THE SOCIALIZATION OF NONTRADITIONAL FAMILY FORMATION:
COHABITATION AND NONMARITAL CHILDBIRTH AMONG YOUNG ADULTS

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ABSTRACT

KAYO SUZUKI: The Socialization of Nontraditional Family Formation:
Cohabitation and Nonmarital Childbirth among Young Adults
(Under the direction of Kathleen Mullan Harris)

Many young adults today grew up in various family forms and experienced family status changes such as parental divorce, single-parenthood, and family reformation. The claim of socialization theory that parents' attitudes and behaviors are transmitted to their children is indicative of what happens when children make the transition into adulthood and start to form their own families. I use data from the National Longitudinal Study of Adolescent Health to examine the association between parental family behaviors and young adult children's first union type and nonmarital childbirth. In this dissertation, I employ the life course perspective by considering the entire family structure history from birth through adolescence, and I also employ the ecological systems perspectives by exploring the influence of the family structures of neighbors and school peers above and beyond that of family of origin. This dissertation contributes to the socialization literature by testing duration effects, gender differences, and race-ethnic differences of socialization. It also contributes to the nonmarital childbirth literature by analyzing nonmarital childbearing in cohabitation and outside of a coresidential union.

Results show that cohabitation and nonmarital childbirth are common among today's young adults, suggesting that a retreat from the conventional course of family

formation is a macro-level trend. However, this dissertation confirms the importance of socialization processes on first family formation. I found that socialization occurs both inside and outside of the family, and that duration effects of socialization exist. Furthermore, I found socialization effects of neighborhood family structure on first union type across all race-ethnic groups. However, school peers' parental family behaviors showed opposite effects on first union type in early adulthood for Blacks and Hispanics, suppressing the effect in the total sample. As for nonmarital childbirth, the socialization explanation was supported in simple analyses, but financial hardship and opportunity costs also had explanatory power. Overall, this dissertation shows that socialization helps to better understand nontraditional family formation processes, while it also illuminates the importance of taking race and family type variations into consideration in analysis.

ACKNOWLEDGEMENTS

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LIST OF ABBREVIATIONS

Add Health   The National Longitudinal Study of Adolescent Health

GPA   grade point average

HS   high school

CHAPTER 1:
INTRODUCTION

The latter half of the 20th century witnessed a dramatic change in families in the United States. Premarital sex has turned from a peer secret to an open phenomenon with which most Americans are familiar or have experienced. The average age of first marriage for both women and men has risen. Divorce rates skyrocketed in the 1960s and 1970s, reached a plateau in the mid-1980s, and have remained high ever since. Many divorced individuals have come to find new partners not out of necessity for their own survival but for emotional fulfillment. The gender relationships of couples have shifted from the breadwinner-homemaker model to a more egalitarian one, and the majority of women continue to work for wages, even after marriage and childbirth.

One of the more remarkable trends among American families is the decline in marriage and increase in cohabitation. Americans have become more tolerant of cohabitation—an arrangement that used to be considered outside the norm. In the late 1970s, only 33 percent of women and 47 percent of men agreed with the statement, "It is a good idea to cohabit before marriage to determine compatibility." In the late 1990s, however, 60 percent of women and 67 percent of men agreed with the statement (Thornton and Young-DeMarco 2001). The number of individuals who actually experience cohabitation has also increased, and more than half of marriages today are preceded by cohabitation (Bumpus and Lu 2000; Manning, Longmore and Giordano 2007). Due to the increase in cohabitation, many children in today's United States experience parental cohabitation either because they

are born to cohabiting parents or their single parent cohabits with a partner. According to a recent estimate using data from the National Survey of Family Growth in 1995 and 2002, two-fifths of all children spend some time in a cohabiting family by age 12 (Kennedy and Bumpass 2008)[1].

Another noticeable trend among American families is an increase in childbirth outside of marriage. In 1980, the percentage of babies born outside marriage was 18 percent (Ventura et al. 2000). In 2008, 40.8 percent of all babies born in the United States were born out of wedlock (Hamilton, Martin, and Ventura 2010). While shotgun marriages have decreased, the number of people who cohabit after learning of a pregnancy increased (Raley 2001). The increase in non-marital births in the past couple of decades occurred mostly due to the increase in childbirth among cohabiting mothers (Bumpass and Lu 2000); about half of unmarried births occur to cohabiting parents (McLanahan 2008).

In addition, cohabitation is a popular living arrangement not only among never married people but also among the divorced, which is balancing out the declining remarriage rate of divorced individuals (Bumpus and Lu 2000; Cherlin and Furstenburg 1994). This makes it impossible for the traditional definition of a stepparent as a "married adult with resident stepchildren" to capture all stepfamilies, because this definition covers less than half of all stepparents today by dismissing cohabiting stepparents and nonresident stepparents (Stewart 2001).

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[1] Graefe and Lichter (1999) show a more conservative estimate about the ratio of children who experience parental cohabitation, between a quarter and two-fifth of all children, although this might be because their article was written nearly a decade ago from Kenny and Bumpass (2008).

All in all, many people in the United States start their families in diverse ways that do not fit the traditional definition of family which starts with legal marriage. Some researchers attribute such trends to the endorsement of gender equality, increased autonomy for women, and freedom of individuals. More people have become tolerant towards diverse personal and family behaviors, and the trends of diverse families reflect such attitudinal changes (Thornton and Young-DeMarco 2001). Researchers have also found good reasons for both men and women to have children outside of marriage. Given the fact that most children live with their mothers after parental separation, men receive few benefits from having a child because their chance of union disruption is so high especially among individuals of low socioeconomic status (Willis and Haaga 1996), and out-of-wedlock children impose lower financial costs on their fathers such as child support (Beller and Graham 1993; King 1994; Seltzer 1991). For women, having a child outside marriage has become less stigmatizing. Women can maintain freedom and autonomy by having a child without getting married (Cherlin 2000; Oppenheimer 1997). In short, family behaviors have become a matter of personal choice, and trends are moving toward personal autonomy and individualism (Seltzer 2000).

While in some countries cohabitation has obtained a status as almost equivalent to marriage (e.g., Sweden) or an alternative to marriage (e.g., France and Canada), cohabitation has not yet become an acceptable alternative to marriage in the United States (Heuverline and Timberlake 2004). One type of evidence that indicates cohabitation's modest progression to equivalence to marriage in American is the cause of increase in the number of babies born to cohabitors. As I stated above, the increase in unmarried childbirths in the United States can be explained largely by the increase of childbirth among cohabitors (Bumpuss and Lu 2000).

However, this is not a result of cultural changes resulting in a higher level of tolerance for cohabitors' childbearing. The ratio of cohabitors who become parents is relatively stable, but the number of out-of-wedlock childbirths has increased because the number of people who cohabit has increased (Raley 2001).

Another interesting fact is that cohabitation is substituting for marriage in terms of onset of coresidential unions between romantic partners (Bumpuss and Lu 2000). Although age of first marriage has continually increased, the average age of first union including both marriage and cohabitation has not changed drastically. Between 1970 and 1998, the proportion of unmarried White women and unmarried Black women between ages 20 and 24 doubled: two-thirds of White women and 85 percent of Black women in this age group had never been married in 1998 (Cherlin 1992; Teachman, Tedrow and Crowder 2000; U.S. Bureau of the Census 1998). Another study shows that two-thirds of people who did not get married by age 25 had cohabited between 1970 and 1985 (Bumpass, Sweet and Cherlin 1991). Moreover, cohabitation has become common across racial/ethnic groups and socioeconomic levels. Although Blacks have much lower marriage rates than Whites, the racial gap in marriage rates is reduced to half if cohabitation is taken into account as a form of union (Raley 1996). Another study reports that cohabitation, a living arrangement that has traditionally been associated with poorer people, has been increasing across educational levels (Seltzer 2000).

These findings seem to suggest that cohabitation is in the process of overtaking marriage. Still, marriage remains an important part of the cultural ethos in America. In fact, the proportion of persons surviving to age 15 who ever marry has remained fairly steady at about five-sixths of all men and seven-eighths of all women (Schoen and Standish 2001).

Another study also estimates that nearly 90 percent of Americans eventually marry (Goldstein and Kenney 2001). This cultural ideal of marriage holds for younger generations as well. A large and relatively stable fraction of high school seniors believe that marriage is extremely important (72%), and they expect to marry (78%) (Thornton and Young-DeMarco 2001). Furthermore, they rarely envision cohabitation as substituting marriage (Manning, Longmore, and Giordano 2007), believing that they should get married, not just cohabit, someday.

In this study, I will investigate the processes associated with two types of nontraditional family formation, cohabitation and unmarried childbearing. My central focus is socialization processes that result in intergenerational transmission of union formation behaviors. In order to test my hypotheses, I will use the National Longitudinal Study of Adolescent Health (Add Health), a study that includes diverse measurements ranging from an individual's family history to personal and family background, as well as school performance and neighborhood and school environment. I will investigate how parental union behaviors are associated with family formation behaviors in children's early adulthood, controlling for various factors related to both socialization and family formation behaviors.

COHABITATION AND UNMARRIED CHILDBEARING

Here I define two types of nontraditional family formation, cohabitation and unmarried childbearing.

Cohabitation

Cohabitation is a living arrangement in which a couple lives together without legal procedure and documentation. Although this living arrangement is not new, cohabitation had

not been officially studied until recently. In the 1990 Census, cohabitation was measured

directly for the first time, but the number of people who identified themselves as cohabitors

in the Census (3,079,000) was much lower than the estimate created by the POSSLQ

(partners of opposite sex sharing living quarters) method (4,125,000), partly because the

survey asked only about householder's cohabitation status (Casper and Cohen 2000). It was

difficult to estimate the number of cohabitors accurately, because the definition of

cohabitation was not firmly understood. In the past, many people did not identify themselves

as cohabitors even when they were actually living with their partner. The great increase in

cohabitation may be partly due to the increase in people who identify themselves as

cohabitors because nontraditional family arrangements such as cohabitation and out-of-

wedlock childbirth have become more common (Seltzer 2000). Another limitation of the data

on cohabitation is that many studies rely on information from young adults and women in

their reproductive years to get information about cohabitation, ignoring older cohorts and

men.

Because of the late start in capturing the number of cohabitors (Casper and Cohen

2000), and ambiguity in defining their status (Manning and Smock 2005), there is no clear

definition of cohabitation yet. In my study, I define cohabitation as "living with someone in a

marriage-like relationship for one month or more" based on the definition in the Add Health

data.

Unmarried Childbearing

Until the early 20th century, the term "single mother" usually referred to widowed

mothers. However, divorced mothers have been the majority of single mothers since the

1960s when divorce rates began to rise, and the number of unmarried mothers has been increasing rapidly since the late 20th century. Unmarried childbirth was once looked down upon and stigmatized as "illegitimate," but many women of all races and socioeconomic status today become mothers without getting married.

Childbirth outside marriage has more reliable statistics than cohabitation because of the increased clarity of a baby's birth status and mother's legal marital status. In 2007, 39.7 percent of all babies were born to unmarried mothers, and nearly half of them were born to cohabiting mothers (McLanahan 2008).

In my study, I define unmarried childbearing as a child birth that includes at least one live-born baby that occurs before marriage. Therefore, two types of unmarried childbirth are included in this study: one is childbirth to cohabiting parents, and the other is childbirth to a single woman who does not live with her partner.

BACKGROUND PERSPECTIVES

Life Course Theory and Ecological Systems Theory

Family formation is a significant life event that can reflect individuals' past experiences and affect their later life course. Elder's life course perspective provides a useful framework for studying family context and behaviors. While cross-sectional surveys were commonly used to examine social interactions of individuals for a long time, Elder (1974) argued that human development and life are linked to environment and history more dynamically. He proposed five principles of the human life course: (1) the principle of life-long development and aging (events in life can have long-lasting effects), (2) the principle of human agency (individuals have an ability to make their own decisions, and therefore

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people's lives have diversity even in the same environment), (3) the principle of timing (the

effects of an event in family on individuals can vary depending on the developmental stage at

which they experienced it), (4) the principle of linked lives (the lives of people around an

individual play important roles in shaping his/her life), and (5) the principle of historical time

and place (one phenomenon can have a different meaning and effect depending on historical

time and place). These principles are all important in understanding the dynamics of family.

Another theoretical perspective that informs my study is Bronfenbrenner's ecological

systems theory. Bronfenbrenner conceptualized four layers of an individual's environment:

micro-, meso-, macro, and exo-systems. The micro-system can be understood as the family,

classroom, or systems in the immediate environment in which a person is operating. The

meso-system consists of two micro-systems interacting, such as the connection between a

child's home and school. The exo-system is an environment in which an individual is

indirectly involved and is external to his experience, yet it affects him anyway i.e. a child's

parent's workplace. The macro-system is the larger cultural context. Bronfenbrenner argues

that the interactions between a number of overlapping ecosystems affect a person

significantly (Bronfenbrenner 1979). In my proposed study, my central focus is on the micro-

system—intergenerational transfer of family behaviors –but I assume that human

socialization occurs in these types of complex ecological systems. Chapter 3 of my study

will include socialization in two meso-systems, neighborhood and school, as a way to better

understand socialization.

Socialization Theory and Family Formation Behaviors

Amato (1993) summarizes most perspectives about the influence of family of origin

on children's outcomes by noting that they can be categorized as one or more of the

following four perspectives: economic hardship, socialization, social control, and instability and change. The economic hardship perspective argues that economic deprivation in a non-intact family is a major disadvantage for children because a non-intact family often has only a single source of income, usually the mother's, and this lower income makes it difficult to maintain appropriate standard of living, which forces children's outcomes to be compromised. Socialization theory focuses on children's social learning of their parents' values, attitudes, and behaviors, while social control theory focuses on parental supervision and guidance, especially over children's undesirable or delinquent behaviors. Finally, the instability and change perspective argues that frequent change of family status, rather than the type of family status, can be more disadvantageous for children due to disconnection of children from social capital established in the original social context.

For this study, I focus on testing the tenets of socialization theory. In the context of family, socialization theory is used to explain the ways in which parents influence their children's behaviors through shaping children's own attitudes, preferences, and intentions. This theory asserts that children are socialized differently according to the type of family in which they live, and it especially emphasizes the difference between "intact" families and non-intact families (Wu 1996). Researchers have found that childhood living arrangements and interactions between parents and children during childhood have long-term and relatively permanent effects on children (Hetherington 1972; Rutter 1971). Studies have shown that children who live in an intact family with two married parents are socialized to value stable married families, and that children who have lived in non-intact families are socialized to have more accepting attitudes toward nontraditional family behaviors such as nonmarital sex

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and cohabitation (Axinn and Thornton 1996; Clarkberg, Stolzenberg, and Waite 1995; McLanahan and Sandefur 1994).

Most past studies about socialization support the view that children follow paths similar to those their parents have taken, and Wu and Martinson (1993) propose three mechanisms that create intergenerational similarity. The first mechanism is that parents provide examples of family life to their children. For example, in the eyes of a child of an unmarried mother, bearing or rearing children outside marriage can look feasible, legitimate, or even desirable (Kellam, Ensminger, and Tumer 1977; McLanahan 1988; Mueller and Pope 1977; Thomson 1991; Thornton and Camburn 1987). Second, some studies indicate that the absence of a positive role model—often a male role model—leads to acceptance of non-intact families and deviant sexual behaviors (Guidubaldi et al. 1986; Hetherlington 1972, 1981 cited in Wu and Martinson 1993). A third explanation is that the example set by parents undermines their authority to proscribe children's behaviors. For example, single mothers who are in sexual relationships cannot effectively deter their daughters' premarital sexual activities (McLanahan and Sandefur 1994; Thornton 1991).

On the other hand, a few studies have found some patterns in which parents serve as examples of how their children ought not to behave. Maccoby and Martin argue that whether children view parental models positively or negatively depends on the "extent to which the parent is perceived as similar to what the child is and wants to be" (1983: 9). Kapinus's study (2005) on young adults' attitudes toward divorce also found that their negative evaluations of parental marital quality can affect their attitudes about family life. In this study, young adults who believed that their parents should get divorced because of their low marital quality tended to have more positive views toward divorce.

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Current Discussion over Socialization Theory

Although the general tenets of socialization theory have received wide support, scholars have not yet reached agreement regarding several issues related to this theory. The first point of contention is whether the duration of a non-intact family strengthens the socialization effect. Some researchers believe that longer exposure to non-intact families has a stronger negative impact on children. For example, Antecol and Bedard (2007) found that an additional five years living with a biological father significantly decreases the probability of delinquent behaviors among youth. On the other hand, Wojtkeiwicz (1993) found that longer exposure to non-intact families does not significantly increase youth's chances of not graduating from high school. Wu and Martinson (1993) also found that the effect of living in non-intact families on premarital childbirth does not increase even when respondents experienced longer exposure to non-intact families.

Second, whether the effect of living in a non-intact family varies across racial and ethnic groups is an issue that has been understudied. The lack of consensus on this point also results from the inconsistency of target groups (female only or both genders), dependent variables (outcomes), and theories of interest. Using data from the 1990 Tennessee Adolescents in Family Project, Krishnakumar and his colleagues tested whether socialization measures, originally developed for European Americans primarily, have equivalency across racial and ethnic groups, and concluded that most individual indicators of socialization, with the exception of paternal psychological control and parent-youth conflict, demonstrated cross-ethnic equivalence (Krishnakumar, Buehler, and Barber 2004). However, other studies that tested racial groups separately found differences among racial-ethnic groups. For example, a study that examined socialization theory and instability and change theory found

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that the former explains Black women's early sexual debut, while the latter explains White

women's age at first intercourse (Wu and Thomson 2001). Another study on premarital

intercourse shows that the duration of living arrangement matters for Black women but not

for White women (Albrecht and Teachman 2003). Furthermore, Sun and Li (2007) found that

White and Black children in late adolescence exhibit wider and greater maladjustment both

before and after the disruption of parental marriage compared to their Hispanic counterparts.

Third, researchers have not reached agreement on whether family structure has

different levels of effects for boys and girls. There are several sources indicating the lack of

consensus on gender interaction. First, some family intergenerational studies analyze only

females, which makes it impossible to generalize the finding to males (e.g., Teachman 2003;

Albrecht and Teachman 2003; Wu 1996; Wu and Thomson 2001). Second, target and

comparison groups are inconsistent across studies because some studies focus on the effects

of parental divorce while others focus on the effects of step-parenting, and not all studies set

married two-biological parent families as the comparison group. Third, focus outcomes are

different across studies, ranging from adult children's adaptation (Cherlin and Furstenberg

1994), behavioral problems (Hay 2003; Morrison and Cherlin 1995; Videon 2002), and

socioeconomic attainment (Buchmann and DiPrete 2006; Fischer 2007; Powell and Parcel

1997) to divorce (Lyngstad and Engelhardt 2009), union formation (Sassler, Cunningham

and Lichter 2009), and unmarried childbirth (Campa and Eckenrode 2006).

Many studies that compared gender differences focus on the impact of a stepparent.

Some researchers have found that having a stepparent is more difficult for girls than for boys,

which is explained by girls' stronger desire to maintain strong bonds with their mothers, who

usually remain as resident parents and whose new partner can disrupt bonds (Cherlin and

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Furstenberg 1994). Other research has found that boys are more susceptible to behavioral

problems following the introduction of a stepparent[2] (Morrison and Cherlin 1995). Still

others have found few differences by gender. Hetherington and her colleagues find that both

male and female respondents in early adolescence similarly struggle after parental remarriage

and they speculate that this developmental stage when youth must come to terms with their

own sexuality is a major challenge for both genders (Hetherington et al. 1992).

Findings regarding other types of non-intact families are also mixed. While a

Norwegian study found that the intergenerational transmission of divorce is stronger for

females than males (Lyngstad and Engelhardt 2009), another study has shown that family

structure in adolescence has a stronger association with romantic relationship formation

among boys than girls (Cavanagh and Huston 2008). Other studies have found that different

mechanisms mediate family structure and children's outcomes for males and females even

when the outcomes are similar (Powell and Parcel 1997; Campa and Eckenrode 2006).

CONCEPTUAL MODEL

I use one overarching conceptual model to inform and link my three dissertation

articles (See Figure 1.1.). This conceptual model draws upon socialization theory. The

fundamental assumption of this model is that an individual's family formation is affected by

the structure of family of origin and parents' family behaviors. In Figure 1. 1., structure of

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[2] Hay (2003) suggests that it may be because of gender differences in experience of and response to family-related strain.

family of origin and children's family formation behaviors are connected by a grey arrow, which represents socialization effects from parents to children.

There are other factors shown in Figure 1.1., including shared social positions, background, and experiences between parents and children. Bengston (1975) argued that parents' and children's attitudes, values, and preferences may be similar because of their shared family socioeconomic status, race and ethnicity, and religious background. These factors confound the socialization effect through cultural and socioeconomic characteristics of the parental home (De Valk 2007, shown by white arrows in Figure 1.1.). In my research, such confounding phenomena will be included as control variables.

DATA: POPULATION AND SAMPLE

In order to test my theoretical framework, I need to analyze a population with substantial diversity of family forms across parent and children generations, as well as race and ethnic diversity. For this purpose, I have chosen data from the National Longitudinal Study of Adolescent Health (Add Health). In addition, my study is focused on contemporary families and young adults. In order to examine more precisely the effects of family status, it is advantageous for me to examine a population that is limited to a relatively narrow age group so as to eliminate generation effects. As Add Health's study population was born in the late 1970s and early 1980s, they grew up when the US divorce rate had plateaued at a high level and childbearing outside of marriage was on the rise. Therefore, this population is appropriate for studying the effects of family status on cohabitation and unmarried childbearing.

The Add Health data were collected by the Carolina Population Center at the University of North Carolina at Chapel Hill as a school-based, longitudinal study of the health-related behaviors of adolescents and their outcomes in young adulthood. The population of Add Health data is adolescents in grades 7 through 12 in the United States in 1994 and 1995, and the sample was selected to be nationally representative.

Four waves of survey interviews have been conducted to date, and I use data from the Wave 1 survey in 1994-1995 and the Wave 4 survey in 2007-2008. First, a sample of 80 high schools and 52 middle schools was selected with unequal probability of selection from groups sorted by size, school type, region, location, and percent White for sample representativeness. All students in attendance on the day of the survey participated in the in-school survey. For in-home interviews, multiple methods were used to obtain samples from school rosters - stratified random selection (core), purposeful selection (PAIRS), systematic selection (ethnic samples, genetic sample, disabled), and certainty (additional twins for genetic sample). Furthermore, additional adolescents were selected outside of the sampling frame as part of the genetic sample. Interviews from a family member of the respondents (mostly mothers) were also conducted in Wave 1. Approximately 13 years later, the Wave 4 survey was conducted. The original respondents of Wave 1 were re-interviewed with a response rate of 80.3 percent resulting in a sample size of 15,701. The strength of the Add Health data lies in the fact that original respondents are re-interviewed, and therefore it is possible to measure directly the influence of experiences at an earlier point in the life course (childhood and adolescence) on subsequent behavior in young adulthood. Furthermore, outside data sources such as Census data are matched with each respondent according to their home residence, which provide information about the neighborhoods and communities in

which they live. For more information about the design of the Add Health research, see Harris et al. (2009).

LONGITUDINAL ANALYTIC DESIGN

Inspired by the life course and ecological systems perspectives, I have designed my study with a longitudinal framework. The most distant information in the time line is mother's age at first marriage. This retrospective measurement is retrieved from the parental interviews in the Wave 1 survey. At Wave 1, parents were also asked about their history of up-to-three recent marriages or marriage-like relationships and respondent's residential father and mother's statuses from his/her birth to Wave 1. Annual arrays of the Add Health respondents' family structure were constructed from these parent retrospective reports by Harris and her colleagues (2009). Almost all respondents were living with their parents at the time of Wave 1.

During the Wave 1 survey, various types of information were collected from respondents, including family backgrounds, personal statuses, perspectives, and achievements. Some information, such as family income, comes from parents, but most information was collected from adolescent respondents. This includes family roster at the time of Wave 1, family socioeconomic status, race and ethnicity, and religious affiliation and religiosity. The Wave 1 data also include school administrative surveys, which provide information used in Chapter 4 of my research.

While it would be more ideal for me to cover respondents' entire family background history dynamically based on year-by-year information, especially for time-varying variables such as family income, the data do not provide such dynamic information for all variables or

across all years. Therefore, with the exception of family structure, family background information is measured around the time of the Wave 1 survey.

Neighborhood information used in Chapter 3 is retrieved from the 1990 Census. Since the Census is conducted every ten years, this survey is the closest to the Wave 1 survey. Although there is a gap of four or five years, the Census data coupled with the Add Health data are important informational resources that provide us with objective measures that cannot be covered by in-home and parental interviews. One drawback, however, is that the Census data provide information on the tract where a respondent resided in 1994-95, and does not account for residential mobility between 1990 and Wave 1. Therefore, neighborhood information does not correspond to the actual neighborhood environment for some respondents who moved outside their original Census tract between the two surveys. However, I am able to address the non-correspondence of residential areas because the data contain information on whether respondents moved in the five years prior to the Wave 1 survey.

Wave 4 contains information about respondents' family formation behaviors through the collection of relationship histories that include cohabitation, marriage, and childbearing. While most family formation behaviors were observed between Wave 1 and Wave 4, a small fraction of respondents formed families prior to Wave 1. Since my research investigates timing of family formation, I eliminate individuals who formed their first unions before Wave 1 (Chapters 2 and 3) and individuals who had children outside marriage or got married before Wave 1 (Chapter 4) from the analyses.

Figure 1. 2. shows the timing of measured events and status.

ORGANIZATION OF MY DISSERTATION

In Chapter 2, I will examine the relationship between parental union behaviors and children's first union formation in early adulthood. Socialization theory predicts that children tend to follow behavioral patterns similar to those of their parents in union formation. Therefore, I hypothesize that 1) individuals who are from non-intact family forms are more likely to cohabit than those who are from intact families; 2) those who have lived with a cohabiting parent are also more likely to cohabit; 3) and those whose mothers were young when they married will also form their own unions at younger ages. I will also focus on whether the association between family of origin and first union behaviors differs among racial groups by running competing-risks models separately for Whites, Blacks, and Hispanics.

In Chapter 3, I use an ecological perspective focusing on the influence of family structure composition in neighborhoods and schools on individuals' first union type. I examine whether family structure composition in these meso-level environments has an independent effect on the type of first union. In addition, I will examine whether these meso-level environments interact with the structure of an individual's own family. I apply socialization theory to meso-level environments and hypothesize that neighborhoods and schools with a higher prevalence of non-intact families will have independent and interactive effects on young people's union formation behavior that favors cohabitation over marriage. I will also test for race and ethnic interactions and run competing-risks models separately for Whites, Blacks, and Hispanics and examine if the race/ethnic interaction significantly improves model fit.

In Chapter 4, my focus shifts to examining the association between parental union behaviors and children's unmarried childbearing. Socialization theory argues that living with non-intact families is associated with higher levels of acceptance of nontraditional family behaviors such as unmarried childbearing. On the other hand, opportunity costs theory argues that disadvantaged young women actively choose childbearing at a young age, often outside of marriage, as a way to better their lives within their limited opportunities. More advantaged women try to postpone childbearing so not to lose their greater opportunities via traditional routes of education and employment. I will test these two theories by examining the incidence of unmarried childbearing in cohabitation and outside coresidential unions with variables that capture the theoretical concepts of socialization and opportunity costs. I will also examine whether these two theories explain unmarried childbearing similarly for White, Black, and Hispanic women.

Figure 1. 1. Conceptual Model of Socialization Theory.

Structure of family of origin (parent's family behaviors)		Children's family formation behaviors

Shared social positions, background, and experiences
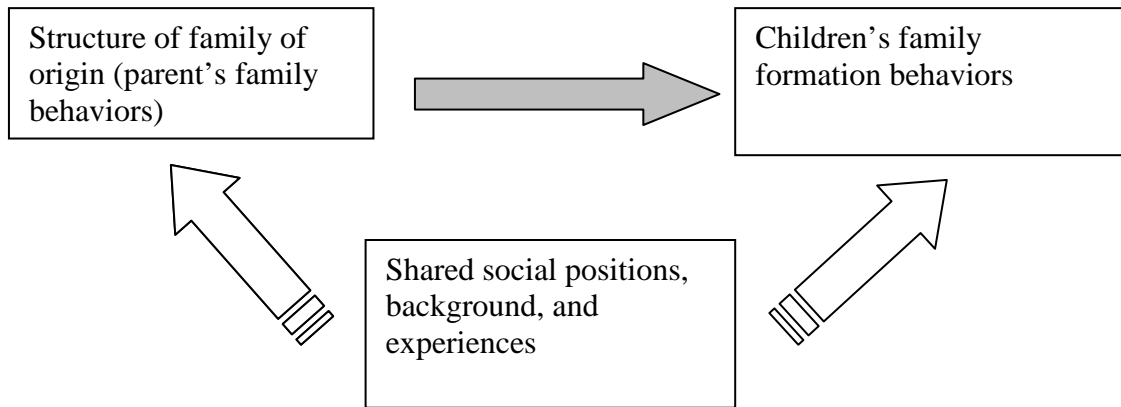
Figure 1. 2. Timing of Measured Events and Status.
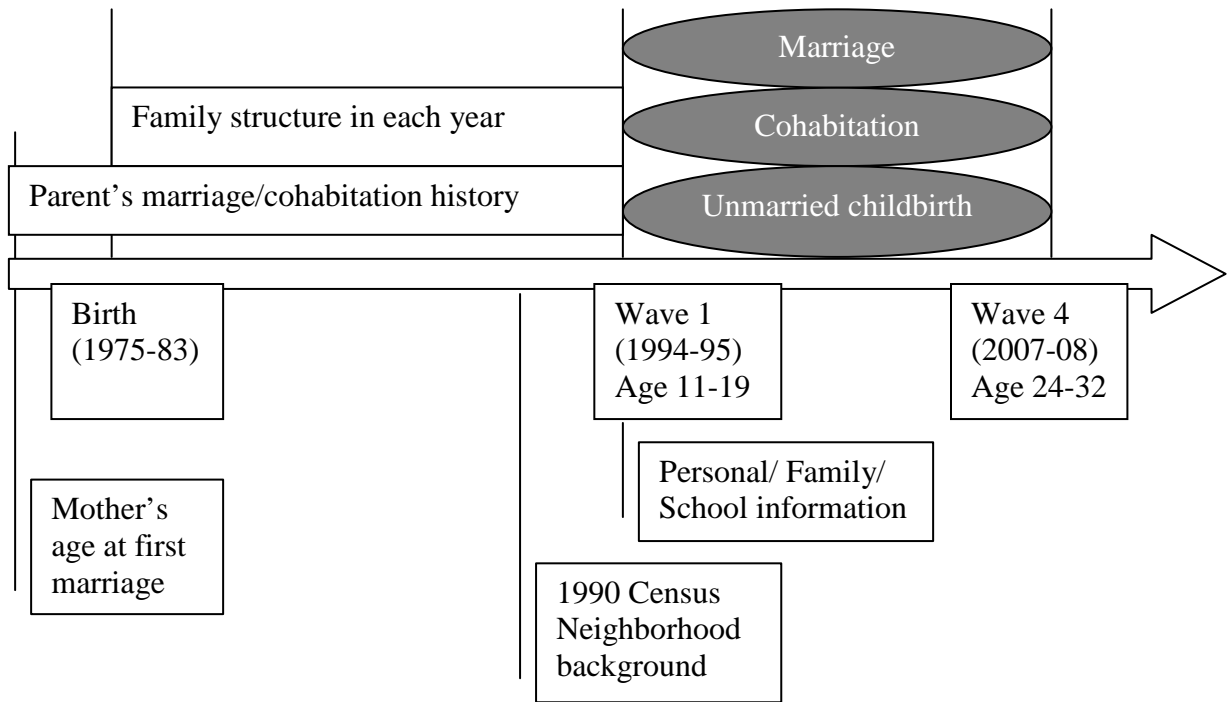
CHAPTER 2:
HOW IS FAMILY OF ORIGIN ASSOCIATED WITH THE TYPE OF FIRST UNION?: DURATION AND RACIAL DIFFERENCES IN SOCIALISATION

As is the case with most other industrialized nations, the average age of first marriage in the United States has been increasing since the mid-20th century. On the other hand, the timing of forming a coresidential union with a romantic partner has not changed greatly. This is due to an increase in cohabitation across all education levels and racial groups (Bumpass and Lu 2000).

Although some researchers view the increase in cohabitation as a positive outcome of gender equality in which personal autonomy and individualism are realized (Seltzer 2000; Thornton and Young-DeMarco 2001), studies have shown that cohabitation is not as stable and beneficial a union as marriage for the well-being of couples and their children.

Most notably, cohabitors and former cohabitors have significantly higher risk of separation. According to Bumpuss and Lu (2000), more than half of unions that begin with cohabitation, including those that transition to marriage, disrupt within five years. Some studies have claimed that cohabitors' higher risk of breakup comes in part from a selection effect based on their lower level of commitment to the relationship, low levels of religiosity, and problematic interpersonal skills (Amato 1996; Cohan and Kleinbaum 2002; Treas and Giesen 2000). However, other studies have argued that the experience of cohabitation itself increases the risk of separation (Dush, Cohan, and Amato 2003; Stanley, Rhoades, and Markman 2006).

Such high risk of separation might partly be derived from cohabitors' behaviors. Studies have found that cohabitors do not establish stable collective financial assets and extended family relationships as married couples do. Financially speaking, cohabitors separate each partner's income and generally do not pool all income together like most married couples do (Winkler 1997), and cohabiting parents tend to spend smaller amounts of money on children's education than married parents (DeLeire and Kalil 2005). Furthermore, cohabiting young adults are significantly less likely to exchange support with their parents than their married or non-cohabiting single counterparts (Eggebeen 2005).

Such findings lead us to the question: what makes some people more likely to cohabit? Past studies have revealed that cohabitors have different characteristics from those who marry as their first union. According to Smock's review (2000), cohabitors tend to be socioeconomically more disadvantaged, more liberal and less religious, and more egalitarian and flexible about gender roles than married individuals. Cohabitors' attitudes and values toward marriage, work, family, money, and use of leisure time are also more liberal and individualistic (Clarkberg, Stolzenberg, and Wait 1995). In addition, cohabitors' relationships progress more quickly in the courtship process than married people's relationships. Over half of cohabitors begin to live together within half a year from the start of the romantic relationship (Sassler 2004).

On the other hand, some researchers have argued that marriage and cohabitation in early adulthood are not completely different types of events because individuals who marry at relatively young ages have more similar characteristics to cohabitors than those who postpone union formation. More specifically, 25 percent of women and 16 percent of men get married by age 23 in today's United States, and they are similar to cohabitors in their

disadvantaged family backgrounds and relatively low educational achievement levels, while those who marry are more likely to have strong religious affiliations, especially conservative Protestants and Mormons (Uecker and Stokes 2008). Other researchers also found similarities among people who cohabit, those who marry young, and even those who have nonmarital childbirths (Brien, Lillard, and Waite 1999; Musick 2007). Furthermore, many of those who marry young have cohabited before their first marriage (Uecker and Stokes 2008), and both cohabitation and marriage often occur in line with other life course events such as schooling, work, childbirth, and moving (Guzzo 2006).

Meanwhile, there might be some difference in social and demographic characteristics between individuals who get married and those who cohabit in their mid-20s to early 30s. Although the average American's age at first marriage has increased over time, twenties and early thirties are still prime ages for marriage, as well as cohabitation, to occur. Therefore, it is of interest to better understand who chooses cohabitation over marriage as a form of first union with recent national data. In this study, I will investigate the factors associated with the type of first union, focusing on the socialization effects of parental union history in the family of origin.

SOCIALIZATION THEORY AND FIRST UNION FORMATION

Socialization theory provides an explanation for first union type choice. Today's young-adult cohort includes many individuals who experienced parental separation, remarriage, and cohabitation in their childhood and adolescence. Researchers who compare parents' and children's union behaviors have found that "parental intimate relationships play a role of templates for children" (Sassler, Cunningham, and Lichter 2009: 757). More

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specifically, children from married two-parent families are more likely to marry, while children from non-intact families and cohabiting families are more likely to cohabit as a first union.

Past studies have shown that the structure of family of origin affects not only the type of children's unions but also the timing of their union formation. Growing up in any type of non-intact family structure increases the likelihood of marriage and premarital cohabitation at a younger age (Goldscheider and Goldscheider 1998; Teachman 2003). Teachman (2002) also finds that women who grew up in stepfamilies are more likely to marry early. According to South (2002), the inverse effect of experiencing a non-intact family structure during childhood on the timing of first marriage remains constant over both historical time and the life course, while the inverse effect of parental resources measured by family income and mother's education on the timing of first marriage declines both over time and as children age.

In addition to family structure, parents' marital statuses and biological relationships with children have also been found to be associated with children's union behaviors. Sassler and her colleagues find that children whose parents cohabit after divorce are more likely to cohabit than children whose parents remarry after divorce (Sassler, Cunningham and Lichter 2009). Graefe and Lichter's study (1999) finds higher likelihood of marriage among children with both biological parents cohabitating than children living with a biological parent and his/her partner.

These findings all seem to support the argument of socialization theory. As stated in Chapter 1, however, scholars have not yet reached an agreement on several aspects of the way in which socialization impacts children's development. The first aspect in question is

whether the socialization effect varies according to the duration of non-intact families. One

position argues that longer exposure to non-intact families should have a greater effect on

children's outcomes (Antecol and Bedard 2007), while the other argues that longer duration

does not significantly increase the socialization effect (Wojtkiewicz 1993; Wu and Martinson

(1993).

The second aspect I consider here is whether family structure effects have different

impacts for boys and girls. Some argue that females are more susceptible to parental divorce

and remarriage (Cherlin and Furstenberg 1994; Lyngstad and Engelhardt 2009), while others

argue that males are affected more by family status changes (Cavanagh and Huston 2008;

Morrison and Cherlin 1995), and still others argue that the effect of family status change does

not vary significantly by gender (Campa and Eckenrode 2006; Hetherington et al. 1992).

Finally, researchers have not agreed on whether the effect of living in a non-intact

family varies among racial and ethnic groups. While one study has found that most

socialization measures developed for Whites have equivalency across racial and ethnic

groups (Krishnakumar, Buehler, and Barber 2004), other studies find different patterns of

socialization between Blacks and Whites (Albrecht and Teachman 2003; Wu and Thomson

2001).

SPECIFIC AIMS OF ANALYSIS

In this study, I will use the framework of socialization theory to test whether parental

union behaviors affect the occurrence and type of first union among young-adult children. I

will address the three understudied issues mentioned above: differences of the duration of

parental non-intact family type, gender differences, and racial differences in influencing

socialization effects. Based on the findings of previous studies, I propose the following four hypotheses.

> *Hypothesis 1:* Compared to individuals from intact families, individuals who have ever experienced living in non-intact families or parental cohabitation during childhood or adolescence are more likely to cohabit instead of marrying in early adulthood.

This hypothesis is based on the most general finding in socialization research—the template role of parental unions for children's unions (Sassler et al. 2009). According to socialization theory, children will follow the union behaviors of their parents because they look up to their parents and closely observe them. Past studies have found that families that do not include two biological parents are associated with a distinctive pattern of children's union formation behaviors. Therefore, I define two-biological parent families as intact families (including adoptive families from infancy), and any other types of families such as single-parent families, stepfamilies, and surrogate families as non-intact families in this study. I also hypothesize that children whose mothers married at young ages are more likely to form unions at younger ages, following their mothers' models.

> *Hypothesis 2:* Young-adult children who spent a longer proportion of their childhood growing up in non-intact families are more likely to cohabit rather than marry compared to children who live in non-intact families for shorter periods of time.

Given that socialization occurs as an outcome of interaction within families, it seems reasonable to think that longer exposure to non-intact families promotes stronger positive attitudes toward nontraditional family forms. Because the data at Wave I do not cover full

adolescence for many respondents, I will use the proportion of lifetime spent in non-intact families as of Wave I as a measure of exposure.

As for the impacts of gender and race, two recent studies show interesting findings. Sassler and her colleagues (2009) tested the impact of family structure on children's first union type using a sample of both genders. They found that growing up in a non-intact family increases the likelihood of cohabitation rather than marriage for both males and females, and that there is no major gender difference in the effect (Table 2 on page 771). However, the sample they used is 1,571 respondents from age 18 to 34 in the National Survey of Families and Households in 2002, and with this wide age range of the sample, it is possible that gender differences were not picked out due to the inclusion of teenagers and very young adults who had not yet formed a union in the sample. I would like to re-test gender difference with a larger sample of a smaller age range where most respondents already had a first union formation.

Another study by Schoen and his colleagues (2009) tested the impact of socioeconomic status on women's early-adulthood family formation by race and concluded that mother's higher education levels significantly reduces early family formation for both White and Black women. This study uses the Add Health data, but it captures only females of ages 18 to 24, which makes their finding somewhat limited due to the analytic sample's young age and gender, and I would like to test for racial difference between genders using additional years of observation with most recent data.

Based on findings and McLanahan's review (2008) that most of the negative effects of non-intact family forms are similar for both genders and across different socioeconomic,

racial, and ethnic groups, I hypothesize that there will be few gender and racial differences in the effect of the structure of family of origin on young adults' first union formation choices.

Hypothesis 3: Young-adult children of both genders from non-intact families are more likely to cohabit rather than marry compared to children from intact families, and the socialization effect is equivalent between genders.

Hypothesis 4: Young adults of all racial-ethnic groups from non-intact families are more likely to cohabit than marry compared to children from intact families, and the socialization effect is equivalent across racial-ethnic groups.

DATA

In order to test my hypotheses, I will use data from Wave 1 and Wave 4 of the National Longitudinal Study of Adolescent Health (Add Health). The sampling method and general characteristics of the data are described in Chapter 1. The analytic sample size for this specific study is 11,541 (5,456 male and 6,085 female). Respondents who were missing sampling weights (901 cases) and who had non-parent respondents to the parental questionnaire (2,465 cases) as well as those with other missing/invalid values were dropped from the analysis. Respondents who had already formed their first union by the Wave 1 survey were also eliminated from the analysis in order to keep time order of events. By the time of Wave 1 survey, 453 respondents (132 male and 321 female) had formed a first union: 71 respondents (15 males and 56 females) had married and 413 respondents (124 males and 289 females) had cohabited, of which 31 (7 males and 24 female) experienced both marriage and cohabitation before Wave 1.

My research design has two weaknesses with respect to testing my hypotheses. The first limitation is caused by the age variation in the sample. I use the annual records of family status arrays from the year of birth programmed by Harris (1999). Detailed and retrospective data on family structure are available up to Wave 1 when the sample was aged 11-19. However, this means that 19-year-olds have complete history from birth to the end of adolescence, whereas 11-years-olds do not. Although I can try to fill information about younger respondent with Wave 2 and Wave 3 data, available information is not as detailed regarding their family status changes after Wave 1. Because I am interested in union formation after Wave I, I focus on family status only up to Wave 1, using Wave 1 as an anchor for observation of family structure. Living in non-intact families for 4 years out of 12 years of life or out of 18 years of life may have different implications for young adults' socialization. I will operationalize this exposure by creating a variable for the proportion of time spent in each family type (See p. 33).

The second limitation of the data is the underrepresentation of individuals from more disadvantaged socioeconomic and family backgrounds in the analytic sample due to missing data primarily on parental questionnaire. Appendix 1 shows the comparison of frequency distribution between the analytic sample (the first column) and those who were not included in the analysis (the second column) with a column of the subsample of those who had a first union before Wave 1 (the third column). In the non-analytic group, half of the respondents had lived in a single-parent family, a quarter had lived in a family with no biological parent, and over half of them did not have valid responses from a parent regarding household income and parental religion and religiosity. The non-sample group also had lower parental educational achievement and family income, and they were more likely to be racial

minorities and first or second generation immigrants compared to the analytic sample. Socioeconomic disadvantages are particularly evident among 453 respondents who had already formed their first union by Wave 1. Almost 60 percent of them lived in a single-parent family (35 percent of the analytic sample), 40 percent lived in a family with no biological parents (4.6 percent of the analytic sample), and over 57 percent of adolescent union formers had parents with no college educational experiences (40 percent of the analytic sample). Omitting these "disadvantaged" respondents might underrepresent the findings regarding the effect of family of origin on children's union formation behaviors, especially on those in non-intact family forms. I resolve this problem by controlling for factors on which the small number of respondents differs in an event history analysis.

MEASURES

Dependent Variable

The dependent variable is the age in months during which the first union formation occurred. I will conduct an event history analysis with two types of events: marriage and cohabitation. First, a variable for first union is created from the marital and cohabitation histories to determine the distribution of first union type. Respondents who have never married or cohabited are categorized as 'no union,' those who have married but never cohabited before the first marriage are categorized as 'marriage,' and those who have cohabited but never married and those who cohabited before first marriage are categorized as 'cohabitation.' The exposure period is from age 13 to age at Wave 4, and each respondent's exposure ends at the month when the first union was formed or when the Wave 4 interview

occurred and no union was formed. Thus, those who never enter a union are right-censored at their age at Wave 4.

Table 1 shows the distribution of first union type. While 19.1 percent of the male respondents and 15.2 percent of the female respondents had never had a union, 15.7 percent of males and 19.3 percent of females married, and about 65 percent of both male and female respondents cohabited as a first union. Women's average age at first union formation is 22.2 for marriage and 21.3 for cohabitation, and men's average age at first union formation is 23.4 for marriage and 22.5 for cohabitation.

Independent Variables

Parental union behaviors in family of origin are the fundamental socialization independent variables and are measured by the proportion of lifetime up to Wave 1 in each family status; experience of parental cohabitation; and mother's age at first marriage. The frequency distribution and weighted percentages are shown in Table 1.

Proportion of lifetime up to Wave 1 in each family status. In the Wave 1 parental interview, which was mainly completed by mothers, the parent reported on his/her three most recent marriages or marriage-like relationships. Using these data with family structure at Wave 1, family structure from birth to Wave 1 was determined by Add Health director Kathleen Mullan Harris and shared with Add Health users. A combination of mother's and father's statuses represents one of eight family status types over the child's life: two biological parents, biological mother and stepfather, biological father and stepmother, adoptive parent(s), foster parent(s), single mother, single father, and surrogate parent(s). I

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arrange these into four family types: intact families (including adoptive parents), stepfamilies, single-parent families, and families with no biological-parent families (foster and surrogate).

