 **	-0.045	0.011	<.001 ***	-0.077	0.017	<.001 ***
Interactions									
Age*Middle Worth	0.153	0.132	0.247	-0.234	0.170	0.168	-0.007	0.116	0.954
Age*High Worth	0.305	0.347	0.378	0.160	0.351	0.648	-0.066	0.141	0.639
Age Squared*Middle Worth	-0.012	0.011	0.271	0.014	0.013	0.294	-0.284	0.219	0.194
Age Squared*High Worth	-0.021	0.025	0.415	-0.020	0.027	0.464	-0.383	0.239	0.109
Age*High School Graduate	0.028	0.160	0.859	-0.160	0.196	0.415	0.004	0.009	0.685
Age*Parents Some College	0.126	0.186	0.498	0.056	0.227	0.807	0.016	0.010	0.111
Age*Parents Bachelors	0.000	0.315	0.999	-0.399	0.373	0.285	-0.405	0.185	0.029 *
Age*Parents Post Gaduate	0.521	0.711	0.463	-0.522	0.314	0.096 †	-0.389	0.188	0.038 *
Age Squared*High School Graduate	0.003	0.014	0.818	0.017	0.016	0.268	0.051	0.017	0.003 **
Age Squared*Parents Some College	-0.003	0.016	0.841	0.005	0.017	0.764	0.052	0.017	0.003 **
Age Squared*Parents Bachelors	0.009	0.025	0.725	0.029	0.029	0.310	0.051	0.018	0.005 **
Age Squared*Parents Post Gaduate	-0.006	0.043	0.888	0.047	0.022	0.034 *	0.055	0.019	0.004 **
Person Count	581			348			1,422		
Person-Year Count	4,877			3,097			14,143		

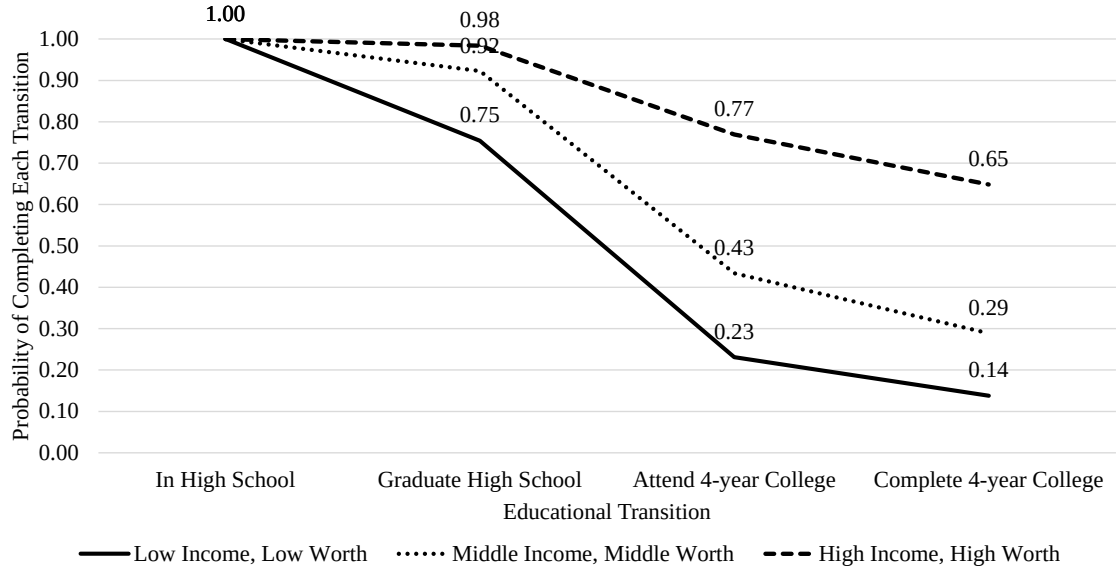
† < .10, * < .05, ** < .01, *** < .001

‡ Only two respondents reach age 32

Source: NLSY97, Waves 1-15

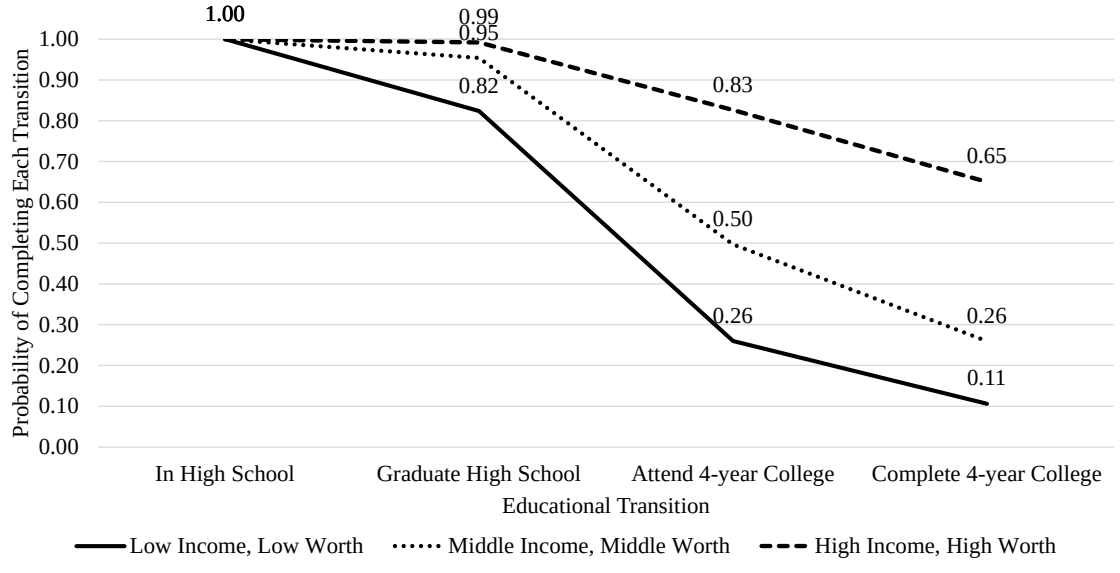
Note: Standard errors are clustered at the household level; Regressions are unweighted; See Table 3.1 for sample eligibility criteria

Figure 2.1. Educational Progression "Survival" Probability by Parental Net Worth and Parental Income, non-Hispanic White Women