Next, I create four variables that show the proportion of years in an individual's lifetime up to Wave 1 lived in each family type by dividing the number of years in each family type by the age of the respondent at Wave 1. For example, if a 16-year-old respondent who was born in a married biological-parent family experienced parental divorce at age 4 and resident mother's remarriage at age 12, the proportions of each family type in her lifetime are 0.25 (4/16) in an intact family, 0.5 (8/16) in a single-parent family, 0.25 (4/16) in a stepfamily, and 0 in a family with no biological parent. This operationalization resolves the variation in age of respondents at Wave 1, to which I anchor family structure experience.

The weighted frequency distribution (Table 1) shows that14.4 percent of respondents had never lived in an intact family, while 69.8 percent of respondents had spent over half of their lifetime in this type of family. About a fifth of respondents had lived in a stepfamily, at some point, and a third had lived in a single-parent family. Four percent had experienced a household with no biological parent.

Parental cohabitation. Experience of parental cohabitation is another measure of socialization into a non-intact family form. As the Add Health dataset does not include a variable that measures this directly, I create a new measure with four variables to cover as much of the child's life as possible. The first to third variables are parental union history of the three most recent marriages or marriage-like relationships as reported in the parental questionnaire in Wave 1. The fourth variable is a dummy variable for cohabiting parents at the time of Wave 1 created from resident parents' status reported. When a parent's status is reported by the adolescent at Wave 1 (i.e., household roster) as biological parent's partner

but not a stepparent of the respondent, the couple is considered to be cohabiting. This variable is included in order to capture current parental cohabitation as fully as possible; parental cohabitation is expected to be underreported due to both parents' and adolescents' hesitancy about reporting nonmarital relationships or their lack of understanding of the question.

The respondents whose parents reported cohabitation in at least one of these four variables are considered to have experienced parental cohabitation. While this variable covers only the three most recent parental unions, the number of parents who reported more than three unions is very small (187 among 11,541). Thus, this is the best possible variable for measuring experience of parental cohabitation with this dataset. In order to obtain as large a sample size as possible, missing cases, which account for 1.6 percent of the respondents, are kept and treated as a separate category.

Only a small amount of parental cohabitation was reported: 13.3 percent of respondents had lived with a cohabiting parent. The household rosters in Wave 1 show that 2.14 percent of respondents were living with a cohabiting parent at the time of the survey. In the 1995 Current Population Survey, only 0.772 percent of parents living with children under 15 years reported having a cohabitation partner (calculated from Table 8 in p.71 in Current population reports by the Census Bureau). On the other hand, the Survey of Income and Program Participation (SIPP) shows that 4.5 percent of respondents between ages 35 and 39, 3.4 percent between ages 40 and 44 year olds, and 2.7 percent between ages 45 and 49 year olds had cohabited in 1996 (Baughman, Dickert-Conlin, and Houser 2002). There is likely to be an undercount of cohabitation because of hesitancy of respondents to report cohabitation due to "taboos and possible stigmas associated with cohabitation" (Casper and

Cohen 2000: 3). The Add Health measure, therefore, is plausible, lying between the lower

CPS estimate and the high SIPP estimates. The higher cohabitation rates seen in SIPP are

expected to be derived from the fact that the population includes adults without children as

well as parents.

Mother's age at first marriage. Mother's age at first marriage is also used to test

socialization theory. As I stated above, most parents interviewed were respondents' mothers

(95.5%), and 90.3 percent were their biological mothers. When the parental interviewee was

a mother, I employed their age at first marriage for this measure, including that of non-

biological resident mothers who make up 5.2 percent of parents interviewed, as they can also

become role models for children. The average age at first marriage among mothers who

provided valid information was 20.9 years. I create three categories for this variable:

mothers who married at age 19 or younger (40.7%), mothers who married at age 20 or older

(50.8%), and missing (8.5%). The missing category includes mothers who refused to answer

this question, never-married mothers, and non-mother parental respondents.

Control Variables

The control variables consist of three groups of variables: family background,

religious background, and demographic characteristics. These variables are included to

control for additional sources of socialization or factors by which socialization varies in the

models. Frequency tables and weighted percentages of each category are shown in Table 1.

Family background. The family background variables include family annual income,

parental education level, parental occupation, economic hardship, and the number of co-

residing siblings. Family income is acquired from the parental questionnaire in Wave 1, as

estimates of income before taxes in 1994. While it is ideal to capture more dynamic family

income measures for a more effective control, the Add Health dataset does not have income

across time. I recoded a continuous income reports into five categories: 0 to 15,999 (below

the poverty line in 1994: 13.8%), 16,000 to 31,999 (twice the poverty line: 20.1%), 32,000 to

50,999 (25.9%), and 51,000 and higher (middle-class income: 29.9%), and missing income

(10.4%).

The data have many missing responses for parental education levels as they were

reported by children. Therefore, I created a variable for parental education levels using the

following guidelines: (1) If responses on both resident parents' education are valid, I employ

the higher education level; (2) If a response on one of resident parents is invalid, I employ the

other parent's education level; (3) If neither of responses on resident parents is valid, I

employ the higher education level of non-resident biological parents; (4) If neither of

responses on resident parents is valid, and if a response on only one of non-resident

biological parents is valid, I employ the valid non-resident parent's education level; and (5) If

the education level of none of these four types of parents is available, I treat this as a missing

case. Parents' education is therefore measured by the following categorical variable of

parent's final education level: less than high school (10.1%), high school graduate (30.6%),

some college (21.9%), bachelor's degree or higher (34.9%), and missing cases (2.5%).

I also include parental occupation and family economic hardship in order to control

for confounding factors of family structure socialization. Respondents with at least one

parent with a professional or managerial occupation are categorized as 'professional or

managerial job' (39.2%), whereas 55.1 percent of respondents had a parent with non-

professional/ managerial job, and 5.7 percent either did not provide information about their parent's job or their parents were unemployed.

Economic hardship is measured by a dummy variable. Respondents are considered as having experienced economic hardship if their families either had received welfare before age 18 or did not have enough money to pay bills at Wave 1. This captures a more longitudinal picture of family economic situation in childhood and adolescence. About 4 in 10 respondents had experienced some economic hardship by age 18.

Finally, a variable for number of siblings is used to control for family size. This variable is created from the household rosters at Wave 1 reported by the respondents and treated as a dummy variable from 0, 1, 2, and 3 or more. Although this measurement does not count the number of siblings who did not reside with the respondents, it still gives an indication of family size. At the time of Wave 1 about a fifth of the respondents did not have any siblings in the same household, while 40.2 percent had one and 25.4 percent had two. The rest of the respondents (14.1%) had more than two siblings.

Religious background. Religious background is measured by parent's religious affiliation and religiosity. While both respondent's and parent's religion and religiosity measures are available in the Add Health data, I chose parent's religious information as controls. According to Pearce and Thornton (2007), individuals' religious affiliation and participation in childhood and adolescence are associated with their attitudes about appropriate and desirable family behaviors. Because this study examines the transmission of attitudes and behaviors from parents to children through socialization, it seems more appropriate to use parental religion and religiosity as controls in the sense that family structure socialization and religious socialization may occur at the same time. I categorized

religious denominations of parent at parental interview (primarily the mother) following

Steensland et al. (2000): mainline Protestant (20.3%), evangelical Protestant (31.4%),

Catholic (26.9%), others and indeterminate (12.3%), and no religious affiliation (6.6%).

Mainline Protestant is treated as the reference group.

Religiosity is measured by the frequency of religious service attendance by the

mother in one year prior to the Wave 1 interview. The respondents are categorized into four

groups: never attending (including those who have no religious affiliation), attending less

than once a month (24.4%), attending less than once a week (18.2%), and attending once a

week or more often (37.1%).

Demographic characteristics. Demographic characteristics include the respondent's

age, immigrant status, gender, and race and ethnicity. I control for age with a dummy

variable of under age 28 at Wave 4 because younger respondent have lower likelihood of

union formation by Wave 4. Immigrant status is measured by first generation, second

generation, and third generation or higher (including Native Americans) (Harris 1999). I also

control for gender because women enter unions earlier than men on average.

Race and ethnicity are measured as follows. Those who self-identified as White,

Black, Native American, Asian or Pacific Islander and self-identified as non-Hispanic are

categorized into their respective racial groups. Those who identified as more than one race

are categorized as mixed race. Hispanic respondents are categorized as Hispanic regardless

of their racial category. Because of oversampling of minorities, the analytic sample has a

higher proportion of racial and ethnic minorities. After weighting, 70.5 percent of the

respondents were White and 12.3 percent were Black, followed by Hispanic (9.7 percent),

Asian or Pacific Islander (2.3%), and Native American (0.5%), while 4.8 percent were mixed race.

Variables Not Included

There are several background variables that are expected to have an important association with first union formation but that I do not include in my analyses, such as respondents' educational achievement, work and schooling statuses, and reproductive history. I decided not to include these because they are endogenous to union formation. That is, decisions about union formation are typically made in combination with decisions about schooling or childbearing. In this study, I focus on the effect of family of origin on first union formation, rather than the effect of individual attainment factors. I also do not include macro-level factors (e.g., economic opportunities and marriage policies). In addition, I want to first establish family context effects on first union type before I explore factors related to other ecological levels in the subsequent chapter.

ANALYTICAL APPROACH

I will use a competing risk hazard model to conduct event history analysis as my analytic method. Although there are several techniques for competing risk hazard models, I will employ competing-risks regression. This method was introduced by Fine and Gray (1999) as an alternative to Cox regression in the presence of one or more competing risks, and an operationalization recently became available with the `stcrreg` command in Stata 11 (StataCorp 2009). In my analysis, cohabitation and marriage are two competing events of

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first union formation, and I am studying the risk of first union formation during the time from age 13 to first union formation (or end of survey) in relation to parental union behaviors.

Competing-risks regression is quite similar to Cox regression. The model is semiparametric in that the baseline subhazard $\bar{h}_{1,0}(t)$ for covariates set to zero is left unspecified, while the effects of the covariates x are assumed to be proportional:

$$\bar{h}_1(t|x) = \bar{h}_{1,0}(t)\exp(x\beta)$$

Estimation with `stcrreg` will produce estimates of β, or exponentiated coefficients known as subhazard ratios. For example, when event of interest is cohabitation, this equation gives you the subhazard for cohabitation at time t given the value of covariate x ($\bar{h}_c(t|x)$), which is a function of the baseline subhazard for cohabitation at time t ($\bar{h}_{1,0}(t)$) adjusted by the exponentiated effect of covariate x (β). A positive coefficient means that the effect of increasing that covariate will increase the subhazard and thus increase the cumulative incidence function (CIF) across the board. The CIF shows the failure function, P (T≤t and event type of interest), or the probability of experiencing the event of interest by time T (StataCorp 2009 p. 199).

Competing-risks regression has two strengths compared to Cox regression. First, competing-risks regression produces CIF values without treating a competing event as censored, as Cox regression does. In my data, respondents who experienced marriage in a given month, for example, are treated as experiencing a competing event to cohabitation and are no longer at risk of forming the first union, while respondents who experienced neither of these events by Wave 4, in other words, who remain single, are treated as right-censored cases at the point of the Wave 4 interview. Therefore, a function produced in competing-risks

regression provides more accurate estimates than a hazard function produced in Cox regression.

Second, the function obtained by competing-risks regression is easy to interpret. The focus of Cox models is on the survivor function that indicates the probability of surviving beyond a given time ("What is the probability that nothing happens before age 28? And what is the probability that when first union formation happens, it will be cohabitation not marriage?"). The focus in competing-risks regression is on the CIF that indicates the probability of the event of interest happening before a given time ("What is the probability of entering cohabitation by age 29?"). Therefore, the effects of covariates on the curves are easily quantified and interpretation of the subhazard ratio is more straightforward in competing-risks regression (StataCorp 2009 p. 199).

My basic hypothesis is that experiencing non-intact families will increase the incidence of cohabitation over marriage. The subhazard functions are expressed in the form of incidence of event (marriage or cohabitation) compared to not having the event or competing event. In other words, the incidence of marriage is compared to not forming a first union, and the incidence of cohabitation is also compared to not forming a first union. Therefore, I produce a CIF for cohabitation and marriage, and then calculate the ratio of the subhazard functions between them. I also present graphs of estimates of the CIF. Stata (2009) does not produce this estimate or test for its significance, so this ratio can be used to gauge the overall pattern. These graphs visually show the incidence of entering cohabitation or marriage by selected covariates.

An important assumption of the competing-risks analysis is the proportionality of subhazards. To examine whether proportionality assumption holds, I conducted a lifetable

analysis and plotted the cumulative probability of failure by family structure covariates shown in Figures 2. 1. 1-12. When the proportionality assumption is met, the ratio of slopes for each value on a covariate is the same across all time points. On the other hand, the proportionality assumption is violated when the curves cross and rates of slope change over time. Currently Stata does not allow users to statistically test the proportionality assumption of event occurrences in competing-risks regression models when there is no time-varying covariate (StataCorp 2009). Therefore, these graphs are descriptive and give us a sense of the validity of the proportionality of subhazards. These graphs show that the proportionality assumption generally holds with few exceptions when sample sizes are small (e.g., only 4.1 percent of the sample experienced no-biological parent families).

My event history analysis includes two models to test the explanatory power of parental union variables that capture socialization effects and other control variables on the risk of first union formation. Both models include sampling weights and adjust for the clustered sampling design. Model 1 includes only the parental union behavior variables—the structure of the family of origin, parental cohabitation, and mother's age at first marriage. Model 2 adds all other control variables to the variables in Model 1.

I first run a competing-risks regression model for all respondents (N=11,541), controlling for gender and race. Next, I run a model with gender interaction terms to test whether there is a significant difference in the socialization processes by gender, and then a model with race interaction terms to test whether there is a significant difference in the socialization processes across racial groups. The results show that there is no significant gender difference in the socialization process for first union type, whereas there are

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significant differences between races. Based on this finding, I finally run the models by four major racial-ethnic groups—Whites, Blacks, Hispanics, and Asians.

RESULTS

Bivariate Analysis

As was expected in *Hypothesis 1*, the cross tabulations of family structure and children's first union type show significant associations between the structure of family of origin and first union type (Table 2). Respondents who had spent more than half of their life before Wave 1 in intact families are much less likely to cohabit as a first union compared to respondents who spent a smaller proportion of their childhood in intact families. Respondents who had lived in stepfamilies and single-parent families are more likely to cohabit than those who did not live in these family forms. Parental cohabitation and mother's early marriage are also associated with a higher incidence of cohabitation.

Some interesting gender-racial differences were observed in the bivariate analysis. First, some parental union behavior variables are not significantly associated with first union type for racial minorities, whereas all those variables show statistically significant association for Whites. For example, the proportion of childhood spent in intact families has no significant association with first union type among Blacks and Asians. Mother's age at her first marriage is significantly associated with the type of first union only for Whites (p<0.001). Second, household income and family economic hardship show significant differences in first union type only for men; male respondents who had lower family income are more likely to cohabit and those who had experienced economic hardship are less likely to get married as a first union. Third, racial minorities show fewer statistically significant

associations between control variables and first union type, while almost all control variables have a significant association with first union type for Whites.

There were also some interesting findings for control variables regarding parental religion and religiosity. First, parent's religious affiliation has significant association with the first union type for both genders, but it is significant only for Whites. The respondents whose parents are Catholic or having no religious affiliation are more likely to cohabit and less likely to marry as a first union, whereas those whose parents are Evangelical Protestant or other religions (non-Mainline Protestant, non-Catholic) are more likely to marry and less likely to cohabit. On the other hand, parent's religiosity has a significant association with first union type for Whites, Blacks, and Hispanics. Overall, the respondents whose parents have stronger religiosity are more likely to marry and less likely to cohabit as a first union. Immigrant status is significant only for non-Whites, such that the third generation is more likely to cohabit, and first-generation Hispanics and Asians are more likely to marry.

The incidence of first union varied greatly by gender and race as well. Generally speaking, women are more likely to marry as a first union and less likely to remain single. As for racial difference, Blacks and Native Americans have a very small incidence of marriage compared to Whites (17.9% for Whites, 10.9% for Blacks, and 5.6% for Native Americans), whereas over a fifth of Asians and Hispanics married as a first union. Asians and Hispanics also show a smaller incidence of cohabitation compared to Whites (67.1% for Whites, 45.9% for Asians, and 58.2% for Hispanics). Furthermore, there are major gender differences within racial groups for Hispanics and Asians. Hispanic women are 50 percent more likely to marry as a first union than Hispanic men, and Asian women are 55 percent more likely to cohabit as a first union than Asian men.

In order to test *Hypothesis 2* (Young-adult children who spent a longer proportion of their lifetimes growing up in non-intact families are more likely to cohabit rather than marry compared to children who live in non-intact families for shorter periods of time), I conducted a bivariate lifetable analysis shown as a series of graphs for the cumulative failure function of cohabitation and marriage by percentage of childhood spent in each family structure (Figures 2. 1. 1-4 and 2. 1. 7-10). The results show that this hypothesis is largely supported. Figures 2.1.1 (cohabitation) and 2.1.7 (marriage) show that the respondents who spent over half of their childhood in intact families have a lower incidence of cohabitation and higher incidence of marriage compared to those who spent half or less of their childhood in intact families. Specific types of non-intact families show that those who spent a small proportion of childhood in non-intact families have a slightly lower incidence of marriage than those who never lived in non-intact families, and that those who spent the majority of their childhood in non-intact families have an even lower incidence of marriage than those who spent a smaller proportion of childhood in non-intact families (Figures 2. 1. 8-10). On the other hand, the curves show similar patterns for everyone who spent at least some time during childhood in non-intact families, while the incidence of cohabitation is lower for the respondents who never lived in non-intact families (Figures 2. 1. 2-4). These results indicate that longer exposure to non-intact families strengthens the socialization effect for marriage, but not for cohabitation.

Competing-Regression Analysis for the Total Sample

Table 3 shows the results of the competing-risks regression of cohabitation and marriage for the total sample with socialization variables. In each model, C/S shows the

estimated subhazard ratios of the incidence of cohabitation as opposed to not having a first union; M/S shows the estimated subhazard ratios of the incidence of marriage as opposed to not having a first union; and C/M represents my calculation of the ratio, C/S divided by M/S, or the subhazard ratios of the incidence of cohabitation to marriage. Model 1 includes the variables to test socialization effects. The results show that some types of non-intact families have a significant association with the incidence of first union. The incidence of cohabitation compared to no first union is 5 percent higher with every additional 10 percent of childhood spent in stepfamilies (C/S column, first row) and 2 percent higher with every additional 10 percent of childhood spent in single-parent families (C/S column, second row) as opposed to living in intact families, and the incidence of marriage compared to no first union is 3 percent lower with every additional 10 percent of their childhood spent in single-parent families (M/S column) as opposed to living in intact families. Therefore, every additional 10 percent of childhood living in stepfamilies and single-parent families increases the incidence of cohabitation over marriage by 5 to 6 percent (C/M column). Next, other parental union behaviors also show significant association patterns with the first union. Having lived with a cohabiting parent is associated with a 36 percent higher incidence of cohabitation and 41 percent lower incidence of marriage, making the incidence of cohabitation over marriage more than double. Having a mother who married as a teenager is associated with a 15 percent higher incidence of cohabitation and 41 percent higher incidence of marriage, making the incidence of cohabitation over marriage 18 percent lower than the comparison group whose mothers married at age 20 or older.

Model 2 adds all control variables to Model 1. Some variables lose their statistical significance in this model. While the positive association of stepfamilies with the incidence

of cohabitation remains, the statistical significance of single-parent families disappears for both cohabitation and marriage. Having lived with a cohabiting parent is still associated with a 23 percent higher incidence of cohabitation and 31 percent lower incidence of marriage, making the incidence of cohabitation over marriage quite high. Mother's young age at her first marriage loses its statistical significance on cohabitation after introducing control variables, but its effect on marriage remains intact, making the incidence of cohabitation over marriage 19 percent lower compared to the comparison group with mothers who married at age 20 or older.

In Model 2, some control variables are found to have significant associations with the incidences of cohabitation and marriage. Having a college-graduate parent is associated with a 17 percent lower incidence of cohabitation, and having a parent affiliated with Evangelical protestant or other religion (non-Protestant, no-Catholic) is associated with a 42 to 52 percent higher incidence of marriage, making the net incidence of cohabitation over marriage lower. Having a religious parent is associated with a lower incidence of cohabitation and higher incidence of marriage, making the incidence of cohabitation over marriage lower. In particular, the incidence of cohabitation over marriage among the respondents whose parents attend religious services weekly are 70 percent less likely to choose cohabitation over marriage as a first union compared to those whose parents who do not attend religious services. Being younger (age 28 or younger at Wave 4) is associated with a 19 percent higher incidence of cohabitation and 27 percent lower incidence of marriage as a first union compared to the older group, making the incidence of cohabitation over marriage higher. Being a first- or second-generation immigrant is associated with lower incidence of cohabitation and higher incidence of marriage, making the incidence of cohabitation over

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marriage very low. While no racial difference is found in the incidence of cohabitation,

Blacks and Native Americans are less likely to marry as a first union compared to Whites.

Female respondents have a 15 percent higher incidence of cohabitation and 37 percent higher

incidence of marriage than male respondents as opposed to not forming a union.

In order to visually present the association between parental union behavior variables

and first union type, I plotted graphs of competing-risks regressions. Figures 2. 2. 1 to 2. 2.

10 show estimates of the cumulative incidence curve of marriage and cohabitation as a first

union type by each family structure variable, adjusting for all control variables (i.e., full

model). They represent the incidence of entering marriage or cohabitation by certain ages.

The X-axis shows the number of month from the beginning of the observation period (age

13) to the end of observation (Wave 4). For example, X=150 indicates the time point when a

respondent is age 25.5. While the cumulative incidence curves for marriage by percentage of

childhood spent in stepfamilies in Figure 2. 2. 6 are identical and indicate that there is no

difference by duration, the cumulative incidence for cohabitation by percentage of childhood

spent in stepfamilies in Figure 2. 2.1. shows distinctly different curves. By age 29.7 (month

200), 80 percent of respondents who spent the entire time from birth to Wave 1 in

stepfamilies (dash-dot line) have cohabited; whereas 68 percent of respondents who never

lived in a stepfamily (solid line) have cohabited. Other graphs by family structure (Figures 2.

2. 2 and 2. 2. 3 for cohabitation; Figures 2. 2. 7. and 2. 2. 8 for marriage) shows slightly

different curves by the percentage of childhood spent in each family type, but the differences

are not statistically significant.

The most distinct differences are observed in the graphs for the cumulative incidence

of marriage by parental cohabitation (Figure 2. 2. 9.) and by mother's age at her first

marriage (Figure 2. 2. 10.). The cumulative incidence of marriage is clearly higher for those

whose parent never cohabited and those whose mother married as a teenager. On the other

hand, the cumulative incidence of cohabitation is higher for those who lived with a

cohabiting parent (Figure 2. 2. 4), and the incidence of cohabitation does not seem to have

association with mother's age at her first marriage (Figure 2. 2. 5.).

Gender Difference Test

In order to test *Hypothesis 3* (socialization effect is equivalent for both genders), I

tested for a gender interaction with socialization variables. Appendix 2 shows gender

interaction effects for marriage and cohabitation (bolded items). The Wald F-test was used to

examine whether adding gender interaction terms significantly improves the original model

without interaction terms. Overall, there was no statistically significant difference by gender

for socialization variables for the total sample ('Total' column). The p-values of the Wald F-

test for the total sample's marriage and cohabitation (the bottom row of Appendix 2) are not

significant at the 0.05 level. I also tested gender interaction effects by race, exploring the

possibility that the gender difference in each racial group is cancelled out due to opposing

directions of the effects among races. However, I found that gender interaction is largely not

statistically significant. Moreover, most of the significant gender differences in socialization

processes are found for covariates with a small sample size. For example, the gender

interaction test for cohabitation among Whites and Asians indicates that the incidence of

cohabitation is higher for females who had lived in families with no biological parent than

their male counterpart. This result comes from a small sample size of Asians who had lived

in no-biological parent families (N=31), and the from the finding that almost all of 134 White

women who had lived in this type of family formed a first union by Wave 4, whereas a substantial number of 107 White men who had lived in this type of family did not form a first union by Wave 4.

Racial Difference Test

Next, I tested race interaction with socialization variables in order to test *Hypothesis 4* (socialization effect is equivalent for all racial groups). Appendix 3 shows racial interaction effects for cohabitation and marriage (bolded items). Again, I used the Wald F-test. Because of the small size of racial minorities other than Blacks and Hispanics, I categorized all other minorities as 'other' and tested whether adding race interaction terms significantly improves the original model without interaction terms. The Wald F-test shows that one of the p-values for total sample's cohabitation (p=0.0320) and two of the p-values for marriage (0.0106 and 0.0005) are significant at the 0.05 level. Therefore, I concluded that socialization effects vary by race.

Competing-Regression Analysis by Race

Based on the gender and race interaction test results, I present the results of competing-risks regression analysis by race. Table 4 shows the result for marriage with the first column for Whites, the second column for Blacks, the third column for Hispanics, and the fourth column for Asians. Models 1 include only socialization variables, and the subhazard ratios show that the associations between socialization variables and the incidence of first union vary in their direction and statistical significance by race. Living in stepfamilies and single-parent families is associated with a higher incidence of cohabitation over marriage

for Whites. However, none of the types of non-intact families have a significant association with the incidence of cohabitation and marriage for Blacks, while living in any type of non-intact family is associated with a higher incidence of cohabitation over marriage for Hispanics. Asians have a very low incidence of marriage when they had lived in no-biological parent families, but this extreme subhazard ratio is likely to be derived from the small number of Asian respondents who had lived in this type of family. Parental cohabitation is associated with a high incidence of cohabitation for Whites and Blacks, but not for Hispanics and Asians. Parental cohabitation is also associated with a very low incidence of marriage for Whites—less than half of the incidence of marriage for those who had never experienced parental cohabitation—but there is no association between parental cohabitation and incidence of marriage for Blacks and Hispanics. Asians show a very high incidence of marriage when they experienced parental cohabitation, which is perhaps because cohabitation is so rare in most Asian societies during the for parents' generation (only 18 respondents experienced parental cohabitation) that the subhazard ratio becomes extreme. Finally, mother's early marriage increased the incidence of both cohabitation (19%) and marriage (41%) for Whites, but there is no association for non-Whites. No association is found for Blacks and Hispanics. Mother's early marriage shows a significant positive association with the incidence of marriage for Whites, but not for minorities.

Models 2 in Table 4 show the results of competing-risks regression for cohabitation and marriage by racial group. Living in stepfamilies is associated with 3 percent higher incidence of cohabitation for Whites, but the significant association between single-parent families and first union found in Model 1 disappears after introducing control variables. The association between non-intact family types and first union type remains approximately the

same for Blacks, Hispanics, and Asians compared to Models 1: none of the non-intact family types has significant associations for Blacks, all types of non-intact family types have significant associations for Hispanics, and only the no-biological parent family type has a significant association for Asians. Parental cohabitation is associated with a very high incidence of cohabitation over marriage for Whites (the incidence of cohabitation versus marriage is 2.37) and somewhat high incidence of cohabitation over marriage for Blacks (the incidence of cohabitation versus marriage is 1.21), but such association is not observed for Hispanics and Asians. Mother's early marriage is associated with a higher incidence of marriage only for Whites.

Control variables also showed different associations with incidence of cohabitation and marriage by race. Parent's bachelor's degree is associated with a 19 percent lower incidence of cohabitation for Whites, but not significant for non-Whites. Parent's religion has a significant association for Whites and Asians: respondents who have a parent affiliated with Evangelical Protestantism and other religions have a higher incidence of marriage. On the other hand, such an association is not observed for Blacks and Hispanics. Parent's religiosity is associated with a lower incidence of cohabitation and higher incidence of marriage for Whites, Blacks, and Hispanics, but the association is the clearest among Whites. The younger age group has a significantly higher incidence of cohabitation and lower incidence of marriage for Whites, Blacks, and Hispanics, but not for Asians. Black first generation immigrants are less likely to get married as a first union, whereas Hispanic and Asian first generation immigrants are more likely to get married. White women have a 20 percent higher incidence of cohabitation and 37 percent higher marriage than men, while Hispanic women have a 67 percent higher incidence of marriage than Hispanic men and

Asian women have a 135 percent higher incidence of cohabitation than Asian men. There is no significant gender difference in the incidence of cohabitation and marriage among Blacks.

CONCLUSION

This chapter explores family of origin processes of socialization by testing the associations between parental union behaviors experienced in childhood and adolescence and first union type in early adulthood. In particular, I focused on three issues that were not clearly resolved in the prior research First was whether there is a duration effect of socialization, indicating that longer exposure to non-intact families during childhood increases the likelihood of forming nontraditional unions in young adulthood. My second focus was the gender difference in socialization, and the third was racial difference in socialization.

Results show that the general arguments of socialization theory are supported. My first hypothesis was supported: Compared to individuals from intact families, individuals who have ever experienced living in non-intact families or parental cohabitation during childhood or adolescence are more likely to cohabit instead of marry during early adulthood; individuals whose mothers married at a young age are more likely to form unions at younger ages. While the association is not uniform for all racial groups, living in stepfamilies, single-parent families, or families with no biological parent is associated with a lower incidence of marriage and higher incidence of cohabitation; experiencing parental cohabitation is associated with a lower incidence of marriage and higher incidence of cohabitation; and having a mother who married as a teenager is associated with a higher incidence of marriage. These results affirm the overall argument of socialization theory.

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My second hypothesis was largely supported by Figures 2. 1. 1-4 and Figures 2. 1. 7-10 of the cumulative incidence of cohabitation and marriage: Young-adult children who spent a longer proportion of their childhood growing up in non-intact families are more likely to cohabit rather than marry compared to children who live in non-intact families for shorter periods of time. In general, spending some period of childhood in non-intact families is associated with a higher incidence of cohabitation and lower incidence of marriage. However, longer exposure to non-intact families had different effects on marriage and cohabitation. The longer exposure to non-intact families strengthens socialization effect for marriage, but not for cohabitation. In other words, the larger proportion of childhood individuals spend in non-intact families, the less likely they marry as a first union, but the likelihood of cohabitation is approximately the same no matter how long they live in non-intact families.

The results that the association patterns between family structure and first union type are similar between stepfamilies and single-parent families—they are both associated with a higher incidence of cohabitation over marriage—are suggestive of the effect of stepfamilies on children. In past studies, two competing arguments had been raised regarding socialization in stepfamilies. One argument is that stepfamilies serve as a model of support for married-couple families, and that children from stepfamilies are more likely to marry as an adult compared to those who did not experience parental remarriage. For example, Wolfinger's study (2001) found that stepfamilies are more similar to intact families, because individuals who experienced parental remarriage following parental divorce are just as likely to marry to their cohabiting partner as those who did not experience parental divorce, whereas those who experienced parental divorce are very unlikely to marry. The other argument is that stepfamilies are formed as a result of family disruption and re-formation, and that so much

disruption makes them more similar to single-parent families than intact families (Amato

1993; Amato and Keith 1991; Cherlin 1978; Cherlin, Chase-Lansdale, and McRae 1998;

Coleman, 1988, 1990; Furstenberg 1987; Hagan, MacMillan, and Wheaton 1996). The

results of this study indicate that the association between living in stepfamilies and first union

formation is similar to that of single-parent families rather than that of intact families.

Therefore, it supports the second argument.

Meanwhile, a recent study indicates that the effect of family reformation can vary by

the presence of parental cohabitation before remarriage. This study revealed that adult

children from stepfamilies formed without cohabitation do not have significantly higher

likelihood of cohabitation, whereas those from stepfamilies formed after cohabitation have

higher likelihood of cohabitation (Sassler, Cunningham, and Lichter 2009). This suggests the

necessity to explore more specific patterns of association between the trajectories of family

of origin and union formation.

The second focus of this study is whether the socialization effect varies by gender. In

Hypothesis 3, I predicted that young-adult children of both genders from non-intact families

are more likely to cohabit rather than marry as a first union compared to children from intact

families, and that there is no gender difference. The results for the total sample showed

support for this hypothesis. There was no statistically significant gender difference in the

processes of socialization in first union type, and this finding is consistent with Sassler's

findings (2009).

However, women in some racial groups showed a higher incidence of first union

formation than men. White women had a significantly higher incidence of cohabitation and

marriage than White men. This might be because White women tend to form unions with

older men. The gender gap in the average age at first union formation for Whites is 1.3 for both marriage and cohabitation. Because the Add Health data does not observe union formation behavior across the life course, men have less opportunity to form a union than women due to this. On the other hand, Black women were no more likely to form a first union than Black men. The lack of gender difference among Blacks might be explained by the low incidence of marriage and cohabitation for Blacks. Because of higher incarceration rates and smaller number of marriageable (or cohabitable) men (Guzzo 2006, Harknett 2008, Lloyd and South 1996), Black women have more difficulties in finding a union partner in contrast to women of other racial-ethnic groups. Furthermore, the gender gap in average age at first union formation among Blacks is very small (the gender gap for Blacks is 0.7 for marriage and 0.3 for cohabitation). Hispanic women had a significantly higher incidence of marriage than Hispanic men. The high incidence of marriage for Hispanic women might be explained by their early entrance to marriage and a large age gap at marriage as a first union. Hispanic women's average age at marriage as a first union is the youngest of all racial-ethnic groups (22.0), and their intra-racial gender gap in the age at marriage as a first union is the largest (1.6). Therefore, Hispanic women tend to marry at younger ages to older men. Finally, Asian women had a significantly higher incidence of cohabitation than Asian men. Table 2 shows Asian men's unusually low incidence of cohabitation as a first union (36.4 % while 65.3 % of the total male sample formed a first union in the form of cohabitation) and very high likelihood of not forming a first union by Wave 4 (43.5% while 19.1% of the total male sample never formed a first union by Wave 4). On the other hand, Asian women show the similar first union formation pattern to the total female sample. This gender gap might be

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explained by high rates of interracial cohabitation among Asian women, especially with White men (Lee and Fernandez 1998; Qian and Lichter 2007).

Finally, the first half of the fourth hypothesis was supported: Young adults of all racial-ethnic groups from non-intact families are more likely to cohabit than marry compared to children from intact families, and the socialization effect is equivalent across racial-ethnic groups. The results of competing-risks regression analysis show that there is some association between parental union behaviors and young adults' first union type for all racial groups. However, the strength, direction, and statistical significance of the association between parental union behaviors and first union type vary to some extent across racial-ethnic groups. For example, living in any type of non-intact family is associated with a lower incidence of marriage and higher incidence of cohabitation for Hispanics, whereas family structure type did not have a statistically significant association with union type among Blacks. Such racial differences might be explained by cultural differences of race and family structure. First, each racial-ethnic group has a unique culture and values regarding family. For example, Hispanics tend to highly value more traditional family structure and gender roles (Acevedo 2009; Willoughby 2010). Therefore, it is reasonable that growing up in non-intact families has a stronger effect on children than other groups. On the other hand, Blacks have very high proportion of non-intact families, which may make the effect of growing up in non-intact families less stigmatized and unusual. Second, there might be an effect of family structure in a larger context. In other words, not only the immediate family but also other surrounding people's union behaviors may have socialization effects on young-adult children's union formation behaviors. For example, Black children from intact families may have more tolerant attitudes about non-intact families than their Hispanic counterpart because

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they have more chances to observe people who form non-intact families. This issue will be explored more in the next chapter by examining the influence of family structures in neighborhood and school.

Such racial differences in family culture may also explain why White respondents who experienced parental cohabitation showed a very low incidence of marriage—almost half compared to those who did not experience parental cohabitation—and why White respondents with a mother who married as a teenager are associated with a higher incidence of marriage. First, White parents' union behaviors may reflect their ideologies and personal values more strongly than for minority parents. Minorities often explain their cohabitation as an alternative to marriage because they cannot afford marriage or their partner is not quite marriageable or lacking resources. On the other hand, more White parents may have cohabited due to ideological reasons such as not believing in marriage as a good arrangement for equality of partners, and they may have married young based on personal religious beliefs that promote traditional family life. Because middle-class Whites have been the main group that has experienced the most drastic changes in union formation behaviors such as delaying marriage (Luker 1996), socialization effects may increase when parents have such unique attitudes about romantic unions.

Another possible explanation is that family socialization for minorities does not have as strong effect as for Whites because of their unique and dynamic patterns of union formation such as lower likelihood of coresidential union formation for young Blacks, especially in the form of marriage, and common practice of early union formation for young Hispanics. Furthermore, minority young adults' incidence of marriage is smaller, and

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marriage among Blacks is very rare. Therefore, parental union behaviors might seem less relevant to the differences in the incidence of marriage among minorities.

Racial differences in socialization effects may also result from structural factors, or the likelihood of union formation itself. Compared to Whites and Hispanics, Blacks have fewer opportunities to form coresidential relationships, especially in the form of marriage. In other words, they have low variation on union formation regardless of their parents' union behaviors. Therefore, my finding of weak socialization effects among Blacks may be explained by their limited opportunities to form coresidential relationships and low likelihood of marriage.

As I discussed in Chapter 1, there are three other theoretical perspectives that explain similar patterns of union behaviors between parents and a child: economic deprivation, social control, and instability and family status change. First, I found weak evidence that economic deprivation explains the intergenerational similarity in union behavior. Two control variables—family income and economic hardship before age 18—are measures of economic deprivation. In bivariate analysis (Table 2), economic deprivation is associated with higher incidence of cohabitation. However, in the competing-risks analysis with all control variables, the associations are not statistically significant (Table 3). Second, social control theory is also supported by the results of bivariate analysis, but not by the competing-risks analysis. Social control theory argues that the presence of two biological parents provides the most effective control on children's behaviors. However, it is not clear how that applies to union formation. In the bivariate analysis, individuals who never lived in intact families have a very low incidence of marriage and high incidence of cohabitation as a first union type. However, there is little statistically significant association between specific non-intact family types and

first union type compared to living in intact families after controlling for all variables. Finally, instability and change theory cannot be tested in this study, because variables used in this study do not include the number of family status changes. Such variable can be created from the family status array and is expected to be tested in future studies.

Overall, this chapter suggests two main conclusions. First, socialization operates in processes of first union formation, and parental union behaviors function as a template of first union decision for young-adult children. In addition, the socialization of family behavior is stronger in marriage behavior with increasing duration, which should be taken into account in future studies. Second, while socialization operates for all racial-ethnic groups, its effects differ by racial groups, which should also be taken into account in future studies on socialization. These findings indicate that today's young adults' union formation is influenced by their childhood experience of their parents' family behaviors in the historical context of profound family change and diversifying family behaviors (e.g., Bumpass and Lu 2000; Teachman 2002, 2003; Wu 2008). Furthermore, racial differences found in the pattern of socialization processes and first union formation suggest that culture and norms of family behavior by race have important influences on union behaviors.

Table 2. 1. 1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Gender.

Variable	Category	Total (N=11,541)			Male (N=5,456)			Female (N=6,085)		
		Freq	%	weight %	Freq	%	weight %	Freq	%	weight %
Independent variables										
% of childhood spent in intact family	0%	1,820	15.8	**14.4**	804	14.7	**13.2**	1,016	16.7	**15.6**
	0.1-50%	1,840	15.9	**15.8**	856	15.7	**15.7**	984	16.2	**15.9**
	50.1%-	7,881	68.3	**69.8**	3,796	69.6	**71.1**	4,085	67.1	**68.6**
% of childhood spent in stepfamily	0%	9,211	79.8	**79.6**	4,368	80.1	**79.9**	4,843	79.6	**79.4**
	0.1-50%	1,404	12.2	**12.3**	657	12.0	**12.5**	747	12.3	**12.1**
	50.1%-	926	8.0	**8.1**	431	7.9	**7.6**	495	8.1	**8.5**
% of childhood spent in single-parent family	0%	7,415	64.3	**65.4**	3,576	65.5	**66.6**	9,839	63.1	**64.3**
	0.1-50%	2,040	17.7	**17.5**	956	17.5	**17.4**	1,084	17.8	**17.7**
	50.1%-	2,086	18.1	**17.0**	924	16.9	**16.0**	1,162	19.1	**18.1**
% of childhood spent in no- bio parent family	0%	11,008	95.4	**95.9**	5,206	95.4	**95.4**	5,802	95.4	**96.0**
	0.1-50%	337	2.9	**2.7**	159	2.9	**2.8**	178	2.9	**2.6**
	50.1%-	196	1.7	**1.4**	91	1.7	**1.5**	105	1.7	**1.4**
Parental cohabitation	No	9,788	84.8	**85.2**	4,672	85.6	**85.3**	5,116	84.1	**85.0**
	Yes	1,527	13.2	**13.3**	691	12.7	**13.1**	836	13.7	**13.4**
	Missing	226	2.0	**1.6**	93	1.7	**1.6**	133	2.2	**1.6**
Mother's age at first marriage	19 or younger	4,429	38.4	**40.7**	2,095	38.4	**40.7**	2,334	38.4	**40.7**
	20 or older	6,030	52.3	**50.8**	2,813	51.6	**50.0**	3,217	52.9	**50.5**
	Missing	1,082	9.4	**8.5**	548	10.0	**9.3**	534	8.8	**7.8**
Dependent variable										
Status of first union	No union	2,068	17.9	**17.1**	1,093	20.0	**19.1**	975	16.0	**15.2**
	Marriage	2,088	18.1	**17.5**	890	16.3	**15.7**	1,198	19.7	**19.3**
	Cohabitation	7,385	64.0	**65.4**	3,473	63.7	**65.3**	3,912	64.3	**65.6**

Table 2. 1. 1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Gender, continued.

Variable	Category	Total (N=11,541)			Male (N=5,456)			Female (N=6,085)		
		Freq	%	weight %	Freq	%	weight %	Freq	%	weight %
Control Variables										
Household income in 1994	$0-15,999	1,545	13.4	**13.8**	738	12.8	**13.5**	909	13.9	**14.6**
	$16,000-31,999	2,395	20.8	**20.1**	1,079	20.5	**19.5**	1,214	21.0	**20.2**
	$32,000-50,999	2,889	25.0	**25.9**	1,428	26.2	**27.5**	1,461	24.0	**24.3**
	$51,000-	3,398	29.4	**29.9**	1,636	30.0	**29.6**	1,762	29.0	**30.1**
	Missing	1,314	11.4	**10.4**	575	10.5	**9.9**	739	12.1	**10.8**
Parental education	Less than HS	1,237	10.7	**10.1**	526	9.6	**9.3**	711	11.7	**10.9**
	High school	3,268	28.3	**30.6**	1,547	28.4	**30.6**	1,721	28.3	**30.5**
	Some college	2,477	21.5	**21.9**	1,137	20.8	**21.1**	1,340	22.0	**22.6**
	Bachelor or higher	4,263	36.9	**34.9**	2,092	38.3	**36.1**	2,171	35.7	**33.6**
	Missing	296	2.6	**2.5**	154	2.8	**2.8**	142	2.3	**2.3**
Parental occupation	Professional/managerial	4,750	41.2	**39.2**	2,336	42.8	**40.4**	2,414	39.7	**38.1**
	Non-prof/managerial	6,104	52.9	**55.1**	2,826	51.8	**54.3**	3,278	53.9	**55.9**
	Unemployed/missing	687	6.0	**5.7**	294	5.4	**5.4**	393	6.5	**6.0**
Economic hardship	No	6,857	59.4	**60.7**	3,314	60.7	**62.1**	3,543	58.2	**59.4**
	Yes	4,684	40.6	**39.3**	2,142	39.3	**37.9**	2,542	41.8	**40.7**
Number of siblings	0	1,064	18.8	**20.3**	1,064	19.5	**21.0**	1,109	18.2	**19.7**
	1	2,166	39.9	**40.2**	2,166	39.7	**39.7**	2,443	40.2	**40.7**
	2	1,408	25.7	**25.4**	1,408	25.8	**25.7**	1,559	25.6	**25.1**
	3 or more	818	15.5	**14.1**	818	15.0	**13.6**	974	16.0	**14.6**
Parental religion	Mainline Protestant	1,189	21.5	**22.8**	1,189	21.8	**22.7**	1,286	21.1	**22.9**
	Evangelical Protestant	1,650	31.1	**31.4**	1,650	30.8	**30.7**	1,944	32.0	**32.0**
	Catholic	1,630	29.0	**26.9**	1,630	29.9	**27.9**	1,711	28.1	**26.1**
	Other religion	680	12.3	**12.3**	680	12.5	**12.9**	736	12.1	**11.8**
	No religion	307	6.2	**6.6**	307	5.6	**5.6**	408	6.7	**0.7**
Parental religiosity (church attendance)	No attendance/missing	976	18.5	**20.3**	976	17.9	**19.8**	1,164	19.1	**20.8**
	Less than 1/mo	1,342	23.8	**24.4**	1,342	24.6	**25.7**	1,406	23.1	**23.3**
	Less than 1/wk	950	18.3	**18.2**	950	17.4	**17.9**	1,160	19.1	**18.5**
	1/wk or more	2,188	39.4	**37.1**	2,188	40.1	**36.6**	2,355	38.7	**37.5**

Table 2. 1. 1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Gender, continued.

Variable	Category	Total (N=11,541)			Male (N=5,456)			Female (N=6,085)		
		Freq	%	weight %	Freq	%	weight %	Freq	%	weight %
Control Variables										
Age at Wave 4	29 or older	2,839	49.2	**43.2**	2,839	52.0	**45.7**	2,833	46.6	**40.8**
	28 or younger	2,617	50.9	**56.8**	2,617	48.0	**54.3**	3,252	53.4	**59.2**
Immigrant status	1st generation	302	5.6	**3.5**	302	5.5	**3.4**	339	5.6	**3.6**
	2nd generation	745	13.3	**9.5**	745	13.7	**9.6**	795	13.1	**9.4**
	3rd generation-	4,409	81.1	**87.0**	4,409	80.8	**87.1**	4,951	81.4	**87.0**
Race/ethnicity	White	3,174	56.9	**70.5**	3,174	58.2	**71.7**	3,389	55.7	**69.3**
	Black	894	18.2	**12.3**	894	16.4	**10.9**	1,210	19.9	**13.6**
	Native American	28	0.5	**0.4**	28	0.5	**0.5**	27	0.4	**0.3**
	Asian	274	4.4	**2.3**	274	5.0	**2.5**	238	3.9	**2.2**
	Hispanic	783	14.2	**9.7**	783	14.4	**9.7**	854	14.0	**9.7**
	Mixed non-Hisapnic	303	5.8	**4.8**	303	5.6	**4.7**	367	6.0	**4.9**
Gender	Male	5,456	47.3	**49.4**	2,839	52.0	**45.7**	2,833	46.6	**40.8**
	Female	6,085	52.7	**50.7**	2,617	48.0	**54.3**	3,252	53.4	**59.2**

Table 2. 1. 2. Frequency and Percentage Distribution of All Variables in the Analytic Sample by Race and Ethnicity.

Variable	Category	White (N=6,563)		Black (N=2,104)		Hispanic (N=1,637)		Asian (N=512)	
		Freq	weight %	Freq	weight %	Freq	weight %	Freq	weight %
Independent variables									
% of childhood spent in intact family	0%	707	10.3	664	35.7	279	18.0	43	9.3
	0.1-50%	1,032	15.8	404	16.8	235	13.6	39	10.1
	50.1%-	4,824	73.9	1,036	47.5	1,123	68.4	430	80.7
% of childhood spent in stepfamily	0%	5,257	80.2	1,603	76.8	1,344	82.1	467	87.0
	0.1-50%	736	11.6	352	16.2	174	11.4	32	9.4
	50.1%-	570	8.4	149	7.0	119	6.5	13	3.6
% of childhood spent in single-parent family	0%	4,583	70.0	900	38.7	1,081	66.0	425	75.6
	0.1-50%	1,149	16.9	440	23.1	243	14.4	68	13.6
	50.1%-	831	13.1	764	38.2	313	19.6	39	10.8
% of childhood spent in no- bio parent family	0%	6,322	96.7	1,937	92.8	1,558	94.7	405	93.6
	0.1-50%	161	2.4	82	4.0	41	2.4	68	4.9
	50.1%-	80	0.9	55	3.2	38	2.9	39	1.2
Parental cohabitation	No	5,854	88.4	1,559	71.1	1,315	81.6	481	93.0
	Yes	630	10.5	495	26.1	249	15.1	18	6.4
	Missing	79	1.1	50	2.8	73	3.3	13	0.7
Mother's age at first marriage	19 or younger	2,751	42.5	568	29.7	771	47.5	72	16.2
	20 or older	3,427	51.7	1,103	47.0	746	44.4	380	72.7
	Missing	385	5.8	433	23.3	120	8.1	60	11.3
Dependent variable									
Status of first union	No union	948	15.0	529	24.2	305	19.1	166	33.9
	Marriage	1,242	17.9	228	10.9	408	22.7	92	20.2
	Cohabitation	4,373	67.1	1,347	64.9	924	58.2	254	45.9
Control variables									
Household income in 1994	$0-15,999	556	9.4	501	31.0	359	24.2	30	10.4
	$16,000-31,999	1,214	18.4	505	25.9	447	27.0	90	14.1
	$32,000-50,999	1,801	28.1	409	16.8	336	19.9	136	25.1
	$51,000-	2,370	35.0	384	12.3	248	15.2	184	35.9
	Missing	622	9.2	305	14.1	247	13.8	72	14.6

Table 2. 1. 2. Frequency and Percentage Distribution of All Variables in the Analytic Sample by Race and Ethnicity, continued

Variable	Category	White (N=6,563)		Black (N=2,104)		Hispanic (N=1,637)		Asian (N=512)	
		Freq	weight %	Freq	weight %	Freq	weight %	Freq	weight %
Control variables									
Parental education	Less than HS	417	**6.7**	191	**11.5**	539	**33.5**	24	**7.8**
	High school	1,939	**30.3**	624	**37.7**	426	**27.7**	87	**15.0**
	Some college	1,484	**23.0**	454	**20.8**	293	**16.0**	75	**11.8**
	Bachelor or higher	2,630	**38.5**	762	**25.4**	299	**17.9**	304	**58.6**
	Missing	93	**1.6**	73	**4.7**	80	**4.9**	22	**6.8**
Parental occupation	Prof/managerial	2,962	**43.3**	806	**30.2**	407	**22.3**	288	**48.9**
	Non-prof/manage	3,363	**53.3**	1,072	**55.3**	1,076	**67.9**	207	**48.1**
	Unemployed/missing	238	**3.5**	226	**14.6**	154	**9.8**	17	**3.0**
Economic hardship	No	4,418	**67.2**	901	**37.0**	806	**48.2**	352	**63.8**
	Yes	2,145	**32.8**	1,203	**63.0**	831	**51.8**	160	**36.2**
Number of siblings	0	1,277	**20.8**	414	**21.1**	250	**15.7**	77	**17.1**
	1	2,859	**43.1**	774	**34.4**	550	**30.6**	183	**34.2**
	2	1,626	**24.7**	561	**26.6**	458	**28.0**	146	**27.2**
	3 or more	811	**11.4**	355	**17.9**	379	**25.7**	106	**21.5**
Parental religion	Mainline Protestant	1,857	**27.7**	288	**10.5**	120	**6.1**	79	**20.5**
	Evangelical Protestant	1,702	**27.2**	1,483	**75.3**	184	**14.1**	39	**8.0**
	Catholic	1,688	**25.6**	89	**3.0**	1,112	**65.0**	236	**36.2**
	Other religion	868	**12.7**	170	**7.0**	145	**9.4**	113	**29.5**
	No religion	448	**6.8**	74	**4.2**	76	**5.4**	45	**5.9**
Parental religiosity (church attendance)	No attendance/missing	1,442	**22.1**	169	**9.5**	255	**16.8**	85	**15.7**
	Less than 1/mo	1,783	**26.7**	343	**16.9**	346	**20.0**	89	**13.9**
	Less than 1/wk	1,098	**17.1**	464	**21.8**	363	**23.9**	77	**18.1**
	1/wk or more	2,240	**34.0**	1,128	**51.9**	673	**39.3**	261	**52.4**

Table 2. 1. 2. Frequency and Percentage Distribution of All Variables in the Analytic Sample by Race and Ethnicity, continued

Variable	Category	White (N=6,563)		Black (N=2,104)		Hispanic (N=1,637)		Asian (N=512)	
		Freq	weight %	Freq	weight %	Freq	weight %	Freq	weight %
Control variables									
Age at Wave 4	29 or older	3,074	**42.6**	1,009	**47.6**	953	**44.3**	315	**44.6**
	28 or younger	3,489	**57.4**	1,095	**52.5**	684	**55.7**	197	**55.4**
Immigrant status	1st generation	27	**0.4**	22	**0.6**	359	**21.0**	200	**39.7**
	2nd generation	261	**4.0**	87	**3.2**	782	**42.1**	236	**44.9**
	3rd generation or higher	6,275	**95.6**	1,995	**96.2**	496	**36.8**	76	**15.4**
Gender	Male	3,174	**50.2**	894	**43.8**	783	**49.5**	274	**52.8**
	Female	3,389	**49.8**	1,210	**56.2**	854	**50.5**	238	**47.2**

Table 2. 2. 1. Cross Tabulation of Family Socialization and Control Variables with First Union Type for Total Sample and by Gender.

Variable	Category	Total (N=11,541)				Male (N=5,456)				Female (N=6,085)			
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh	
		2,068	2,088	7,385		1,093	890	3,473		975	1,198	3,912	
		17.1%	17.5%	65.4%		19.1%	15.7%	65.3%		15.2%	19.3%	65.6%	
Family socialization													
% of childhood spent in intact family	0%	15.1	14.0	**78.9**		17.6	12.5	**69.9**		13.0	15.3	**71.7**	
	0.1-50%	12.7	15.3	**72.0**	***	14.6	13.0	**72.4**	***	10.9	17.6	**71.5**	***
	50.1%-	18.5	18.7	**62.8**		20.4	16.9	**62.8**		16.7	20.6	**62.8**	
% of childhood spent in stepfamily	0%	18.7	18.0	**63.3**		20.3	16.0	**63.7**		17.1	20.0	**63.0**	
	0.1-50%	11.3	16.5	**72.2**	***	14.6	16.3	**39.1**	***	7.9	16.8	**75.3**	***
	50.1%-	10.6	13.6	**75.8**		13.4	10.8	**75.8**		8.1	16.1	**75.8**	
% of childhood spent in single-parent family	0%	18.5	19.1	**62.4**		20.4	16.9	**62.7**		16.6	21.2	**62.2**	
	0.1-50%	12.4	15.8	**71.8**	***	14.7	15.9	**69.5**	***	10.1	15.8	**74.1**	***
	50.1%-	16.6	13.2	**70.2**		18.4	10.2	**71.3**		15.0	15.7	**69.2**	
% of childhood spent in no- bio parent family	0%	17.4	17.5	**65.0**		19.4	15.8	**65.9**		15.6	19.2	**65.2**	
	0.1-50%	8.4	15.2	**76.5**	*	10.1	11.0	**78.9**		6.6	19.4	**74.0**	*
	50.1%-	11.8	19.2	**68.9**		18.7	18.7	**62.7**		4.8	19.8	**75.4**	
Parental cohabitation	No	17.9	18.6	**63.5**		20.0	16.8	**63.2**		15.9	20.5	**63.7**	
	Yes	11.4	10.3	**78.4**	***	12.9	8.5	**78.5**	***	9.9	12.0	**78.2**	***
	Missing	22.5	15.2	**62.3**		21.2	13.6	**65.2**		23.8	16.7	**59.5**	
Mother's age at first marriage	19 or younger	11.8	21.1	**67.1**		13.2	19.2	**37.6**		10.5	22.9	**66.7**	
	20 or older	21.2	15.5	**63.2**	***	24.2	13.3	**62.5**	***	18.5	17.6	**63.6**	***
	Missing	17.8	12.0	**70.1**		17.7	12.9	**69.4**		18.0	11.0	**71.0**	
Control													
Household income in 1994	$0-15,999	14.4	17.5	**68.1**		14.6	14.1	**71.3**		14.2	20.5	**65.3**	
	$16,000-31,999	15.3	17.5	**67.2**		17.8	15.1	**67.1**		13.0	19.8	**67.2**	
	$32,000-50,999	16.7	18.6	**64.7**	*	18.6	18.1	**63.3**	*	14.7	19.2	**66.2**	
	$51,000-	19.4	16.5	**64.1**		21.7	14.3	**64.1**		17.3	18.6	**64.1**	
	Missing	18.6	17.3	**64.1**		21.5	16.0	**62.5**		16.0	18.5	**65.5**	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 2. 1. Cross Tabulation of Family Socialization and Control Variables with First Union Type for Total Sample and by Gender, continued

Variable	Category	Total (N=11,541)				Male (N=5,456)				Female (N=6,085)			
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh	
		2,068	2,088	7,385		1,093	890	3,473		975	1,198	3,912	
		17.1%	17.5%	65.4%		19.1%	15.7%	65.3%		15.2%	19.3%	65.6%	
Control													
Parental education	Less than HS	13.1	19.9	**67.0**		16.2	17.2	**66.6**		10.6	22.2	**67.3**	
	High school	13.6	16.7	**69.8**		15.2	15.3	**69.4**		12.0	18.0	**70.1**	
	Some college	14.4	18.3	**67.4**	***	15.9	17.6	**66.6**	***	13.1	18.9	**68.0**	***
	Bachelor or higher	22.9	17.1	**60.0**		25.0	14.6	**60.4**		20.6	19.8	**59.7**	
	Missing	20.1	15.9	**64.0**		19.4	13.9	**66.7**		21.0	18.2	**60.8**	
Parental occupation	Prof/managerial	20.0	17.4	**62.6**		22.5	15.7	**61.8**		17.4	19.2	**63.4**	
	Non-prof/managerial	15.3	17.7	**67.1**	***	17.0	15.6	**67.4**	**	15.6	19.7	**66.7**	
	Unemp/missing	15.2	15.6	**69.2**		14.1	16.0	**69.9**		16.1	15.3	**68.6**	
Economic hardship	No	17.9	18.3	**63.8**	*	20.2	16.7	**63.1**	*	15.6	19.9	**64.5**	
	Yes	15.9	16.2	**67.9**		17.3	13.9	**68.8**		14.5	18.4	**67.1**	
Number of siblings	0	15.0	17.7	**67.2**		16.3	14.9	**68.8**		13.8	20.6	**65.6**	
	1	16.5	16.7	**66.8**	*	19.5	16.0	**64.5**		13.6	17.4	**69.0**	**
	2	18.8	17.0	**64.2**		21.2	15.2	**64.6**		17.4	18.9	**63.7**	
	3 or more	18.8	20.1	**61.1**		20.1	16.8	**63.1**		17.7	23.1	**59.2**	
Parental religion	Mainline Protestant	17.4	14.4	**68.2**		20.3	12.0	**67.6**		14.6	16.4	**69.0**	
	Evangelical Protestant	15.6	21.7	**62.7**		16.0	18.9	**65.2**		15.2	24.2	**60.6**	
	Catholic	19.3	14.0	**66.7**	***	22.7	12.6	**64.3**	***	15.7	15.6	**68.7**	***
	Other religion	17.5	22.2	**60.3**		18.6	21.0	**59.9**		16.3	23.1	**60.6**	
	No religion	13.8	13.2	**73.1**		14.6	9.5	**73.1**		13.1	13.4	**73.6**	
Parental religiosity (church attendance)	No attendance	13.4	12.2	**74.5**		16.3	12.0	**71.7**		10.7	12.3	**77.0**	
	less than 1/mo	13.9	13.4	**72.7**		17.4	12.5	**70.2**		10.2	14.3	**75.5**	
	less than 1/wk	17.4	15.2	**67.4**	***	19.0	15.7	**65.3**	***	15.9	14.7	**69.4**	***
	1/wk or not	21.1	24.2	**54.7**		21.9	19.8	**58.3**		20.4	28.4	**51.2**	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 2. 1. Cross Tabulation of Family Socialization and Control Variables with First Union Type for Total Sample and by Gender, continued.

Variable	Category	Total (N=11,541)				Male (N=5,456)				Female (N=6,085)			
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh	
		2,068	2,088	7,385		1,093	890	3,473		975	1,198	3,912	
		17.1%	17.5%	65.4%		19.1%	15.7%	65.3%		15.2%	19.3 %	65.6 %	
Control													
Age at Wave 4	29 or older	13.9	20.8	**65.3**	***	14.7	18.8	**66.4**	***	13.0	22.9	**64.1**	***
	28 or younger	19.5	15.0	**65.5**		22.8	13.0	**64.3**		16.7	16.8	**66.6**	
Immigrant status	1st generation	24.8	31.5	**43.7**		31.7	28.0	**40.3**		18.6	34.7	**46.7**	
	2nd generation	20.4	20.8	**58.8**	***	24.1	19.0	**56.9**	***	16.8	22.5	**60.7**	**
	3rd or higher	16.4	16.6	**67.0**		18.1	14.8	**67.1**		14.9	18.3	**66.9**	
Race/ethnicity	White	15.0	17.9	**67.1**		17.1	16.1	**66.8**		12.9	19.7	**67.4**	
	Black	24.2	10.9	**64.9**		24.3	10.1	**66.5**		24.8	11.6	**63.7**	
	Native American	18.7	5.6	**75.7**	***	15.0	0.5	**84.5**	***	24.0	12.9	**63.2**	***
	Asian	33.9	20.2	**45.9**		43.5	21.2	**36.1**		23.1	20.3	**56.7**	
	Hispanic	19.1	22.7	**58.2**		23.5	18.1	**58.4**		14.8	27.2	**58.0**	
	Mixed non-Hisapnic	17.4	17.8	**64.8**		17.7	16.4	**65.9**		17.1	19.1	**63.8**	
Gender	Male	19.1	15.7	**65.3**	***								
	Female	15.2	19.3	**65.6**									

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 2. 2. Cross Tabulation of Family Socialization and Control Variables with First Union Type by Race and Ethnicity.

Variable	Category	White (N=6,543)				Black (N=2,104)				Hispanic (N=1,637)				Asian (N=512)			
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh	
		948	1,242	4,373		529	228	1,347		305	408	924		166	92	254	
		14.4 %	18.9 %	66.6 %		25.1 %	10.8 %	64.0 %		18.6 %	24.9 %	56.4 %		32.4 %	18.0 %	49.6 %	
Family socialization																	
% of childhood spent in intact family	0%	9.6	14.4	**76.0**		22.1	10.8	**67.1**		17.6	13.5	**68.9**		29.3	29.2	**41.5**	
	0.1-50%	10.9	16.2	**72.9**	***	20.5	8.4	**71.2**		17.0	17.7	**65.3**	**	33.9	8.2	**57.8**	
	50.1%-	16.6	18.7	**64.7**		27.0	11.9	**61.1**		19.9	26.1	**53.9**		34.4	20.7	**45.0**	
% of childhood spent in stepfamily	0%	16.5	18.3	**65.2**		26.5	10.9	**62.6**		20.5	24.4	**55.1**		34.0	22.2	**43.8**	
	0.1-50%	9.9	17.9	**72.3**	***	14.6	11.2	**74.2**	**	13.4	17.3	**69.3**	**	19.6	4.9	**75.5**	*
	50.1%-	7.7	13.9	**78.4**		20.9	10.0	**69.1**		11.7	11.1	**77.3**		67.0	10.8	**22.3**	
% of childhood spent in single-p family	0%	16.8	18.8	**64.4**		29.1	12.4	**58.6**		18.7	26.7	**54.6**		34.1	20.5	**45.5**	
	0.1-50%	9.6	17.4	**73.1**	***	17.5	10.7	**71.8**	**	17.3	12.1	**70.6**	**	43.7	24.2	**32.1**	
	50.1%-	12.6	13.2	**74.2**		23.3	9.6	**67.2**		22.0	17.1	**61.0**		19.9	13.3	**66.8**	
% of childhood spent in no-bio-p family	0%	15.3	17.9	**66.1**		24.9	10.7	**64.4**		19.4	23.3	**57.3**		34.3	19.8	**46.0**	
	0.1-50%	5.2	14.8	**80.1**	*	7.5	16.6	**75.9**		23.1	18.1	**57.8**		34.9	11.5	**53.5**	
	50.1%-	8.7	24.5	**66.8**		23.4	10.7	**65.9**		4.9	9.2	**85.9**		4.7	76.0	**19.2**	
Parental cohabitation	No	15.8	18.9	**65.2**		27.1	11.5	**61.4**		19.4	24.5	**56.1**		34.0	19.7	**46.3**	
	Yes	8.2	8.9	**82.9**	***	15.0	8.4	**76.7**	**	16.6	16.6	**66.8**	*	30.8	24.0	**45.2**	
	Missing	13.9	17.0	**69.2**		36.2	20.4	**43.4**		22.5	7.9	**69.7**		42.3	49.4	**8.2**	
Mother's age at marriage	- 19	9.3	21.3	**69.4**		23.8	12.8	**63.4**		17.2	25.7	**57.2**		13.8	34.9	**51.9**	
	20 -	20.0	15.5	**64.4**	***	24.2	12.4	**63.5**		21.2	20.1	**58.7**		39.2	16.6	**44.4**	
	Missing	12.2	13.2	**74.5**		24.7	5.6	**69.7**		18.9	20.1	**61.0**		27.7	22.3	**49.9**	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 2. 2. Cross Tabulation of Family Socialization and Control Variables with First Union Type by Race and Ethnicity, continued.

Variable	Category	White (N=6,543)				Black (N=2,104)				Hispanic (N=1,637)				Asian (N=512)		
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh
		948	1,242	4,373		529	228	1,347		305	408	924		166	92	254
		14.4 %	18.9 %	66.6 %		25.1 %	10.8 %	64.0 %		18.6 %	24.9 %	56.4 %		32.4 %	18.0 %	49.6 %
Control																
Household income in 1994	$0-15,999	8.8	17.8	**73.4**		24.2	9.7	**66.1**		13.3	29.3	**57.5**		17.7	33.9	**48.5**
	$16,000-31,999	12.6	17.1	**70.3**		20.2	11.0	**68.8**		21.3	24.9	**53.8**		19.9	26.7	**53.3**
	$32,000-50,999	14.5	19.3	**66.2**	***	26.1	15.8	**58.1**		23.2	15.7	**61.1**		40.8	13.2	**46.1**
	$51,000-	18.4	17.1	**64.5**		27.5	7.1	**65.5**		18.3	19.0	**62.7**		37.0	13.2	**49.8**
	Missing	14.9	17.8	**67.3**		26.3	10.8	**62.9**		20.1	21.1	**58.8**		39.1	33.5	**24.5**
Parental education	Less than HS	7.9	16.9	**75.2**		19.4	12.0	**68.6**		16.4	26.9	**56.7**		33.3	39.6	**27.2**
	High school	10.5	17.6	**71.9**		26.6	11.1	**65.3**		22.2	19.2	**58.6**		22.0	11.7	**66.3**
	Some college	12.2	19.0	**68.8**	***	19.3	10.5	**70.2**		18.4	21.5	**60.1**		36.6	20.1	**43.4**
	Bachelor -	21.5	17.6	**60.9**		30.1	11.3	**58.6**		21.6	20.8	**57.7**		35.3	20.0	**44.7**
	Missing	15.1	17.6	**67.3**		29.3	6.4	**64.3**		13.8	24.8	**61.4**		43.8	18.7	**37.5**
Parental occupation	Prof/manage	18.3	18.1	**63.6**		28.0	10.0	**62.0**		18.5	21.2	**60.4**		37.3	19.3	**43.5**
	Non-prof/mng	12.9	17.5	**69.6**	***	21.7	12.2	**66.2**		19.9	24.0	**56.1**		31.6	21.6	**46.8**
	Unemp/missing	7.1	19.2	**73.7**		25.9	7.9	**66.3**		14.8	17.3	**67.9**		15.2	13.8	**71.0**
Economic hardship	No	16.4	18.2	**65.4**	*	24.8	12.5	**62.7**		20.9	22.9	**56.2**		32.8	19.6	**47.6**
	Yes	12.2	17.2	**70.6**		23.8	10.0	**66.2**		17.4	22.6	**60.0**		35.8	21.3	**43.0**
Number of siblings	0	12.4	19.2	**68.4**		25.6	9.0	**65.4**		17.2	20.0	**62.8**		38.9	12.6	**48.5**
	1	14.6	16.8	**68.6**	*	22.7	13.9	**63.4**		19.7	19.5	**60.9**		36.7	16.7	**46.6**
	2	18.0	17.6	**64.5**		21.7	8.8	**69.5**		18.3	23.6	**58.1**		30.5	25.0	**44.5**
	3 or more	14.8	19.9	**65.3**		28.9	10.5	**60.6**		20.5	27.3	**52.2**		29.5	25.8	**44.7**

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 2. 2. Cross Tabulation of Family Socialization and Control Variables with First Union Type by Race and Ethnicity, continued.

Variable	Category	White (N=6,543)				Black (N=2,104)				Hispanic (N=1,637)				Asian (N=512)			
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh	
		948	1,242	4,373		529	228	1,347		305	408	924		166	92	254	
		14.4 %	18.9 %	66.6 %		25.1 %	10.8 %	64.0 %		18.6 %	24.9 %	56.4 %		32.4 %	18.0 %	49.6 %	
Control																	
Parental religion	Mainline	16.2	14.9	**68.9**		26.1	10.0	**63.9**		16.7	27.9	**55.5**		48.8	7.0	**44.2**	
	Evangelical	10.7	26.1	**63.2**		23.5	10.8	**65.7**		24.2	27.0	**48.8**		24.5	35.3	**40.2**	
	Catholic	19.3	11.5	**69.2**	***	33.5	4.7	**61.8**		18.1	20.8	**61.1**		32.4	16.9	**50.7**	
	Other	15.0	22.0	**63.1**		25.5	18.1	**56.4**		20.7	26.8	**52.6**		26.4	30.8	**42.8**	
	No religion	11.7	12.9	**75.4**		23.3	7.5	**69.2**		18.2	21.8	**60.0**		40.9	12.5	**46.6**	
Parental religiosity	No attend.	11.1	11.6	**77.3**		28.5	6.3	**65.3**		17.4	18.0	**64.6**		37.1	18.3	**44.6**	
	-1/mo	12.7	14.3	**73.0**		18.7	6.3	**75.1**		16.7	13.0	**70.3**		37.9	0.1	**61.3**	
	- 1/wk	17.0	15.5	**67.6**	***	21.0	10.3	**68.7**	**	13.1	20.1	**66.8**	***	28.1	19.6	**52.3**	
	1/wk-	18.4	25.9	**55.7**		26.5	13.6	**60.0**		24.7	31.3	**44.0**		33.8	26.1	**40.1**	
Age at Wave 4	29 or older	12.0	20.7	**67.3**	***	21.0	13.4	**65.7**		16.6	28.8	**54.6**	*	24.0	27.9	**48.1**	*
	28 or younger	17.3	15.7	**67.0**		27.1	8.7	**64.2**		21.1	17.9	**61.0**		41.8	14.0	**44.2**	
Immigrant status	1st	39.6	6.9	**53.4**		66.0	1.6	**32.5**		20.5	36.1	**43.4**		27.2	31.5	**41.3**	
	2nd	14.6	20.6	**64.9**		27.4	20.4	**52.2**	**	20.2	22.2	**57.6**	***	40.8	16.4	**42.8**	**
	3rd -	14.9	17.8	**67.3**		23.8	10.7	**65.6**		17.1	15.7	**67.3**		30.7	2.4	**67.0**	
Gender	Male	17.1	16.1	**66.8**	***	23.4	10.1	**66.5**		23.5	18.1	**58.4**	**	43.5	20.2	**36.4**	**
	Female	12.9	19.7	**67.4**		24.8	11.6	**63.7**		14.8	27.2	**58.0**		23.1	20.3	**56.7**	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 3. Subhazard Ratios from Competing-Risks Regression for First Union Formation for Total Sample.

		Model 1			Model 2		
		C/S	M/S	C/M	C/S	M/S	C/M
Family Structure							
Additional 10% of	Stepfamily	**1.05** ***	0.99	1. 06	**1.04** ***	1.00	1. 04
childhood spent in:	Single-parent family	**1.02** ***	**0.97** **	1. 05	1.01	0.98	1. 03
(ref: intact)	No-bio parent family	1.02	1.01	1. 01	1.02	1.02	1. 00
Parent cohab (a)	Yes	**1.36** ***	**0.59** ***	2. 31	**1.23** ***	**0.69** **	1. 78
Mom's mar age (a)	19 or younger	**1.15** ***	**1.41** ***	0. 82	1.06	**1.31** ***	0. 81
Control							
Family income (a)	$0-15,999				1.08	1.21	0. 89
(ref: $51,000-)	$16,000-31,999				1.10	1.12	0. 98
	$32,000-50,999				1.03	1.07	0. 96
Parental educ (a)	Less than HS				1.09	1.06	1. 03
(ref: high school)	Some college				0.97	1.06	0. 92
	Bachelor or higher				**0.83** ***	0.98	0. 85
Parental occup	Non-prof/managerial				1.02	0.96	1. 06
(ref: prof/manage)	Unemployed/missing				1.04	0.96	1. 08
Economic hardship	Yes				1.02	0.92	1. 11
Family size	No sibling				0.99	1.07	0. 93
(ref: 1 or 2 siblings)	3 or more siblings				0.94	1.12	0. 84
Parental religion	Evangelical				0.93	**1.52** ***	0. 61
(ref: Mainline	Catholic				1.04	0.82	1. 27
Protestatnt)	Other religion				0.91	**1.42** **	0. 64
	No religion				0.93	1.36	0. 68
Parental religiosity	Less than 1/mo				0.94	1.17	0. 80
(ref: no church	1/mo or more				**0.84** **	**1.37** *	0. 61
attendance)	1/wk or more				**0.63** ***	**2.14** ***	0. 29
Age at Wave 4	28 or younger				**1.19** ***	**0.73** ***	1. 63
Immigrant Status	1st generation				**0.56** ***	**2.05** ***	0. 27
(ref: 3rd or higher)	2nd generation				**0.86** *	**1.40** **	0. 61
Race	Black				0.96	**0.37** ***	2. 59
	Native American				0.99	**0.42** *	2. 36
	Asian				0.90	0.67	1. 34
	Hispanic				0.88	0.97	0. 91
	Mixed race				0.98	1.31	0. 75
Gender	Female	**1.14** ***	**1.32** ***	0. 86	**1.15** ***	**1.37** ***	0. 84
Region	West	0.86	1.21	0. 71	0.94	1.12	0. 84
(ref: Midweest)	South	**0.80** **	**1.62** ***	0. 49	0.87	**1.43** **	0. 61
	Northeast	0.89	0.81	1. 10	**0.88** *	0.86	1. 02

Table 2. 3. Subhazard Ratios from Competing-Risks Regression for First Union Formation for Total Sample, continued

	Model 1			Model 2		
	C/S	M/S	C/M	C/S	M/S	C/M
F	178.33	172.21		559.66	742.71	
Df	11	11		39	39	
Pr	0.0000	0.0000		0.0000	0.0000	
Wald F-test (b)						
F				278.19	258.29	
Df				28	28	
Pr				0.0000	0.0000	

(a) "Missing" categories are controlled, but not displayed.

(b) Test for whether added control variables significantly improve the fit of the model from Model 1.

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 4. 1. Subhazard Ratios from Competing-Risks Regression for First Union Formation for Whites.

		White (N=6,543)					
		Model 1			Model 2		
		C/S	M/S	C/M	C/S	M/S	C/M
Family Structure							
Additional 10% of	Stepfamily	**1.04** ***	0.99	1. 05	**1.03** ***	1.00	1. 03
childhood spent in:	Single-parent	**1.03** ***	**0.98** *	1. 05	1.01	0.97	1. 04
(ref: intact)	No-bio parent	1.02	1.03	0. 99	1.01	1.02	0. 99
Parent cohab (a)	Yes	**1.45** ***	**0.48** ***	3. 02	**1.28** ***	**0.54** ***	2. 37
Mom's marriage age (a)	19 or younger	**1.19** ***	**1.41** ***	0. 84	1.07	**1.35** ***	0. 79
Control							
Family income (a)	$0-15,999				1.07	1.17	0. 91
(ref: $51,000-)	$16,000-31,999				1.09	1.05	1. 04
	$32,000-50,999				1.05	1.08	0. 97
Parental educ (a)	Less than HS				1.09	0.99	1. 10
(ref: high school)	Some college				0.97	1.05	0. 92
	Bachelor or higher				**0.81** ***	0.95	0. 85
Parental occup	Non-prof/mange				1.02	0.92	1. 11
(ref: prof/manage)	Unemployed/miss				1.17	1.05	1. 11
Economic hardship	Yes				1.00	0.99	1. 01
Family size	No sibling				0.97	1.11	0. 87
(ref: 1 or 2)	3 or more siblings				1.01	1.08	0. 94
Religion	Evangelical				0.93	**1.54** ***	0. 60
(ref: Mainline	Catholic				1.05	0.77	1. 36
Protestatnt)	Other religion				0.92	**1.40** **	0. 66
	No religion				0.90	1.39	0. 65
Religiosity	Less than 1/mo				**0.85** *	**1.36** *	0. 63
(ref: no church	1/mo or more				**0.77** ***	**1.47** *	0. 52
attendance)	1/wk or more				**0.59** ***	**2.37** ***	0. 25
Age at Wave 4	28 or younger				**1.17** ***	**0.77** **	1. 52
Immigrant Status	1st generation				0.67	0.41	1. 63
(ref: 3rd or higher)	2nd generation				0.95	1.39	0. 68
Gender	Female	**1.18** ***	**1.35** ***	0.87	**1.20** ***	**1.37** ***	0. 88
Region	West	0.86	1.28	0.67	0.87	1.29	0. 67
(ref: Midwest)	South	**0.86** *	**1.68** ***	0.51	0.91	**1.39** *	0. 65
	Northeast	0.91	**0.67** *	1.36	**0.86** *	0.82	1. 05
F		163.42	134.96		413.04	574.97	
Df		11	11		34	34	
Pr		0.0000	0.0000		0.0000	0.0000	
Wald F-test (b)							
F					115.02	137.15	
Df					23	23	
Pr					0.0000	0.0000	

(a) "Missing" categories are controlled, but not displayed.
(b) Test for whether added control variables significantly improves the fit of the model from Model 1.
P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 4. 2. Subhazard Ratios from Competing-Risks Regression for First Union Formation for Blacks.

		Black (N=2,104)					
		Model 1			Model 2		
		C/S	M/S	C/M	C/S	M/S	C/M
Family Structure							
Additional 10% of	Stepfamily	1.02	1.02	1.00	1.02	1.01	1.01
childhood spent in:	Single-parent family	1.01	1.00	1.01	1.00	1.02	0.98
(ref: intact)	No-bio parent family	1.01	1.06	0.95	1.00	1.09	0.92
Parent cohabitation (a)	Yes	**1.35 ****	0.91	1.48	**1.25 ***	1.03	1.21
Mom's marriage age (a)	19 or younger	1.02	1.03	0.99	1.00	1.00	1.00
Control							
Family income (a)	$0-15,999				1.00	1.35	0.74
(ref: $51,000-)	$16,000-31,999				1.14	1.48	0.77
	$32,000-50,999				0.84	1.82	0.46
Parental education (a)	Less than high school				1.15	1.31	0.88
(ref: high school)	Some college				1.10	0.89	1.24
	Bachelor or higher				0.85	0.96	0.89
Parental occup	Non-prof/managerial				1.01	1.20	0.84
(ref: prof/manage)	Unemployed/missing				0.95	0.85	1.12
Economic hardship	Yes				0.94	0.82	1.15
Family size	No sibling				1.02	0.80	1.28
(ref: 1 or 2 siblings)	3 or more siblings				0.95	0.99	0.96
Religion	Evangelical				1.06	0.97	1.09
(ref: Mainline	Catholic				0.89	0.68	1.31
Protestatnt)	Other religion				0.95	1.73	0.55
	No religion				1.39	1.36	1.02
Religiosity	Less than 1/mo				**1.42 ***	0.96	1.48
(ref: no church	1/mo or more				1.22	1.51	0.81
attendance)	1/wk or more				1.00	1.77	0.56
Age at Wave 4	28 or younger				**1.23 ***	0.73	1.68
Immigrant Status	1st generation				**0.39 ***	**0.15 ***	2.60
(ref: 3rd or higher)	2nd generation				0.72	**2.43 ***	0.30
Gender	Female	0.96	1.16	0.83	0.93	1.16	0.80
Region	West	0.84	0.95	0.88	0.84	0.85	0.98
(ref: Midwest)	South	0.79	**1.90 ****	0.42	0.79	**1.66 ***	0.48
	Northeast	0.72	0.75	0.96	0.84	0.77	1.09
F		40.10	48.45		153.95	340.51	
df		11	11		34	34	
Pr		0.0000	0.0000		0.0000	0.0000	
Wald F-test (b)							
F					118.04	93.57	
df					23	23	
Pr					0.0000	0.0000	

(a) "Missing" categories are controlled, but not displayed.
(b) Test for whether added control variables significantly improves the fit of the model from Model 1.
P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 4. 3. Subhazard Ratios from Competing-Risks Regression for First Union Formation for Hispanics.

		Hispanic (N=1,637)					
		Model 1			Model 2		
		C/S	M/S	C/M	C/S	M/S	C/M
Family Structure							
Additional 10% of	Stepfamily	**1.08** **	0.91	1. 19	**1.07** **	0.91	1. 18
childhood spent in:	Single-parent family	**1.03** *	**0.94** **	1. 10	1.01	**0.93** **	1. 09
(ref: intact)	No-bio parent family	**1.10** **	0.88	1. 25	**1.09** **	**0.85** *	1. 28
Parent cohabitation (a)	Yes	1.06	0.93	1. 14	1.04	0.96	1. 08
Mom's marriage age (a)	19 or younger	0.93	1.28	0. 73	0.99	1.16	0. 85
Control							
Family income (a)	$0-15,999				1.11	1.61	0. 69
(ref: $51,000-)	$16,000-31,999				0.94	1.27	0. 74
	$32,000-50,999				1.03	0.70	1. 47
Parental education (a)	Less than HS				1.28	1.08	1. 19
(ref: high school)	Some college				1.10	1.09	1. 01
	Bachelor or higher				1.01	1.20	0. 84
Parental occup	Non-prof/managerial				1.01	0.91	1. 11
(ref: prof/manage)	Unemployed/missing				0.99	0.88	1. 13
Economic hardship	Yes				1.17	0.85	1. 38
Family size	No sibling				1.04	1.31	0. 79
(ref: 1 or 2 siblings)	3 or more siblings				0.91	1.16	0. 78
Religion	Evangelical				1.09	0.73	1. 49
(ref: Mainline	Catholic				1.12	0.55	2. 04
Protestatnt)	Other religion				1.17	0.74	1. 58
	No religion				1.00	0.61	1. 64
Religiosity	Less than 1/mo				1.29	0.68	1. 90
(ref: no church	1/mo or more				1.18	1.02	1. 16
attendance)	1/wk or more				**0.62** ***	1.48	0. 42
Age at Wave 4	28 or younger				**1.54** ***	**0.62** **	2. 48
Immigrant Status	1st generation				**0.52** ***	**1.83** *	0. 28
(ref: 3rd or higher)	2nd generation				0.85	1.23	0. 69
Gender	Female	1.08	**1.67** *	0. 65	1.14	**1.67** *	0. 68
Region	West	1.02	0.89	1. 15	1.11	0.78	1. 42
(ref: Midwest)	South	0.68	1.87	0. 36	0.80	1.46	0. 55
	Northeast	0.83	1.25	0. 66	1.03	0.86	1. 20
F		52.01	50.54		397.39	297.49	
df		11	11		34	34	
Pr		0.0000	0.0000		0.0000	0.0000	
Wald F-test (b)							
F					109.67	118.04	
df					23	23	
Pr					0.0000	0.0000	

(a) "Missing" categories are controlled, but not displayed.
(b) Test for whether added control variables significantly improves the fit of the model from Model 1.
P-value: ***p<0.001. **p<0.01. *p<0.05

Table 2. 4. 4. Subhazard Ratios from Competing-Risks Regression for First Union Formation for Asians.

		Asian (N=512)					
		Model 1			Model 2		
		C/S	M/S	C/M	C/S	M/S	C/M
Family Structure							
Additional 10% of childhood spent in:	Stepfamily	1.03	0.70	1. 47	1.05	0.73	1. 44
	Single-parent	1.05	1.01	1. 04	1.05	1.09	0. 96
(ref: intact)	No-bio parent	0.86	**0.12 ****	7. 17	0.76	**1.22 ***	0. 62
Parent cohabitation (a)	Yes	0.84	1.57	0. 54	0.64	**6.79 ***	0. 09
Mom's marriage age (a)	19 or younger	1.52	2.29	0. 66	1.33	2.09	0. 64
Control							
Family income (a)	$0-15,999				1.06	0.71	1. 49
(ref: $51,000-)	$16,000-31,999				1.49	1.45	1. 03
	$32,000-50,999				1.19	1.30	0. 92
Parental education (a)	Less than high school				0.28	2.91	0. 10
(ref: high school)	Some college				0.48	1.95	0. 25
	Bachelor or higher				0.59	1.47	0. 40
Parental occup	Non-prof/mng				1.07	0.69	1. 55
(ref: prof/manage)	Unemployed/miss				3.34	0.88	3. 80
Economic hardship	Yes				0.83	1.12	0. 74
Family size	No sibling				1.18	0.69	1. 71
(ref: 1 or 2 siblings)	3 or more siblings				0.94	0.93	1. 01
Religion	Evangelical				0.73	**7.94 ****	0. 09
(ref: Mainline Protestatnt)	Catholic				1.02	4.02	0. 26
	Other religion				0.70	**12.01 ****	0. 06
	No religion				0.49	3.98	0. 12
Religiosity	Less than 1/mo				1.36	**0.02 *****	68. 00
(ref: no church attendance)	1/mo or more				1.05	0.93	1. 13
	1/wk or more				0.66	1.39	0. 47
Age at Wave 4	28 or younger				0.91	0.81	1. 12
Immigrant Status	1st generation				**0.48 ****	**14.5 ****	0. 03
(ref: 3rd or higher)	2nd generation				0.56	**7.04 ***	0. 08
Gender	Female	**2.04 *****	1.00	2. 04	**2.35 *****	1.18	1. 99
Region	West	1.27	0.67	1. 90	0.70	1.06	0. 66
(ref: Midwest)	South	0.74	1.15	0. 64	0.58	2.17	0. 27
	Northeast	0.63	1.42	0. 44	**0.42 ***	0.96	0. 44
F		41.85	50.47		630.67	797.95	
df		11	11		34	34	
Pr		0.0000	0.0000		0.0000	0.0000	
Wald F-test (b)							
F					151.82	298.47	
df					23	23	
Pr					0.0000	0.0000	

(a) "Missing" categories are controlled, but not displayed.
(b) Test for whether added control variables significantly improves the fit of the model from Model 1.
P-value: ***p<0.001. **p<0.01. *p<0.05