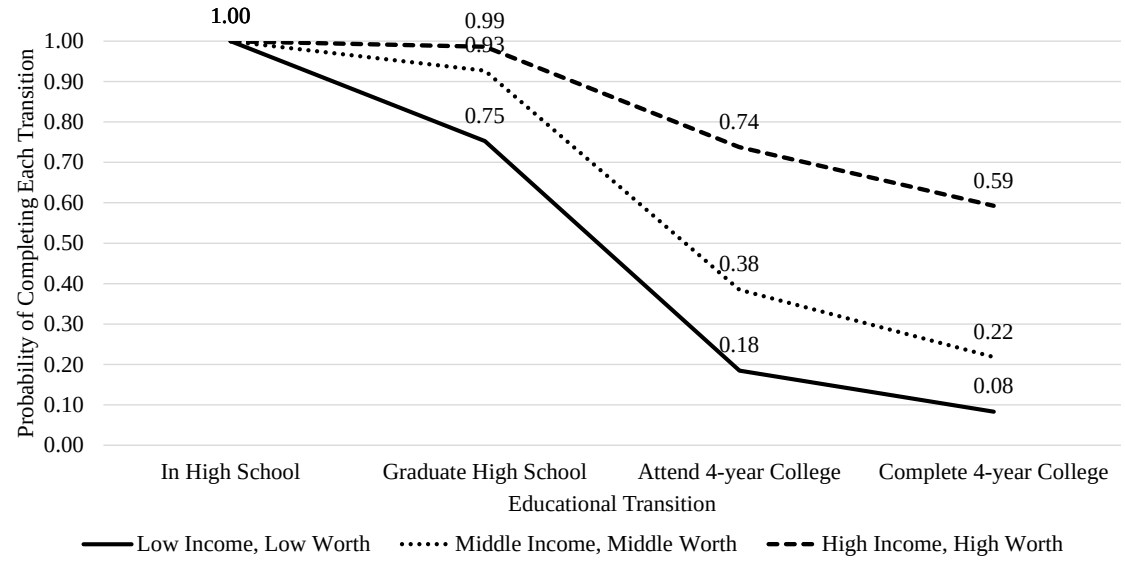
Source: NLSY97, Waves 1-15
Note: Figures 2.1 to 2.6 are generated from Appendix Tables A2.1 and A2.2 regression predicted probabilities

Figure 2.2. Educational Progression "Survival" Probability by Parental Net Worth and Parental Income, non-Hispanic Black Women



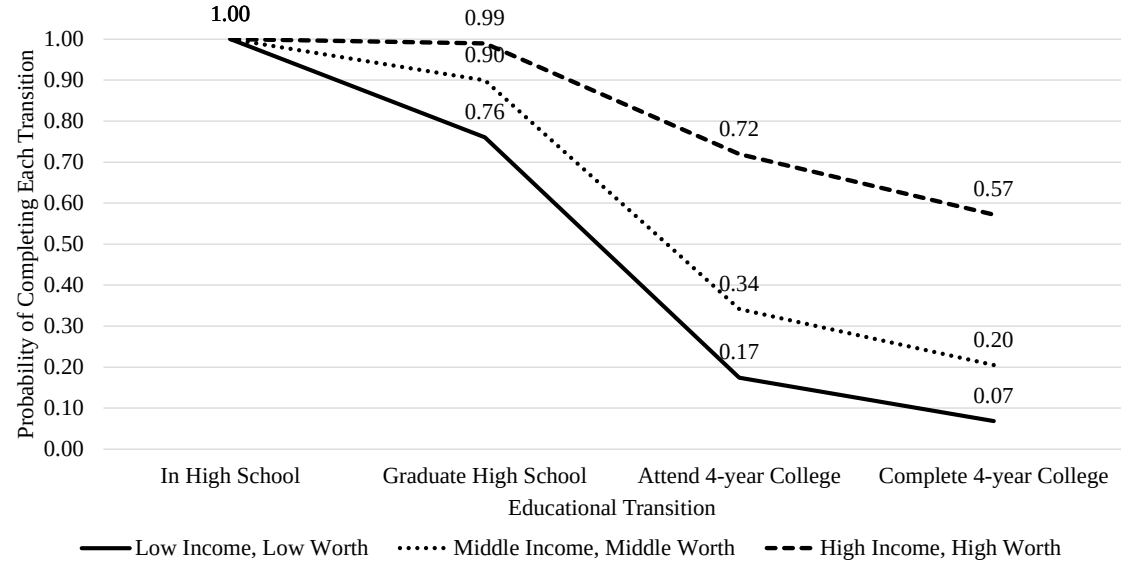
Source: NLSY97, Waves 1-15

Figure 2.3. Educational Progression "Survival" Probability by Parental Net Worth and Parental Income, Hispanic Women



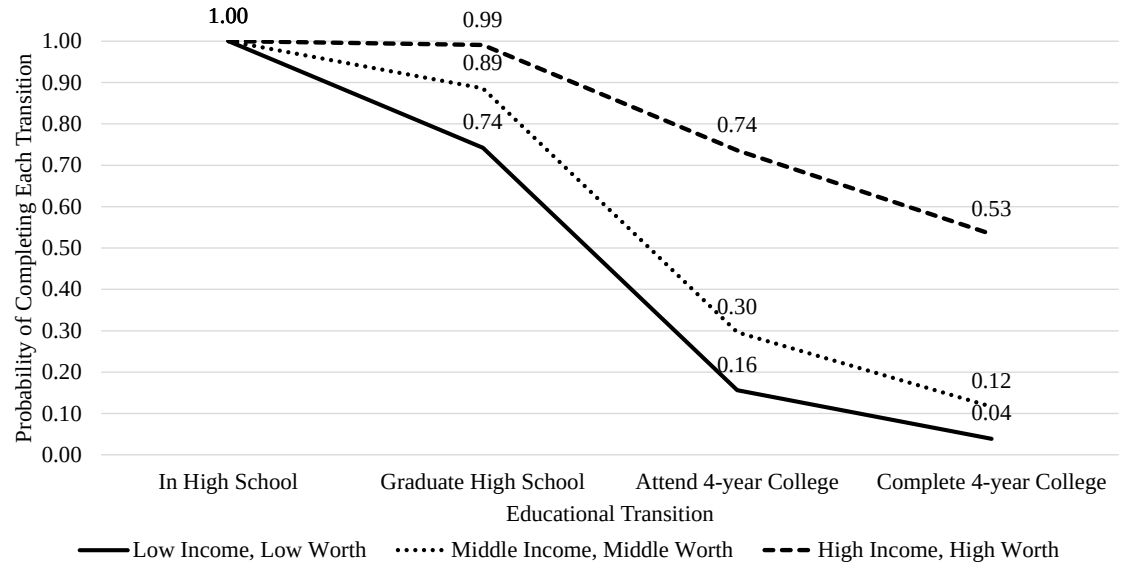
Source: NLSY97, Waves 1-15

Figure 2.4. Educational Progression "Survival" Probability by Parental Net Worth and Parental Income, non-Hispanic White Men