Figure 2. 1. 1. The Cumulative Incidence of Cohabitation by Percentage of Childhood Spent in Intact Families (N=11,541).
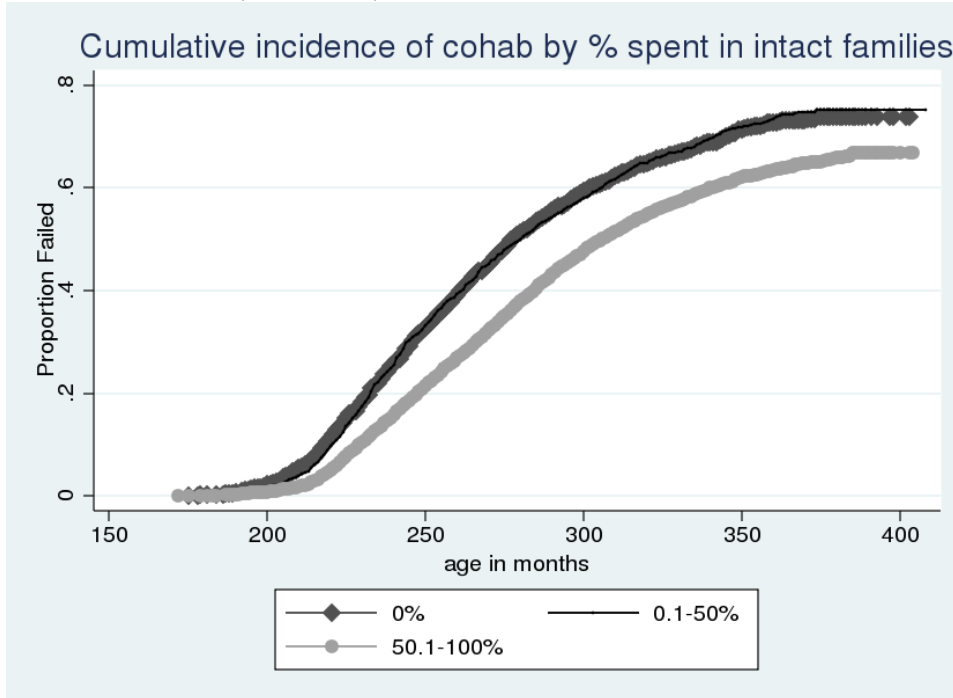
Figure 2. 1. 2. The Cumulative Incidence of Cohabitation by Percentage of Childhood Spent in Stepfamilies (N=11,541).
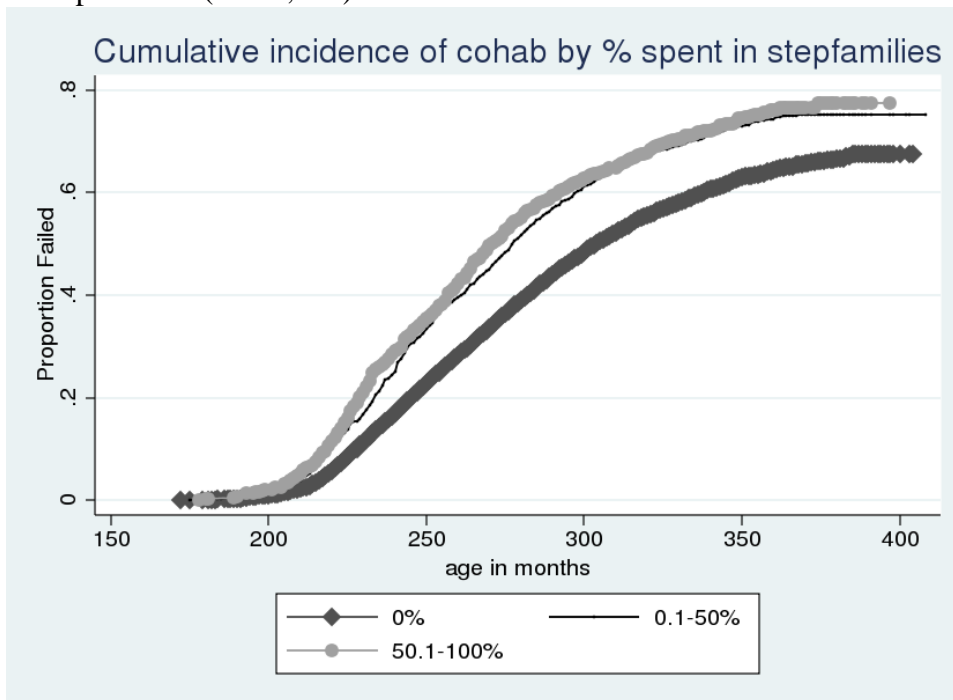
Figure 2. 1. 3. The Cumulative Incidence of Cohabitation by Percentage of Childhood Spent in Single-Parent Families (N=11,541).
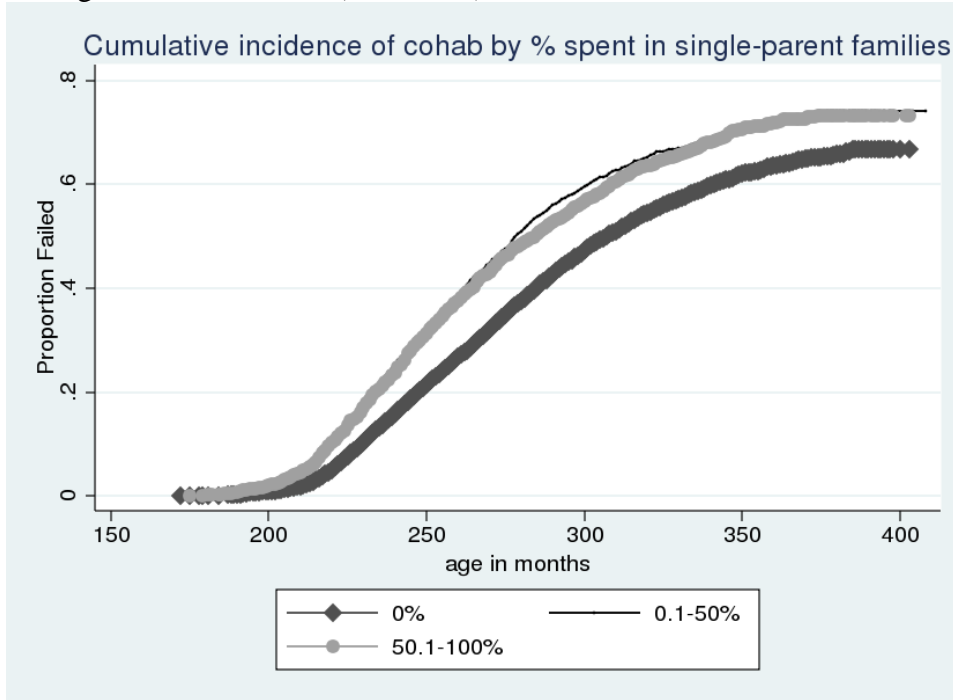
Figure 2. 1. 4. The Cumulative Incidence of Cohabitation by Percentage of Childhood Spent in No-Biological Parent Families (N=11,541).
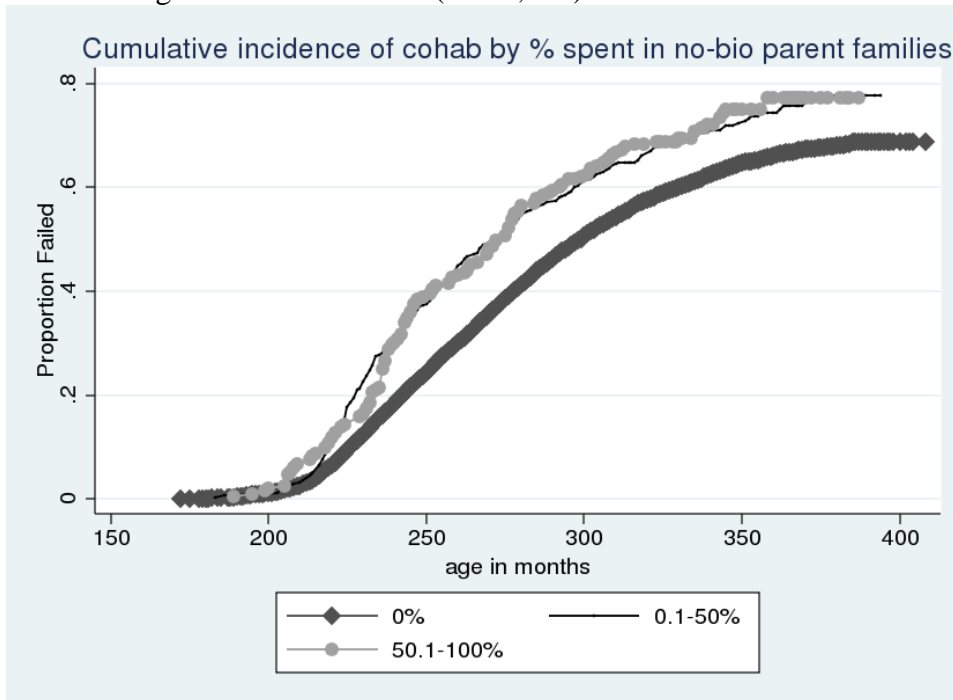
Figure 2. 1. 5. The Cumulative Incidence of Cohabitation by Experience of Parental Cohabitation (N=11,541).
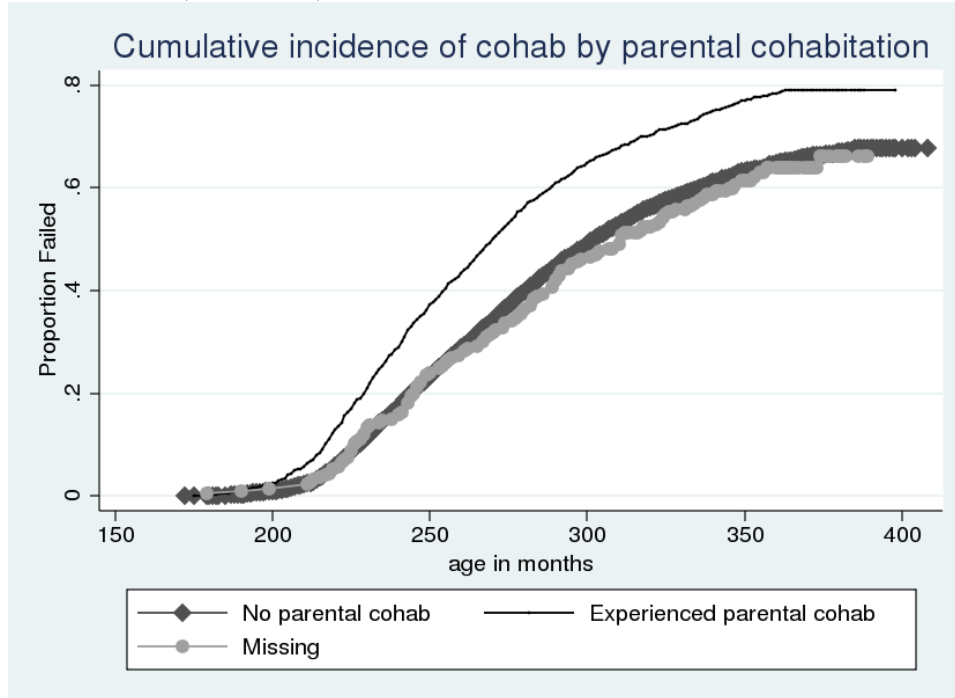
Figure 2. 1. 6. The Cumulative Incidence of Cohabitation by Mother's Age at First Marriage (N=11,541).
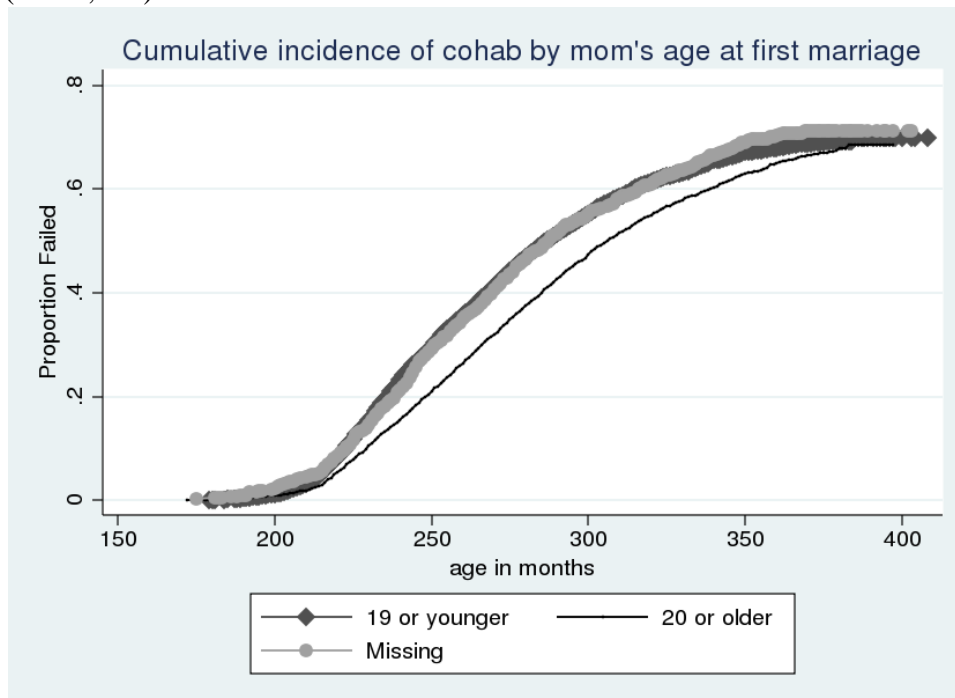
Figure 2. 1. 7. The Cumulative Incidence of Marriage by Percentage of Childhood Spent in Intact Families (N=11,541).
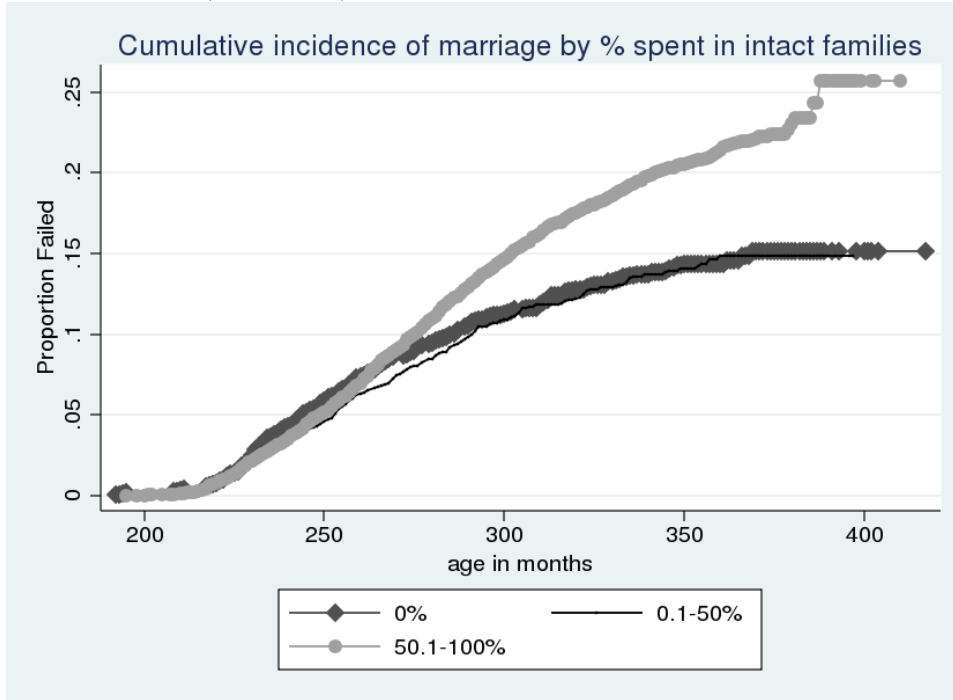
Figure 2. 1. 8. The Cumulative Incidence of Marriage by Percentage of Childhood Spent in Stepfamilies (N=11,541).
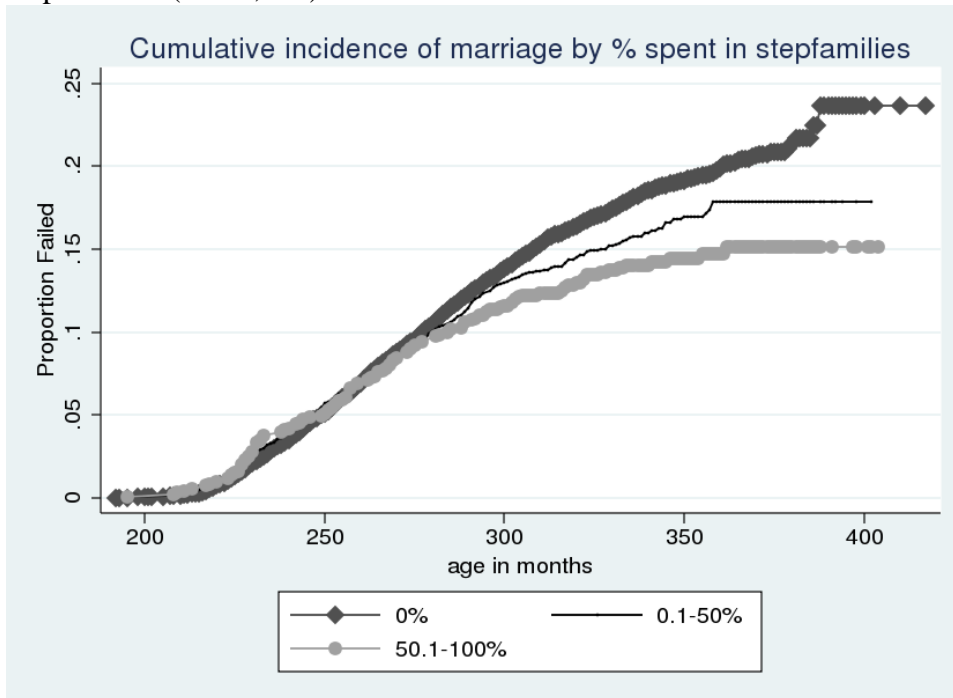
Figure 2. 1. 9. The Cumulative Incidence of Marriage by Percentage of Childhood Spent in Single-Parent Families (N=11,541).
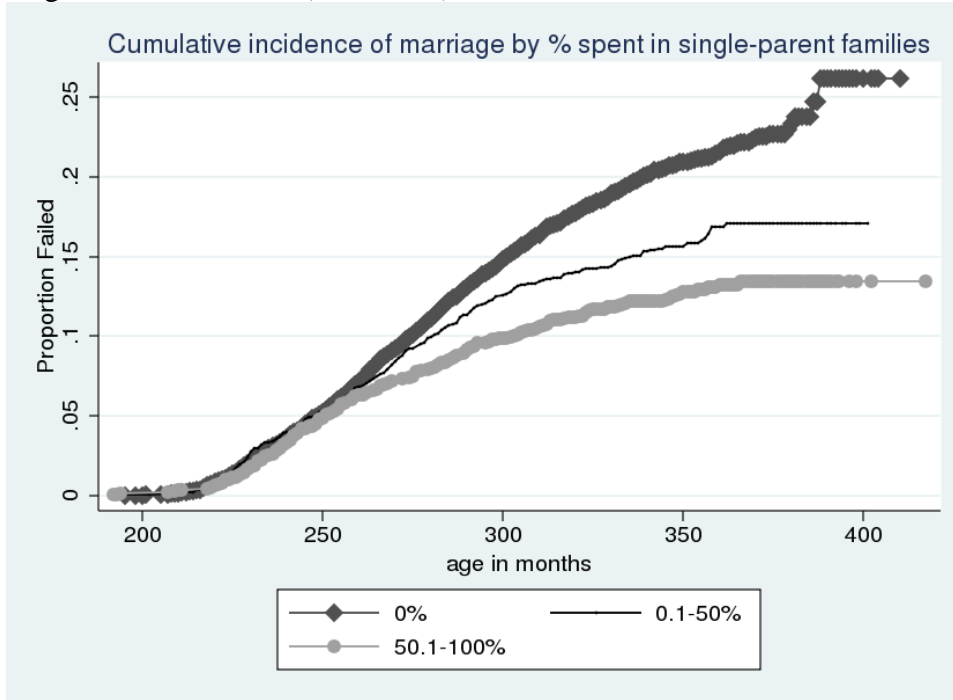
Figure 2. 1. 10. The Cumulative Incidence of Marriage by Percentage of Childhood Spent in No-Biological Parent Families (N=11,541).
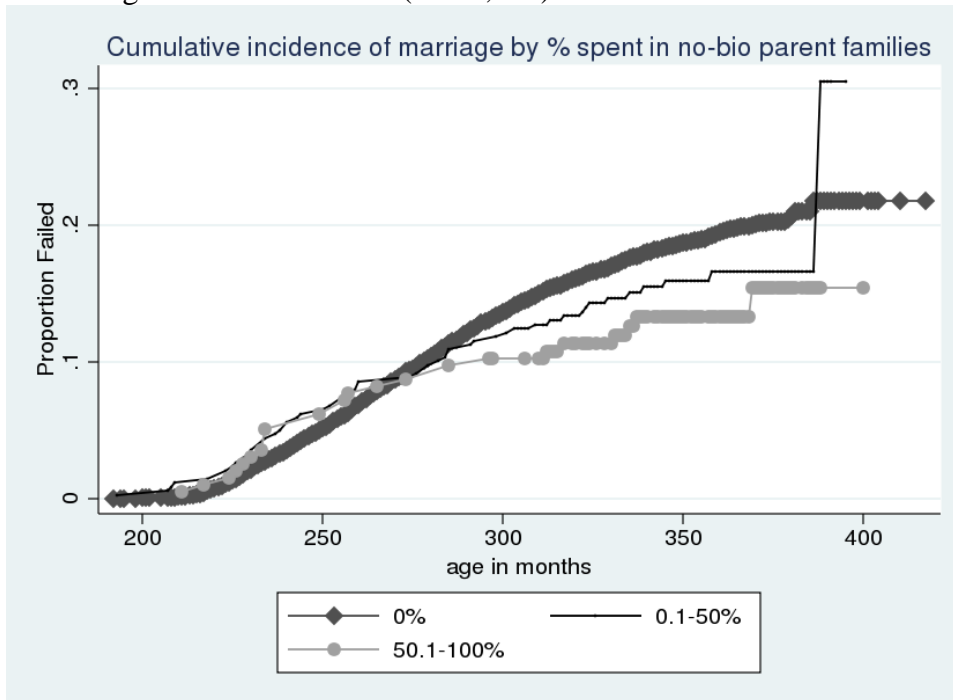
Figure 2. 1. 11. The Cumulative Incidence of Marriage by Experience of Parental Cohabitation (N=11,541).
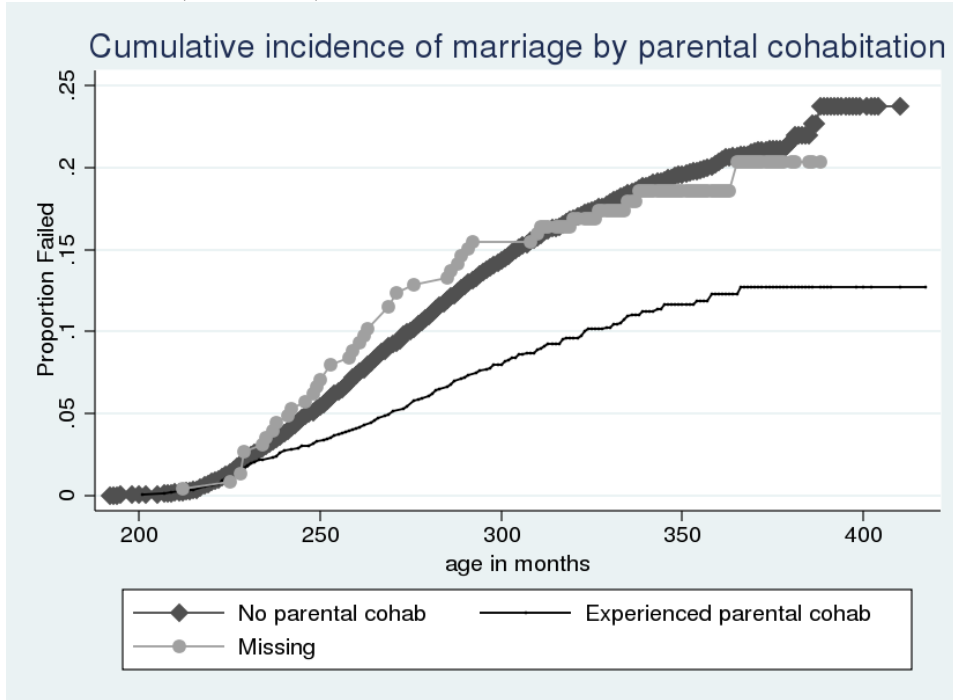
Figure 2. 1. 12. The Cumulative Incidence of Marriage by Mother's Age at First Marriage (N=11,541).
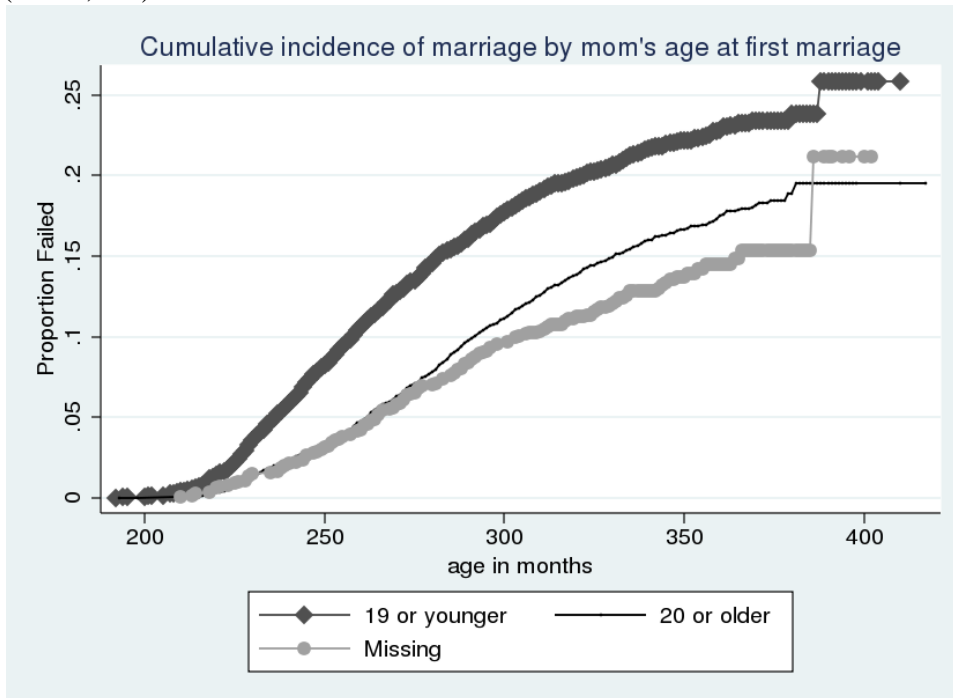
Figure 2. 2. 1. The Cumulative Incidence Function of Competing-Risks Regression for Cohabitation by Percentage of Childhood Spent in Stepfamilies (N=11,541).
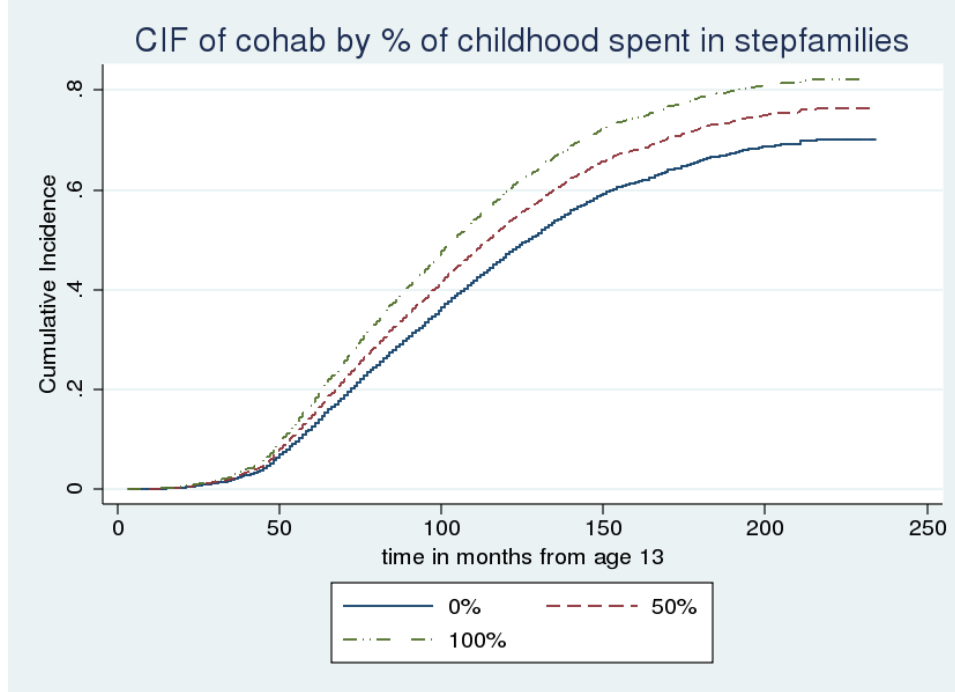
Figure 2. 2. 2. The Cumulative Incidence Function of Competing-Risks Regression for Cohabitation by Percentage of Childhood Spent in Single-Parent Families (N=11,541).
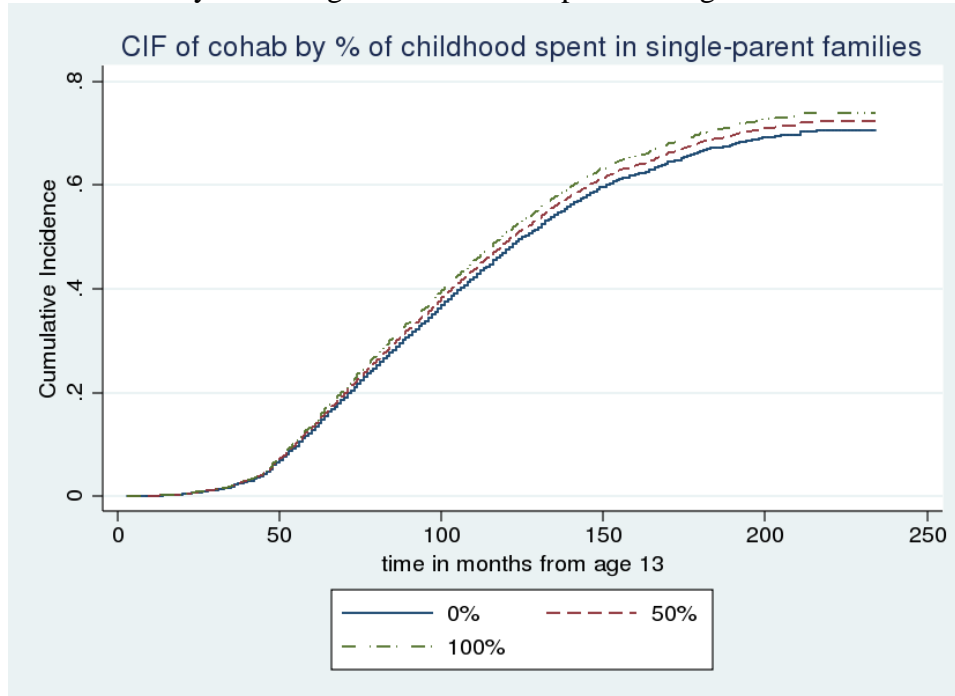
Figure 2. 2. 3. The Cumulative Incidence Function of Competing-Risks Regression for Cohabitation by Percentage of Childhood Spent in No-Biological Parent Families (N=11,541)
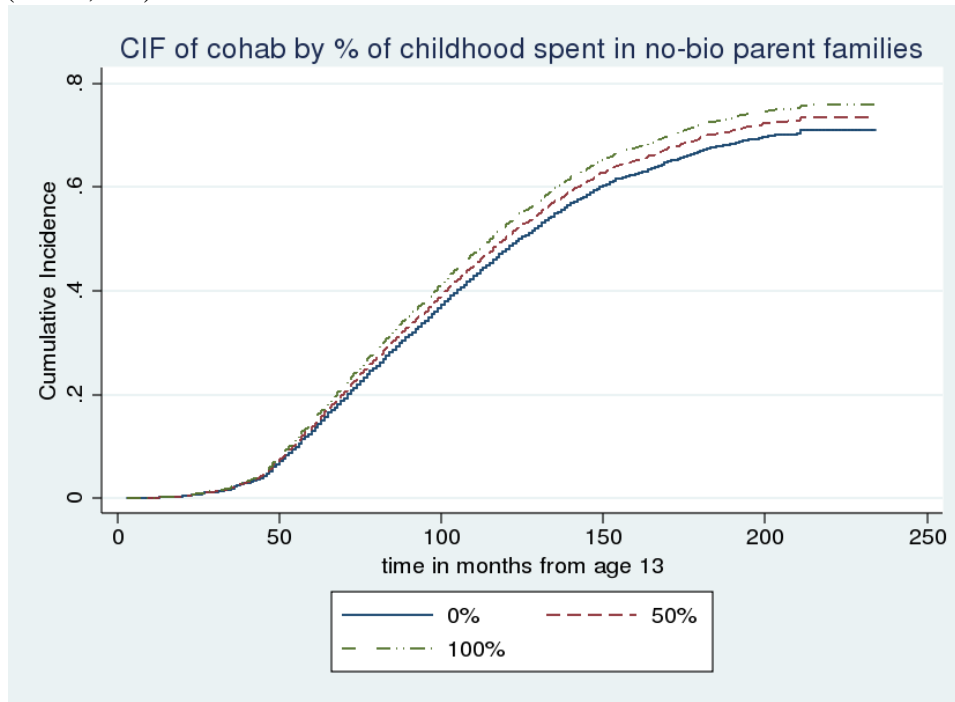
Figure 2. 2. 4. The Cumulative Incidence Function of Competing-Risks Regression for Cohabitation by Experience of Parental Cohabitation (N=11,541).
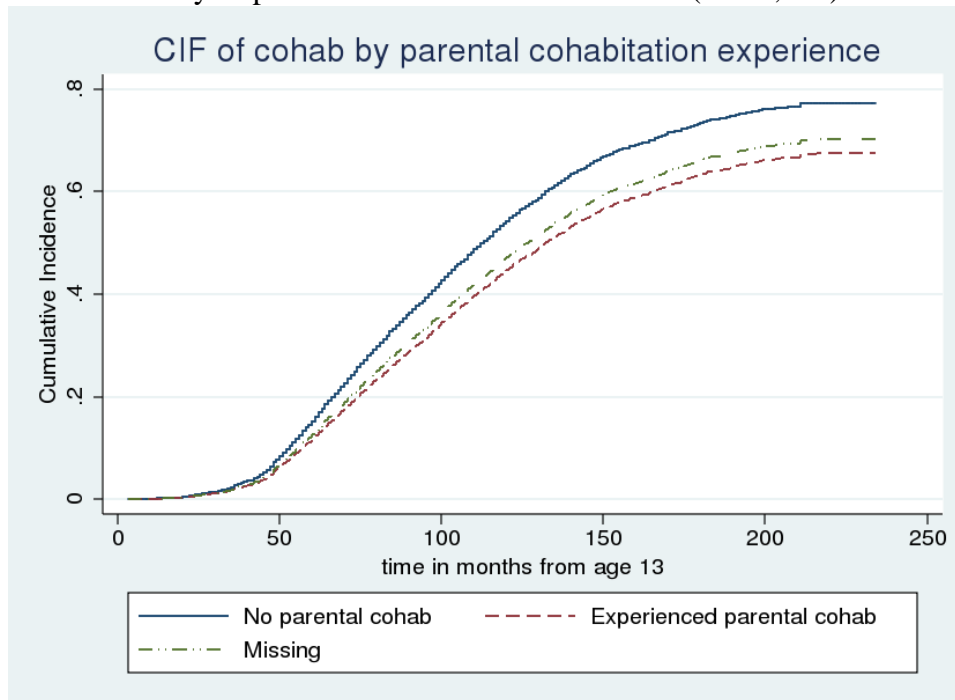
Figure 2. 2. 5. The Cumulative Incidence Function of Competing-Risks Regression for Cohabitation by Mother's Age at First Marriage (N=11,541).
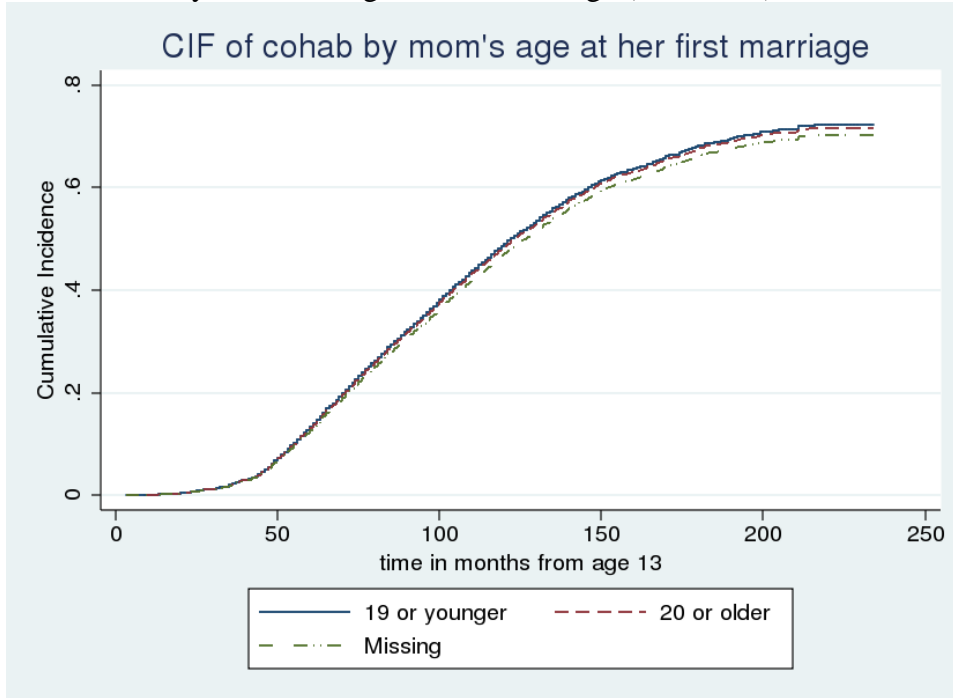
Figure 2. 2. 6. The Cumulative Incidence Function of Competing-Risks Regression for Marriage by Percentage of Childhood Spent in Stepfamilies (N=11,541).
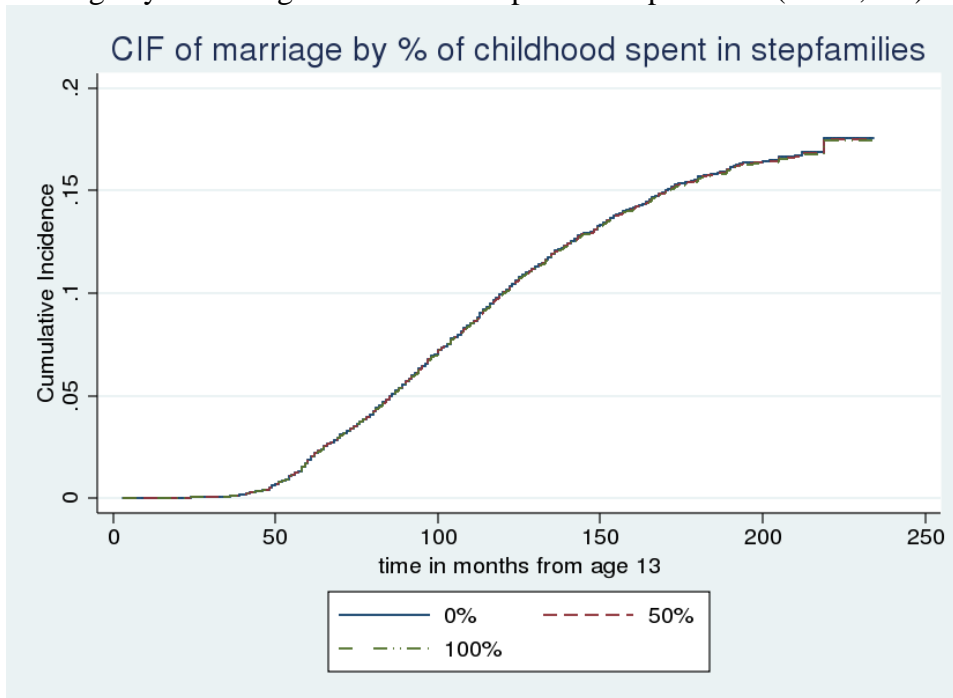
Figure 2. 2. 7. The Cumulative Incidence Function of Competing-Risks Regression for Marriage by Percentage of Childhood Spent in Single-Parent Families (N=11,541).
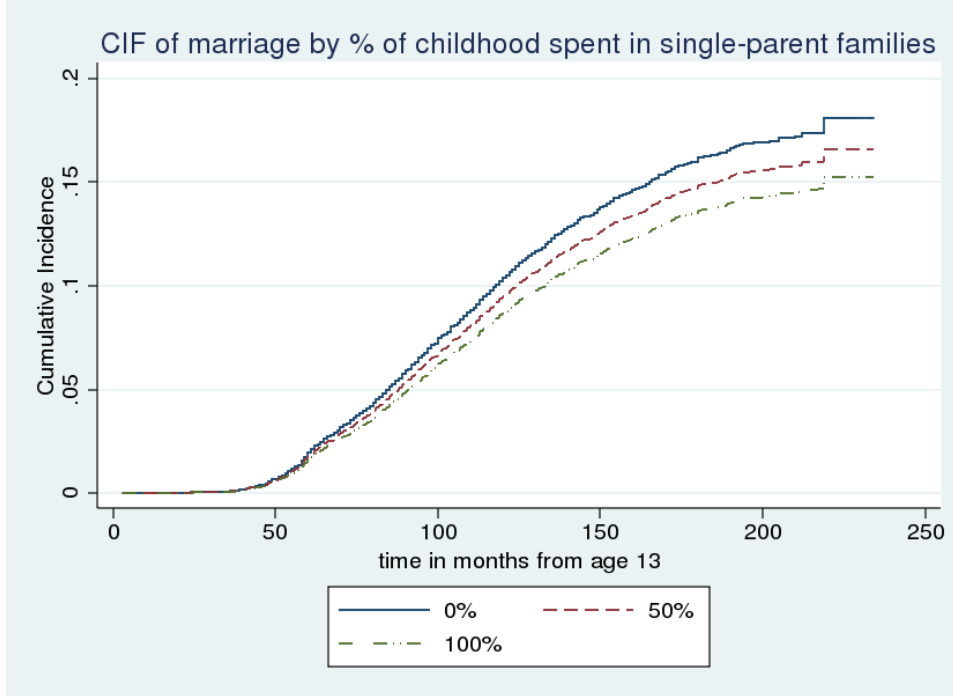
Figure 2. 2. 8. The Cumulative Incidence Function of Competing-Risks Regression for Marriage by Percentage of Childhood Spent in No-Biological Parent Families (N=11,541).
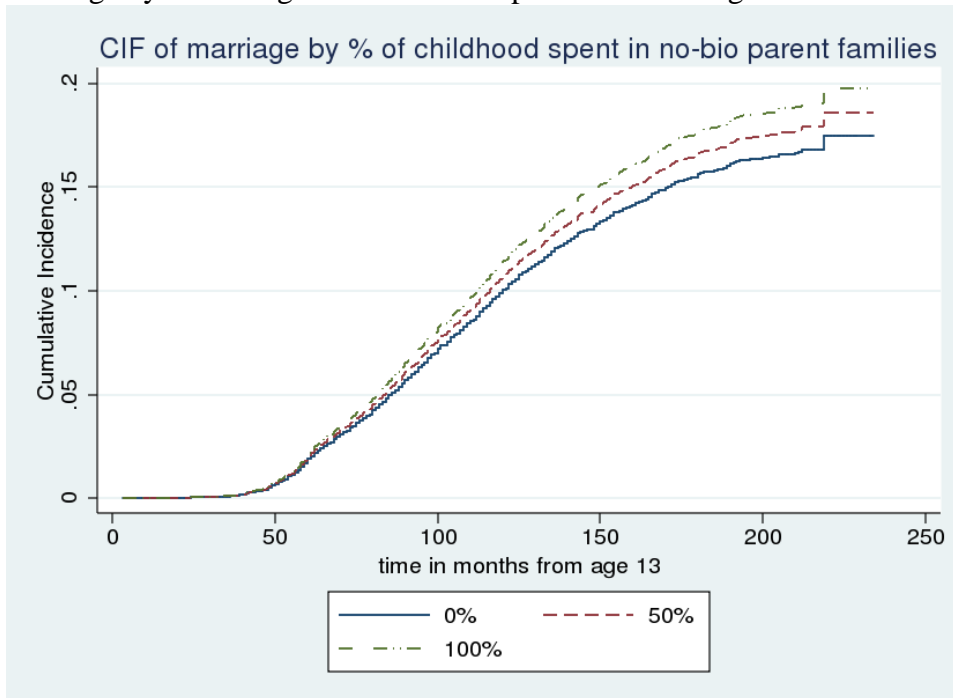
Figure 2. 2. 9. The Cumulative Incidence Function of Competing-Risks Regression for Marriage by Experience of Parental Cohabitation (N=11,541).
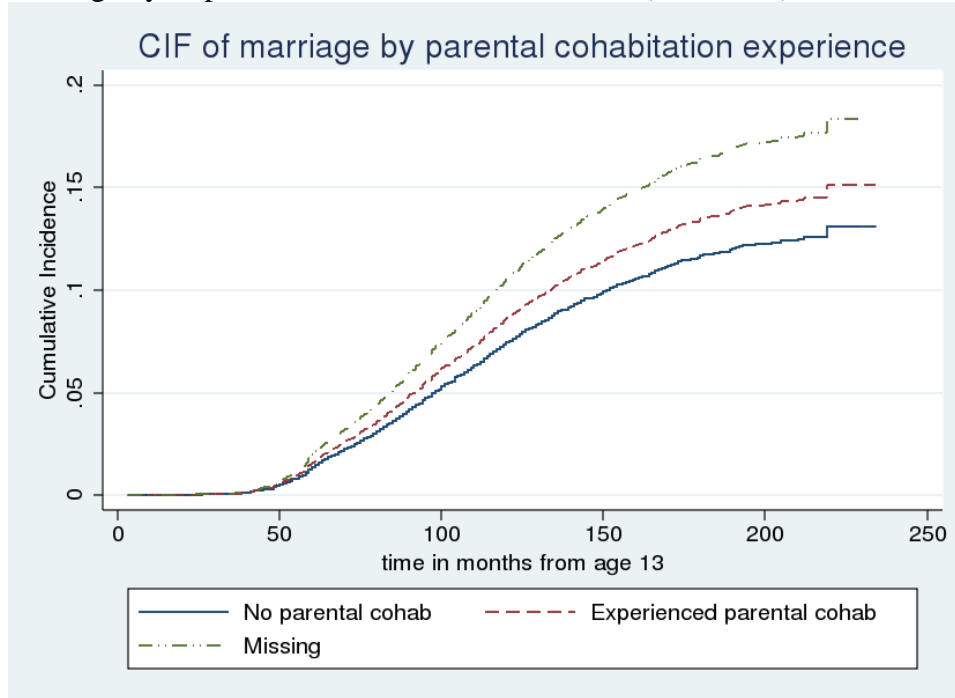
Figure 2. 2. 10. The Cumulative Incidence Function of Competing-Risks Regression for Marriage by Mother's Age at First Marriage (N=11,541).

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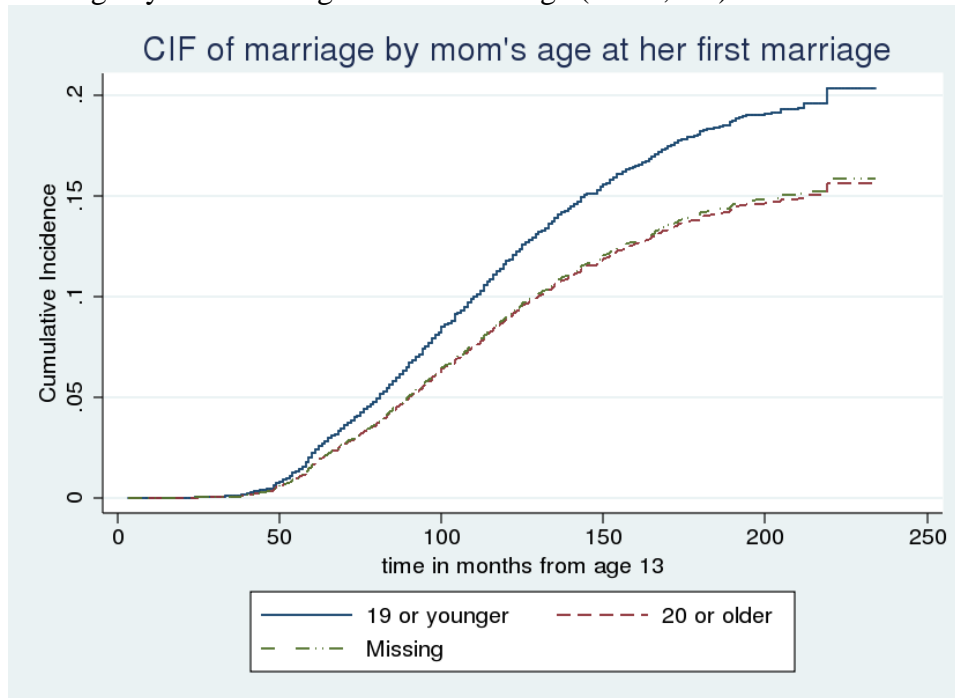
CHAPTER 3:
FAMILY AND NON-FAMILY INFLUENCES ON THE TYPE OF FIRST UNION FORMATION: SOCIALIZATION IN FAMILY, NEIGHBORHOOD, AND SCHOOL

Socialization theory argues that interactions between parents and children during childhood have long-lasting effects that shape children's attitudes, preferences, and intentions, which lead to their behaviors and outcomes late in life (Barber 2000; Hetherington 1972; Rutter 1971). Such socialization is believed to occur in all developmental stages from early childhood to adolescence (Albrecht and Teachman 2003; Wu and Martinson 1993). While most discussions on socialization theory focus on interactions within family, this theory can be applied in other contexts. For example, Pellerin (2005) applied Baumrind's typology of parenting (authoritative, authoritarian, permissive, and indifferent) to school climate, and she observed a similar pattern of association between parenting/educational climate and children's outcomes in two settings.

Such a finding raises the question of whether environments outside home also have socialization effects that shape children's values, attitudes, and behaviors regarding family formation. Bronfenbrenner's ecological theory (1979) argues that humans live in four layers of environment: micro-system (the immediate environment in which a person operates, such as one's family and classroom), meso-system (two micro-systems interacting such as the connection between a child's home and school), exo-system (an environment in which an individual is indirectly involved and is external to his experience, yet it affects him anyway, such as parent's workplace), and macro-system (the larger cultural context such as local and national policies). These layers of environments are linked to each other and affect children's

lives and development. Given this ecological perspective, it seems reasonable that non-home environments such as neighborhoods and schools also impact children's outcomes in later life, including union formation behaviors. Neighborhoods and schools are two of the environments in which children and adolescents spend a large part of their lives and observe neighbors 'and classmates' parental family behaviors.

In neighborhoods, children interact with neighbors and observe neighbors' behaviors both directly and indirectly. For example, they may hear that the next-door family moved out recently because the couple got divorced, see a teen neighbor walking down the street with a pregnant belly, or hear a neighbor couple quarrelling all the time. Such neighbors' behaviors may also serve as a template for children's family behaviors above and beyond their own parents' family behaviors.