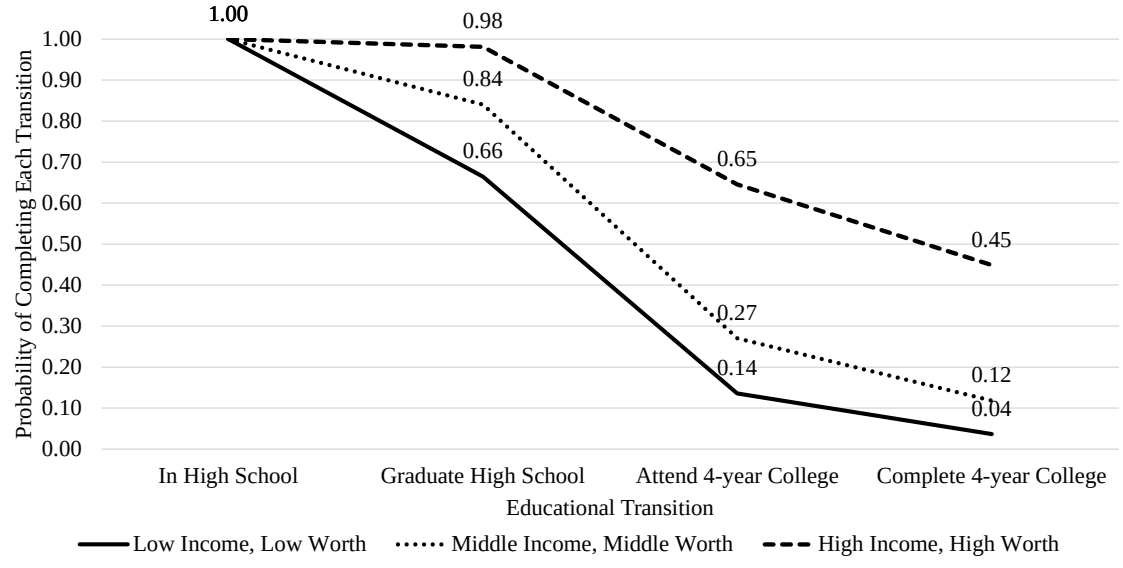
Source: NLSY97, Waves 1-15

Figure 2.5. Educational Progression "Survival" Probability by Parental Net Worth and Parental Income, non-Hispanic Black Men



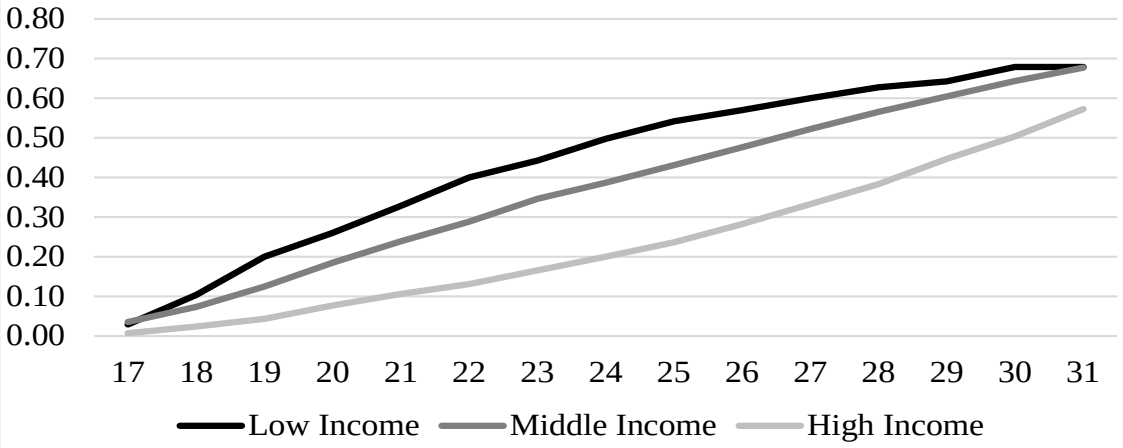
Source: NLSY97, Waves 1-15

Figure 2.6. Educational Progression "Survival" Probability by Parental Net Worth and Parental Income, Hispanic Men



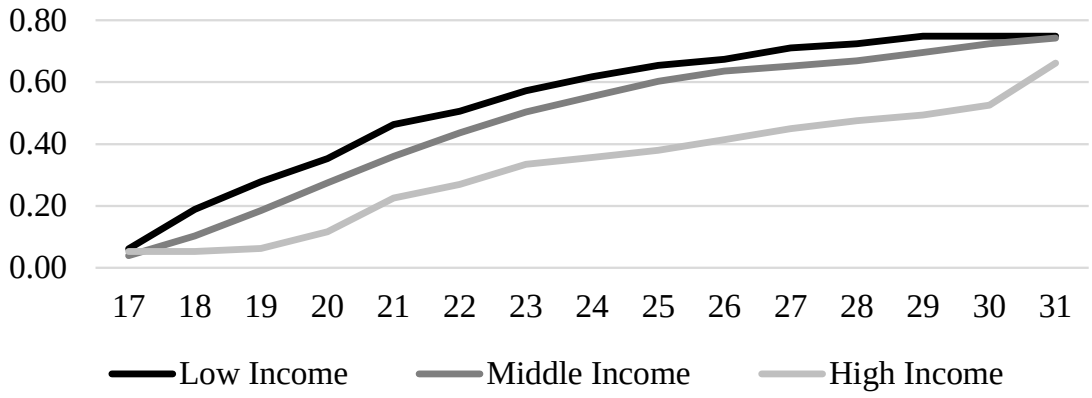
Source: NLSY97, Waves 1-15

Figure 3.1. Cumulative Probability of First Birth among Childless Women at Age 16 by Parental Income, non-Hispanic White, 1997-2011



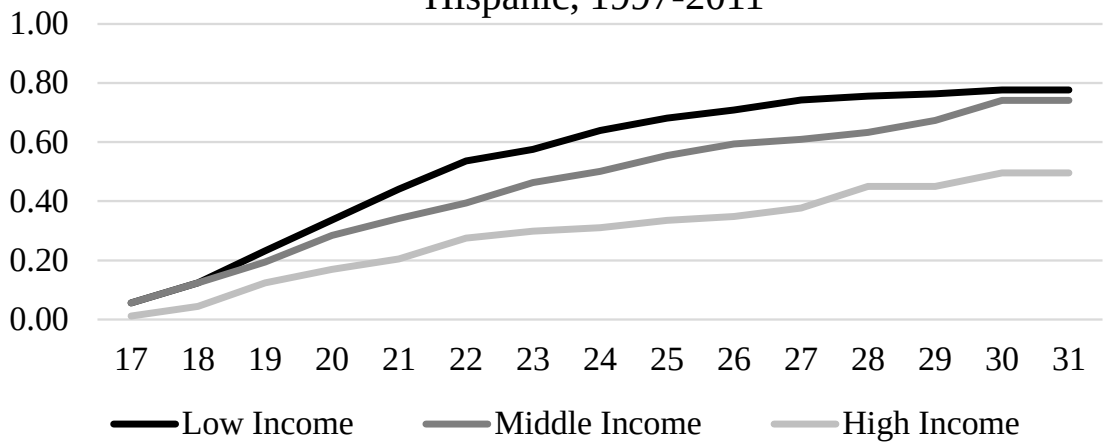
Source: NLSY97, Waves 1-15
Note: Figures 3.1 to 3.3 are derived from a first birth life table with annual first birth hazards equal to weighted sample proportions

Figure 3.2. Cumulative Probability of First Birth among Childless Women at Age 16 by Parental Income, non-Hispanic Black, 1997-2011



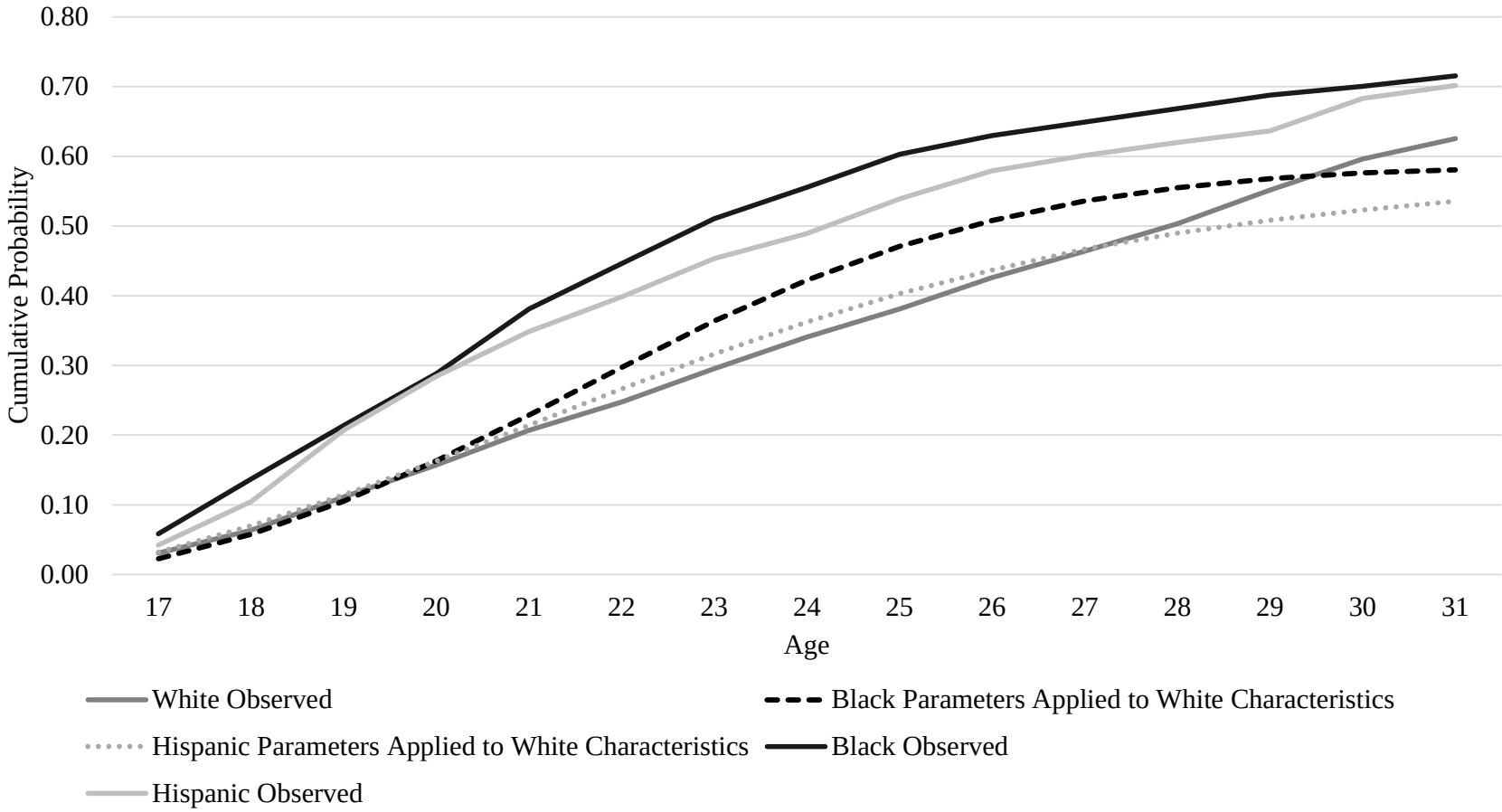
Source: NLSY97, Waves 1-15

Figure 3.3. Cumulative Probability of First Birth among Childless Women at Age 16 by Parental Income, Hispanic, 1997-2011