The school is perhaps the most familiar and salient social environment other than the family for children and adolescents. They spend a great deal of time in school daily interacting with peers and teachers. Although school may not directly shape children's attitudes and values about family behaviors, it can serve as a place where children learn about peers' family structures and their family members' behaviors. For example, a child may find that one of his friends spends every other weekend with his divorced father who lives separately, or he may hear about a classmate's unmarried sister having a baby. Such information about peers' families communicates notions about family life, which further shape children's attitudes and values about acceptable family behaviors.

Applying socialization theory in meso-level environments suggests that neighborhood and school environments may also have socialization effects on children's family formation behaviors in adulthood. In this paper, I will examine whether neighborhoods and schools

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have independent socialization effects that influence the types of first union that young adults form, and if such effects are present, whether interactions, if any, exist between socialization at the micro level (i.e., family) and meso-level (i.e., neighborhood and school). Most empirical studies about the effects of meso-level environments on nontraditional family formation have focused on premarital childbearing. The impact of meso-level environments on union formation is understudied. Given that premarital childbearing and cohabitation are both nontraditional family formation behaviors, I expect neighborhood and school contexts to be important for cohabitation.

THEORETICAL EXPLANATIONS: SOCIALIZATION IN THREE AREAS

In this paper, I examine socialization effects of three social contexts on first union type in early adulthood. They are family, neighborhood, and school. This section introduces theoretical explanations and findings from past studies.

Family

I have already discussed the socialization effects of parental union behaviors on children's union behaviors in the previous chapters. In short, socialization theory argues that parents' union behaviors provide children with a template for union formation. Therefore, children from intact families are less likely to cohabit compared to children from non-intact single-parent families, even after controlling for other socioeconomic, cultural, and demographic characteristics because cohabitation does not fit the template of growing up with both biological parents in intact families.

Neighborhood

While some researchers have argued that neighborhood effects have been overestimated in past studies (Sampson, Morenoff, and Gannon-Rowley 2002; Teitler and Weiss 2000), others emphasize the importance of neighborhood influences on children. For example, in a study on children's educational outcomes, Ainsworth (2002) found that the strength of the neighborhood predictions often rivals more commonly cited family- and school-related factors as the most significant predictor. In the context of family formation behaviors, it is widely known that the risk of teenage pregnancy is higher in economically disadvantaged communities where nonmarital childbirth and divorce are more prevalent (Brooks-Gunn, Duncan, Klebanov, and Sealand 1993; Crane 1991; Hogan and Kitagawa 1985). With these findings, it is expected that young adults who grew up in a neighborhood with fewer married two-parent families on indicator of economic disadvantage are less likely to get married and more likely to cohabit.

There are several explanations for behavioral differences across communities. Jencks and Mayer (1990) propose three models that explain the connection between negative outcomes and disadvantaged neighborhoods: (1) the epidemic model (peer influence as the major explanatory factor), (2) the institutional model (low quality of public institutions in disadvantaged communities as the major explanatory factor), and (3) the collective socialization model (interaction of children and neighborhood adults as the major explanatory factor). The last model, collective socialization is a concept of socialization within a social context. This model explains that poorer neighborhoods have greater prevalence of non-intact families because divorce, cohabitation, and unmarried childbearing are more common among socioeconomically disadvantaged populations than advantaged

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populations. Neighbors who form non-intact families may serve as role models, and children from disadvantaged neighborhoods may develop more tolerant or accepting attitudes toward nontraditional family arrangements such as cohabitation.

Some researchers have thought that the racial composition of a neighborhood is an important factor that affects residents' norms and behaviors. Massey and Denton argued that racial segregation is the major cause of unique behavioral patterns in poverty-concentrated neighborhoods, which poses a counterargument against Wilson's concentrated poverty and social segregation hypothesis (Massey and Denton 1993; Wilson 1987, 1996). Findings in empirical studies are mixed. Some studies support Massey and Denton's racial segregation hypothesis. For example, Sucoff and Upchurch (1998) found that living in a highly segregated Black neighborhood is associated with a 50-percent increase in the rate of a premarital first birth compared with living in a racially mixed neighborhood, regardless of neighborhood socioeconomic status. However, two studies support Wilson's concentrated poverty hypothesis. They report that a large part of the racial differences in the risk of premarital childbearing can be explained by racial differences in the demographics and socioeconomic status of pregnant women's neighborhoods (South and Baumer 2000; Wilhelmina 2004). Another study found different effects of neighborhood disadvantages for different racial groups (South and Crowder 1999). This study found that neighborhood disadvantages increase the risk of nonmarital childbearing for White women, but not for Black women. All in all, researchers have not arrived at an agreement yet regarding the relationship between race and neighborhood.

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School

Although there are many studies that have examined the school-level impact of context on adolescent behaviors, no studies have explored school effect on union formation behaviors later in life. Most past studies on school effects focus on sexual behavior and teenage pregnancy. However, assuming that socialization has long-lasting effects on children's attitudes (Barber 2000; Hetherington 1972; Rutter 1971), it is plausible to assume that school context may also have socialization effects on first union behaviors.

School is expected to be a major influence on children and adolescents, as they spend long periods of time in school with closely-tied human interactions. Some studies indicate that the context of school is more influential than that of neighborhood on children's attitudes and behaviors. For example, comparing the impact of neighborhood and school on youths' sexual initiation, Teitler and Weiss (2000) found that school is the major arena of influence on sexual onset because a neighborhood effect exists only to the extent that neighborhoods determine the type of school an adolescent attends. Another study also shows that school-based peers appear to be the most influential networks for encouraging a normative orientation toward academic attainment (Quane and Rankin 2006**).**

Fletcher's study (2007) shows an interesting function of schools that he refers to as social multipliers. He explains a large variation in sexual initiation across schools with a mechanism that amplifies students' behaviors. A student's sexual initiation has an effect that increases the likelihood of peers' sexual initiation, which causes very high ratios of sexually experienced students in some schools while very low ratios in others. Because of this multiplication effect, moderate changes in school-body composition can cause changes in school-wide rates of sexual behavior. He also argues that selective systems such as school

vouchers and ability grouping might contribute to very different behavior patterns by school. If the multiplication effect is applied to attitudes about family, more accepting attitudes toward nontraditional family behaviors may spread widely where a large proportion of students have experienced their parents' nontraditional family behaviors.

Selection Effect Issues

When we discuss the meso-level environmental influence on individuals, the possible selection effect for individuals should be taken into account. An adolescent's residential area and school are not randomly assigned but rather selected by parents according to their socioeconomic status and consideration for children's educational environment. For example, a large part of a perceived neighborhood effect may actually be a reflection of common characteristics among residents, because residents are likely to have moved into their current neighborhoods due to their socioeconomic characteristics that match with the neighborhood characteristics. Similarly, both public and private schools tend to gather students of similar socioeconomic backgrounds.

However, Harding's study (2003) shows that a neighborhood community's environment has an independent effect on children's outcomes. Using a new method for sensitivity analysis, he found that neighborhood effects on high school dropout and teenage pregnancy remain after minimizing selection effects. This finding signifies the potential independent effect while cautioning us the importance of taking selection effects into consideration in the studies of meso-level environments, and it is worth exploring with an empirical data. My study is not free from selection effects. For example, parents often choose residential area and school for the benefit of their children (Barrow 2002). In order to

minimize the effects of selection, I will use parental socioeconomic status variables as controls for selection bias of neighborhood and school choice by parents (See pp. 106-107). Modeling parental selection of school and neighborhood is beyond the scope of this dissertation. However, the socialization variables on parental behavior also serve as useful controls for selection since they are not common in all family analysis with contextual effects.

Another bias can occur due to omitted variables that influences both selection of neighborhood/school and young adults' union formation. This is a problem all studies face and I try to minimize this bias by including as many control variables as possible.

Interaction Models

Meso-level environments (i.e., neighborhood and school) may interact with micro-level environments (i.e., family) in their effects on union formation. Past studies regarding interaction effects between neighborhood environment and family environment have proposed two theoretical models: the potentiator model and the protective model.

The potentiator model argues that adolescents from high socioeconomic statuses benefit more by living in advantaged neighborhoods than adolescents from low socioeconomic backgrounds, because individuals with high socioeconomic status are in line with middle-class culture and can better capitalize on the resources it provides, whereas individuals with low socioeconomic status do not have the cultural capital to take advantage of such resources. For example, Sucoff and Upchurh (1998) found that living in a White middle-class neighborhood is associated with lower rates of premarital first births for affluent Black teens, while having no effect on their less affluent Black peers. In the union formation behavior context, this model can be interpreted as the reinforcement of intact families for

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individuals who grew up in intact families by living in neighborhoods where intact families are the norm, whereas a high level of prevalence of intact families in neighborhood does not have significant influence on attitudes and behaviors for individuals from non-intact families.

On the other hand, the protective model argues that negative influences in one environment can be avoided by a protective climate in another environment. Two empirical studies supported the protective model, finding that the effects of a less desirable family environment can be mitigated by living in an advantaged neighborhood. Browning, Levethal, and Brooks-Gunn (2005) found that appropriate neighborhood supervision of youth delays sexual onset for adolescents with low level of parental supervision. Similarly, Roche et al. (2005) found that neighborhood socioeconomic advantage modifies the relationship between parenting practices and sex initiation. In the union formation behavior context, these results indicate that a high prevalence of intact families in neighborhood can modify the attitudes of individuals from non-intact families and encourage them to take more traditional union formation behaviors.

While these models have been used to test an interaction effect between the neighborhood and family context, I will also apply these theories to the interaction between school and family contexts. The potentiator model hypothesizes that individuals from intact families who attend a school with a large proportion of students living in intact families will have a lower incidence of forming a nontraditional union in adulthood compared to those from intact families who attend a school with a smaller proportion of students living in intact families. The protective model hypothesizes that the incidence of forming a nontraditional union decreases when individuals from non-intact families attend a school with a large proportion of students living in intact families.

Other Theories

There are other theoretical explanations for first union type that cannot be captured by socialization theory. Most notably, marriage market theory makes a strong argument in relation to the residential area and union behaviors. This theory explains delayed or non marriage due to the smaller number of potential marital partners in certain geographic areas, focusing on the availability of marriageable men in the marriage market. Past studies have found that the Black-White gap in marriage rates is explained by Black men's absence from the marriage market due to high incarceration rates and mortality rates as well as their financial inability to get married due to high unemployment rate and low wages (Guzzo 2006, Harknett 2008, Lloyd and South 1996). However, when you take cohabitation into account, the marriage gap between Black and White is halved (Raley 1996).

Another important theory in examining the mechanisms of first union formation is the contagious effect among close peers. While socialization at the micro- and meso-level largely occurs in the form of transmission of attitudes and values from adults to children, many studies have demonstrated how adolescents are also influenced by their peers. For example, social networking is an important element for predicting early sexual activity (Cooksey, Mott, and Neubauer 2002), and having many sexually active girlfriends above and beyond an adolescent childbearing sister has a particularly strong effect on adolescent girls' permissive sexual attitudes and a non-virgin statuses (East and Morgan 1993). Xie and his colleagues found that peer characteristics, as well as race, family, and socioeconomic status, have unique roles in predicting teen motherhood (Xie, Cairns, and Cairns 2001), and Arai (2007) found that some social networks may assume that early childbearing is acceptable or even normative.

While these theories are important in understanding young adults' first union formation behaviors, I will focus only on socialization processes in three social contexts in this paper, leaving analysis for other theoretical explanations in my future work. These focuses are due to two purposes. First, focusing on socialization theory makes it possible to keep the analytical framework parsimonious, thereby providing a clear picture of the transmission of attitudes and behaviors from adults to youth. Second, this framework follows the research model of Bronfenbrenner's micro- and meso-level environments by framing socialization in family at the micro-level with direct experience and framing socialization in neighborhood and school at the meso-level with indirect observation.

CONCEPTUAL MODEL

Figure 3.1 shows the conceptual model of my research. There are three domains of socialization that I expect influences an individual's attitudes about union formation: family, neighborhood, and school. I hypothesize that each domain has an independent influence on adolescents' attitudes, which lead to family formation behaviors in early adulthood. I assume socialization effects in the family are the core of socialization processes whereas socialization effects from meso-level sources are auxiliary.

I also hypothesize that there is a family-neighborhood interactive effect and a family-school interactive effect. The interaction of family and meso-level environments is expected to operate either as a potentiator or as a protector process. More specifically, the potentiator model argues that living in a non-intact family and a meso-environment with a high prevalence of non-intact families in adolescence has an additional effect that strengthens accepting attitudes for nontraditional family forms reflected by union formation behavior into

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cohabitation. Meanwhile, the protector model argues that the socialization effect of non-intact families in parents' homes is mitigated by being in a meso-level environment with a high prevalence of intact families, lowering entry into cohabitation.

SPECIFIC AIMS OF ANALYSIS

In this study, I will use socialization theory in a longitudinal framework to analyze the association between three social environments in adolescence and the timing and type of young adults' first union. The environments I study are: a micro system of the family; the meso-system of the neighborhood and the school. Based on the findings from past studies, I propose the following hypothesis.

Hypothesis 1: A higher prevalence of non-intact families in a respondent's neighborhood and school is associated with higher likelihood of cohabitation over marriage in early adulthood.

I also hypothesize that neighborhood and school socialization variables will have an interaction effect with an individual's family structure.

Hypothesis 2a: For individuals from non-intact families, the low prevalence of non-intact families in neighborhoods and schools serves as a protective factor, reducing the likelihood of cohabitation over marriage compared to individuals from meso-level environments with a high prevalence of non-intact families (protective model).

This hypothesis is based on Roche et al. (2005) and Browning et al. (2005)'s findings that the effect of a disadvantaged family background can be mitigated by living in a protective neighborhood. When adolescents from non-intact families are in environments where the

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majority of people maintain intact families, they may find that intact families are the norm and that their own families are out of the norm.

> *Hypothesis 2b*: For individuals from intact families, their expectation for marriage is strengthened by being in a neighborhood and school with a low prevalence of non-intact families, and they even have a higher probability of marriage over cohabitation compared to individuals from a meso-level environment with a high prevalence of non-intact families (potentiator model).

This hypothesis is based on Sucoff and Upchurch's finding (1998) that advantageous neighborhoods protect advantaged youth better than less advantaged youth in terms of family structure.

> *Hypothesis 3*: Neighborhood and school socialization effects are stronger for Whites than Blacks and Hispanics.

Past research has found that the effect of meso-level environment on individuals' behavior varies by race. For example, South and Crowder (2000) found that the timing of first marriage is earlier for Whites and later for Blacks living in a socioeconomically disadvantaged neighborhood. Furthermore, there are unique values and family patterns in each racial-ethnic groups. For example, Blacks tend to get married at older ages and have higher unmarried childbirth rates, and Puerto Ricans have a tradition of publically acknowledged consensual unions (Landale 1994; Ventura 2009). Minorities' family behavior patterns tend to be different from that of Whites, which is often considered as more mainstream of American family behaviors. Therefore, Blacks and Hispanics are expected to show a weaker association between environmental factors and union type.

DATA

In order to test my hypotheses, I will use the data from Wave 1 and Wave 4 of the National Longitudinal Study of Adolescent Health (Add Health). The sampling method and general characteristics of the data are described in Chapter 1. The analytic sample size for this paper is 11,287. In addition to the missing cases due to missing sampling weight (901 cases) and non-family member respondents to the parental questionnaire (2,645 cases), some cases were lost due to invalid or missing responses for neighborhood variables and school variables. Respondents who had already formed a first union by the Wave 1 survey were also eliminated from the analysis in order to keep time order of events. This eliminates 453 cases.

While all personal and family information comes from in-home and parental interviews in Wave 1, all neighborhood variables are retrieved from the 1990 Census data matched with the location of respondents' residences in 1994-1995. School characteristics information (school type, size, and urbanicity) comes from the school administrator survey in Wave 1. Such combination of meso-level data with the Add Health data makes it possible to combine personal information with more ecological contexts.

MEASURES

The measurements used to test the hypotheses are categorized into the following groups. The dependent variable is age at first union formation either by marriage or cohabitation. I have three sets of key theoretical independent variables: socialization in families, socialization in neighborhoods, and socialization in schools. The remainder is control variables, which include family background, religious background, and demographic characteristics.

Dependent Variables

The dependent variable is the age in months at first union formation. The two types of events that constitute first union formation are marriage and cohabitation. In the analytic sample, 871 males and 1,177 females married as their first union, and 3,410 males and 3,829 females cohabited as their first union (Table 1).

Independent Variables

Family socialization. Family socialization is measured by three types of parental union behavior: family status type, experience of parental cohabitation, and mother's age at first marriage. I employ the same measures described in Chapter 2. About 85 percent of the respondents had spent at least some time between birth and Wave 1 in intact families. Meanwhile, a large minority had ever lived in non-intact families: 20.4 percent had lived in stepfamilies, 34.6 percent had lived in single-parent families, and 4.2 percent had lived in families with no biological parents. Slightly over 13 percent of respondents had experienced parental cohabitation, and 40.7 percent of respondents had a mother whose age at first marriage is 19 or younger, while 8.5 percent of respondents did not have valid information about mother's age at first marriage.

Neighborhood socialization. I construct two neighborhood indexes based on information from the 1990 Census at the tract level. One is a socioeconomic disadvantage index, and the other is a family structure index. The socioeconomic disadvantage index is used to measure the structural factors in neighborhoods, and I use the index designed by South and Crowder (1999, 2000). It includes (1) percentage of residents below the poverty line, (2) percentage of household receiving public assistance, (3) percentage of adults ages

25 or older with no college degree, (4) percentage of adults without managerial or professional occupations, (5) percentage of household without high incomes ($75,000 per year), and (6) the male unemployment rate. All six variables are transformed to standardized scores with zero as the mean and one as the standard deviation, and the standardized scores of the six variables are cumulated to make an index. Since each item is an indicator of a disadvantage, a larger index represents a more disadvantaged neighborhood (min= -19.7; max= 21.2; mean= -0.23).[3] The socioeconomic disadvantage index is used as a control for neighborhood socialization.

The family structure index is created to test socialization theory in the context of neighborhoods. I hypothesize that respondents who live in neighborhoods with high prevalence of non-intact families and unmarried adults are more likely to cohabit than to marry. I include (1) percentage of married-couple households with a child (inversed), (2) percentage of female-headed households with a child, (3) percentage of never married females, and (4) percentage of divorced among once married females. Again, these four percentages are transformed to standardized scores and cumulated to make an index. Since these variables measure the prevalence of nontraditional families, a larger index represents a higher prevalence of non-intact families in a neighborhood (min= -6.84; max=22.17; mean=-0.20).

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[3] I also tested of the index with a female labor force opportunity index above and beyond the major events above, expecting that it may enhance the model. However, the original index had a better Cronbach alpha (0.8816 vs 0.8632) and a lower Factor 3 Eigenvalue (0.59 vs. 0.94). Therefore, I employ the original set of index with six measures used in South and Crowder (1999).

The mean VIF of the two indexes is 1.44, which is far smaller than the threshold of 10 which indicates too high collinearity between indexes. Therefore, it is not a problem to run these two indexes in the same statistical model.[4]

School socialization. The school socialization measures include three variables: the percentage of students living in two-parent families at in-school interview of Wave 1 (mean=71.4; standard deviation 12.1); the percentage of students who have experienced parental cohabitation by Wave 1 (mean=12.3; standard deviation=6.8) with another category for missing or invalid cases (mean=14.2; standard deviation=8.4); and the percentages of students whose mothers married in their teens (mean=32.3; standard deviation=12.2), with another category for missing or invalid cases (mean=24.5; standard deviation=11.1). I will also control for school type (private or public), school size (small—400 or less, medium—401-1,000, or large—1,001 or more), and urbanicity (urban, suburban, or rural).

Control Variables

Family background. The family background variables include family annual income, parental education level, parental occupation, economic hardship, and the number of co-residing siblings. I employ the same strategy as my first paper (Chapter 2) to build these measures. Family income and parental education level are included in order to control for the basic family socioeconomic status and to help minimize selection bias into school and neighborhood contexts. Family income is acquired from the parental questionnaire in Wave 1, as estimates of income before tax in 1994. I recoded a continuous income reports into five

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[4] More details about the construction of these indexes are available upon request.

categories: 0 to 15,999 (below the poverty line in 1994: 13.8%), 16,000 to 31,999 (up to twice the poverty line: 20.3%), 32,000 to 50,999 (25.9%), and 51,000 and higher (middle-class income: 29.5%), and missing income (10.5%). Parents' education level is measured by the following categorical variable of parent's final education level: less than high school (10.4%), high school graduate (30.7%), some college (21.8%), and four-year college or higher (34.8%), and missing cases (2.3%).

Next, parental occupation and family economic hardship are included in order to control the effect of confounding factors of family structure socialization. Respondents with at least one parent having a professional or managerial job are categorized into "professional or managerial job" (39.3%), whereas 55.0 percent of respondents had a parent with non-professional/ managerial job, and 5.6 percent either did not provide information about their parents' job or their parents were unemployed. Economic hardship is measured by a dummy variable. Respondents are considered as having experienced economic hardship if they either have received welfare by age 18 or their parents did not have enough money to pay bills at Wave 1. About 4 in 10 respondents had experienced some economic hardship by age 18.

Finally, a variable for number of siblings is used to control for family size. At the time of Wave 1, 20.5 percent of the respondents did not have a sibling in the same household, while 40.0 percent had one and 25.4 percent had two. The rest of the respondents (14.1%) had more than two siblings. As the cross table (Table 2) shows, the union patterns of those who have one or two siblings are similar. Therefore, they are treated as a reference group in the event history analysis.

Religious background. Religious background is measured by parents' religious affiliation and religiosity. I employ the same strategy as my first paper (Chapter 2) to build

these measures. I categorized religious denominations following Steensland et al. (2000): mainline Protestant (22.7%), evangelical Protestant (32.0%), Catholic (26.1%), others and indeterminate (12.5%), and no religious affiliation (6.7%). Mainline Protestant is treated as the reference group in the event history analysis.

Religiosity is measured by the frequency of parents' religious service attendance in the previous year of the Wave 1 interview. About a fifth of parents are categorized as never attending (including those who have no religious affiliation), while 24.6 percent are attending less than once a month, 17.8 percent are attending less than once a week, and 37.4 percent are attending once a week or more often.

Demographic characteristics. Demographic characteristics include respondent's age, immigrant status, gender, and race and ethnicity. I employ the same strategy as my first study (Chapter 2) to build these measures. Younger/older and male/female respondents are approximately in the same proportion, and about 13 percent of the respondents are either first or second generation immigrant. After weighting, 70.0 percent of the respondents were White and 12.6 percent were Black, followed by Hispanic (9.7 percent), Asian or Pacific Islander (2.4%), Native American (0.4%), and 5.0 percent were mixed race.

ANALYTICAL APPROACH

I will use competing-risks hazard models to conduct event history analysis as my analytical method. In my analysis, cohabitation and marriage are two competing events of first union formation, and I am studying the risk of first union formation during the time from age 13 to first union formation (or end of survey) in relation to parental union behaviors, neighbors' union behaviors, and parental union behaviors of students in school.

As in Chapter 2, the model of competing-risks regression is semiparametric in that the baseline subhazard $\bar{h}_{1,0}(t)$ for covariates set to zero is left unspecified, while the effects of the covariates x are assumed to be proportional:

$$\bar{h}_1(t|x) = \bar{h}_{1,0}(t)\exp(x\beta)$$

Estimation with the `stcrreg` command in Stata will produce estimates of β, or exponentiated coefficients known as subhazard ratios. In this chapter, of particular interest will be subhazard ratio for family, neighborhood, and school socialization variables.

I test five models in my analysis with the entire analytic sample (N=11,287), controlling for gender and race. All models include sampling weights and adjust for the clustered sampling design. Models 1 to 3 test socialization hypotheses in family, neighborhood, and school respectively. Model 4 includes all family, neighborhood, and school variables to test for independent effect of these three socialization contexts. Finally, Model 5 examines the effects of all variables, including other control variables.

Next, I run a model with a gender interaction to test whether there is a significant difference in the socialization processes between genders. Then, I run a model with a race interaction to test whether there is a significant difference in the socialization processes across racial groups. The results show that there is no significant gender difference at the neighborhood or school level, but there are significant racial differences at the family and neighborhood levels. Based on these findings, I run the models by the three racial-ethnic groups, Whites, Blacks, and Hispanics.

Finally, I add interaction terms between the meso-level environment variables (neighborhood and school) and family variables to test for interaction effects between family socialization and meso-level socialization.

RESULTS

Bivariate Results

The cross tabulation (Table 2) shows the distribution of union status (no union, marriage, and cohabitation) by the independent and control variables for the total sample. Results indicate that associations between most variables and union type are significant. The first four variables show the proportion of childhood spent in each family structure. Compared to the respondents who never lived in non-intact families, respondents who had spent at least some of their childhood in non-intact families are less likely to remain single in early adulthood, and they are also more likely to form their first union as cohabitation. Respondents who experienced parental cohabitation have a particularly high incidence of cohabitation as a first union, and respondents whose mothers married before age 20 are more likely to form a first union in early adulthood.

The cross tabulation by race shows that the associations between parental union behavior variables and respondent's first union type are approximately similar across races, but that there are some racial differences. Generally speaking, Whites show statistically significant associations for all family socialization variables except the proportion of childhood spent in no-biological parent families, while fewer associations are significant for minorities. First, there is no statistical significant association between the proportion of childhood spent in intact families and first union type for Blacks. Next, mother's early marriage is associated with a higher incidence of union formation in young adulthood for Whites, but Black and Hispanic respondents' marriage and cohabitation do not vary greatly by mother's age at her first marriage.

The neighborhood disadvantage index and the neighborhood family structure index are significantly associated with the first union type. More disadvantaged neighborhoods are associated with a higher incidence of marriage, and greater prevalence of non-intact families in neighborhood is associated with a lower incidence of marriage and higher incidence of cohabitation.

The neighborhood disadvantage index is significantly associated with White and Hispanic first union type, but the patterns of association vary. Among Whites, living in a more disadvantaged neighborhood is associated with a higher incidence of marriage and higher incidence of cohabitation compared to living in advantaged neighborhood. Among Hispanics, however, it is associated with a higher incidence of marriage and lower incidence of cohabitation. The family structure index is associated with first union type for White and Blacks, and the association patterns are similar between them: those who lived in neighborhoods with lower proportion of non-intact families are more likely to get married and those who live in neighborhoods with higher proportions of non-intact families are more likely to cohabit as a first union in young adulthood. There is no statistically significant association between the neighborhood family structure index and first union type among Hispanics.

The last set of fundamental socialization variables are school variables. The only statistically significant association is found between the proportion of mothers who married before age 20 and first union type: respondents who were in a school with high proportion of students whose mother married young had a higher incidence of marriage as a first union. However, this association is significant only among White respondents.

Competing-Risk Regression with the Total Sample

Table 3 shows the subhazard ratios from competing-risk analysis for marriage and

cohabitation for the total sample (N=11,287). In each model, C/S shows the estimated

subhazard ratios of the incidence of cohabitation as opposed to not having a first union; M/S

shows the estimated subhazard ratios of the incidence of marriage as opposed to not having a

first union; and C/M represents my calculation of the ratio, C/S divided by M/S, or the

subhazard ratios of the incidence of cohabitation to marriage. Model 1 shows the result for

family socialization variables. In Model 1, the incidence of cohabitation compared to no first

union is 4 percent higher with every additional 10 percent of childhood spent in stepfamilies

(C/S column, first row) and 2 percent higher with every additional 10 percent of childhood

spent in single-parent families (C/S column, second row) as opposed to living in intact

families. Living in single-parent families is also associated with a 3 percent lower incidence

of marriage (M/S column, second row). Having lived with a cohabiting parent is associated

with a 37 percent higher incidence of cohabitation and 41 percent lower incidence of

marriage compared to never having lived with a cohabiting parent. Having a mother who

married before age 20 is associated with a 16 percent higher incidence of cohabitation and 39

percent higher incidence of marriage as a first union compared to having a mother who

married as an adult. Overall, non-intact family types and parental cohabitation increases the

incidence of cohabitation over marriage. Mother's early marriage increases the incidence of

both cohabitation and marriage, but the effect is stronger for marriage, making the incidence

of cohabitation over marriage lower.

Model 2 shows the effect of neighborhood indices on first union. Living in a more

socioeconomically disadvantaged neighborhood is associated with a slightly higher incidence

of cohabitation and marriage. The higher prevalence of non-intact families in neighborhoods does not significantly change the incidence of cohabitation, but is associated with a lower incidence of marriage, indicating that individuals living in a neighborhood with higher percentage of non-intact families are more likely to cohabit over marry as a first union in young adulthood.

Model 3 examines the effect of school peers' parental union behaviors on first union formation. The only statistically significant association is found between the prevalence of school peers' mothers who married young and the incidence of marriage. Every additional 5 percent of students in school whose mothers married as a teenager is associated with 14 percent higher incidence of marriage. This indicates that individuals who were in a school where higher percentage of students had a mother who married young are more likely to get married over cohabit.

Model 4 includes variables from all three spheres of family, neighborhood, and school, testing for independent effect of these three socialization contexts. The association pattern and statistical significance of the family, neighborhood and school variables observed in Models 1 to 3 remain intact. Adding neighborhood and school variables to family variables significantly improves the model for marriage (Wald F-test p=0.0000), while it does not significantly improve the model for cohabitation (Wald F-test p=0.0910).

Model 5 shows the subhazard ratios for cohabitation and marriage with all other control variables, and the statistical significance disappears for some socialization variables. After controlling for all variables, every additional 10 percent of childhood spent in stepfamilies is associated with a 3 percent higher incidence of cohabitation; and having lived with a cohabitating parent is associated with a 23 percent higher incidence of cohabitation

and 28 percent lower incidence of marriage. However, the effects of single-parent family on the incidence of marriage and cohabitation observed in Model 1 and Model 4 disappears in Model 5. Having a mother who married before age 20 is no longer significantly associated with cohabitation, but is associated with a 25 percent higher incidence of marriage. Overall, the general finding remains the same as the previous models: living in non-intact families and ever having lived with a cohabiting parent tend to increase the incidence of cohabitation over marriage, whereas having a mother who married as a teenager tend to decrease the incidence of cohabitation over marriage.

At the neighborhood level, the neighborhood family structure index comes to have a significant association with the incidence of cohabitation for the first time in all models. It shows that living in a neighborhood with high prevalence of non-intact families is associated with higher incidence of cohabitation. Both the neighborhood disadvantage index and the neighborhood family structure index maintain significant associations with the incidence of marriage in Model 5: living in a socioeconomically disadvantaged neighborhood is associated with a higher incidence of marriage, and living in a neighborhood with higher proportion of non-intact families in neighborhood is associated with a lower incidence of marriage. Overall, these results indicate that living in a neighborhood with a higher percentage of non-intact families is associated with a higher incidence of cohabitation over marriage, supporting socialization theory.

At the school level, the effect of the percentage of students in school whose mother married before age 20 disappears in Model 5, and no school-level socialization variable has statistically significant association with the incidence of first union.

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Among the control variables, having a parent with a bachelor's degree is associated with a 15 percent lower incidence of cohabitation compared to having a high-school graduate parent. Having a parent who is Evangelical Protestant or non-Protestant/Catholic religion is associated with a higher incidence of marriage compared to having a Mainline Protestant parent, while parents' religious affiliation does not have significant association with the incidence of cohabitation. Having a religious parent is associated with a lower incidence of cohabitation and higher incidence of marriage. First- and second-generation immigrants also have a lower incidence of cohabitation and higher incidence of marriage. Younger respondents in the sample have a higher incidence of cohabitation and lower incidence of marriage. Whiles there is no major racial difference in the incidence of cohabitation, the incidence of marriage for Blacks and Native Americans are less than half that for Whites. Female respondents have a higher incidence of cohabitation and marriage than males, but the gender difference is larger on marriage.

Gender Interaction Test

In order to test whether there is a significant gender difference in socialization processes, I tested for a gender interaction with neighborhood and school socialization variables[5]. Appendix 2 shows gender interaction effects for marriage and cohabitation in these two social contexts. The Wald F-test was used to examine whether adding each neighborhood or school-level socialization gender interaction significantly improves the fit of

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[5] Gender interaction test for family variables is conducted in Chapter 2, and no gender interaction was found (Appendix 2).

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the model without the interaction term. Overall, there was no statistically significant

difference by gender for socialization variables. The p-values for the Wald F-test (the

bottom row of the table) for each gender interaction on cohabitation and marriage are all

above 0.05, indicating that adding these gender interactions do not significantly improve the

fit of the original model .

Race Interaction Test and Competing-Risks Regression Results by Race

Next, I tested whether there are significant race-ethnic differences in socialization

processes (Appendix 3). I created interaction terms of socialization variables in three social

contexts (family, neighborhood, and school) with three racial-ethnic groups (Blacks,

Hispanics, and all others), while setting Whites as a reference group for racial comparison,

and I tested whether each interaction significantly improves the model fit. Results indicate

that several interactions significantly improve the model fit (e.g., Wald F-test p-value is

0.0267 for Model 1 with the race interaction of family structure variables) and justify

separate models by race.

In Table 4, I present the subhazard ratios from competing-risks regression analysis for

each race. I compare the results for only Whites, Blacks, and Hispanics, because other racial

groups (Asians, Native Americans, and mixed-race) do not have a large enough sample size

to produce meaningful analytical results. For the purpose of ease of comparison, I only show

the results of Model 5 of the competing-risks regressions that controls for all variables.

The first set in Table 4 shows the result of competing-risks regression for Whites.

Every additional 10 percent in stepfamilies is associated with a 3 percent higher incidence of

cohabitation, and parental cohabitation is associated with a 26 percent higher incidence of

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cohabitation and 43 percent lower incidence of marriage. Having a mother who married before age 20 have 29 percent higher incidence of marriage compared to those whose mother married as an adult. Overall, the association pattern between family variables and first union for Whites is similar to that of the total sample (Model 5 in Table 3). For Black respondents, on the other hand, no parental family behavior variables except for parental cohabitation (associated with 25 percent higher incidence of cohabitation) shows statistically significant associations with the incidences of cohabitation and marriage. Hispanics also show a unique association pattern between family variables and first union formation. For Hispanic respondents, experiencing any type of non-intact family is associated with a higher incidence of cohabitation and lower incidence of marriage, making the chance of cohabitation over marriage higher. However, neither parental cohabitation nor mother's early marriage have significant association with first union formation.

Next, the effects of neighborhood environments show similar patterns for all three racial groups. The only significant association between a neighborhood index and first union is that living in a neighborhood with higher percentage of non-intact families is associated with a lower incidence of marriage, and the subhazard ratios are between 0.91 and 0.93. This indicates that respondents of all races who live in a neighborhood with higher percentage of non-intact families have a lower incidence of marriage, which makes their chance of cohabitation over marriage higher.

The racial comparison also produced an interesting result regarding socialization in school. While none of the school socialization variables showed statistically significant associations with first union formation in the analysis of the total sample (Model 7 in Table 3), some school socialization variables are related to union formation with opposing

directions of effects by race. First, being in a school where many students experienced parental cohabitation has opposite effects on first union formation between Blacks and Hispanics, while it does not have a major influence on White's first union formation. Every additional 5 percent of students who have lived with a cohabiting parent is associated with a 18 percent higher incidence of marriage for Blacks ($p<0.05$), while it is associated with a 23 percent lower incidence of marriage for Hispanics ($p<0.05$). It is also associated with a 9 percent lower incidence of cohabitation of Blacks ($p<0.05$) and 6 percent higher incidence of cohabitation for Hispanics (not significant). Second, mother's early marriage is associated with a 6 to 10 percent higher incidence of marriage for all racial groups, but it is statistically significant only for Whites.

Micro-Meso Interaction Effects

Finally, I tested for an interaction between family and neighborhood socialization processes, and between family and school socialization processes (Table 5). Although the full results of the interaction tests are available upon request, I present the Wald F p-value of each test in Table 5 and show the full model with significant interaction items in Table 6. The first column of Table 5 shows that there is an interaction between parental family behaviors and neighborhood family structure index on the incidence of cohabitation for the total sample, for Whites, and for Blacks. Although the Wald F-test p-value also shows that there is an interaction between family and neighborhood socialization on the incidence of marriage for Hispanics, this is largely derived from the extreme value of the interaction of the "missing" category. Therefore, I concluded that this interaction is not meaningful. The second column of Table 5 shows that there is a significant interaction between family structure and

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percentage of students living in two-parent families for Blacks. However, this result is largely derived from the extreme association between living in families with no biological parents, and only 133 Black respondents had spent at least some period of childhood in this type of family. Due to this small cell size, I use caution in evaluating the effect of this interaction. The third column shows that there are three interactions between respondents' own parental cohabitation and the percentage of students in school who experienced parental cohabitation. The fourth column shows that there is no interaction between parental union behaviors and the percentage of mothers in school who married as a teenager.

Table 6 presents the coefficients from the competing-risks regression for models with significant race interactions. Using the regression equation and coefficients in Table 6, I calculated exponentiated effects and plotted interaction effects in the following charts for ease of interpretation (Figures 3. 2. to 3. 4.).

Table 6 shows that there is interaction effect between own parents' cohabitation and the percentage of students in school who have experienced parental cohabitation on the incidence of marriage for the total sample. Furthermore, this interaction effect is found for White respondents' incidence of cohabitation and marriage. Because the pattern of interaction is very similar, the total sample effect is likely to reflect the interaction effects for Whites. Therefore, I only show the results of interaction for Whites and Blacks as visual charts.

Figure 3.2. shows that living in a neighborhood with a high prevalence of non-intact families (neighborhood family structure index 1 standard deviation above the mean) attenuates the impact of own parents' cohabitation on cohabitation as a young adult for Whites. For White respondents, the mean score of the neighborhood family structure is -1.48,

and the subhazard ratio of cohabitation for those who have experienced parental cohabitation is 1.31 (31% increase in likelihood of cohabitation). On the other hand, the incidence of cohabitation for White respondents who lived in a neighborhood with the family structure index of 0.71 (+1 standard deviation from the mean) is 1.21. This result is opposite the protective model argument because living in neighborhoods with more intact families (lower score in the neighborhood family structure index) should lower cohabitation risks, but instead it is associated with higher risks of cohabitation.

Figure 3. 3. 1 shows the subhazard ratios of cohabitation and marriage for White respondents who had experienced parental cohabitation by the percentage of students in school who had lived with a cohabiting parent. When only 9 percent of students in school had experienced parental cohabitation, the incidence of marriage for respondents whose parent had cohabited is 0.48 compared to 1 for those whose parent had never cohabited. However, the incidence of marriage is 0.53 in a school where 12 percent of students had experienced parental cohabitation, and it is 0.59 in a school where 15 percent of students had experienced parental cohabitation. On the other hand, the incidence of cohabitation decreases as the percentage of students with parental cohabitation experience increases. This indicates that the combination of parental cohabitation and prevalence of peers' parental cohabitation does not strengthen the effect to avert marriage, and rather being surrounded by more cohabiting families is associated with more traditional type of family formation.

Figure 3. 3. 2. shows how respondent's own parental cohabitation experience is associated with the change in percent of students in school with parental cohabitation experience. This chart shows that the effect of higher prevalence of parental cohabitation in school has opposite effects for those who have lived with a cohabiting parent and those who

have not. For the respondents who had lived with a cohabiting parent, attending a school where parental cohabitation is more common is associated with a higher incidence of marriage and lower incidence of cohabitation. Again, this effect contradicts theoretical expectation of the protective model. However, for those who had not experienced parental cohabitation, attending a school with high percentage of parental cohabitation is associated with a higher incidence of cohabitation and lower incidence of marriage. This is in line with the argument of potentiator model: a meso-level environment with traditional family behaviors strengthens the traditional family behaviors for those who never observed nontraditional family behaviors at home.

The final two charts show results for Blacks. Black respondents show a different pattern of interaction effects between mother's early marriage and the neighborhood family structure, which is not observed among Whites and Hispanics. The neighborhood family structure index is a measure of prevalence of non-intact families in neighborhood. Blacks have higher score in this index on average (3.0) compared to the mean score of -0.22 for the total sample. As Chart 3-A shows, the subhazard of cohabitation when respondents' mother married before age 20 is 0.98 when they were living in a neighborhood of average prevalence of non-intact families for Blacks. However, the subhazard is lower when they were living in a neighborhood with a lower prevalence of non-intact families and it is higher when they were living in a neighborhood with a higher prevalence. This indicates that the neighborhood family structure has a protective effect against the effect of mother's young marriage, because living in a neighborhood where non-intact families are less prevalent is associated with a lower incidence of cohabitation for those whose mothers married early. Furthermore,

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as Chart 3-B shows, the effect of the prevalence of non-intact families is stronger for those with a mother who married young.

CONCLUSION

This chapter explored processes of socialization for first union formation in young adulthood among three developmental domains in childhood and adolescent: family, neighborhood, and school. I focused on three research issues that have not been clarified in previous studies. First, I examined whether there is an independent influence of meso-level environments of neighborhood and school on first union type. Second, I explored whether there are interaction effects between the micro-level (family) and the meso level (neighborhood and school) on first union type. Finally, I examined whether there is difference in the effect of socialization by race.

In *Hypothesis 1*, I predicted that a higher prevalence of non-intact families in respondents' neighborhoods and schools has an independent association with higher likelihood of cohabitation over marriage in early adulthood. This hypothesis was supported only for neighborhood family structure characteristics and not for school peers' family structure. The competing-risks regression results (Table 3) shows that living in a neighborhood with high percentage of non-intact families was associated with a lower incidence of marriage and higher incidence of cohabitation. On the other hand, none of the school peers' family structure variables had a significant association with the incidence of marriage or cohabitation in the competing-risks analysis.

However, further analysis by race revealed some associations between school peers' parental family behaviors and first union formation. First, the prevalence of parental

cohabitation among students showed opposite effects for Blacks and Hispanics, both of which were statistically significant. Among Blacks, higher prevalence of parental cohabitation in school was associated with a higher incidence of marriage and lower incidence of cohabitation, which is contrary to the hypothetical argument. On the other hand, Hispanics showed the theoretically expected pattern of association such that a higher prevalence of parental cohabitation in school was associated with a lower incidence of marriage. These results may reflect cultural patterns of union behaviors among Blacks and Hispanics. Hispanics tend to hold more traditional values about family, and marriage is considered as the normative union type (Acevedo 2009; Willoughby 2010). Therefore, Hispanics who are exposed to an environment with many cases of cohabitation learn and accept cohabitation as an option. On the other hand, marriage in young adulthood is rare among Blacks, and their breakup rates in marriage and cohabitation are high. One possible explanation for their unexpected pattern of association is that Black adolescents perceive parental cohabitation as a form of coresidential union, without making clear or meaningful distinction between marriage and cohabitation.

Another important result was the finding that a high prevalence of students whose mothers married before age 20 was associated with a higher incidence of marriage for Whites, which is in line with the theoretical expectation. This may be explained by the changing patterns of union formation by race. The average age of first marriage has increased since the mid-20th century, and this trend has largely been led by White and middle-class Americans' delay of marriage, while leaving the cultural ideal of early marriage relatively intact among the less privileged (Luker 1996). For example, early marriage is still common among Hispanics, and they tend to highly value marriage, childbearing, and family life in general

(Landale 1994). Another explanation is the change in the pattern of family formation among Blacks. Although Blacks have always had lower marriage rates than Whites (e.g., Ruggles 1994), their delay of first marriage and high rates of nonmarital childbearing have changed the realistic expectation of marriage for today's young-adult Blacks. Therefore, they have small chance of marriage anyway in their early adulthood. On the other hand, White society has experienced an increasing gap between the higher and lower socioeconomic strata. The former wait to form a family until their career is established, whereas the latter have few reasons to wait for marriage. The parent generation of the Add Health respondents came of age in the 1960s and 1970s when a large proportion of youth achieved higher education. Therefore, having a mother who married as a teenager signals their less-career-oriented attitudes. Because of the diversity in marriage pattern by social class among Whites, respondents with mothers who married young are influenced more strongly by their parent's union behaviors.

Next, I hypothesized that the socialization effects in the meso-level contexts would interact with an individual's family structure in their association with union formation. The results show that interactions between micro- and meso-levels exist for Whites' marriage and cohabitation and for Blacks' cohabitation. However, some of the interaction patterns were not in line with the theoretical expectations as I explain below.

The protective model expressed in *Hypothesis 2a* was supported for Blacks (For individuals from non-intact families, the low prevalence of non-intact families in neighborhoods and schools serves as a protective factor, reducing the likelihood of cohabitation over marriage compared to individuals from meso-level environments with a high prevalence of non-intact families). The incidence of cohabitation for Black respondents

whose mother married as a teenager is lower when living in a neighborhood where more people live in intact families. This result suggests that the association between nontraditional family behaviors by mother and those by children is mitigated by the neighborhood environment. However, the protective model was not supported for Whites, given the result that going to a school with fewer students who have lived with a cohabiting parent is associated with a lower incidence of marriage and higher incidence of cohabitation for White respondents with parental cohabitation experience.

On the other hand, the potentiator model shown in *Hypothesis 2b* was supported for White respondents (For individuals from intact families, their appreciation for marriage is strengthened by being in a neighborhood and school with low prevalence of non-intact families, and they even have a higher probability of marriage over cohabitation compared to individuals from a meso-level environment with a high prevalence of non-intact families). A higher percentage of students in school with a cohabiting parent was associated with a higher incidence of cohabitation and lower incidence of marriage for Whites who never lived with a cohabiting parent. This result suggests that a meso-level context where traditional family behaviors are commonly observed have a strengthening effect of own parents' behaviors of maintaining an intact family. Meanwhile, the potentiator model does not seem to work for Black respondents: For those whose mother married as an adult, the incidence of cohabitation is not significantly influenced by the neighborhood family structure index. This might make sense given that the potentiator model discusses effect on the privileged. While privileged Whites often live in a society where only people who share the similar socioeconomic conditions and values, privileged Blacks are still members of the minority group (Massey

2001), and nontraditional family behaviors are common in their racial community. Therefore, their meso-level environment may not have potentiator effects.