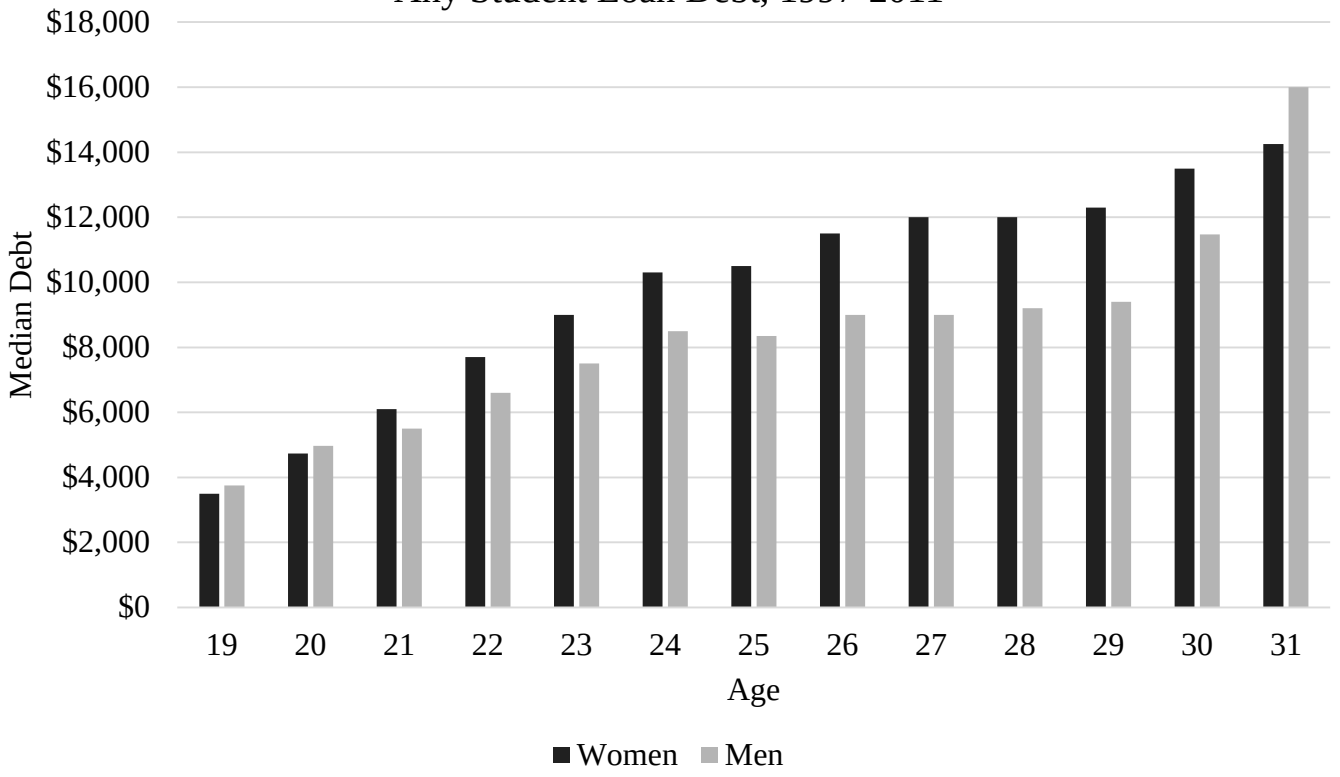
Source: NLSY97, Waves 1-15

Figure 3.4. Predicted Cumulative First Birth Probability: Black and Hispanic Regression Parameters Applied to White Women's Characteristics



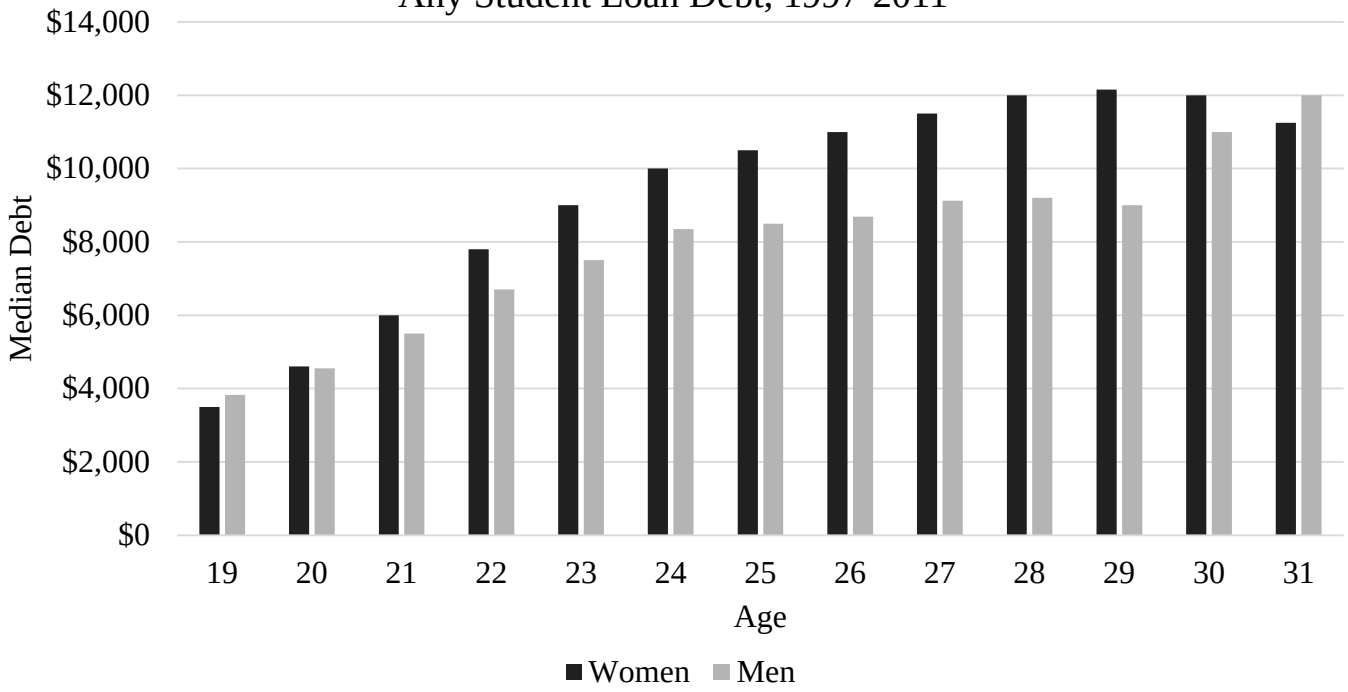
Source: NLSY97, Waves 1-15

Figure 4.1a. Median Debt Still Owed by Age: Childless at 18, with Any Student Loan Debt, 1997-2011



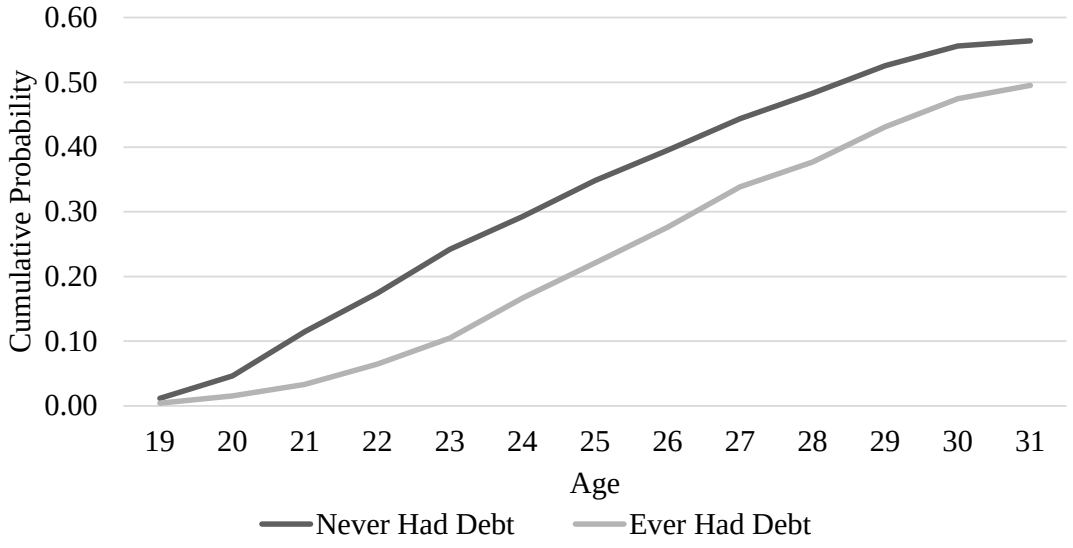
Source: NLSY97, Waves 1-15

Figure 4.1b. Median Debt Still Owed by Age: Unmarried at 18, with Any Student Loan Debt, 1997-2011



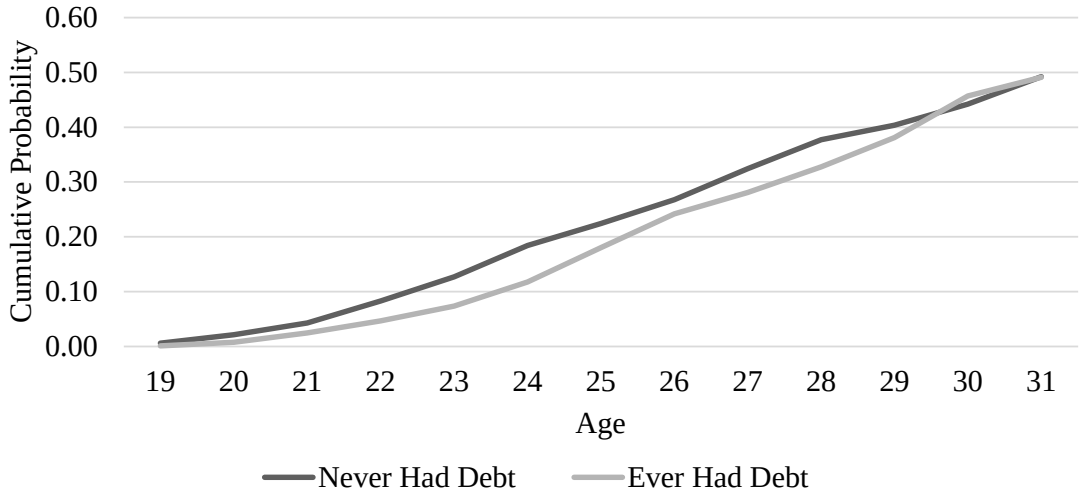
Source: NLSY97, Waves 1-15

Figure 4.2a. Cumulative Probability of First Marriage, by Whether Accrued Any Student Loan Debt, All Women Who Attended College, 1997-2011



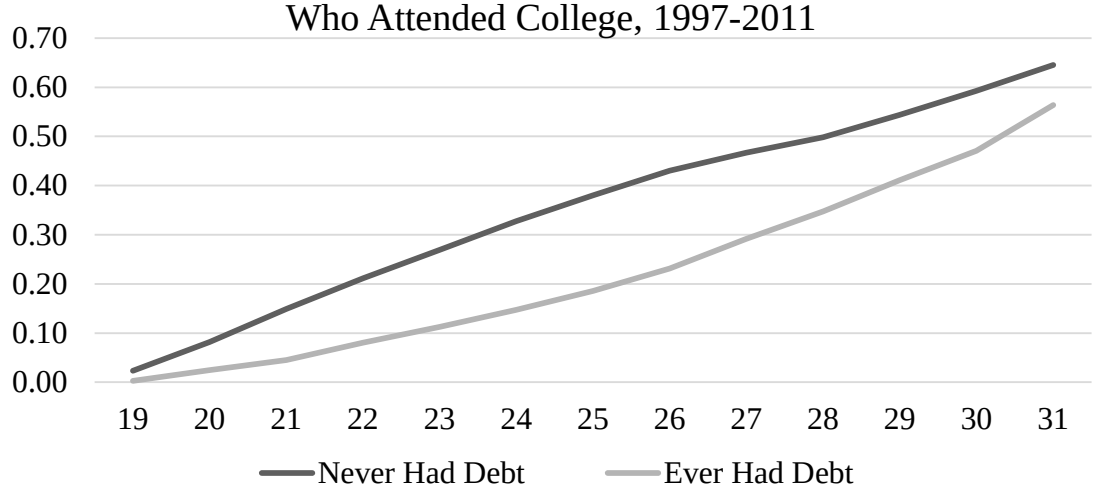
Source: NLSY97, Waves 1-15

Figure 4.2b. Cumulative Probability of First Marriage, by Whether Accrued Any Student Loan Debt, All Men Who Attended College, 1997-2011