Finally, the racial difference in the strength of socialization at meso-level in *Hypothesis 3* was not supported (Neighborhood and school socialization effects are stronger for Whites than Blacks and Hispanics). The results show no evidence to support stronger meso-level socialization effects for Whites than for minorities. The neighborhood family structure index showed similar pattern of association for all racial groups in the form that the higher index (a higher prevalence of non-intact families in neighborhood) is associated with a lower incidence of marriage. The school socialization variables showed different patterns of association by race. For example, the percentage of students in school who had experienced parental cohabitation does not have a significant association with the incidence of marriage for Whites, but it is associated with a higher incidence of marriage and lower incidence of cohabitation for Blacks, and with a lower incidence of marriage for Hispanics. Mother's young marriage was associated with a higher incidence of marriage for Whites, but not for Blacks and Hispanics. Meanwhile, the potentiator effect which was found only for Whites may indicate the importance of meso-level environments for Whites due to their diverse family behaviors and cultural norms by socioeconomic condition. All in all, I cannot produce a clear conclusion regarding Hypothesis 3.

As I discussed in Chapter 1, there are three other theoretical perspectives that explain similar patterns of union behaviors between parents and a child: economic deprivation, social control, and instability and family status change. The study in this chapter includes measures of family type and structural factors at neighborhood and school. After controlling for these meso-level variables, I found some association between economic deprivation variable and

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first union type. The neighborhood disadvantage index—a constructed measure for neighborhood socioeconomic disadvantage—is associated with higher incidence of marriage in the competing-risks analysis (Model 5 in Table 3), lowering the incidence of cohabitation over marriage. This result is opposite the theoretical expectation that lower socioeconomic status is associated with higher incidence of cohabitation over marriage. This result may be due to the young age of the sample that does not include marriage of people in their 30s. On the other hand, social control theory was not supported. At the school level, there is no association between the percentage of students living with two parents and first union type. Instability and change theory cannot be tested in this study, because variables used in this study do not include the number of family status changes. Such variable can be created from the family status array and is expected to be tested in future studies.

Overall, this study provided new insights about socialization effects on union formation by disentangling socialization effects that operate in three environments: family, neighborhood, and school. First, the results showed the presence of socialization effects at the neighborhood and school levels. Second, the results also showed some interactions between family and meso-level environments, as well as race-specific socialization effects. Meanwhile, there are some issues that should be taken into consideration in future research for more detailed examination.

First, redesigning the measures of meso-level environments may help improve the quality of analysis for non-family socializations. The results for neighborhood and school shown in this study may have resulted from the uniform index for all racial groups. For example, there are major differences in the distribution of the neighborhood family structure index by race, with standard score of -1.48 for Whites (standard deviation=2.19), 3.03 for

Blacks (standard deviation=6.12), and 0.07 for Hispanics (standard deviation=2.60). This suggests that a change of one additional point in the index may have different implication for different races. Similarly, the prevalence of two-parent families, parental cohabitation experience, and students with mothers who married before age 20 also varies greatly by race. Because races are not evenly distributed across schools as well, race distribution-sensitive measures within non-family social contexts might better differentiate the outcomes of interest.

Second, taking into account neighborhood racial composition of tracts may help better understand neighborhood socialization effects by race. For example, a high prevalence of intact families may mean something different for a Black adolescent if the majority of families are White as opposed to Black. This may also contribute to untangle the controversy presented by Massey and Denton versus Wilson, by examining whether the level of racial minority concentration has an independent effect on the nontraditional type of union behaviors

The presence of racial differences in the meso-level socialization effects on first union formation is a new finding in this study, and further research will help to clarify more precise processes of socialization that involve specific cultural or structural influences specific to race.

Table 3. 1. 1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Gender.

	Category	Total (N=11,287)			Male (N=5,344)			Female (N=5,943)		
		Freq	%	weight %	Freq	%	weight %	Freq	%	weight %
Family variables										
% of childhood	0%	1,780	15.8	**14.5**	787	14.7	**13.3**	993	16.7	**15.7**
spent in	0.1-50%	1,799	15.9	**15.7**	839	15.7	**15.6**	960	16.2	**15.8**
intact family	50.1%-	7,708	68.3	**69.8**	3,718	69.6	**71.1**	3,990	67.1	**68.5**
% of childhood	0%	9,011	79.8	**79.6**	4,278	80.1	**79.9**	4,733	79.6	**79.4**
spent in	0.1-50%	1,371	12.2	**12.4**	645	12.1	**12.6**	726	12.2	**12.2**
stepfamily	50.1%-	905	8.0	**8.0**	421	7.9	**7.5**	484	8.1	**8.5**
% of childhood	0%	7,263	64.4	**65.4**	3,511	65.7	**66.6**	3,752	63.1	**64.2**
spent in single-	0.1-50%	1,986	17.6	**17.6**	929	17.4	**17.5**	1,057	17.8	**17.7**
parent family	50.1%-	2,038	18.1	**17.0**	904	16.9	**15.9**	1,134	19.1	**18.1**
% of childhood	0%	10,766	95.4	**95.8**	5,099	95.4	**95.6**	5,677	95.4	**96.0**
spent in no-bio	0.1-50%	330	2.9	**2.8**	155	2.9	**2.8**	175	2.9	**2.7**
parent family	50.1%-	191	1.7	**1.4**	90	1.7	**1.5**	101	1.7	**1.3**
Parental	No	9,584	84.9	**85.3**	4,578	85.7	**85.4**	5,006	84.2	**85.2**
cohabitation	Yes	1,482	13.1	**13.1**	674	12.6	**13.1**	808	13.6	**13.2**
	Missing	221	2.0	**1.5**	92	1.7	**1.6**	129	2.2	**1.5**
Mother's age	19 or younger	4,331	38.4	**40.7**	2,053	38.4	**40.6**	2,278	38.3	**40.7**
at first marriage	20 or older	5,903	52.3	**50.8**	2,760	51.7	**50.2**	3,143	52.9	**51.3**
	Missing	1,053	9.3	**8.5**	531	9.9	**9.1**	522	8.8	**7.9**
Neighborhood variables										
Neighborhood	less than -1.8	3,770	33.4	**34.0**	1,825	34.2	**34.8**	1,945	32.7	**33.2**
disadvantage	-1.8-1.8	3,945	35.0	**34.6**	1,907	35.7	**34.8**	2,038	34.3	**34.5**
index	1.8 or over	3,572	31.7	**31.4**	1,612	30.2	**30.4**	1,960	33.0	**32.4**
Neighborhood	less than -1.8	4,424	39.2	**44.3**	2,178	40.8	**45.3**	2,246	37.8	**43.2**
family structure	-1.8-1.8	4,680	41.5	**36.7**	2,229	41.7	**37.2**	2,451	41.2	**36.3**
index	1.8 or over	2,183	19.3	**19.0**	937	17.5	**17.5**	1,246	21.0	**20.5**

Table 3. 1. 1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Gender, continued.

	Category	Total (N=11,287)			Male (N=5,344)			Female (N=5,943)		
		Freq	%	**weight %**	Freq	%	**weight %**	Freq	%	**weight %**
School variables										
% of students living in two-parent family	less than 60%	4,266	37.8	**33.6**	2,013	37.7	**33.6**	2,253	37.9	**33.6**
	60-77.9%	3,428	30.4	**30.1**	1,581	29.6	**29.5**	1,847	31.1	**30.8**
	78%-	3,593	31.8	**36.3**	1,750	32.8	**36.9**	1,843	31.0	**35.6**
% of students who experienced parental cohab	less than 7%	4,040	35.8	**34.3**	1,969	36.9	**35.0**	2,071	34.9	**33.7**
	7-12.9%	3,159	28.0	**27.2**	1,515	28.4	**27.4**	1,644	27.7	**27.0**
	13%-	4,088	26.2	**38.4**	1,860	34.8	**37.5**	2,228	37.5	**39.3**
% of students parental cohab info missing	less than 10%	4,327	38.3	**43.8**	2,058	38.5	**44.6**	2,269	38.2	**43.1**
	10-16.9%	4,023	35.6	**35.3**	1,902	35.6	**34.5**	2,121	35.7	**36.1**
	17%-	2,937	26.0	**20.9**	1,384	25.9	**20.9**	1,553	26.1	**20.8**
% of students whose mom married as a teenager	less than 30%	4,777	42.3	**35.3**	2,223	41.6	**34.7**	2,554	43.0	**35.8**
	30-44.9%	4,734	41.9	**44.3**	2,262	42.3	**43.8**	2,472	41.6	**44.7**
	45%-	1,776	15.7	**20.5**	859	16.1	**21.4**	917	15.4	**19.5**
% of students whose mom's age at marriage missing	less than 12%	1,007	8.9	**10.9**	509	9.5	**11.5**	498	8.4	**10.2**
	12-19.9%	3,877	34.4	**37.4**	1,835	34.3	**37.2**	2,042	34.4	**37.7**
	20%-	6,403	56.7	**51.7**	3,000	56.1	**51.3**	3,403	57.3	**52.1**
School type	Public	10,397	92.1	**93.1**	4,903	91.8	**92.3**	5,494	92.4	**93.9**
	Private	890	7.9	**6.9**	441	8.3	**7.7**	449	7.6	**6.9**
School size	Small	1,656	14.7	**15.8**	774	14.5	**16.1**	882	14.8	**15.5**
	Medium	4,290	38.0	**46.2**	2,009	37.6	**45.9**	2,281	38.4	**46.6**
	Large	5,341	47.3	**38.0**	2,561	47.9	**38.1**	2,780	46.8	**37.9**
School urbanicity	Urban	3,290	29.2	**25.2**	1,490	27.9	**24.5**	1,800	30.3	**25.9**
	Suburban	5,917	52.4	**57.7**	2,823	52.8	**58.3**	3,094	52.1	**57.1**
	Rural	2,080	18.4	**17.1**	1,031	19.3	**17.2**	1,049	17.7	**17.0**
Dependent variable										
First union	No union	2,000	17.7	**16.7**	1,063	19.9	**18.9**	937	15.8	**14.5**
	Marriage	2,048	18.1	**17.6**	871	16.3	**15.7**	1,177	19.8	**19.5**
	Cohabitation	7,239	64.1	**65.6**	3,410	63.8	**65.3**	3,829	64.4	**65.9**

Table 3. 1. 1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Gender, continued.

	Category	Total (N=11,287)			Male (N=5,344)			Female (N=5,943)		
		Freq	%	**weight %**	Freq	%	**weight %**	Freq	%	**weight %**
Control variables										
Household income in 1994	$0-15,999	1,507	13.4	**13.8**	686	12.8	**13.0**	821	13.8	**14.7**
	$16,000-31,999	2,352	20.8	**20.3**	1,099	20.6	**20.3**	1,253	21.1	**20.4**
	$32,000-50,999	2,833	25.1	**25.9**	1,398	26.2	**27.5**	1,435	24.2	**24.3**
	$51,000-	3,303	29.3	**29.5**	1,597	29.9	**29.4**	1,706	28.7	**29.7**
	Missing	1,292	11.5	**10.5**	564	10.6	**9.9**	728	12.3	**11.0**
Parental education	Less than HS	1,223	10.8	**10.4**	521	9.8	**9.5**	702	11.8	**11.3**
	High school	3,202	28.4	**30.7**	1,521	28.5	**30.8**	1,681	28.3	**30.7**
	Some college	2,423	21.5	**21.8**	1,112	20.8	**21.0**	1,311	22.1	**22.6**
	Bachelor -	4,163	36.9	**34.8**	2,047	38.3	**36.2**	2,116	35.6	**33.4**
	Missing	276	2.5	**2.3**	143	2.7	**2.5**	133	2.2	**2.1**
Parental occupation	Prof/manegerial	4,649	41.2	**39.3**	2,286	42.8	**40.4**	2,363	39.8	**38.3**
	Non-prof/mnge	5,971	52.9	**55.0**	2,772	51.9	**54.3**	3,199	53.8	**55.7**
	Unempl/missing	667	5.9	**5.6**	286	5.4	**5.2**	381	6.4	**6.0**
Economic hardship	No	6,704	59.4	**60.6**	3,249	60.8	**62.2**	3,455	58.1	**58.9**
	Yes	4,583	40.6	**39.5**	2,095	39.2	**37.8**	2,488	41.9	**41.1**
Number of siblings	0	2,133	18.9	**20.5**	1,043	19.5	**21.2**	1,090	18.3	**19.9**
	1	4,500	39.9	**40.0**	2,121	39.7	**39.7**	2,379	40.0	**40.4**
	2	2,900	25.7	**25.4**	1,376	25.8	**25.5**	1,524	25.6	**25.2**
	3 or more	1,754	15.5	**14.1**	804	15.0	**13.6**	950	16.0	**14.5**
Parental religion	Mainline	2,424	21.5	**22.7**	1,163	21.8	**22.4**	1,261	21.2	**23.0**
	Evangelical	3,538	31.4	**32.0**	1,626	30.4	**31.3**	1,912	32.2	**32.8**
	Catholic	3,230	28.6	**26.1**	1,585	29.7	**27.4**	1,645	27.7	**24.8**
	Other religion	1,390	12.3	**12.5**	667	12.5	**13.0**	723	12.2	**12.0**
	No religion	705	6.3	**6.7**	303	5.7	**6.0**	402	3.8	**7.4**
Parental relgiosity	No attendance	2,092	18.5	**20.3**	952	17.8	**19.6**	1,140	19.2	**21.0**
	Less than 1/mo	2,689	23.8	**24.6**	1,316	24.6	**25.8**	1,373	23.1	**23.4**
	1/mo or more	2,048	18.1	**17.8**	927	17.4	**17.6**	1,121	18.9	**18.0**
	1/wk or more	4,458	39.5	**37.4**	2,149	40.2	**37.0**	2,309	38.9	**37.7**

Table 3. 1. 1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Gender, continued.

	Category	Total (N=11,287)			Male (N=5,344)			Female (N=5,943)		
		Freq	%	weight %	Freq	%	weight %	Freq	%	weight %
Age at Wave 4	29 or older	5,622	49.8	**44.4**	2,813	52.6	**46.8**	2,809	47.3	**42.2**
	28 or younger	5,665	50.2	**55.6**	2,531	47.4	**53.3**	3,134	52.7	**57.8**
Immigrant status	1st generation	635	5.6	**3.5**	298	5.6	**3.4**	337	5.7	**3.7**
	2nd generation	1,815	13.5	**9.6**	736	13.8	**9.8**	782	13.2	**9.4**
	3rd generation-	9,134	80.9	**86.9**	4,310	80.7	**86.8**	4,824	81.2	**86.9**
Race and Ethnicity	White	6,377	56.5	**70.0**	3,092	57.9	**71.2**	3,285	55.3	**68.7**
	Black	2,077	18.4	**12.6**	881	16.5	**11.1**	1,196	20.1	**14.1**
	Native American	55	0.5	**0.4**	28	0.5	**46.3**	27	0.5	**31.6**
	Asian	507	4.5	**2.4**	271	5.1	**2.6**	236	4.0	**2.2**
	Hispanic	1,608	14.3	**9.7**	772	14.5	**9.8**	836	14.1	**9.6**
	Mixed	663	5.9	**5.0**	300	5.6	**4.9**	363	6.1	**5.1**
Gender	Male	5,344	47.4	**49.6**	2,813	52.6	**46.8**	2,809	47.3	**42.2**
	Female	5,943	52.7	**50.4**	2,531	47.4	**53.3**	3,134	52.7	**57.8**

Table 3. 1. 2. Frequency and Percentage Distribution of All Variables in the Analytic Sample by Race and Ethnicity.

	Category	White (N=6,377)		Black (N=2,077)		Hispanic (N=1,608)	
		Freq	weight %	Freq	weight %	Freq	weight %
Family variables							
% of childhood	0%	685	**10.3**	654	**35.6**	273	**18.1**
spent in	0.1-50%	997	**15.6**	401	**16.8**	233	**14.0**
intact family	50.1%-	4,695	**74.1**	1,022	**47.6**	1,102	**67.9**
% of childhood	0%	5,111	**80.2**	1,581	**76.7**	1,322	**82.3**
spent in	0.1-50%	712	**11.5**	349	**16.3**	169	**11.2**
stepfamily	50.1%-	554	**8.3**	147	**7.0**	117	**6.5**
% of childhood	0%	4,464	**70.1**	890	**38.7**	1,064	**66.0**
spent in single-	0.1-50%	1,114	**17.0**	431	**23.2**	237	**14.2**
parent family	50.1%-	799	**12.9**	756	**38.1**	307	**19.8**
% of childhood	0%	6,143	**96.6**	1,944	**92.9**	1,529	**94.5**
spent in no-bio	0.1-50%	156	**2.5**	81	**4.0**	41	**2.5**
parent family	50.1%-	78	**89.8**	52	**3.1**	38	**3.1**
Parental	No	5,697	**88.6**	1,540	**71.3**	1,295	**82.3**
cohabitation	Yes	605	**10.4**	488	**26.0**	240	**14.3**
	Missing	75	**1.1**	49	**2.7**	73	**3.4**
Mother's age	19 or younger	2,674	**42.5**	560	**29.7**	762	**48.2**
at first marriage	20 or older	3,333	**51.7**	1,093	**47.2**	729	**43.7**
	Missing	370	**5.8**	424	**23.0**	117	**8.1**
Neighborhood variables							
Neighborhood	less than -1.8	2,468	**38.4**	421	**12.9**	366	**24.1**
disadvantage	-1.8-1.8	2,525	**38.2**	495	**22.7**	500	**27.9**
index	1.8 or over	1,384	**23.3**	1,161	**64.4**	742	**48.0**
Neighborhood	less than -1.8	3,557	**55.2**	248	**12.9**	273	**19.2**
family structure	-1.8-1.8	2,306	**34.2**	754	**29.8**	932	**52.7**
index	1.8 or over	511	**10.6**	1,075	**57.3**	403	**28.1**
School variables							
% of students	less than 60%	1,246	**22.7**	1,418	**73.0**	1,047	**19.2**
living in two-	60-77.9%	2,062	**30.6**	547	**22.3**	392	**52.7**
parent family	78%-	3,069	**46.7**	112	**4.8**	169	**28.1**
% of students	less than 7%	2,549	**40.0**	546	**19.3**	462	**18.2**
who experienced	7-12.9%	1,985	**27.9**	595	**28.7**	237	**21.9**
parental cohab	13%-	1,843	**32.1**	936	**52.1**	909	**59.9**
% of students	less than 10%	2,888	**46.4**	677	**36.6**	359	**35.5**
parental cohab	10-16.9%	2,453	**36.5**	499	**25.6**	704	**39.7**
info missing	17%-	1,036	**17.2**	901	**37.8**	545	**24.8**
% of students	less than 30%	1,882	**28.4**	1,378	**61.8**	703	**37.0**
whose mom married	30-44.9%	3,085	**47.2**	558	**30.7**	768	**47.5**
as a teenager	45%-	1,410	**24.4**	141	**7.4**	137	**15.5**
% of students	less than 12%	876	**14.0**	46	**2.3**	35	**3.3**
whose mom's age	12-19.9%	2,961	**44.0**	273	**10.3**	269	**26.9**
at marriage missing	20%-	2,540	**42.0**	1,758	**87.4**	1,304	**69.8**

Table 3. 1. 2. Frequency and Percentage Distribution of All Variables in the Analytic Sample by Race and Ethnicity, continued.

	Category	White (N=6,377)		Black (N=2,077)		Hispanic (N=1,608)	
		Freq	weight %	Freq	weight %	Freq	weight %
School variables (continued)							
School type	Public	5,789	92.9	1,954	95.7	1,548	95.2
	Private	588	7.1	123	4.3	60	4.8
School size	Small	1,126	16.8	311	15.8	84	7.9
	Medium	2,743	47.6	895	54.4	304	31.4
	Large	2,508	35.6	871	29.8	1,220	60.7
School urbanicity	Urban	1,369	18.6	676	30.5	927	63.2
	Suburban	3,377	61.1	1,112	55.0	638	34.0
	Rural	1,631	20.3	289	14.5	43	2.8
Dependent variable							
First union	No union	900	14.5	518	24.0	298	18.6
	Marriage	1,214	18.1	225	11.0	401	23.2
	Cohabitation	4,263	67.4	1,334	65.1	909	58.4
Control variables							
Household income in 1994	$0-15,999	533	9.3	495	31.1	350	24.1
	$16,000-31,999	1,192	18.7	496	25.9	438	26.3
	$32,000-50,999	1,755	28.0	406	17.0	331	20.0
	$51,000-	2,288	34.6	281	12.3	242	15.2
	Missing	609	9.3	299	13.7	247	14.5
Parental education	Less than HS	409	6.8	188	11.6	536	34.4
	High school	1,888	30.4	618	37.8	418	27.8
	Some college	1,441	22.9	450	21.0	290	16.3
	Bachelor-	2,554	38.5	753	25.6	291	17.5
	Missing	85	1.4	68	4.2	73	4.0
Parental occupation	Prof/managerial	2,881	43.4	797	30.3	400	22.6
	Non-prof/mng	3,264	53.1	1,061	55.6	1,061	68.3
	Unempl/missing	232	3.5	219	14.1	147	9.1
Economic hardship	No	4,297	67.2	888	36.9	794	48.6
	Yes	2,080	32.8	1,189	63.1	814	51.4
Number of siblings	0	1,248	21.1	408	21.1	247	16.0
	1	2,771	43.0	763	34.4	537	30.3
	2	1,574	24.7	554	26.6	451	27.9
	3 or more	784	11.2	352	17.9	373	25.8
Parental religion	Mainline	1,810	27.6	287	10.6	118	6.1
	Evangelical	1,671	27.9	1,463	75.3	183	14.5
	Catholic	1,609	24.7	87	2.9	1,088	64.3
	Other religion	847	13.0	167	7.1	144	9.6
	No religion	440	7.0	73	4.2	75	5.5

Table 3. 1. 2. Frequency and Percentage Distribution of All Variables in the Analytic Sample by Race and Ethnicity, continued.

	Category	White (N=6,377)		Black (N=2,077)		Hispanic (N=1,608)	
		Freq	weight %	Freq	weight %	Freq	weight %
Parental religiosity	No attendance	1,406	22.2	167	9.5	246	16.4
	Less than 1/mo	1,740	27.0	336	16.7	340	20.1
	1/mo or more	1,051	16.6	459	21.8	357	23.9
	1/wk or more	2,180	34.3	1,115	52.0	665	39.6
Age at Wave 4	29 or older	3,043	44.1	999	47.5	946	45.4
	28 or younger	3,334	55.9	1,078	52.6	662	54.6
Immigrant status	1st generation	27	0.4	22	63.2	355	21.4
	2nd generation	252	4.0	84	3.1	775	42.7
	3rd generation-	6,098	95.6	1,971	96.2	478	35.9
Gender	Male	3,092	50.5	881	43.6	772	50.2
	Female	3,285	48.5	1,196	56.4	836	49.8

Table 3. 2. 1. Cross Tabulations of Socialization Variables in Three Social Contexts with First Union Type for Total Sample and by Gender.

Variable	Category	Total (N=11,287)				Male (N=6,930)				Female (N=7,866)			
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh	
		2,000	2,048	7,239		1,063	871	3,410		937	1,177	3,829	
		16.7 %	17.6 %	65.6 %		18.9%	15.7%	65.3%		14.5%	19.5%	65.9%	
Family variables													
% of childhood spent in intact family	0%	14.7	14.0	71.3		17.4	12.6	70.1		12.5	15.2	72.3	
	0.1-50%	12.6	15.8	71.6	***	14.7	13.3	72.0	***	10.5	18.2	71.2	***
	50.1%-	18.1	18.8	63.1		20.2	16.9	63.0		15.9	20.8	63.3	
% of childhood spent in stepfamily	0%	18.2	18.2	63.6		20.2	16.2	63.7		16.3	20.2	63.5	
	0.1-50%	10.9	16.7	72.4	***	14.0	16.4	69.6	***	7.8	17.0	75.2	***
	50.1%-	10.7	13.8	75.6		14.1	10.1	75.8		7.6	17.0	75.4	
% of childhood spent in single-parent family	0%	18.2	19.2	62.7		20.3	17.0	62.7		16.0	21.5	62.6	
	0.1-50%	12.0	16.1	72.0	***	14.6	15.7	69.8	***	9.4	16.4	74.2	***
	50.1%-	16.2	13.4	70.2		18.0	10.7	72.3		14.6	15.6	69.8	
% of childhood spent in no- bio parent family	0%	17.0	17.7	65.3		19.2	15.8	65.0		14.9	19.5	65.6	
	0.1-50%	8.6	15.5	75.9	*	10.5	11.2	78.3		6.7	19.8	73.5	
	50.1%-	12.3	19.5	68.3		18.6	18.7	62.7		5.1	20.4	74.5	
Parental cohabitation	No	17.6	18.8	63.7		19.9	16.9	63.3		15.8	20.7	64.0	
	Yes	10.6	10.4	79.0	***	12.5	8.6	78.9	***	8.8	12.2	79.0	***
	Missing	21.9	16.2	61.9		22.0	14.1	63.9		21.9	18.2	59.9	
Mothers age at first marriage	19 or younger	11.6	21.1	67.3		13.1	19.0	68.0		10.1	23.3	66.7	
	20 or older	20.8	15.7	63.5	***	24.0	13.6	62.5	***	17.7	17.8	64.5	***
	Missing	17.4	12.3	70.3		17.5	13.4	69.2		17.3	11.1	71.6	
Neighborhood variables													
Neighborhood disadvantage index	less than -1.8	20.2	16.0	64.9		22.9	15.3	61.8		16.7	16.9	66.4	
	-1.8-1.8	15.4	16.6	68.1	***	17.0	14.4	68.7	**	13.2	18.5	68.3	*
	1.8 or over	14.5	20.6	64.9		15.9	17.5	66.6		13.2	23.5	63.3	
Neighborhood family structure index	less than -1.8	15.0	19.9	65.1		17.2	17.7	65.1		12.8	22.2	65.0	
	-1.8-1.8	18.4	17.6	64.0	***	20.6	15.2	64.2	*	16.2	20.0	63.8	**
	1.8 or over	17.5	12.5	70.0		19.9	12.0	68.1		15.4	12.9	71.6	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 3. 2. 1. Cross Tabulations of Socialization Variables in Three Social Contexts with First Union Type for Total Sample and by Gender, continued.

Variable	Category	Total (N=11,287)				Male (N=6,930)				Female (N=7,866)			
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh	
		2,000	2,048	7,239		1,063	871	3,410		937	1,177	3,829	
		16.7%	17.6%	65.6%		18.9%	15.7%	65.3%		14.5%	19.5%	65.9%	
School variables													
% of students living in two-parent family	less than 60%	18.4	17.2	64.4		20.2	15.9	63.9		15.5	18.5	65.0	
	60-77.9%	15.6	19.0	65.5		18.5	16.6	64.9		12.8	21.2	66.0	
	78%-	16.2	17.0	66.9		18.1	14.9	67.0		14.2	19.1	66.8	
% of students who experienced parental cohab	less than 7%	15.7	20.0	64.2		18.1	17.9	64.0		13.4	22.2	64.5	
	7-12.9%	16.9	17.0	66.1		18.3	15.6	66.1		15.5	18.4	66.1	
	13%-	17.5	16.0	66.5		20.3	13.8	66.0		14.9	18.0	67.1	
% of students parental cohab info missing	less than 10%	16.5	15.3	68.3		19.7	13.5	66.8		13.2	17.1	69.7	
	10-16.9%	16.5	19.4	64.1		17.6	17.8	64.7		15.6	20.9	63.5	
	17%-	17.6	19.6	62.8		19.7	17.1	63.2		15.6	22.1	62.4	
% of students whose mom married <age 20	less than 30%	22.2	13.5	64.3		23.8	12.8	63.5		20.7	14.2	65.1	
	30-44.9%	15.1	18.4	66.6	***	17.6	16.4	66.0	***	12.7	20.3	67.1	***
	45%-	10.9	23.2	65.9		13.9	19.2	66.9		7.6	27.6	64.9	
% of students whose mom's age at marriage missing	less than 12%	16.4	18.0	65.7		18.7	15.4	65.9		13.9	20.8	65.3	
	12-19.9%	15.7	15.5	68.8		18.0	14.7	67.3		13.5	16.3	70.3	
	20%-	17.5	19.1	63.3		19.7	16.6	63.8		15.5	21.6	62.9	
School type	Public	16.5	17.5	66.0		18.5	15.7	65.8		14.5	19.2	66.3	
	Private	19.9	19.9	60.2		24.1	15.7	60.2		14.7	25.0	60.2	
School size	Small	13.9	20.0	66.2		17.0	18.9	64.2		10.2	21.1	68.2	
	Medium	17.9	15.9	66.3		19.9	13.8	66.4		16.0	17.8	66.2	
	Large	16.5	18.9	64.6		18.6	16.8	64.6		14.5	21.0	64.7	
School urbanicity	Urban	17.9	19.4	62.7		21.3	16.1	62.6		14.8	22.4	62.8	
	Suburban	17.4	16.2	66.5		19.7	15.0	65.3	*	15.1	17.3	67.6	
	Rural	12.7	20.1	67.2		13.0	17.8	69.2		12.4	22.5	65.1	

P-value: ***p<0.001. **p<0.01. *p<0.05

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Table 3. 2. 2. Cross Tabulations of Socialization Variables in Three Social Contexts with First Union Type by Race and Ethnicity.

Variable	Category	White (N=6,377)				Black (N=2,077)				Hispanic (N=1,608)			
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh	
		900	1,214	4,263		518	225	1,334		298	401	909	
		14.5%	18.1%	67.4%		24.0%	11.0%	65.1%		18.6%	23.2%	58.4%	
Family variables													
% of childhood spent in intact family	0%	9.0	14.2	76.8		21.8	10.7	67.5		17.0	14.1	69.0	
	0.1-50%	10.5	16.9	72.6	***	20.8	8.5	70.7		17.2	17.9	64.9	**
	50.1%-	16.1	18.9	65.0		26.7	12.1	61.3		19.3	26.5	54.3	
% of childhood spent in stepfamily	0%	15.9	18.5	65.6		26.3	11.1	62.6		19.9	24.6	55.6	
	0.1-50%	9.5	18.1	72.4	***	14.0	11.0	75.0	**	13.0	18.4	68.6	*
	50.1%-	7.5	14.0	78.4		21.2	10.0	68.7		12.2	11.5	76.3	
% of childhood spent in single-parent family	0%	16.3	19.0	64.7		28.7	12.6	58.7		18.2	26.8	55.0	
	0.1-50%	9.0	17.8	73.2	***	17.5	10.6	71.9	**	16.3	12.8	70.9	**
	50.1%-	11.8	13.4	74.8		23.0	9.6	67.4		21.5	17.6	60.9	
% of childhood spent in no- bio parent family	0%	14.8	18.1	67.1		24.7	10.8	64.6		18.9	23.6	57.5	
	0.1-50%	5.3	15.2	79.5		7.6	16.8	75.6		23.1	18.1	58.8	
	50.1%-	9.2	26.0	64.8		24.4	9.4	66.3		4.9	9.2	85.9	
Parental cohabitation	No	15.4	19.1	65.5		26.8	11.6	61.7		19.2	24.5	56.3	
	Yes	7.3	8.9	83.8	***	14.8	8.4	76.8	**	14.1	18.3	67.6	*
	Missing	11.4	18.9	69.7		37.3	21.0	41.8		22.5	7.9	57.8	
Mothers age at first marriage	19 or younger	8.9	21.4	69.7		23.9	13.0	63.1		16.8	25.5	58.8	
	20 or older	19.4	15.8	64.8	***	24.1	12.5	63.4		20.6	20.7	58.7	
	Missing	11.8	14.1	74.1		23.7	5.3	71.0		18.7	21.0	60.4	
Neighborhood variables													
Neighborhood disadvantage index	less than -1.8	19.3	16.5	64.2		28.7	8.6	62.7		17.6	14.9	67.5	
	-1.8-1.8	13.7	17.3	69.1	***	23.5	12.0	64.5		17.0	19.4	63.5	**
	1.8 or over	8.0	22.0	70.1		23.1	11.1	65.8		20.0	29.2	50.9	
Neighborhood family structure index	less than -1.8	14.2	20.1	65.7		19.4	16.9	63.7		19.0	20.8	60.2	
	-1.8-1.8	16.0	17.1	66.9	***	29.7	10.8	59.5	**	17.7	24.3	58.0	
	1.8 or over	10.9	10.8	78.4		22.0	9.7	68.3		20.0	22.1	57.9	

P-value: ***p<0.001. **p<0.01. *p<0.05

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Table 3. 2. 2. Cross Tabulations of Socialization Variables in Three Social Contexts with First Union Type by Race and Ethnicity, continued.

Variable	Category	White (N=6,377)				Black (N=2,077)				Hispanic (N=1,608)			
		No	Mar	Coh		No	Mar	Coh		No	Mar	Coh	
		900	1,214	4,263		518	225	1,334		298	401	909	
		14.5%	18.1%	67.4%		24.0%	11.0%	65.1%		18.6%	23.2%	58.4%	
School variables													
% of students living in two-parent family	less than 60%	13.5	17.1	69.5		23.7	11.1	65.1		18.6	25.9	55.6	
	60-77.9%	13.2	20.1	66.7		24.4	10.5	65.1		17.2	24.2	58.6	*
	78%-	15.9	17.3	66.9		25.1	10.7	64.2		21.5	9.8	68.7	
% of students who experienced parental cohab	less than 7%	14.9	20.4	64.7		20.3	11.4	68.3		17.1	20.3	62.6	
	7-12.9%	14.3	17.8	67.9		26.9	11.8	61.3		19.8	20.5	59.7	
	13%-	14.2	15.4	70.4		23.7	10.3	66.0		18.6	24.8	56.7	
% of students parental cohab info missing	less than 10%	14.9	15.6	69.5		23.6	9.1	67.3		17.2	22.0	60.8	
	10-16.9%	14.1	19.2	66.7		24.4	11.7	63.8		20.9	25.2	54.0	
	17%-	14.2	22.5	63.4		24.0	12.3	63.7		16.9	21.1	62.0	
% of students whose mom married age <20	less than 30%	20.8	13.7	65.5		26.1	9.6	64.4		18.5	18.3	63.2	
	30-44.9%	13.8	17.8	68.4	***	21.8	13.4	64.8		17.6	26.2	56.3	
	45%-	8.5	23.8	67.8		15.2	12.8	72.0		22.0	24.6	53.4	
% of students whose mom's age at marriage missing	less than 12%	17.0	18.6	64.5		17.9	8.0	74.1		15.6	8.3	76.1	
	12-19.9%	14.6	15.6	69.8		20.7	9.1	70.2		19.2	19.5	61.4	
	20%-	13.5	20.6	65.9		24.5	11.3	64.2		18.5	25.1	56.4	
School type	Public	14.3	17.8	68.0		23.7	10.9	65.4		18.5	23.6	58.0	
	Private	17.4	22.2	60.4		29.8	13.2	57.0		21.2	12.0	66.8	
School size	Small	11.9	20.9	67.2		21.8	11.5	66.7		12.2	26.1	61.7	
	Medium	15.2	16.9	67.9		24.8	11.9	63.4		21.8	13.3	64.9	*
	Large	14.8	18.4	66.9		23.6	9.1	67.3		17.8	27.6	54.6	
School urbanicity	Urban	15.7	18.7	65.6		21.4	9.7	68.9		18.0	26.1	55.9	
	Suburban	15.3	17.0	67.7		24.4	11.5	64.1		20.2	16.2	63.6	
	Rural	11.1	20.8	68.1		27.6	11.6	60.8		12.5	34.8	52.6	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 3. 3. Subhazard Ratios from Competing-Risks Regression for First Union Formation for the Total Sample (N=11,287).

		Model 1			Model 2			Model 3		
		C/S	M/S	C/M	C/S	M/S	C/M	C/S	M/S	C/M
Family										
Additional 10% of childhood spent in:	Stepfamily	**1.04 *****	0.99	1. 05						
	Single-parent family	**1.02 *****	**0.97 ****	1. 05						
(ref: intact)	No-bio parent family	1.02	1.01	1. 01						
Parent cohabitation (a)	Yes	**1.37 *****	**0.59 *****	2. 32						
Mom's age at marriage (a)	19 or younger	**1.16 *****	**1.39 *****	0. 83						
Neighborhood										
Neighborhood disadvantage index					**1.01 ****	**1.05 *****	0. 96			
neighborhood family structure index					1.01	**0.90 *****	1. 12			
School										
Additional 10% of students living with 2 parents								0.99	1.02	0. 97
Add. 5% of students ever lived w/ cohab parent (a)								1.03	0.90	1. 14
Add. 5% of students mom married age<20 (a)								1.02	**1.14 *****	0. 89
School type (ref: public)	Private							0.81	1.45	0. 56
School size	Small							1.04	1.06	0. 98
(ref: medium)	Large							0.86 **	1.26 *	0. 68
School location	Urban							0.95	1.10	0. 86
(ref: suburban)	Rural							0.98	0.98	1. 00
Control										
Gender	Female	**1.15 *****	**1.33 *****	0. 86	**1.13 *****	**1.34 *****	0. 84	**1.14 *****	**1.35 *****	0. 84
Region	West	0.88	1.24	0. 71	0.89	1.34	0. 66	0.94	1.29	0. 73
	South	**0.79 ****	**1.61 *****	0. 49	**0.78 ****	**1.54 ****	0. 51	**0.79 ****	**1.41 ***	0. 56
	Northeast	0.90	0.80	1. 13	0.90	0.86	1. 05	0.91	0.98	0. 93
F		171.02	160.82		32.85	90.17		60.16	107.78	
df		11	11		6	6		14	14	
Pr		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	

(a) "Missing" categories are controlled, but not displayed.
C/S: subhazard ratio of cohab to no union; M/S: subhazard ratio of marriage vs.no union; C/M: ratio of cohab to marriage
P-value: ***p<0.001. **p<0.01. *p<0.05

Table 3. 3. Subhazard Ratios from Competing-Risks Regression for First Union Formation for the Total Sample, continued (N=11,287).

		Model 4			Model 5		
		C/S	M/S	C/M	C/S	M/S	C/M
Family							
Additional 10% of childhood spent in:	Stepfamily	**1.04 *****	0.99	1. 05	**1.03 *****	1.00	1. 03
	Single-parent family	**1.02 *****	**0.97 ***	1. 05	1.01	0.98	1. 03
(ref: intact)	No-bio parent	1.02	1.01	1. 01	1.02	1.01	1. 01
Parent cohabitation (a)	Yes	**1.34 *****	**0.63 *****	2. 13	**1.23 *****	**0.72 ****	1. 71
Mom's age at marriage (a)	19 or younger	**1.13 *****	**1.25 *****	0. 90	1.06	**1.25 ****	0. 85
Neighborhood							
Neighborhood disadvantage index		1.00	**1.04 ****	0. 96	1.00	**1.04 ****	0. 96
neighborhood family structure index		1.01	**0.91 *****	1. 11	**1.02 ***	**0.93 *****	1. 10
School							
Add. 10% of students living with 2 parents		1.00	1.00	1. 00	1.00	1.00	1. 00
Add. 5% ever lived w/ cohab parent (a)		1.00	0.95	1. 05	0.98	0.97	1. 01
Add. 5% mom married age<20 (a)		1.01	**1.08 ****	0. 94	1.01	1.04	0. 97
School type	Private	0.80	1.09	0. 73	0.89	1.30	0. 68
School size	Small	1.03	1.32 *	0. 78	1.00	1.14	0. 88
(ref: medium)	Large	0.85 **	1.13	0. 75	**0.90 ***	1.17	0. 77
School location	Urban	0.99	0.89	1. 11	0.99	1.04	0. 95
(ref: suburban)	Rural	0.94	1.37 ***	0. 69	1.00	0.94	1. 06
Control							
Family income (a)	$0-15,999				1.05	1.10	0. 95
(ref: $51,000-)	$16,000-31,999				1.08	1.03	1. 05
	$32,000-50,999				1.03	0.98	1. 05
Parental education (a)	Less than HS				1.09	1.01	1. 08
(ref: high school)	Some college				0.98	1.04	0. 94
	Bachelor or higher				**0.85 ****	0.99	0. 86
Parental occupation	Non-prof/manage				1.03	0.92	1. 12
(ref: prof/manage)	Unemployed/miss				1.05	0.96	1. 09
Economic hardship	Yes				1.01	0.94	1. 07
Family size	No siblings				0.98	1.08	0. 91
	More than 2				0.94	1.12	0. 84
Religion	Evangelical				0.91	**1.46 *****	0. 62
(ref: Mainline)	Catholic				1.05	0.84	1. 25
	Other religion				0.91	**1.45 *****	0. 63
	No religion				0.91	1.34	0. 68
Religiosity	Less than 1/mo				0.95	1.13	0. 84
(ref: no church	1/mo or more				**0.83 *****	**1.42 ****	0. 58
attendance)	1/wk or more				**0.64 *****	**2.04 *****	0. 31

C/S: subhazard ratio of cohab to no union; M/S: subhazard ratio of marriage vs.no union; C/M: ratio of cohab to marriage

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 3. 3. Subhazard Ratios from Competing-Risks Regression for First Union Formation for the Total Sample, continued (N=11,287).

		Model 4			Model 5		
		C/S	M/S	C/M	C/S	M/S	C/M
Control (continued)							
Age at Wave 4	28 or younger				**1.17 *****	**0.75 *****	1. 56
Immigrant Status	1st generation				**0.59 *****	**2.04 *****	0. 29
(ref: 3rd or higher)	2nd generation				0.89	**1.37 ****	0. 65
Race	Black				0.89	**0.47 *****	1. 89
	Native American				0.97	**0.45 ***	2. 16
	Asian				0.87	0.67	1. 30
	Hispanic				0.87	1.01	0. 86
	Mixed race				0.96	1.33	0. 72
Gender	Female	**1.15 *****	**1.37 *****	0. 84	**1.16 *****	**1.40 *****	0. 83
Region	West	0.94	1.30	0. 72	0.99	1.20	0. 83
	South	**0.79 ****	**1.37 ***	0. 58	0.86	**1.30 ***	0. 66
	Northeast	0.92	0.96	0. 96	0.90	0.98	0. 92
F		229.65	224.97		721.64	1072.42	
df		23	23		51	51	
Pr		0.0000	0.0000		0.0000	0.0000	
Wald F-test (b)							
F		18.90	49.46		281.06	244.15	
df		12	12		28	28	
Pr		0.0910	**0.0000**		0.0000	**0.0000**	

(a) "Missing" categories are controlled, but not displayed.

(b) Model 4: Test for whether neighborhood and school socialization variables significantly improves the fit of the model from Model 1.
Model 5: Test for whether control variables significantly improves the fit of the model from Model 4.

C/S: subhazard ratio of cohab to no union; M/S: subhazard ratio of marriage vs.no union; C/M: ratio of cohab to marriage
P-value: ***p<0.001. **p<0.01. *p<0.05

Table 3. 4. Subhazard Ratios from Competing-Risks Regression for First Union Formation by Race and Ethnicity.

		White (N=6,377)			Black (N=2,077)			Hispanic (N=1,608)		
		C/S	M/S	C/M	C/S	M/S	C/M	C/S	M/S	C/M
Family										
Additional 10% of childhood	Stepfamily	**1.03** ***	1.00	1. 03	1.02	0.99	1. 03	**1.06** *	**0.90** *	1. 18
spent in:	Single-parent family	1.02	0.98	1. 04	1.00	1.02	0. 98	1.01	**0.92** ***	1. 10
(ref: intact)	No-bio parent family	1.01	1.02	0. 99	1.00	1.08	0. 93	**1.09** **	**0.84** *	1. 30
Parent cohabitation (a)	Yes	**1.26** ***	**0.57** ***	2. 21	**1.25** *	0.97	1. 29	1.08	1.12	0. 96
Mom's age at first marriage (a)	19 or younger	1.07	**1.29** **	0. 83	1.01	0.98	1. 03	1.05	1.09	0. 96
Neighborhood										
Neighborhood disadvantage index		1.00	1.02	0. 98	0.99	1.05	0. 94	0.98	1.04	0. 94
neighborhood family structure index		1.02	**0.93** **	1. 10	1.02	**0.91** **	1. 12	1.02	**0.92** *	1. 11
School										
Additional 10% of students living with 2 parents		1.00	0.99	1. 01	1.00	0.98	1. 02	1.03	0.92	1. 12
Additional 5% of students lived w/ cohab parent (a)		1.01	0.92	1. 10	**0.91** *	**1.18** *	0. 77	1.06	**0.77** *	1. 38
Additional 5% whose mother married age<20 (a)		1.00	**1.06** *	0. 94	1.01	1.08	0. 94	0.98	1.10	0. 89
School type (ref: public)	Private	0.89	1.42	0. 63	0.58 *	3.69 ***	0. 16	0.81	0.56	1. 45
School size (ref: medium)	Small	0.98	1.07	0. 92	1.25	0.67	1. 87	0.95	2.22	0. 43
	Large	0.88 *	1.20	0. 73	1.01	0.70	1. 44	0.72 *	1.47 *	0. 49
School location	Urban	1.01	0.94	1. 07	0.98	0.90	1. 09	1.00	1.22	0. 82
(ref: suburban)	Rural	1.01	0.96	1. 05	0.73	0.67	1. 09	0.66	2.22	0. 30
Control (b)										
Gender (ref: male)	Female	1.21 ***	1.41 ***	0. 86	0.93	1.22	0. 76	1.12	1.73 **	0. 65
F		605.86	752.47		365.80	1251.12		901.36	2004.44	
df		46	46		46	46		46	46	
Pr		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	

(a) "Missing" categories are controlled, but not displayed.

(b) All control variables shown in Table 3 are included in these models, but not displayed.

C/S: subhazard ratio of cohab to no union; M/S: subhazard ratio of marriage vs.no union; C/M: ratio of cohab to marriage

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 3. 5. Results of Wald F-test for the Interaction Terms of 'Parental Family Behaviors * Family Structure in Neighborhood' and 'Parental Family Behaviors * Family Structure in School.'

| | | Parental family behaviors * family structure in neighborhood | | Parental family behaviors* family structure in school | | | | | |
| | | Neighborhood family structure index (prevalence of non-intact families) | | % of students living in two-parent families | | % of students who experienced parental cohabitation | | % of students whose mother married as a teenager | |
		Cohab	Marriage	Cohab	Marriage	Cohab	Marriage	Cohab	Marriage
Total sample	Family structure	--	--	--	--				
	Parental cohabitation	**0.0149**	--			--	**0.0274**		
	Mother's age at first marriage	--	--					--	--
White	Family structure	--	--	--	--				
	Parental cohabitation	**0.0387**	--			**0.0242**	**0.0459**		
	Mother's age at first marriage	--	--					--	--
Black	Family structure	--	--	0.0022 (b)	--				
	Parental cohabitation	--	--			--	--		
	Mother's age at first marriage	**0.0474**	--					--	--
Hispanic	Family structure	--	--	--	--				
	Parental cohabitation	--	0.0291 (a)			--	--		
	Mother's age at first marriage	--	--					--	--

　　　　　　　 … Tested micro-meso interaction combination

-- : Wald F test p-values that are not statistically significant

Numbers in cells: Wald F-test p-values that are statistically significant at the 0.05 level.