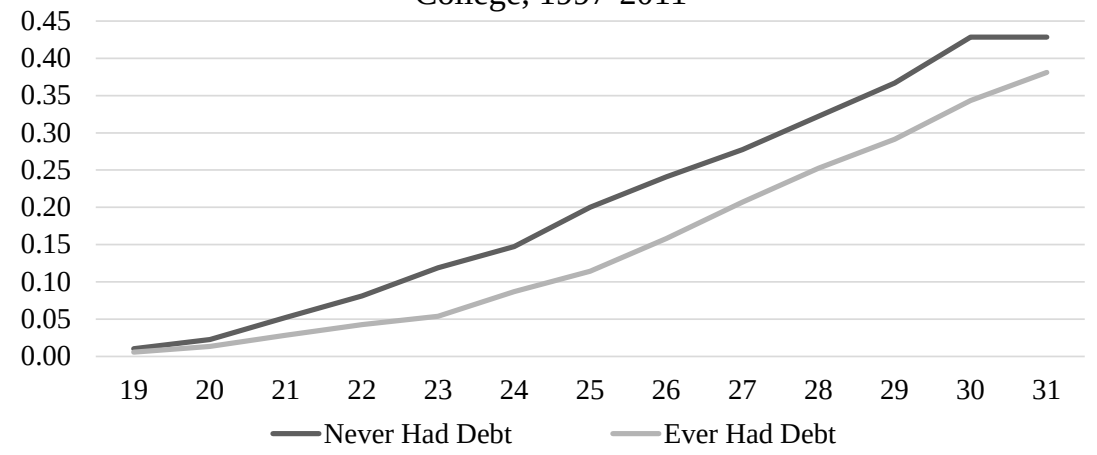
Source: NLSY97, Waves 1-15

Figure 4.3a. Cumulative Probability of First Birth, by Whether Accrued Any Student Loan Debt, All Women Who Attended College, 1997-2011



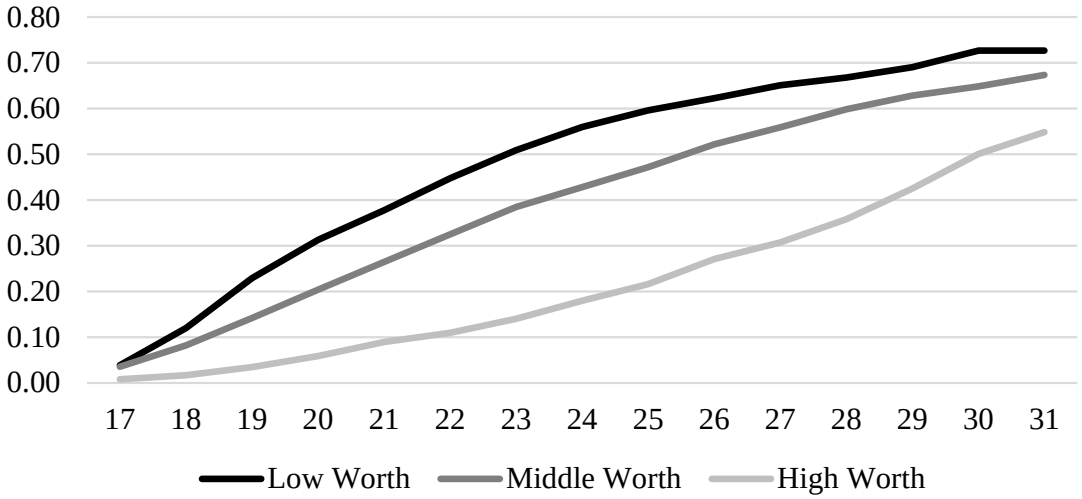
Source: NLSY97, Waves 1-15

Figure 4.3b. Cumulative Probability of First Birth, by Whether Accrued Any Student Loan Debt, All Men Who Attended College, 1997-2011



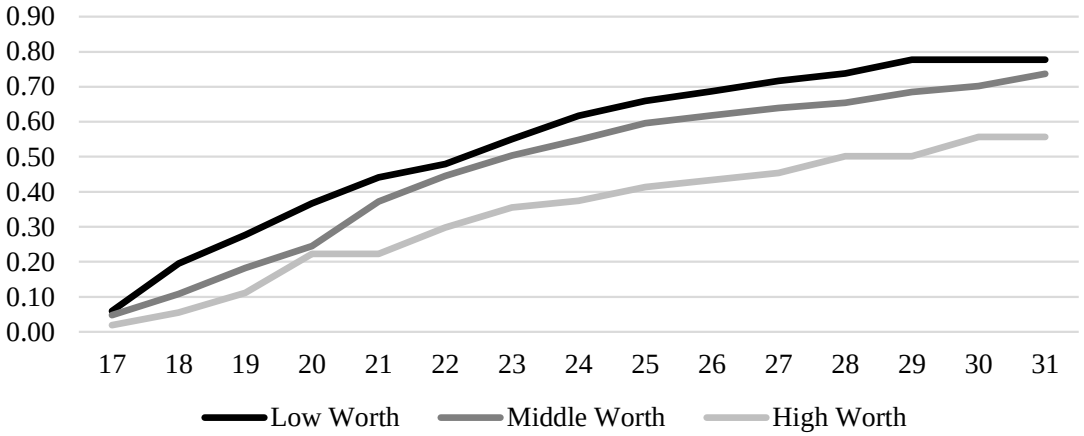
Source: NLSY97, Waves 1-15

Appendix Figure A3.1. Cumulative Probability of First Birth among Childless Women at Age 16 by Parental Net Worth, non-Hispanic White, 1997-2011

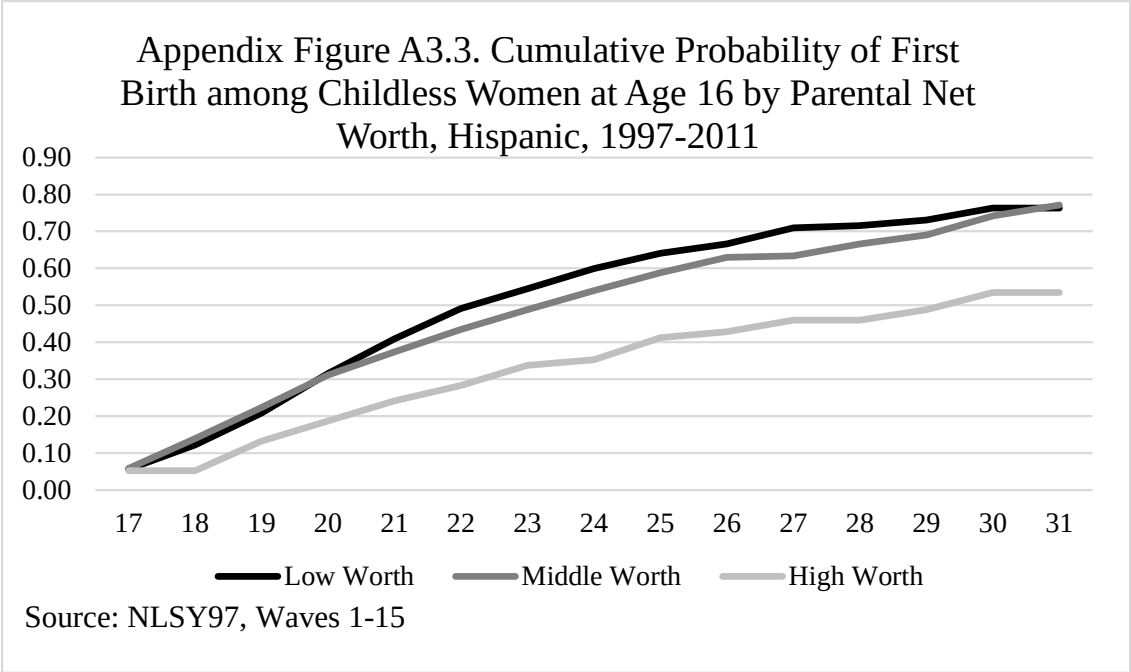


Source: NLSY97, Waves 1-15
Note: Figures 3.1 to 3.3 are derived from a first birth life table with annual first birth hazards equal to weighted sample proportions

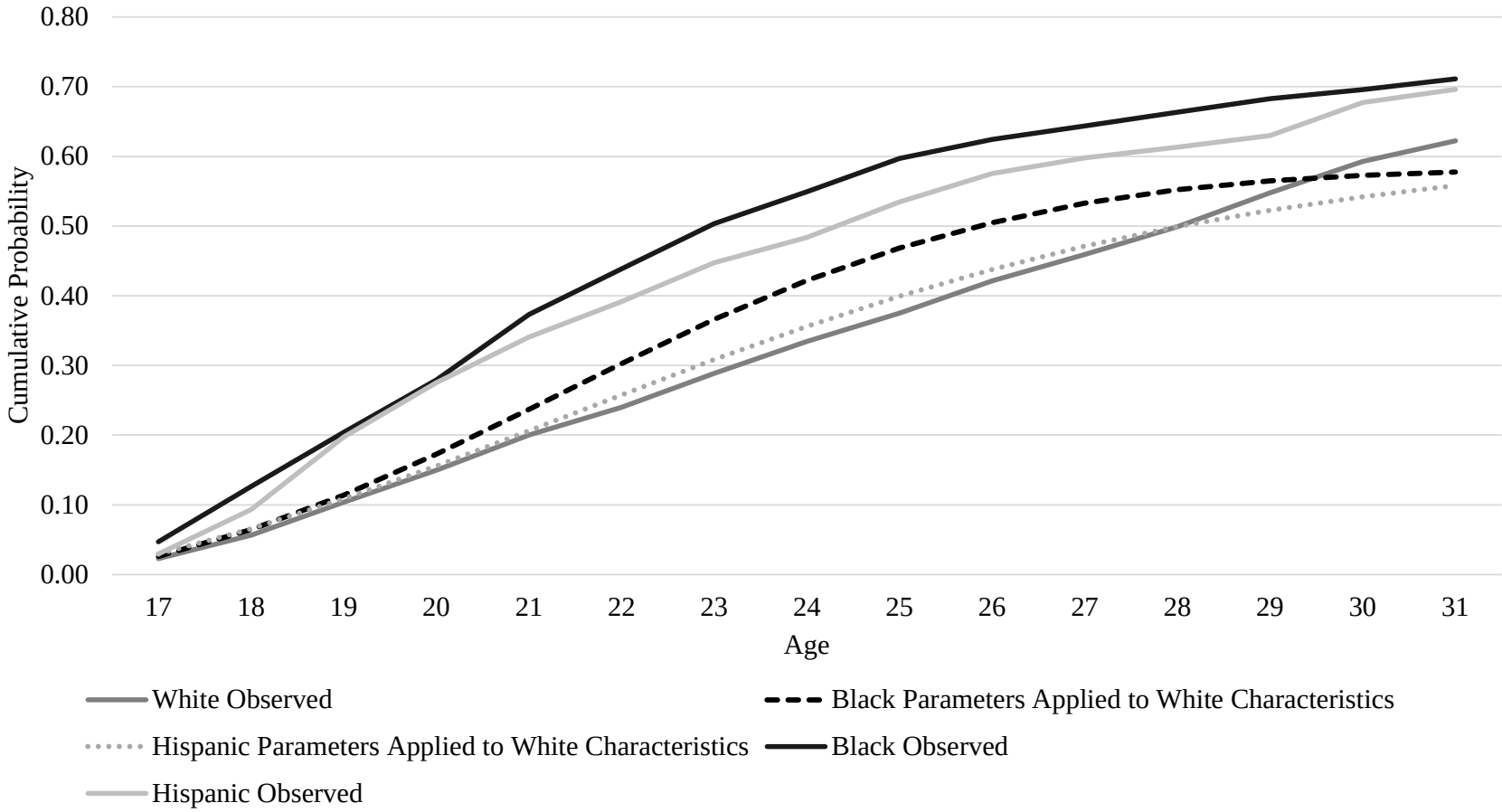
Figure Appendix A3.2. Cumulative Probability of First Birth among Childless Women at Age 16 by Parental Net Worth, non-Hispanic Black, 1997-2011



Source: NLSY97, Waves 1-15


Appendix Figure A3.3. Cumulative Probability of First Birth among Childless Women at Age 16 by Parental Net Worth, Hispanic, 1997-2011
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
Low Worth
Middle Worth
High Worth
Source: NLSY97, Waves 1-15

Appendix Figure A3.4. Predicted Cumulative First Birth Probability: Black and Hispanic Regression Parameters Applied to White Women's Characteristics



Source: NLSY97, Waves 1-15

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