(a) Although the Wald F-test values shows that the interaction of parental cohabitation and the prevalence of non-intact families in neighborhood significantly improves the model, this is largely derived from the extreme value of the interaction of the "missing" category, I concluded that this interaction is not meaningful.

(b) Although the Wald F-test values shows that the interaction of family structure and the percentage of students living in two-parent families significantly improves the model,this is largely derived from the extreme value of the interaction of the "percentage of childhood spent in no-biological parent family" category with only 133 respondents. Therefore, I decided not to interpret this interaction.

Table 3. 6. Coefficients from Competing-Risks Regression with Significant Interactions for 'Parental Family Behaviors * Family Structure in Neighborhood' and 'Parental Family Behaviors * Family Structure in School.'

		Total (N=11,287)		White (N=6,377)			Black (N=2,077)
		C/S	M/S	C/S (Chart1)	C/S (Chart 2)	M/S (Chart 2)	C/S (Chart 3)
Family							
Additional 10% of childhood spent in:	Stepfamily	0.03 ***	0.00	0.03 ***	0.03 ***	0.00	0.02
	Single-parent family	0.01	-0.02	0.02	0.02	-0.02	0.00
(ref: intact)	No-bio parent family	0.01	0.01	0.01	0.01	0.02	0.00
Parent cohabitation (a)	Yes	0.22 ***	-0.82 ***	0.22 ***	0.46 ***	-1.05 ***	0.20 *
Mom's age at marriage (a)	19 or younger	0.06	0.25 ***	0.06	0.07	0.26 **	-0.16
Neighborhood							
Neighborhood disadvantage index		-0.01	0.03 *	0.00	0.00	-0.10	-0.01
neighborhood family structure index		0.03 **	-0.10 ***	0.03	0.02	-0.04	0.01
School							
Additional 10% of students living with 2 parents		0.00	0.01	0.01	0.00	-0.02	0.00
Add. 5% of students ever lived w/ cohab parent (a)		-0.02	-0.04	0.00	0.02	-0.10	-0.09
Add. 5% of students mom married age<20 (a)		0.01	0.06 **	0.00	0.00	0.06	0.01
School type (ref: public)	Private	-0.12	0.29	-0.13	-0.12	0.35	-0.53 *
School size	Small	0.00	0.12	-0.02	-0.01	0.06	0.21
(ref: medium)	Large	-0.11 *	0.18	-0.14 *	-0.14 *	0.19	0.02
School location	Urban	-0.01	0.07	0.02	0.02	-0.07	-0.03
(ref: suburban)	Rural	0.00	-0.09	0.01	0.01	-0.03	-0.31
Control (a)							
Gender	Female	0.15 ***	0.32 ***	0.19 ***	0.20 ***	0.34 ***	-0.09

(a) All control variables shown in Table 3 are included in these models, but not displayed.
P-value: ***p<0.001. **p<0.01. *p<0.05

Table 3. 6. Coefficients from Competing-Risks Regression with Significant Interactions for 'Parental Family Behaviors * Family Structure in Neighborhood' and 'Parental Family Behaviors * Family Structure in School,' continued

		Total (N=11,287)		White (N=6,377)			Black (N=2,077)
		C/S	M/S	C/S (Chart1)	C/S (Chart 2)	M/S (Chart 2)	C/S (Chart 3)
Interaction							
Neighborhood family structure index (prevalence of non-intact families)	**Step * Nbh famst**						
	Single * Nbhfamst						
	No-bio * Nbhfamst						
	P cohab *Nbhfamst	**-0.03 ***		**-0.04 ***			
	Pcohmiss*Nbhfamast	-0.12 *		-0.14			
	Young mom * Nbhfamst						**0.05 ***
	Mommiss*Nbhfamst						-0.01
School	**Step * % of 2parents**						
	Single*% of 2parents						
	No-bio*% of 2 parents						
	P cohab*% of p-cohab		**0.15 ****		**-0.08 ****	**0.18 ***	
	Pcohmiss*% of p-cohab		-0.08		-0.09	0.11	
	M teen mar * % young mar						
	M age miss*% young mar						
F		731.77	744.54	626.15	638.43	776.13	414.44
df		48	48	48	48	48	48
Pr		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Wald-F test (b)							
F		8.41	7.19	6.50	7.45	6.16	6.10
df		2	2	2	2	2	2
Pr		**0.0149**	**0.0274**	**0.0387**	**0.0242**	**0.0459**	**0.0474**

(b) Test for whether adding each gender interaction significantly improves the fit of the model without the interaction term.
P-value: ***p<0.001. **p<0.01. *p<0.05

Figure 3. 1. Conceptual Model of Socialization in Family, Neighborhood, and School.

Adolescence

Neighborhood
Neighbors' family behaviors

School
Parents of peers' family behaviors

Family
Parents' family behaviors

Interaction between family and neighborhood
-Intact family * high nonintact family proportion in NH
-Nonintact family *low nonintact family proportion in NH

Interaction between family and school
- Intact family * high nonintact family proportion in school
-Non intact family * low nonintact family proportion in school

Adolescent's attitudes about non-intact/ nontraditional family behaviors

Early adulthood

Family formation behaviors

Figure 3. 2. Interaction Effect: the Subhazard Ratio of Cohabitation for Respondents with Parental Cohabitation Experience by Neighborhood Family Structure Index (White)
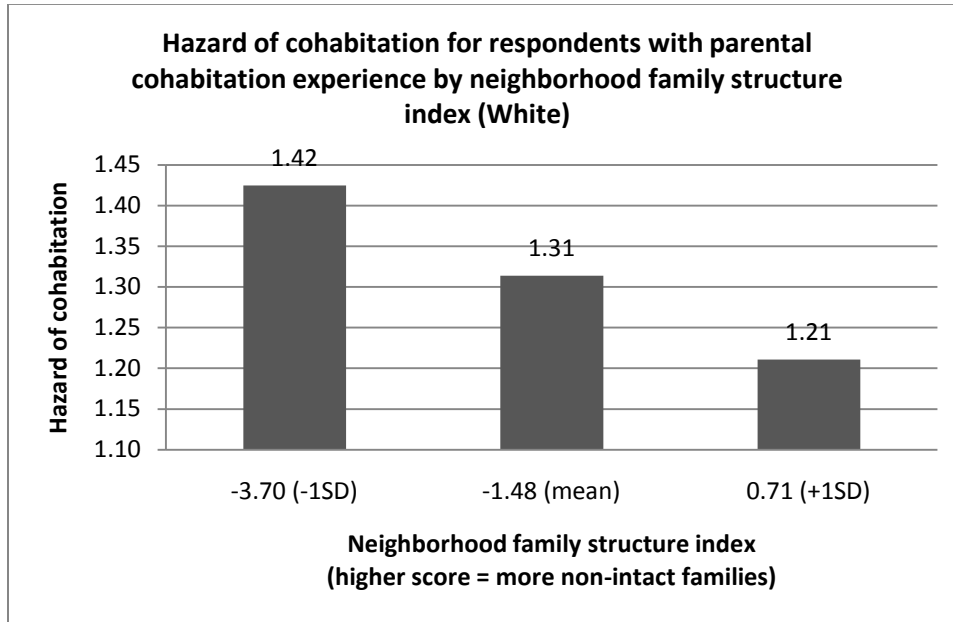
Figure 3. 3. 1. Interaction Effect: the Subhazard Ratios of Cohabitation and Marriage for Respondents with Parental Cohabitation Experience by Percentage of Students in School with Parental Cohabitation Experience (White)
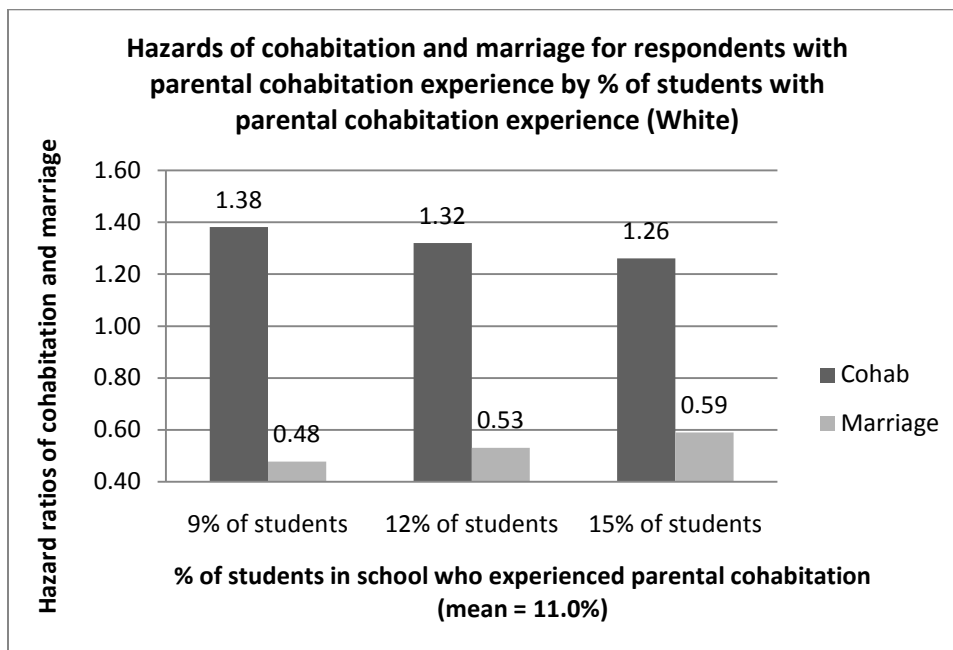
Figure 3. 3. 2. Interaction Effect: the Subhazard Ratios of Cohabitation and Marriage with Every Additional 5% of Students in School with Parental Cohabitation Experience by Respondent's Own Parental Cohabitation Status (White)

Hazard ratios of cohabitation and marriage with every additional 5% of students who experienced parental cohabitation by own parental cohabitation experience status (White)
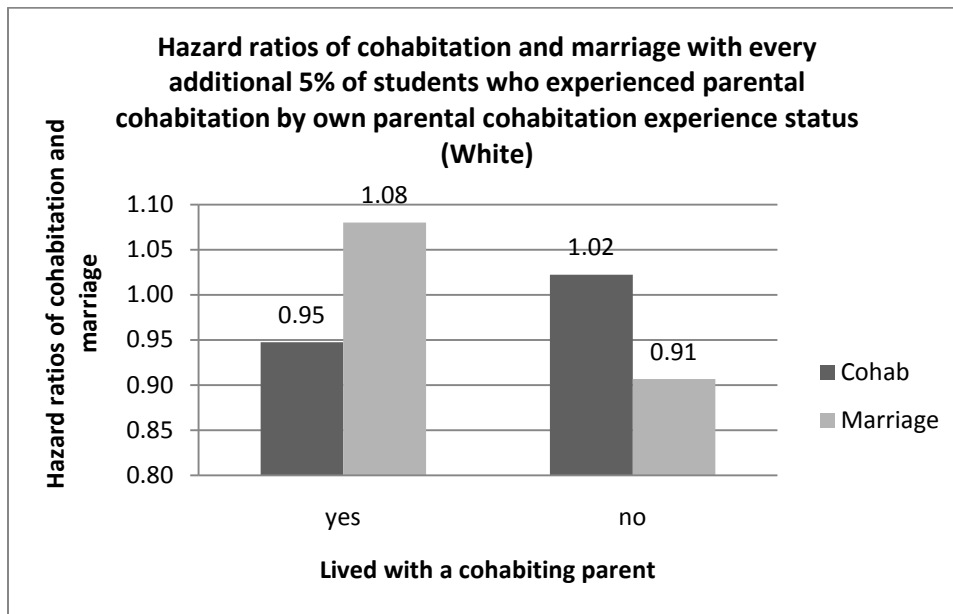
Figure 3. 4. 1. Interaction Effect: the Subhazard Ratios of Cohabitation for Respondents with a Mother who Married as a Teenager by Neighborhood Family Structure Index (Black)

Hazard ratio of cohabitation for respondents whose mother married before age 20 by the neighborhood family structure index (Black)
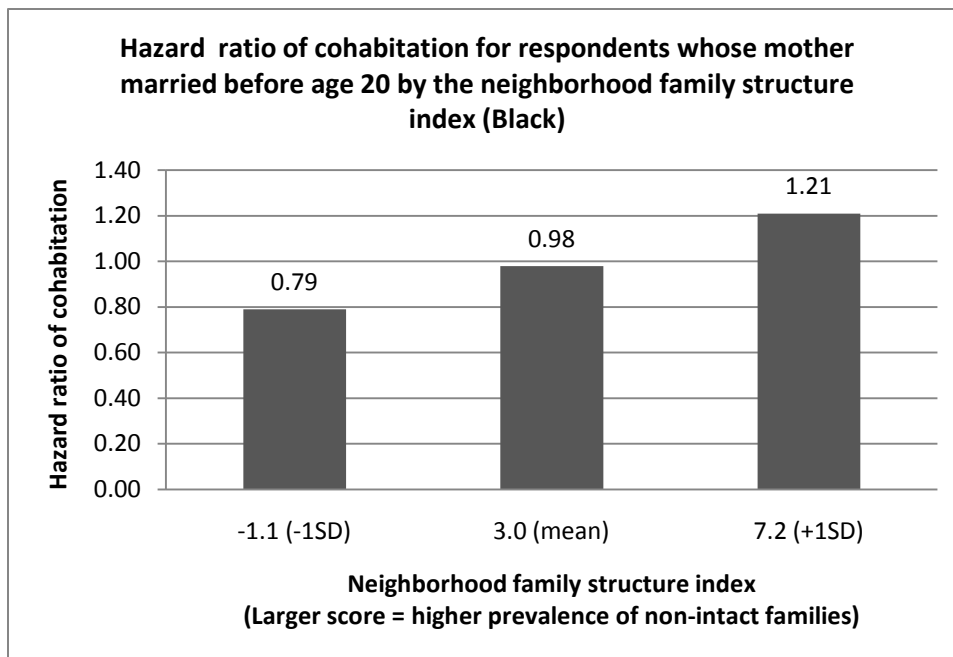
Figure 3. 4. 2. Interaction Effect: the Subhazard Ratio of Cohabitation with Every Additional 1 Point in the Neighborhood Family Structure Index by Mother's Age at First Marriage (Black)

Hazard ratio of cohabitation with every additional 1 point in the neighborhood family structure index by mother's age at marriage (Black)
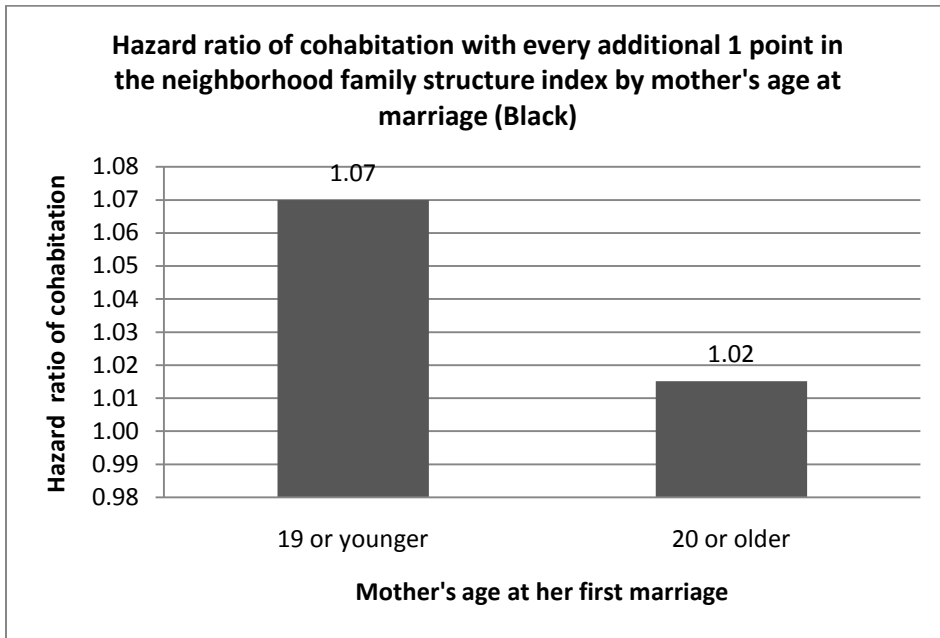
CHAPTER 4:
THE TRANSITION TO NONMARITAL CHILDBIRTH:
SOCIALIZATION AND OPPORTUNITY COST EXPLANATIONS

Nonmarital childbirth has become more and more common in the United States, as 40.6 percent of all births in 2008 occurred out of wedlock, more than double that in 1980 (Hamilton, Martin, and Ventura 2010; Ventura 2009). Although this trend is seen for women from most racial, social, and family background groups (Parnell, Swicegood, and Stevens 1994), there are major discrepancies in the frequency of nonmarital childbirth across racial-ethnic groups and socioeconomic classes. Black women, Hispanic women, and women from single-mother families, socioeconomically disadvantaged neighborhoods, and metropolitan areas all have higher likelihood of nonmarital childbirth (South 1999; Ventura 2009; Ventura et al. 2000), while women with higher educational achievement and higher socioeconomic family backgrounds have lower likelihood of having a child out of wedlock (Musick 2002; South 1999; Ventura, Bachrach, Hill, Kaye, Hollcombe, Koff 1995).

As more women have come to give birth outside marriage, the pattern of nonmarital childbirth has also changed. One major factor is the prevalence of cohabitation (Seltzer 2000). Many "unmarried" mothers are actually cohabiting with their baby's father, and about half of White unmarried mothers and a fifth of Black unmarried mothers are living with a partner (Sassler and Cunningham 2008; Schoen, Landale, Daniels, and Cheng 2009). Although shotgun weddings have become less common, more couples have started to cohabit after learning of a pregnancy (Edin, Kefalas, and Reed 2004; Parnell, Swicegood, and

Stevens 1994; Raley 2001; Reed 2006), and an increasing number of mothers remain unmarried even after their first childbirth and have second and third children outside marriage (Hoffman and Foster 1997).

A major research question is why some women put motherhood before marriage when most Americans have high hopes for marriage and nearly 90 percent of Americans eventually marry (Goldstein and Kenney 2001). Nonmarital childbearing deviates from the traditional norm of family formation starting with legal marriage followed by childbirth. Substantial research also tells us that children from single-parent families are more disadvantaged than those from married-parent families, and that accumulating education and training, while postponing family formation, is more advantageous for individuals' occupational career development (e.g., Buchmann and DiPrete 2006; Thomson, Hanson, and McLanahan 1994). Despite considerable knowledge in society about the downside of nonmarital childbirth, why do some people still opt for a seemingly more difficult path by having a child outside marriage in early adulthood? In this study, I focus how two theoretical explanations—socialization and opportunity costs—play a role in nonmarital childbirth within and outside of cohabitation.

THEORETICAL PERSPECTIVES ON NONMARITAL CHILDBEARING

Here I introduce two theoretical perspectives on nonmarital childbearing that frame this study. The first is socialization theory, which focuses on interactions between parents and children, and the second is opportunity costs theory, which focuses on young women's

"rational" choice in their family formation behaviors. Following these two theories, I also introduce additional theoretical explanations for nonmarital childbearing.

Socialization Theory

Socialization theory argues that parents' attitudes and behaviors are transmitted to children through interactions within the family. For example, children whose parents have created a non-intact family with two biological parents, such as a divorced family or an unmarried single-mother family, may have more tolerant and accepting attitudes toward such nontraditional living arrangements.

Some studies have shown intergenerational transmission of parents' reproductive behaviors and attitudes to children[6]. For example, Meade and her colleagues find that daughters of teenage mothers were 66 percent more likely to become teenage mothers themselves, even after accounting for other risk factors (Meade, Kershaw and Ickovics 2008). Barber (2000) notes that both sons and daughters become parents earlier than their peers when their mother prefers traditional family values such as early marriage, a larger family size, lower educational achievement, and a stay-at-home mother role.

Researchers have argued that children who are exposed to their parents' nonmarital relationships may be socialized about the acceptability of sexual behavior outside of marriage and that these children grow up to begin sexual activity at an earlier age outside of marriage, which can lead to nonmarital pregnancy and childbirth (McLanahan and Booth 1989

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[6] All empirical studies I found focus on a mother-child transmission of reproductive behaviors, without taking father's influence on children into account.

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Hetherington, 1972; McLanahan, 1988; Thornton and Camburn, 1987; Wu, 1996). Wu and

Martinson (1993) summarized three mechanisms that explain why such socialization occurs

in non-intact families: (1) parents provide examples of family life to their children, (2) the

absence of a positive role model leads to acceptance of non-intact families and deviant sexual

behaviors, and (3) the example set by parents undermine their authority to proscribe

children's non-normative behaviors. Empirical findings have also supported this theory. For

example, Musick (2002) states that spending childhood in a single-parent family increases

planned and unplanned childbearing among unmarried White women, and Bulanda and

Manning (2008) claim that living in cohabiting-parent families leads to earlier sexual

initiation and higher likelihood of teenage childbirth.

Opportunity Cost Theory

Some researchers have argued that nonmarital and teenage childbearing is an option

for disadvantaged young women who hope to make their bleak lives more meaningful (Edin

and Kefalas 2005; Hanna 2001; Luker 1996)[7]. Opportunity cost theory provides an

explanation for higher likelihood of nonmarital childbearing among disadvantaged women,

paying attention to young women's rational choice and its economic outcomes.

Today, middle-class women's expected career statuses and incomes will likely be

significantly compromised by childbirth in the midst of schooling and career development.

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[7] Despite the fact that the majority of mothers who have a baby outside marriage are adults, the issue of unmarried childbearing have often been discussed in the context of teenage childbearing. While it is important to distinguish teenage childbearing from unmarried childbearing, most childbirth among teenagers occurs outside of marriage. In addition, teenage mothers and unmarried mothers are both more likely to be from socioeconomically disadvantaged backgrounds. In this section, therefore, I summarize the findings of past studies about both teenage childbearing and unmarried childbearing.

Moreover, having a child outside marriage puts their middle-class status at risk, since most middle-class couples today maintain their standard of living by having two full-time income earners (Appelbaum et al. 2002). On the other hand, the timing and marital status at childbirth do not drastically change the lives of disadvantaged women, because these women have so few opportunities in the first place. These women want to have children even being unmarried, because if they wait until they find a good marital partner they might not be able to have a child despite their great value on having children due to the scarcity of "marriageable men" in severely disadvantaged areas (Edin and Kefalas 2005; Wilson 1996). Postponing motherhood can also put further hardships on their lives, such as poorer health conditions and less help from family members (McLanahan 2008; Edin and Kefalas 2005). Therefore, it is rational and reasonable for socioeconomically disadvantaged women to have a baby at a young age while remaining single, and such expectations and rational are commonly shared among White, Black, and Hispanic women in socioeconomically disadvantaged neighborhoods (Edin and Kefalas 2005).

For adolescents, the most tangible opportunity cost related to childbearing may be whether they can go to college or not. The findings of studies that have examined an association between educational expectations and teen births generally support opportunity cost theory. Beutel (2000) found that adolescent girls with lower educational expectations are at greater risk of nonmarital pregnancy or birth compared to adolescent girls with higher educational expectations. Furthermore, Hockday et al. (2000) found that such an effect is valid for both Black and White girls. Driscoll and her colleagues (2005) tested whether having high educational expectations and community opportunities decreases the likelihood of teenage pregnancy for each racial-ethnic group, and they found that high educational

expectations reduced the likelihood of teen births among Whites, Latinas, and teens from low-opportunity communities.

Other Theoretical Explanations

There are other related theoretical explanations for the increases in nonmarital childbearing as they operate through delayed and declined marriage and increased cohabitation. For example, some argue that welfare benefits for single mothers work as a disincentive for marriage among the poor (Becker 1981; Murray 1984). Others have argued that cultural change that is more accepting of nonmarital coresidential arrangements has weakened the institution of marriage (Bumpass and Sweet 1995; Oropesa 1996). However, empirical studies show little evidence for these arguments. For example, Graefe and Lichter (2008) found that the 1996 Welfare Reform did not change unmarried mothers' marriage patterns, and older studies before the Welfare Reform also show little support for positive association between more generous welfare provision and nonmarital childbirth (Bane and Ellwood 1994; Hoffman and Foster 1997, Moffitt 1995). Regarding cultural change arguments, several studies have shown that, even among the most disadvantaged mothers, Americans still highly value marriage as both a personal goal and expected life event (Edin, Kefalas, and Reed 2004; Lichter, Batson, and Brown 2004; Thornton and Young-DeMarco 2001) and that almost 90 percent Americans still fulfill their expectations of marriage (Goldstein and Kenney 2001).

One commonly cited explanation for nonmarital childbearing is based on Becker's (1981) economic perspective of a maximum benefit of marriage through role specialization based on the exchange of men's wage work for women's domestic work. According to this

theory, women's economic independence and men's inability to earn family-income (particularly among low-skilled or minority men) reduced the gain from marriage, leading to the decline in marriage. While women's economic independence seems to explain the delay and decline in marriage for middle-class women, empirical support for this theory is weak (Oppenheimer 1994). On the other hand, declining men's wages seem to better explain the delay and decline in marriage for more disadvantaged women, and this explanation has received both empirical and theoretical support. Not only have men in disadvantaged communities lost sufficient wages to support their families due to declining and movements of the industrial sector from these areas (Wilson 1996, Oppenheimer 1994), but high and increasing incarceration rates, especially among minority men, make it difficult for them to physically stay with their partner and financially support their families. The absence of men changed the sex ratio of the marriage market, leaving many women without a steady partner (South and Lloyd 1992; Tucker and Mitchell-Kernan 1998).

Another unique explanation for nonmarital childbearing focuses on macro social inequality and framing of the issue. In the overall research discussion about teenage and nonmarital childbearing, the general tone implies childbearing outside of marriage is deviant and seems to question moral quality of women who have a child outside marriage (Hofferth 1988; Pittman 1990; Popenoe 1997). However, some scholars have questioned this approach and asked whether it is socially just to see premarital and young childbirth as "deviant" from the norm. For example, Ruggles (1994) points out the importance of historical legacy starting from slavery and later adaptation to disadvantaged life among African Americans in understanding the high prevalence of female-headed families among them. Geronimous (2003) argues that social and academic attention to urban African American teen mothers—

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who are viewed as quintessential unmarried mothers—is a strategy to "maintain the core values, competencies, and privileges of the dominant group (881)." Some studies have indicated that postponing motherhood can put further hardships on already-disadvantaged young women's lives, such as poorer health conditions and less help from family members (McLanahan 2008; Edin and Kefalas 2005). Geronimous criticizes that condemnation of such adaptive behaviors by the disadvantaged women is just another reflection and amplifier of social inequality between races.

Although these theoretical mechanisms are not the focus of this study, I attempt to control for several of these factors in my study while examining the effects of socialization and opportunity costs that help to explain the increasing trend of nonmarital childbearing.

SPECIFIC AIMS OF ANALYSIS

In this study, I test socialization and opportunity cost theories. Based on the findings in past studies, I propose the following four hypotheses.

First two hypotheses arise from socialization theory. While there are many studies that tested socialization theory, few studies have examined nonmarital childbirth in cohabitation and nonmarital childbirth outside a coresidential union separately. With the finding in many studies that a large minority of nonmarital childbirth occurs to cohabiting parents (Carlson et al. 2004, Goldstein and Harknett 2006, Sassler and Cunningham 2008; Schoen, Landale, Daniels, and Cheng 2009), it seems reasonable to quantitatively examine whether there is different process and/or pattern in nonmarital childbirth by cohabitation status of parents. This analytic framework is especially salient in examining socialization effects, because unmarried mother's coresidential status at childbirth might be associated

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with their parental union behaviors—the topic of my first two dissertation chapters. Therefore, I propose these two hypotheses.

> *Hypothesis 1*: Individuals from single-parent families are more likely to have children outside of marriage, especially outside of coresidential unions, than individuals from intact families.

> *Hypothesis 2*: Individuals who have ever lived with a cohabiting parent are more likely to have children outside of marriage, especially in cohabitation, than individuals who have never lived with a cohabiting parent.

Next, I propose a hypothesis based on opportunity cost theory. While I have found several studies that tested opportunity cost theory in relation to nonmarital childbearing, their research seem to measure only a partial concept of opportunity costs. Some studies focus solely on respondent's subjective educational expectation (Beutel 2000, Driscoll et al., 2005, Hockday et al. 2000), and others include only respondent's subjective educational expectation and parent's educational achievement (Young et al. 2004) or respondent's subjective educational expectation and academic grade (Plotnick 2007). I have not found any study that tested opportunity cost theory using both structural factors, such as parent's educational achievement and economic status, and respondents' own academic achievement, such as academic performance in school. I believe these two components are both important in testing opportunity cost theory, because parental expectations of children's educational attainment and family financial conditions determine adolescents' expectations of going to college, while low academic achievement lowers one's chances of going to college and receiving adequate financial support such as educational loans and scholarships. Youths who have few chances of going to college to establish professional careers due to limited family

resources and lower academic achievement are expected to have a higher risk of nonmarital childbearing, because they have little to lose by doing so compared to those who planned to achieve higher educational goals and pursue professional careers.

Hypothesis 3: Individuals with fewer chances of attending to college due to lower academic achievement and fewer family resources are more likely to have children outside marriage because their opportunity costs are lower.

Finally, I propose a hypothesis based on racial-ethnic differences. There is a large difference in the likelihood of nonmarital childbirth by race. National Vital Statistics Reports show that the percent of births to unmarried women in 2008 were 28.6 percent for Whites, 72.3 percent for Blacks, 65.8 percent for Native Americans, 16.9 percent for Asians and Pacific Islanders, and 52.5 percent for Hispanics (Hamilton, Martin, and Ventura. 2010). Furthermore, previous research has discussed historical and cultural differences by racial-ethnic group in the attitudes and behaviors regarding nonmarital childbearing (e.g., Geronimous 2003, Ruggles 1994). For example, Musick (2002) found that spending childhood in single-parent families is associated with higher likelihood of unmarried women's planned and unplanned childbirth among White women, whereas such an association is nonexistent for Black and Hispanic women. Meanwhile, the presence of racial differences in opportunity costs is not conclusive. While Hockday et al. (2000) found an association between educational expectation and nonmarital childbirth for both Blacks and Whites, Driscoll and her colleagues (2005) found that high educational expectations reduced the likelihood of teen births among Whites and Hispanics, but not for Blacks. Given the more tolerant attitudes toward nontraditional family forms and lower prevalence of middle-class family life and career formation paths among minorities, it seems reasonable to argue that minorities are less

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affected by socialization processes, because wide variation and instability in minority family forms may make minority women less susceptible to the influence of the family types they experience. It also seems reasonable to argue that minorities are less affected by opportunity cost processes, because educational and career opportunities are not as readily available for minorities as for Whites. On the other hand, Whites are more likely to grow up in intact families than minorities, and socialization processes work to reproduce intact families for them. Whites also have greater opportunities to go to college, get a job with higher wages and develop their careers, leading to higher costs when they forego these opportunities due to childbearing outside of marriage. Therefore, the fourth hypothesis is:

> *Hypothesis 4*: Socialization in family of origin and opportunity costs are expected to be more strongly associated with nonmarital childbearing for Whites than for Blacks and Hispanics.

DATA

In order to test my hypotheses, I use data from Wave 1 and Wave 4 of the National Longitudinal Study of Adolescent Health (Add Health) for females only. The sampling method and general characteristics of the data are described in Chapter 1. The total sample size of the Wave 4 survey is 15,701 and 8,347 respondents are female. My final analytic a sample size is 5,636. Major sources of the missing cases are missing non-parent respondents or missing respondents to the parental questionnaire (1,446 cases), missing sampling weight (481 cases), missing responses for grade point average (244 cases) and Add Health Picture Vocabulary Test scores (360 cases). In addition, 248 respondents are left censored from the analysis because they either had already had a live birth (210 cases) or had been married (56

cases) by the Wave 1 survey (18 respondents were both married and with a child before the Wave 1 survey).

The analytic sample and family structure measures have some limitations discussed extensively in Chapter 2. In addition, eliminating 248 respondents who already married or had a child by Wave 1 causes disadvantaged individuals and those who had ever lived in non-intact families to be underrepresented in my analytic sample. Individuals who had a child and who had married before Wave 1 have similar characteristics: they tend to be more socioeconomically disadvantaged and more likely to be from non-intact families. These biases are minimized by using sample weights.

MEASURES

The measures that are used to test the hypotheses are categorized into the following groups. The dependent variable is 'age at first nonmarital childbearing classified by cohabitation status (in cohabitation or outside a coresidential union). I have two sets of key theoretical independent variables: one set capturing socialization and the other set capturing opportunity costs. Socialization is measured by family structure, parental cohabitation, and mother's age at respondent's birth. Opportunity costs are measured by respondent's expectation of going to college, respondent's academic achievement at Wave 1, and family socioeconomic status. The rest of the variables serve as controls and include family background, religious background, and demographic characteristics.

Dependent Variable

The dependent variable is "respondent's age in month during which the first nonmarital childbearing occurred" classified by the relationship context: childbirth in

cohabitation and childbirth outside a coresidential union. The exposure period is from age 13 to age at Wave 4. Respondents who married before having a child are omitted from the analysis at the point of marriage because they are no longer at risk of nonmarital childbearing. If neither marriage nor nonmarital childbearing occurred, respondents are treated as right-censored at Wave 4.

Table 1 shows the distribution of the union status at first birth. In the analytic sample (N=5,636), 826 women have had a child while they were cohabiting (in-cohabitation childbirth) and 846 women have had a child outside a coresidential union (single-parent childbirth). The average age at entry into parenthood was 21.6 for those who had a child in cohabitation and 20.5 for those who had a child as a single parent.

Independent Variables

Family socialization. Family socialization is measured by family structure, experience of parental cohabitation, and mother's age at respondent's birth. I employ the same measures as in my first article for family structure and experience of parental cohabitation, described in Chapter 2. Mother's age at respondent's birth is calculated from mother's age in the parental interview at Wave 1 and respondent's age at Wave 1, and I created three categories for this variable: the mother was age 20 or younger when the respondent was born (16.3%), mother was age 21 or older (76.9%), and information missing (6.8%). While it is more ideal to test socialization theory with more direct measures for the characteristics of parent's childbirth, such as age at first childbirth and their marital status at childbirth, mother's age at respondent's birth is the best available variable I could create due to the dataset limitation.

Opportunity costs. Opportunity costs are measured by a respondent's educational expectations, academic ability, and family socioeconomic status.

Educational expectations   The expectation of going to college is measured by five-point scale response to the question, "On a scale of 1 to 5, where 1 is low and 5 is high, how likely is it that you will go to college?" While there is another question about how much a respondent "wants" to go to college, the "likelihood" question measures expectations, a more realistic perspective than mere desire to go to college. Because the number of respondents who chose 1 and 2 was small, I merged them into one category and named it "not likely." Over 60 percent respondents answered that they were very likely to go to college (scale 5), and only 6.7 percent answered that it is unlikely or somewhat unlikely (scale 1 and 2).

Academic ability   Grade point average (GPA) is used as an indicator of academic achievement in school. GPA is calculated from respondents' letter grades in English, math, history, and science at Wave 1. Grade A is converted to 4.0, B to 3.0, C to 2.0, and D or lower to 1.0. When one or more of the grade in these four subjects were missing, I substitute this variable with the average of the valid grades in other subjects. The mean of GPA for the analytic sample is 2.26 with a standard deviation of 0.72. The Add Health Picture Vocabulary Test Score is an indicator of verbal cognitive ability, and I use the Add Health age- and gender-standardized score with 100 as the mean, and 15 standard deviation.

Family socioeconomic status   The family socioeconomic status variables include family income in 1994 and parental education attainment. Three out of 10 respondents are from a family with middle-class income ($51,000 or more), while 14.0 percent are from a family below the poverty line, 20.3 percent are from a family with an annual income between $16,000 and $31,999, 24.6 percent had a family income between $32,000 and $50,999, and

10.6 percent did not have information about family income. One in ten respondents had a parent who did not graduate from high school, three out of 10 had a high school graduate parent, 22.6 percent had a parent who received some college education, and 34.3 percent had a parent with bachelor's degree or higher.

Control Variables

The control variables include *family background, religious background*, and *demographic characteristics*. Family background includes parent's occupation, economic hardship of family, and number of siblings, religious background includes parent's religious affiliation and religiosity, and demographic characteristics includes age at Wave 4, immigrant status, and race/ethnicity. Again, I employ the same measures as in my first article described in Chapter 2.

ANALYTICAL APPROACH

I will use competing-risks hazard models to conduct event history analysis as my analytical method. The model is semiparametric in that the baseline subhazard $\bar{h}_{1,0}(t)$ for covariates set to zero is left unspecified, while the effects of the covariates x are assumed to be proportional:

$$\bar{h}_1(t|x) = \bar{h}_{1,0}(t)\exp(x\beta)$$

Estimation with the competing-risk regression command `stcrreg` will produce estimates of β, or exponentiated coefficients known as subhazard ratios. A positive coefficient means that the effect of increasing covariates is to increase the subhazard and thus increase the cumulative incidence function (CIF) across the board.

The competing risks in this study are childbirth in cohabitation (in-cohabitation childbirth) and childbirth outside of a co-residential union (single-parent childbirth). The respondents who marry before their first childbirth are censored at the month of marriage, since they are no longer at risk of experiencing nonmarital childbirth. Respondents who experience neither of these events by Wave 4 are treated as right-censored cases. Figure 3. 2. shows the patterns of failure in my analysis.

To examine the feasibility of the proportionality assumption in my estimation procedure, I conducted a lifetable analysis and plotted the cumulative probability of failure by strata of key socialization independent variables (See Figures 4. 2. 1-12). When the proportionality assumption is met, the ratio of slopes for each value on a covariate is the same across all time points. On the other hand, the proportionality assumption is violated when the curves cross and rates of slope change over time. Currently Stata does not allow users to statistically test the proportionality assumption of event occurrences in competing-risks regression models when there is no time-varying covariate (StataCorp 2009). Therefore, these graphs are descriptive and give us a sense of the validity of the proportionality of subhazards. These charts show that the proportionality assumption is largely met with a few exceptions for covariates with a small sample size (e.g., only 4.0 percent of the sample experienced no-biological parent families). Overall, the curves show proportional increases in the incidence of marriage and cohabitation by selected strata of covariates. The only violation of the proportionality assumption occurs for the incidence of single-parent childbirth classified by the percentage of childhood spent in stepfamilies (Figure 4. 2. 8). The cumulative incidence of single-parent childbirth is lower for those who spent over half of their childhood in stepfamilies than those who never lived in stepfamilies until around 21.5

years old, (258 month), reversing after that age. Furthermore, the cumulative incidence of single-parent childbirth is the highest among those who spent less than half of childhood in stepfamilies. Therefore, the subhazard ratio (i.e., estimated effect) for the stepfamily dummy variable produced in the competing-risks regression for single-parent childbirth may be unreliable.

Four models will be tested in my analysis. All models include sampling weights and adjust for the clustered sampling design. Model 1 examines the risk of nonmarital childbearing only with the set of socialization independent variables. Model 2 examines the risk of nonmarital childbearing only with the set of opportunity cost variables. Model 3 combines both socialization and opportunity cost factors, and Model 4 includes all other control variables. I will run the models for four samples; the total female sample, non-Hispanic White women, non-Hispanic Black women, and Hispanic women in order to examine racial-ethnic differences.[8] I will also test whether there are statistically significant differences in the socialization and opportunity cost processes between races.

RESULTS

Bivariate Analysis

The cross tabulations show the distribution of first childbirth and union status at the time of first childbirth (married, cohabitation, and single) by independent and control variables (Table 2). The distributions vary greatly by each independent variable and control

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[8] I also ran regression models for Asian women, but the small sample size of Asian women (N=219) with only 41 individuals who had a child outside of marriage made it impossible to produce meaningful competing-risk regression results. Therefore, I will compare only three racial-ethnic groups with a substantial sample size in this article.

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variable. For example, respondents who spent the majority of their childhood in intact family were less likely to have a first birth by Wave 4 than those who had never lived in intact families. In addition, the latter were more likely to have had their first child outside of marriage. On the contrary, respondents who had lived in families with no biological parents had a higher incidence of childbirth by Wave 4. Over 57 percent of respondents who had never lived in intact two-parent families had a nonmarital birth by Wave 4, while less than a quarter of respondents who spent the majority of their childhood in an intact family did so. Similarly, experiencing parental cohabitation or mother's early childbirth is also associated with higher incidences of nonmarital childbirth. These findings support the claims of socialization theory.

Higher likelihood of college entrance, better GPA, and higher vocabulary scores were all associated with lower incidences of nonmarital childbearing. Higher family income and parental education levels were also associated with a lower chance of nonmarital childbirth. These findings support the claims of opportunity cost theory.

However, some socialization and opportunity cost variables do not have a significant association with nonmarital childbearing status for racial minority women, while all independent variables show significant association for White women. For Black women, living in intact families and stepfamilies, mother's age at her first marriage, and expectation of college attendance are non-significant in their association with nonmarital childbearing. For Hispanic women, college expectation, vocabulary test score, and family income were non-significant.

Competing-Regression Analysis for the Entire Sample

Table 3 shows the results of competing-risks regression for the total analytic sample with respondents of all racial and ethnic groups. In each model, C/N shows the estimated subhazard ratios of the incidence of in-cohabitation childbirth as opposed to not having a nonmarital childbirth; S/N shows the estimated subhazard ratios of the incidence of single-parent childbirth as opposed to not having a nonmarital childbirth; and C/S represents my calculation of the ratio, C/N divided by S/N, or the subhazard ratios of the incidence of in-cohabitation childbirth to single-parent childbirth. Model 1 includes the variables to test socialization effects. In this model, the incidence of in-cohabitation childbirth as opposed to no incidence of nonmarital childbirth is 8 percent higher for every additional 10 percent of childhood spent in stepfamilies than intact families (C/N column, first row). Every additional 10 percent of childhood spent in single-parent families is associated with a 4 percent higher incidence of in-cohabitation childbirth (C/N column, second row) and 10 percent higher incidence of single-parent childbirth (S/N column), and every additional 10 percent of childhood spent in families with no biological parent is associated with a 9 percent higher incidence of in-cohabitation childbirth (C/N column, third row) and 15 percent higher incidence of single-parent childbirth (S/N column). Having lived with a cohabiting parent is associated with a 47 percent higher incidence of in-cohabitation childbirth, but it does not have significant association with the incidence of single-parent childbirth. Being born to a young mother is associated with a 65 percent higher incidence of in-cohabitation childbirth and 53 percent higher incidence of single-parent childbirth. In this model, the first two hypotheses are supported: the respondents who had lived with a cohabiting parent have a

higher incidence of in-cohabitation childbirth, and the respondents who spent a longer period of childhood in single-parent families have a higher incidence of single-parent childbirth.

Model 2 includes the variables to test opportunity cost effects. The association of the likelihood of going to college with the incidence of nonmarital childbirth was largely non-significant, and the only statistically significant association is found for those who thought their college entry was somewhat likely: They had a 35 percent higher incidence of in-cohabitation childbirth as opposed to the respondents who believed the likelihood of going to college was very high. Although there is no statistical significance, the ratio of in-cohabitation childbirth to single-parent childbirth becomes higher as the likelihood of going to college increases, and the group with the smallest likelihood of going to college has the highest incidence of single-parent childbirth. Other variables in Model 2 show similar associations with the incidences of in-cohabitation childbirth and single-parent childbirth. Every additional point in GPA is associated with a 32 percent lower incidence of in-cohabitation childbirth and 41 percent lower incidence of single-parent childbirth, and every additional 10 percent in the distribution of the vocabulary test is associated with a 13 to 14 percent lower incidence of nonmarital childbirth. The incidence of nonmarital childbirth is higher for respondents from lower-income families for both in-cohabitation and single-parent births. The ratio of in-cohabitation childbirth to single-parent childbirth becomes higher as family income increases, suggesting that when a nonmarital birth does occur, higher socioeconomic status is associated with births in cohabitation. Finally, parents' bachelor's degree is associated with a very low incidence of nonmarital childbirth.

Model 3 includes both socialization and opportunity cost variables. Adding the opportunity cost variables improves the model significantly: Wald F-test shows a p-value of

0.0000 for both in-cohabitation and single-parent childbirth models. The effects of the statistically significant variables in Model 1 and Model 2 are somewhat attenuated but largely intact, with the exceptions of the effects of experiencing single-parent families, no-biological parent families, and parental cohabitation on in-cohabitation childbirth as well as the effect of experiencing no-biological parent families on single-parent childbirth, which lose significance when adjusted for opportunity costs in Model 3. The effects and statistical significance of the opportunity cost variables in Model 2 remain intact, except that below-poverty family income is no longer significant for both types of nonmarital childbirth in Model 3.

Model 4 adds all control variables to socialization and opportunity cost variables. In Model 4, several socialization and opportunity cost variables remain statistically significant with the incidence of in-cohabitation childbirth after introducing control variables. First, every additional 10 percent of childhood spent in stepfamilies is associated with a 6 percent higher incidence of in-cohabitation childbirth, and being born to a young mother is associated with a 43 percent higher incidence of in-cohabitation childbirth. Higher GPA and vocabulary test score as well as parent's bachelor's degree are associated with a significantly lower incidence of in-cohabitation childbirth, whereas being from a lower income-family is associated with a higher incidence of it. Among the control variables, having a very religious parent is associated with a 45 percent lower incidence of in-cohabitation childbirth.

In Model 4, most of the socialization and opportunity cost variables lose their statistically significant association with single-parent childbirth. As you will see in Table 4, however, some of the non-significant results in this analysis derive from opposing directions of their effects by race. The only statistically significant association for the incidence of

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single-parent childbirth is found in the effect of GPA: every additional point in GPA is associated with a 38 percent lower incidence of childbirth outside of a coresidential union. Meanwhile, several control variables have strong associations with the incidence of single-parent childbirth. First, experiencing economic hardship before age 18 is associated with a 43 percent higher incidence of single-parent childbirth. Second, demographic factors have major influence on the incidence of single-parent childbirth. First- and second-generation immigrants are highly unlikely to have a child as a single parent. Blacks and Hispanics have almost double the incidence of single-parent childbirth for Whites. Although Native Americans have a very low incidence of single-parent childbirth, this is likely due to their small sample size.

In order to visually present the association between socialization and opportunity cost variables and the incidence of nonmarital childbirth by the relationship context, I plotted graphs of the Model 4 competing-risks regressions. Figures 4. 3. 1. to 4. 3. 7. show estimates of the cumulative incidence curve for childbirth in cohabitation and outside of a coresidential union by the independent variables with significant associations with all other variables in Model 4 are controlled. They represent the incidence of having a child outside marriage by certain ages, and the X-axis shows the number of months from the beginning of the observation period (age 13) to the end of observation (Wave 4). Figure 4. 3. 1. shows that the cumulative incidence of in-cohabitation childbirth is different depending on the percentage of childhood spent in stepfamilies. While about 26 percent of the respondents who spent the entire time from birth to Wave 1 in stepfamilies (dash-dot line) a child in cohabitation by 200th month from age 13 (age 29.7), 17 percent of the respondents who never lived in a stepfamily (solid line) did so by the same time. Similarly in Figure 4. 3. 2., 23 percent of the

respondents who were born to a young mother (solid line) had a child in cohabitation by age 29.7; while only 16 percent of those who were born to a mother older than age 21 (dashed line) had a child in cohabitation. Adjusted differences in the cumulative incidence of in-cohabitation childbearing are also shown for GPA (Figure 4. 3. 3.), vocabulary test score (Figure 4. 3. 4.), family income (Figure 4. 3. 5.), and parent's educational achievement (Figure 4. 3. 6.).

As Model 4 revealed, none of the socialization variables had a significant association with the incidence of single-parent childbirth, and only one of the opportunity cost variables—GPA—did it. Figure 4. 3. 7. shows that 17 percent of the respondents whose GPA was 1.5 (solid line) had a child outside a coresidential union by age 29.7, whereas only 8 percent of the respondents whose GPA was 3.5 (dash-dot line) did so.

Race Interaction

In order to test whether there is different pattern of association between socialization and opportunity cost processes and the incidence of nonmarital childbearing by race, I created interaction terms of the key independent variables and racial-ethnic categories of Black, Hispanic, and 'other races' that includes Asians, Native Americans, and mixed-race respondents (needed to combine for sufficient cell sizes). Appendix 2 shows the results of race interaction for competing-risks regression of in-cohabitation childbirth and single-parent childbirth.

The results show that there is no statistically significant race interaction for in-cohabitation childbirth (the first set of columns in Appendix 2). Adding the race interaction with socialization and most opportunity cost variables did not improve the model (Wald F-

test p-values shown in the bottom row of the table are all above the 0.05 level). Although adding the race interaction with parent's educational achievement variable improved the model significantly (Wald-F test p=0.0409), this result largely come from the extreme coefficients for Hispanic interaction term with of the "missing" category for parental education.

On the other hand, the results for single-parent childbirth (the second set of columns in Appendix 2) show the presence of statistically significant race interactions for both socialization and opportunity cost variables. Experience of parental cohabitation, being born to a young mother, and parent's educational achievement show different degree of association with the incidence of single-parent childbirth by race, and adding the race interaction variables significantly improves the model (Wald F-test p-values are below 0.001). In the next section, I therefore present the competing-risk regression results by race because socialization and opportunity cost processes on single-parent childbirth operate differently by race and ethnicity.

Results by Race

Table 4 show the result of competing risk regression for nonmarital childbirth for White, Black, and Hispanic subgroups respectively. Other racial groups are excluded from this analysis due to their small sample size. As I showed in Table 3, C/N shows the estimated subhazard ratios of the incidence of in-cohabitation childbirth as opposed to not having a nonmarital childbirth; S/N shows the estimated subhazard ratios of the incidence of single-parent childbirth as opposed to not having a nonmarital childbirth; and C/S represents my calculation of the ration, C/N divided by S/N, or the subhazard ratios of the incidence of in-

cohabitation childbirth to single-parent childbirth. Although the race interaction test in Appendix 2 showed that the process by which socialization and opportunity cost processes are associated with the incidence of in-cohabitation childbirth does not significantly vary by race, there are some differences in subhazard ratio estimates by race.

In Model 1 for Whites, every additional 10 percent of childhood spent in stepfamilies is associated with a 5 percent higher incidence of in-cohabitation childbirth, every additional 10 percent of childhood single-parent families is associated with a 6 percent higher incidence of in-cohabitation childbirth and 10 percent higher incidence of single-parent childbirth, and every additional 10 percent of childhood spent in families with no biological parent is associated with a 10 percent higher incidence of in-cohabitation childbirth and 21 percent higher incidence of single-parent childbirth. Experiencing parental cohabitation is associated with a 62 percent higher incidence of in-cohabitation childbirth, but it does not have a significant association with the incidence of single-parent childbirth. Finally, being born to a young mother is associated with a 97 percent higher incidence of in-cohabitation and single-parent childbirth. These associations are in line with the argument of socialization theory that children learn from parents' models of family formation, because living in single-parent families is associated stronger with the incidence of single-parent childbirth than with in-cohabitation childbirth, and parental cohabitation is associated with higher incidence of in-cohabitation childbirth but not with single-parent childbirth.

On the other hand, Model 1 for Black women shows little association between family socialization variables and the incidence of nonmarital childbirth. The only statistically significant variable is parental cohabitation: Black women who experienced parental cohabitation have a 79 percent higher incidence of single-parent childbirth than those who

did not experience parental cohabitation. Unlike White women's pattern, this is not in line with the expectation of socialization theory, with the expectation that both patterns are non-normative family formation behaviors.

Finally, Model 1 for Hispanic women also shows a unique pattern of associations between socialization variables and the incidence of nonmarital childbearing. First, every additional 10 percent of childhood spent in stepfamilies is associated with a 16 percent higher incidence of in-cohabitation childbirth, whereas every additional 10 percent of childhood spent in single-parent families is associated with a 12 percent higher incidence of single-parent childbirth. These subhazards are coherent to the theoretical expectation that stepfamily serves as a model of a coresidential union and single-parent living arrangement serves as a model of single parenthood. Parental cohabitation does not have a statistically significant association with either type of nonmarital childbirth, but being born to a young mother is associated with very high incidence of single-parent childbirth.

Model 2 adds opportunity cost and control variables to socialization variables. For White women, the associations between all types of non-intact families and nonmarital childbirth found in Model 1 lose their impact, and none of the non-intact family type is associated with the incidence of nonmarital childbirth. Furthermore, parental cohabitation loses its association with in-cohabitation childbirth and its association with the incidence of single-parent childbirth comes up: it decreases the incidence of single-parent childbirth by 47 percent. The association between being born to a young mother and the incidence of nonmarital childbirth remain intact. White women's higher GPA is associated with a lower incidence of both in-cohabitation and single-parent childbirth, and their higher vocabulary test score is associated with a lower incidence of in-cohabitation childbirth. Being from a

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lower-income family is associated with a higher incidence of in-cohabitation childbirth, whereas having a parent with a bachelor's degree is associated with a lower incidence of it.

Next, Model 2 for Black women also shows approximately the same pattern of association as Model 1 between socialization variables and the incidence of nonmarital childbirth. Most of the socialization variables show no significant association with the incidence of nonmarital childbirth, but experiencing parental cohabitation is associated with an 81 percent higher incidence of single-parent cohabitation. As for the opportunity cost variables, having a higher GPA is associated with a lower incidence of single-parent cohabitation, and having a higher vocabulary score is associated with a lower incidence of in-cohabitation childbirth.

Finally, the associations between living in single-parent families and the incidence of nonmarital childbirth found in Model 1 for Hispanic women disappears in Model 2. The association between living in stepfamilies and the incidence of in-cohabitation childbirth remain intact. Being born to a young mother is still associated with a very high incidence of single-parent childbirth—almost three times that of respondents born to an older mother. Hispanic women from families below the poverty level and those who have a parent with bachelor's degree both have a very low incidence of single-parent childbirth.

Control variables in Model 2 also show different associations with the incidence of nonmarital childbirth by race. Having experienced economic hardship by age 18 is associated with an over 50 percent higher incidence of single-parent childbirth for White and Black women, but not for Hispanic women. Having no sibling is also associated with a higher incidence of single-parent childbirth for White women. Having a very religious parent is associated with a 48 percent lower incidence of in-cohabitation childbirth for White women

and 157 percent higher incidence of single-parent childbirth for Black women, but not associated with Hispanic women's nonmarital childbirth. The only statistically significant association for Hispanic women is found between their first-generation immigrant status and a very low incidence of single-parent childbirth.

CONCLUSION

This chapter explores nonmarital childbirth using two theoretical perspectives, socialization and opportunity costs. I focused on three research issues in particular. First question was whether there is a specific type of association between parental union type and unmarried women's cohabitation status at childbirth. More specifically, I tested whether living with a single parent in childhood is associated with a higher incidence of single-parent childbirth and whether experiencing parental cohabitation in childhood is associated with a higher incidence of in-cohabitation childbirth on outcome predicted by socialization theory. Second focus was to test opportunity cost theory in relation to nonmarital childbearing using more comprehensive measure of opportunity costs: subjective educational expectation, structural factors associated with educational achievement, and respondent's own academic achievement. Finally, I examined whether there is racial difference in socialization and opportunity cost processes.

Results show that the general socialization theory regarding nonmarital childbearing is supported. Women who had experienced non-intact family arrangement are more likely to have a child outside of marriage, and the subhazard ratio estimates of socialization effects showed no contradiction with the theoretical expectation. Living in any type of non-intact families, experiencing parental cohabitation, and being born to a young mother are all

associated with a higher incidence of nonmarital childbirth both in cohabitation and outside a coresidential union, although not all associations are statistically significant once adjusted for opportunity costs and statistical controls.

I hypothesized that individuals from single-parent families are more likely to have children outside of marriage, especially outside of coresidential unions, than individuals from intact families (*Hypothesis 1*). In the total sample analysis (Table 3), Model 1 that tests only socialization variables indicates that every additional 10 percent of childhood spent in single-parent families is associated with a 4 percent higher incidence of in-cohabitation childbirth and 10 percent higher incidence of single-parent childbirth. When opportunity costs are added to socialization variables in Model 3, every additional 10 percent of childhood spent in single-parent families is not associated with a higher or lower incidence of in-cohabitation childbirth, although it is associated with a 7 percent higher incidence of single-parent childbirth. And all statistical controls are added to Model 4, the statistical significance of the association is lost, and single-parent families do not have any impact on the incidence of nonmarital childbearing. These results indicate two things. First, the bivariate association between single-parent family forms growing up and the likelihood of daughters' in-cohabitation childbirth is explained by opportunity costs. Second, single-parent living arrangement increases the likelihood of daughters' single-parent childbirth, but this association is due to compositional differences represented by control variables—potentially economic hardship of family—rather than by the family status itself. Past research has shown that a considerable portion of effects of single-parent families can be explained by economic disadvantage (McLanahan and Sandefur 1994; Thomson, Hanson, and McLanahan 1994). Given that disadvantaged women are more likely to become single mothers (e.g., Edin and

Reed 2005; South 1999), their single-parent status may operate through their family of origin's economic disadvantages rather than socialization processes.

Another hypothesis regarding a specific union type is about cohabitation status. I hypothesized that individuals who have ever lived with a cohabiting parent are more likely to have children outside of marriage, especially in cohabitation, than individuals who have never lived with a cohabiting parent (*Hypothesis 2*). The results for this hypothesis were mixed. In Model 1 of Table 3, those who had lived with a cohabiting parent have a 47 percent higher incidence of in-cohabitation childbirth ($p<0.01$) and 27 percent higher incidence of single-parent cohabitation childbirth (not significant) as opposed to those who never experienced parental cohabitation. However, this association disappears after introducing opportunity cost variables in Model 3, and Model 4 of Table 3 shows that those who had lived with a cohabiting parent have an 11 percent higher incidence of in-cohabitation childbirth and 1 percent higher incidence of single-parent cohabitation childbirth as opposed to those who never experienced parental cohabitation, but these results are not statistically significant. A possible explanation for the disappearance of the statistical significance of the family-type variables on the incidence of in-cohabitation childbirth is the introduction of family income and parent's educational achievement in Model 3. Cohabitation is a more common union arrangement among people with lower socioeconomic status (Seltzer 2000). Therefore, it is possible that these variables explain the apparent effect of parental cohabitation on the incidence of in-cohabitation childbirth in Models 1 and 2. As for the non-significance of socialization on in-cohabitation childbirth for the total sample, it is likely that this result comes from the opposing direction of the effect of parental cohabitation by race. In Model 2 of Table 4, the subhazard ratio of experiencing parental

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cohabitation on single-parent childbirth is 0.53 for Whites (p<0.05), 1.81 for Blacks (p<0.01), and 1.79 for Hispanics (not significant). It is not clear why the direction of association varies between Whites and minorities, but one possibility is that White women with parental cohabitation experience may avoid having a child outside a coresidential relationship, while for minorities, parental cohabitation may signify non-intact family arrangements in general and therefore increases the incidence of single-parent childbirth. Overall, there was little evidence that parental cohabitation is positively associated with the incidence of nonmarital childbirth, especially in the form of in-cohabitation childbirth.

Hypothesis 3 on opportunity cost theory is supported (Individuals with fewer chances of attending college due to lower academic achievement and fewer family resources are more likely to have children outside marriage). Model 4 of Table 3 shows that lower GPA, lower vocabulary score, and lower family income were associated with a higher incidence of in-cohabitation childbirth, while having a parent with a bachelor's degree lowered the incidence of in-cohabitation childbirth. Furthermore, although the subhazard ratios are not statistically significant, the increase in the incidence of in-cohabitation childbirth relative to single-parent childbirth as the likelihood of going to college increases indicates that more severely disadvantaged women are more likely to have a child outside of a coresidential union. As for single-parent childbirth, only a lower GPA was associated with a higher incidence of it. This gap is likely derived from three factors: family status, family economic hardship, and demographic characteristics. In Model 2, which tests only opportunity cost variables, most opportunity cost variables—GPA, vocabulary test, family income, and parental education—showed a significant association with the incidence of single-parent childbearing. However, after introducing family socialization variables in Model 3, the effect of below-poverty

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family income and parent's educational achievement disappeared. This can be explained by family status and the respondent's mother's young age. In Model 4, the economic hardship variable and demographic variables such as immigrant status and race have strong associations with the incidence of single-parent childbirth, which explain the apparent effect of the opportunity cost variables in earlier models.

In *Hypothesis 4*, I proposed that socialization in family of origin and low opportunity costs for having a child in early adulthood both increases the chances of nonmarital childbearing, but that the effect is stronger for Whites than for Blacks and Hispanics. As for opportunity costs, this hypothesis was supported. White women show stronger associations between opportunity cost variables and nonmarital childbirth in the theoretically expected patterns. Higher GPA, higher vocabulary test score, and having a parent with a bachelor's degree are all associated with a lower incidence of in-cohabitation childbirth, while being from a lower-income family is associated with a higher incidence of it. On the other hand, Black and Hispanic women show unexpected outcomes in some variables. For example, GPA has no association with the incidence of in-cohabitation childbirth for Black and Hispanic women, and vocabulary test score has no association with it either for Hispanic women. Meanwhile, lower family income is associated with a very high incidence of in-cohabitation childbirth and low incidence of single-parent childbirth for Hispanic women. One possibility that explains such a racial gap is the strength of marriage norm in Hispanic culture (Acevedo 2009; Willoughby 2010). The fact that the association between GPA and the incidence of in-cohabitation childbirth is found only among White women may reflect a stronger "relationship" norm in having children for Whites than among Black and Hispanic communities. In other words, White women with a higher GPA may not want to take a risk

of having children outside of marriage against their cultural norm. Another point to consider is the lower family socioeconomic status among Hispanics. Hispanic women from families with lower family income have a high incidence of in-cohabitation childbirth and low incidence of single-parent childbirth. Although their high incidence of in-cohabitation childbirth comes from the fact that the reference group (Hispanics from middle-class income families) has a very low incidence of in-cohabitation childbirth, the low incidence of single-parent childbirth among Hispanic women may reflect their difficulty to become a mother outside a coresidential union without substantial financial support from their parents.

There are some racial differences in socialization variables as well. Most notably, being born to a young mother for White women is positively associated with the incidence of nonmarital childbirth both in cohabitation and outside a coresidential union. White women who were born to a mother of 20-year-old or younger had over 70 percent higher incidence of nonmarital childbirth compared to White women who were born to an older mother. This association was observed only for single-parent childbirth for Hispanic women, and no statistically significant association was shown between mother's age at respondent's birth and the incidence of nonmarital childbirth for Black women. Again, this seems to reflect the cultural difference across racial-ethnic groups. Among African Americans, young nonmarital childbearing is not necessarily out of norm. Even though they have a desire to postpone childbirth, many Black women have a child while young and single. Therefore, they may not be influenced as strongly as other racial groups regarding the timing and union status at childbirth.

As I discussed in Chapter 1, there are three other theoretical perspectives that explain similar patterns of living arrangement between parents and a child: economic deprivation,

social control, and instability and family status change. First, I found support for economic deprivation theory for the intergenerational similarity in union status as a parent. Economic hardship before age 19 is associated with significantly higher incidence of single-parent childbirth for Whites and Blacks, although not for Hispanics. Second, social control theory receives support in the competing-risks analysis with only family variables (Model 1 in Table 3), but in the model with all variables. Living in any type of non-intact families is associated with higher incidence of nonmarital childbirth, and the finding that single-parent families and no-biological parent families are associated with high incidence of nonmarital childbirth may indicate that lack in supervision explains non-normative living arrangement at the time of childbirth. However, these associations largely disappear after introducing opportunity cost and control variables. Finally, instability and change theory cannot be tested in this study, because variables used in this study do not include the number of family status changes. Such variable can be created from the family status array and is expected to be tested in future studies.

Overall, these results show clear support that there are different strengths of effect in socialization and opportunity costs by race, and that these effects tend to be greater for Whites than for minorities. This conclusion is in line with the past findings that White people have greater opportunities for education and work and would lose more by having a birth outside marriage (e.g., Alon 2007; Paulin and Mellor 1996) and therefore try to avoid nonmarital childbirth. These findings suggest the possibility that Edin and Kefalas's conclusion (2005) in *Promises I Can Keep*, that the backgrounds of young unmarried mothers which lead them to nonmarital motherhood are similar across racial-ethnic groups, may not work for the entire US population. Their interviewees were homogeneously

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disadvantaged inner-city women, and that might have masked their racial differences. A nationally representative sample used for my study shows some evidence of racial differences in the process of nonmarital childbirth. The most significant finding of this study is the consistent association between low socioeconomic status and nonmarital childbearing for White respondents, while some inconsistencies are found among minorities. With nationally representative data to capture variation between racial groups, this study indicates that some of the socialization and opportunity cost processes operate differently for different racial groups.

I propose three points that should be examined further for future study. First, this study shows association between specific types of parental union behaviors and living arrangement at the time of childbirth outside of marriage in bivariate analysis (e.g., those who experienced parental cohabitation are more likely to have a child while cohabiting), but the association is no longer statistically significant once adjusted for other controls. More research is expected to be conducted in order to clarify what explains this mismatch.

Second, the processes for the racial difference in socialization and opportunity cost should be examined. Although I listed some potential explanations for these differences such as strength of marriage norm and socioeconomic standing of each racial group, empirical studies are necessary in order to test whether these explanations are accurate. In addition, there might be some other external factors that affect socialization and opportunity cost processes in nonmarital childbirth.

Finally, the overall framework to view unmarried childbearing should be seriously examined at both empirical and social philosophy levels. As Geronimous (2003) and Luker (1996) criticize, many studies have focused on "abnormality" and "immorality" of

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nonmarital childbearing, without paying enough attention to the larger historical, socioeconomic, and religious backgrounds with huge inequality. Sociological and demographic studies should be careful not to confuse the cause and outcomes and blame the victims when nonmarital childbirth is an adaptive strategy for the disadvantaged in society. At the same time, today's proportion of nonmarital childbirth of four out of ten shows the widespread practice of having a child outside of marriage, signaling a potential that family arrangement in the United States is drastically changing. We should keep such a big picture in mind in examining the issue of nonmarital childbearing.

Table 4.1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Race.

	Category	Total (N=5,636)			White (N=3,195)		Black (N=1,066)		Hispanic (N=783)	
		Freq	%	weight %	Freq	weight %	Freq	weight %	Freq	weight %
Socialization Variables										
% of childhood spent in intact family	0%	913	16.2	**15.0**	373	**11.4**	344	**35.8**	121	**16.1**
	0.1-50%	931	16.5	**16.4**	524	**16.6**	200	**16.6**	111	**14.0**
	50.1%-	3,792	67.3	**68.6**	2,298	**72.1**	522	**47.6**	551	**70.0**
% of childhood spent in stepfamily	0%	4,470	79.3	**79.0**	2,549	**79.4**	817	**77.5**	636	**79.6**
	0.1-50%	699	12.4	**12.1**	362	**11.3**	178	**16.1**	86	**12.7**
	50.1%-	467	8.3	**8.8**	284	**9.3**	71	**6.4**	61	**7.7**
% of childhood spent in single-parent family	0%	3,575	63.4	**64.9**	2,193	**68.8**	450	**38.2**	527	**68.7**
	0.1-50%	1,011	17.9	**17.7**	564	**17.5**	220	**23.2**	125	**13.9**
	50.1%-	1,050	18.6	**17.4**	438	**13.8**	396	**38.6**	131	**17.4**
% of childhood spent in no- bio parent family	0%	5,371	95.3	**96.0**	3,060	**96.6**	1,002	**93.1**	746	**95.0**
	0.1-50%	166	2.9	**2.6**	82	**2.2**	42	**4.2**	20	**2.9**
	50.1%-	99	1.8	**1.4**	53	**1.2**	22	**2.7**	17	**2.1**
Parental cohabitation	No	4,752	84.3	**85.3**	2,830	**88.4**	790	**72.6**	638	**82.6**
	Yes	765	13.6	**13.3**	322	**10.5**	245	**24.8**	111	**14.0**
	Missing	120	2.1	**1.5**	43	**1.0**	31	**2.6**	34	**3.5**
Mom's age at respondent's birth	20 or younger	869	15.4	**16.3**	431	**14.3**	230	**25.9**	138	**18.1**
	21 or older	4,252	75.5	**76.9**	2,461	**79.2**	758	**66.9**	589	**76.0**
	Missing	515	9.1	**6.8**	303	**6.5**	78	**7.2**	56	**5.9**
Opportunity Cost Variables										
Likelihood of attending college	1 & 2 (unlikely)	371	6.6	**6.7**	216	**6.6**	62	**6.4**	62	**8.3**
	3	634	11.3	**11.8**	326	**10.3**	119	**14.9**	134	**18.6**
	4	1,077	19.1	**19.7**	581	**18.7**	176	**17.5**	189	**26.7**
	5 (very likely)	3,554	63.1	**61.8**	2,072	**64.4**	709	**61.2**	398	**46.5**
GPA	2 or lower	919	16.3	**15.2**	454	**14.1**	189	**18.9**	185	**19.7**
	higher than 2	2,344	41.6	**39.6**	1,186	**36.3**	545	**52.2**	366	**43.8**
	higher than 3	2,373	42.1	**45.2**	1,555	**49.6**	332	**28.9**	232	**36.5**

Table 4.1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Race, continued.

	Category	Total (N=5,636)			White (N=3,195)		Black (N=1,066)		Hispanic (N=783)	
		Freq	%	weight %	Freq	weight %	Freq	weight %	Freq	weight %
Opportunity Cost Variables (contiinued)										
Standardized Add Health Picture Vocaburay Test score (mean=100)	85 or lower	708	12.6	10.7	142	4.5	223	25.3	243	31.6
	86-95	1,236	21.9	20.9	593	18.5	377	37.3	137	15.5
	96-105	1,386	24.6	25.3	839	26.7	220	19.1	189	24.4
	106-115	1,371	24.3	25.1	977	29.2	141	11.5	137	18.3
	116 or hither	935	16.6	18.0	644	21.1	105	6.9	77	10.3
Household income in 1994	$0-15,999	758	13.5	14.0	278	9.7	242	30.1	166	23.2
	$16,000-31,999	1,183	21.0	20.3	598	18.5	253	26.2	213	27.7
	$32,000-50,999	1,367	24.3	24.6	846	26.6	210	15.8	162	20.3
	$51,000-	1,652	29.3	30.6	1,162	36.2	196	12.9	110	13.8
	Missing	676	12.0	10.6	311	9.0	165	15.0	132	15.1
Parental education	Less than HS	648	11.5	10.7	227	7.0	114	13.6	249	31.6
	High school	1,584	28.1	30.5	942	29.9	307	38.2	195	26.6
	Some college	1,244	22.1	22.6	729	23.6	241	21.8	158	18.5
	Bachelor-	2,045	36.3	34.3	1,259	38.2	377	23.1	148	18.7
	Missing	115	2.0	1.9	38	1.2	27	3.3	33	4.7
Dependent Variable										
Status at first child birth	Never had a birth	2,595	46.0	46.7	1,521	49.0	449	36.4	332	44.3
	Married	1,369	24.3	25.9	932	27.8	91	8.6	223	25.2
	Cohabiting	826	14.7	15.1	443	14.1	163	17.3	126	18.0
	Single	846	15.0	13.3	299	9.2	363	37.7	102	12.6
Control Variables										
Parents' occupation	Prof/Manage	2,256	40.0	38.4	1,420	42.8	393	27.7	197	23.9
	Non-prof/manage	3,031	53.8	55.9	1,640	53.5	559	57.6	522	68.7
	Unempl/missing	349	6.2	5.7	135	3.6	114	14.7	64	7.4
Economic hardship	No	3,316	58.8	60.1	2,127	66.2	467	38.6	391	51.2
	Yes	2,320	41.2	39.9	1,068	33.8	599	61.5	392	48.9

Table 4.1. Frequency and Percentage Distribution of All Variables in the Analytic Sample for Total and by Race, continued.

	Category	Total (N=5,636)			White (N=3,195)		Black (N=1,066)		Hispanic (N=783)	
		Freq	%	weight %	Freq	weight %	Freq	weight %	Freq	weight %
Control Variables										
Number of siblings	0	1,039	18.4	**19.7**	593	**20.1**	214	**21.3**	117	**13.8**
	1	2,265	20.2	**40.8**	1,415	**43.5**	391	**36.1**	259	**31.5**
	2	1,428	25.3	**24.9**	782	**24.2**	283	**25.6**	221	**29.0**
	3 or more	904	16.0	**14.7**	405	**12.1**	178	**17.1**	186	**25.6**
Parental religion	Mainline	1,193	21.2	**23.1**	907	**28.0**	128	**9.1**	54	**7.3**
	Evangelical	1,773	31.5	**31.6**	813	**27.0**	762	**76.0**	74	**13.3**
	Catholic	1,600	28.4	**26.2**	798	**24.9**	44	**2.8**	539	**64.7**
	Other religion	682	12.1	**11.7**	427	**12.2**	92	**7.5**	72	**9.4**
	No religion	388	6.9	**7.3**	250	**7.9**	40	**4.6**	44	**5.2**
Parental religiosity (church attendance)	No attendance	1,086	19.3	**20.8**	735	**23.1**	87	**8.8**	129	**16.2**
	Less than 1/mo	1,312	23.3	**23.5**	843	**25.7**	169	**15.0**	161	**20.2**
	1/mo or more	1,066	18.9	**18.3**	559	**17.2**	243	**22.8**	184	**24.0**
	1/wk ot more	2,172	38.5	**37.4**	1,058	**34.0**	567	**53.4**	309	**39.6**
Age at Wave 4	29 or older	2,576	45.7	**39.6**	1,364	**38.5**	486	**44.1**	432	**39.6**
	28 or younger	3,060	54.3	**60.4**	1,831	**61.5**	580	**55.9**	351	**60.4**
Immigrant status	1st generation	313	5.6	**3.5**	15	**0.4**	8	**0.5**	181	**21.0**
	2nd generation	725	12.9	**9.3**	115	**3.6**	49	**3.7**	386	**45.1**
	3rd generation-	4,598	81.6	**87.3**	3,065	**96.0**	1,009	**95.8**	216	**33.9**
Race/ethnicity	White	3,195	56.7	**70.4**						
	Black	1,066	18.9	**12.6**						
	Native American	27	0.5	**0.3**						
	Asian	219	3.9	**2.1**						
	Hispanic	783	13.9	**9.5**						
	Mixed non-Hisp	346	6.14	**5.1**						

Table 4.2. Cross Tabulations of Family Socialization, Opportunity Cost, and Control Variables with Union Status at Childbirth for Total and by Race.

Variable	Category	Total(N=5,636)					White (N=3,195)				
		No birth	Mar	Coh	Single		No birth	Mar	Coh	Single	
		2,595	1,369	826	846		1,521	932	443	299	
		46.7%	25.9%	15.1%	13.3%		49.0%	27.8%	14.1%	9.2%	
Family socialization											
% of childhood spent in intact family	0%	30.8	22.1	**22.8**	**24.3**		30.7	30.2	**23.0**	**16.2**	
	0.1-50%	37.9	25.8	**19.7**	**16.6**	***	38.6	29.7	**19.4**	**12.4**	***
	50.1%-	52.3	25.3	**12.3**	**10.1**		54.2	27.0	**11.4**	**7.4**	
% of childhood spent in stepfamily	0%	49.8	24.8	**13.2**	**12.3**		51.9	27.3	**12.5**	**8.3**	
	0.1-50%	35.8	22.1	**23.0**	**19.1**	***	37.8	26.7	**20.6**	**14.8**	***
	50.1%-	34.5	29.7	**21.3**	**14.5**		37.3	33.5	**19.3**	**9.9**	
% of childhood spent in single-parent family	0%	51.6	25.9	**12.6**	**9.9**		53.0	27.5	**11.8**	**7.8**	
	0.1-50%	39.8	24.6	**19.0**	**16.7**	***	42.0	29.7	**17.9**	**10.4**	***
	50.1%-	35.6	21.4	**20.4**	**22.6**		37.6	27.1	**20.7**	**14.6**	
% of childhood spent in no- bio parent family	0%	47.8	24.6	**14.7**	**12.9**		50.1	27.4	**13.6**	**8.9**	
	0.1-50%	22.6	34.5	**22.6**	**20.3**	***	20.8	39.6	**26.1**	**13.5**	***
	50.1%-	16.6	24.9	**29.7**	**28.9**		7.0	37.6	**27.1**	**28.3**	
Parental cohabitation	No	48.8	25.8	**13.5**	**12.0**		50.2	28.2	**12.6**	**9.0**	
	Yes	32.7	19.9	**25.7**	**21.7**	***	37.4	25.6	**26.5**	**10.5**	***
	Missing	55.5	16.8	**11.6**	**16.1**		60.8	14.7	**14.7**	**9.8**	
Mom's age at respondent's birth	20 or younger	28.3	28.4	**22.8**	**20.5**		26.2	35.9	**22.9**	**15.0**	
	21 or older	51.4	24.2	**12.8**	**11.7**	***	34.0	26.2	**11.8**	**8.0**	***
	Missing	37.6	24.7	**22.8**	**14.9**		38.0	29.0	**21.5**	**11.5**	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 4.2. Cross Tabulations of Family Socialization, Opportunity Cost, and Control Variables with Union Status at Childbirth for Total and by Race, continued.

Variable	Category	Total(N=5,636)					White (N=3,195)				
		No birth	Mar	Coh	Single		No birth	Mar	Coh	Single	
		2,595	1,369	826	846		1,521	932	443	299	
		46.7%	25.9%	15.1%	13.3%		49.0%	27.8%	14.1%	9.2%	
Opportunity Costs											
Attending college	1 & 2	32.4	26.1	**18.9**	**22.7**		30.9	30.9	**19.0**	**19.3**	
(1= not likely,	3	34.5	22.0	**23.8**	**19.8**	***	36.7	24.4	**22.1**	**16.8**	***
5=very likely)	4	43.6	22.9	**19.9**	**13.6**		46.7	23.9	**20.6**	**8.8**	
	5	51.6	26.0	**11.5**	**11.0**		53.4	29.2	**10.4**	**7.1**	
GPA	lower than 2	30.1	21.6	**25.6**	**22.7**		30.3	24.1	**25.5**	**20.2**	
	2~2.75	38.4	27.5	**17.7**	**16.4**	***	38.9	33.2	**17.6**	**10.4**	***
	3~4	59.5	23.7	**9.3**	**7.5**		61.6	24.9	**8.3**	**5.2**	
Add Health Picture	85 or lower	36.6	17.6	**25.2**	**20.6**		39.2	19.5	**31.1**	**10.2**	
Vocaburay Test	86-95	34.7	23.3	**22.0**	**20.0**		36.0	30.3	**20.7**	**13.0**	
(mean=100)	96-105	43.6	28.2	**14.4**	**13.8**	***	44.0	29.4	**15.4**	**11.2**	***
	106-115	49.4	28.6	**11.1**	**10.9**		49.7	30.5	**10.9**	**9.0**	
	116 or hither	67.2	21.2	**7.6**	**4.0**		67.8	21.8	**7.2**	**3.3**	
Household income	$0-15,999	35.1	20.8	**22.6**	**21.6**		34.9	26.1	**24.0**	**15.0**	
in 1994	$16,000-31,999	38.3	22.9	**21.1**	**17.8**		39.1	25.7	**21.2**	**14.0**	
	$32,000-50,999	47.1	28.6	**13.8**	**10.6**	***	46.6	31.3	**13.8**	**8.3**	***
	$51,000-	58.2	24.6	**9.4**	**7.8**		59.3	26.2	**8.9**	**5.6**	
	Missing	44.5	26.4	**13.3**	**15.8**		50.5	29.8	**9.9**	**9.8**	
Parental education	Less than HS	32.8	25.5	**23.7**	**18.1**		31.8	25.7	**27.2**	**15.4**	
	High school	37.0	25.5	**19.9**	**17.6**		37.8	30.2	**19.1**	**12.9**	
	Some college	44.0	28.0	**14.9**	**13.2**	***	44.8	31.0	**14.9**	**9.3**	***
	Bachelor-	31.8	22.3	**7.9**	**8.0**		63.6	24.2	**7.2**	**5.0**	
	Missing	40.7	22.6	**21.8**	**15.0**		44.1	30.9	**13.4**	**11.3**	
Parents' occupation	Prof/Manage	56.1	26.1	**10.4**	**8.4**		28.0	27.5	**9.4**	**5.2**	
	Non-pro/manage	41.8	25.5	**17.4**	**15.3**	***	43.0	28.0	**17.2**	**11.8**	***
	Unemployed	32.1	17.9	**23.6**	**26.5**		31.5	28.1	**23.2**	**17.2**	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 4.2. Cross Tabulations of Family Socialization, Opportunity Cost, and Control Variables with Union Status at Childbirth for Total and by Race, continued.

Variable	Category	Total(N=5,636)					White (N=3,195)				
		No birth	Mar	Coh	Single		No birth	Mar	Coh	Single	
		2,595	1,369	826	846		1,521	932	443	299	
		46.7%	25.9%	15.1%	13.3%		49.0%	27.8%	14.1%	9.2%	
Control											
Economic hardship	No	52.7	25.9	**12.3**	**9.1**	***	54.5	28.0	**10.9**	**6.7**	***
	Yes	37.7	23.3	**19.3**	**19.7**		38.1	27.4	**20.3**	**14.2**	
Number of siblings	0	43.1	24.7	**15.9**	**16.4**		42.0	28.4	**14.9**	**14.7**	
	1	52.2	22.9	**13.6**	**11.3**	***	54.8	25.1	**12.8**	**7.2**	***
	2	44.4	26.3	**15.5**	**13.8**		46.5	30.9	**14.1**	**8.5**	
	3 or more	40.3	28.2	**17.6**	**13.9**		44.5	30.2	**17.0**	**8.4**	
Parental religion	Mainline	53.1	25.1	**13.6**	**8.2**		54.5	26.1	**12.8**	**6.6**	
	Evangelical	36.5	26.6	**16.3**	**20.6**		38.1	34.7	**16.1**	**11.1**	
	Catholic	53.2	23.0	**14.3**	**9.6**	***	55.6	22.9	**12.8**	**8.8**	***
	Other religion	50.6	26.3	**12.0**	**11.1**		51.5	29.7	**10.7**	**8.1**	
	No religion	41.4	21.3	**22.4**	**15.0**		41.9	22.7	**20.6**	**14.9**	
Parental religiosity (church attendance)	No attendance	43.4	20.8	**22.0**	**13.8**		43.7	21.4	**21.6**	**13.2**	
	Less than 1/mo	44.4	25.2	**18.5**	**12.0**		46.2	28.1	**16.5**	**9.3**	
	1/mo or more	46.5	22.4	**16.2**	**14.9**	***	51.2	25.8	**13.5**	**9.6**	***
	1/wk or more	50.2	28.1	**8.6**	**13.2**		53.5	32.9	**7.4**	**6.2**	
Age at Wave 4	29 or older	38.4	33.6	**14.4**	**13.5**	***	39.1	38.7	**13.1**	**9.1**	***
	28 or younger	52.2	19.1	**15.5**	**13.2**		55.1	21.0	**14.7**	**9.3**	
Immigrant status	1st generation	47.5	31.8	**15.1**	**5.6**		50.9	25.8	**15.3**	**8.0**	
	2nd generation	52.6	25.5	**14.9**	**7.0**	*	57.5	30.5	**11.8**	**0.2**	
	3rd generation	46.1	24.5	**15.1**	**14.3**		48.6	27.7	**14.1**	**9.5**	
Race/ethnicity	White	49.0	27.8	**14.1**	**9.2**						
	Black	36.4	8.6	**17.3**	**37.7**						
	Native American	30.4	33.5	**33.9**	**2.3**	***					
	Asian	57.2	23.8	**13.9**	**5.1**						
	Hispanic	44.3	25.2	**18.0**	**12.6**						
	Mixed non-Hisp	42.5	24.2	**17.8**	**15.7**						

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 4.2. Cross Tabulations of Family Socialization, Opportunity Cost, and Control Variables with Union Status at Childbirth for Total Sample and by Race, continued.

Variable	Category	Black (N=1,066)					Hispanic (N=783)				
		No birth	Mar	Coh	Single		No birth	Mar	Coh	Single	
		449	91	163	363		332	223	126	102	
		36.4%	8.6%	17.3%	37.7%		44.3%	25.2%	18.0%	12.6%	
Family socialization											
% of childhood spent in intact family	0%	30.3	9.6	**18.7**	**41.7**		31.4	17.1	**31.2**	**20.2**	
	0.1-50%	32.6	10.3	**19.2**	**37.7**		42.3	13.0	**21.1**	**23.6**	***
	50.1%-	42.4	7.4	**15.7**	**34.7**		47.6	29.5	**14.3**	**8.6**	
% of childhood spent in stepfamily	0%	38.0	8.7	**15.2**	**38.1**		48.4	26.9	**14.8**	**9.9**	
	0.1-50%	32.2	10.2	**24.1**	**33.5**		29.6	13.9	**28.2**	**28.3**	**
	50.1%-	27.9	3.0	**26.7**	**42.4**		25.9	26.3	**33.8**	**14.1**	
% of childhood spent in single-parent family	0%	44.1	8.5	**14.9**	**32.6**		47.3	28.6	**15.8**	**8.3**	
	0.1-50%	31.5	4.7	**23.1**	**40.7**	*	38.0	24.0	**20.5**	**17.5**	**
	50.1%-	31.8	11.0	**16.3**	**40.9**		39.1	12.8	**24.5**	**25.7**	
% of childhood spent in no- bio parent family	0%	37.9	8.0	**16.6**	**37.6**		44.4	25.4	**18.0**	**12.3**	
	0.1-50%	16.9	23.1	**16.8**	**32.2**	*	41.1	32.5	**16.7**	**9.7**	
	50.1%-	16.5	6.5	**44.5**	**32.5**		43.5	6.6	**20.4**	**29.5**	
Parental cohabitation	No	41.5	9.1	**16.4**	**33.0**		46.5	26.3	**17.0**	**10.2**	
	Yes	21.9	6.2	**21.2**	**50.7**	***	25.9	20.7	**25.2**	**28.2**	*
	Missing	35.1	15.7	**6.1**	**43.2**		64.1	17.0	**11.9**	**7.0**	
Mom's age at respondent's birth	20 or younger	30.8	10.6	**21.2**	**37.4**		29.6	20.3	**26.1**	**24.0**	
	21 or older	40.3	8.0	**14.6**	**37.2**		47.5	26.7	**15.5**	**10.4**	**
	Missing	21.1	6.7	**29.2**	**43.1**		47.9	21.0	**25.7**	**5.5**	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 4.2. Cross Tabulations of Family Socialization, Opportunity Cost, and Control Variables with Union Status at Childbirth for Total Sample and by Race, continued.

Variable	Category	Black (N=1,066)					Hispanic (N=783)				
		No birth	Mar	Coh	Single		No birth	Mar	Coh	Single	
		449	91	163	363		332	223	126	102	
		36.4%	8.6%	17.3%	37.7%		44.3%	25.2%	18.0%	12.6%	
Opportunity Costs											
Attending college	1 & 2	27.4	8.2	**15.2**	**49.2**		34.6	18.0	**26.8**	**20.6**	
(1= not likely,	3	29.0	10.2	**24.9**	**36.0**		32.5	24.6	**26.8**	**16.1**	
5=very likely)	4	35.0	6.5	**15.2**	**43.3**		41.5	32.0	**16.5**	**10.0**	
	5	39.6	8.8	**16.4**	**35.2**		52.3	22.8	**13.7**	**11.3**	
GPA	lower than 2	28.2	5.9	**26.5**	**39.4**		35.0	28.5	**23.2**	**13.3**	
	2~2.75	33.2	8.1	**15.9**	**42.9**	**	39.8	24.5	**19.9**	**15.8**	
	3~4	47.7	11.2	**14.1**	**27.0**		54.6	24.2	**12.9**	**8.3**	
Add Health Picture	85 or lower	35.5	6.4	**19.3**	**38.9**		35.9	27.6	**23.0**	**13.5**	
Vocaburay Test	86-95	28.4	7.6	**22.1**	**41.9**		47.2	16.8	**24.4**	**11.6**	
(mean=100)	96-105	40.1	12.4	**10.8**	**36.7**	*	43.4	31.6	**13.0**	**12.0**	
	106-115	41.5	8.1	**14.3**	**36.0**		46.2	22.9	**13.5**	**17.4**	
	116 or hither	64.9	11.6	**7.7**	**15.8**		64.0	19.3	**12.7**	**4.0**	
Household income	$0-15,999	33.8	6.9	**17.1**	**42.2**		33.1	27.3	**26.0**	**14.1**	
in 1994	$16,000-31,999	33.3	5.9	**23.5**	**37.3**		40.8	28.8	**15.7**	**14.7**	
	$32,000-50,999	42.0	12.5	**11.7**	**33.8**	*	56.3	20.4	**15.7**	**7.5**	
	$51,000-	49.7	6.2	**14.6**	**29.5**		53.4	20.4	**7.8**	**18.3**	
	Missing	29.8	14.3	**16.1**	**39.9**		43.8	26.3	**21.9**	**8.0**	
Parental education	Less than HS	23.4	9.6	**20.1**	**47.0**		37.8	31.3	**20.7**	**10.1**	
	High school	33.4	8.4	**20.7**	**37.5**		37.2	19.7	**20.6**	**22.5**	
	Some college	41.4	7.6	**14.9**	**36.2**		51.4	28.5	**13.4**	**6.6**	**
	Bachelor-	44.9	8.0	**11.9**	**35.2**		59.1	21.4	**8.1**	**11.5**	
	Missing	33.5	16.9	**21.7**	**27.9**		40.6	17.4	**41.7**	**0.3**	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 4.2. Cross Tabulations of Family Socialization, Opportunity Cost, and Control Variables with Union Status at Childbirth for Total Sample and by Race, continued.

Variable	Category	Black (N=1,066)					Hispanic (N=783)				
		No birth	Mar	Coh	Single		No birth	Mar	Coh	Single	
		449	91	163	363		332	223	126	102	
		36.4%	8.6%	17.3%	37.7%		44.3%	25.2%	18.0%	12.6%	
Control											
Parents' occupation	Prof/Manage	43.6	8.5	**16.1**	**31.9**		51.3	22.4	**13.3**	**13.0**	
	Non-pro/manage	34.0	9.8	**17.3**	**39.0**		42.8	27.4	**18.1**	**11.7**	
	Unemployed	32.8	3.9	**19.9**	**43.5**		35.5	13.9	**31.7**	**18.9**	
Economic hardship	No	42.4	11.1	**17.6**	**29.0**	**	48.4	24.0	**15.8**	**11.7**	
	Yes	32.7	7.0	**17.2**	**43.1**		39.9	26.4	**20.2**	**13.5**	
Number of siblings	0	39.8	12.2	**19.3**	**28.8**		44.6	18.9	**16.3**	**20.2**	
	1	39.1	8.2	**17.3**	**35.5**		48.8	20.6	**16.1**	**14.6**	
	2	33.2	4.0	**15.8**	**47.1**		48.2	25.7	**19.2**	**6.9**	
	3 or more	31.6	11.8	**17.4**	**39.3**		34.1	33.7	**19.9**	**12.4**	
Parental religion	Mainline	40.9	13.5	**17.7**	**27.9**		51.8	17.2	**14.6**	**16.5**	
	Evangelical	34.8	8.7	**16.9**	**39.7**		24.6	40.0	**19.9**	**15.5**	
	Catholic	59.4	1.0	**12.5**	**27.2**		47.7	24.9	**16.7**	**10.8**	
	Other religion	41.7	6.3	**16.2**	**35.8**		37.2	16.6	**24.4**	**21.8**	
	No religion	32.2	5.2	**29.3**	**33.3**		54.7	17.8	**22.2**	**5.3**	
Parental religiosity (church attendance)	No attendance	42.9	5.5	**23.6**	**28.0**		42.8	19.8	**22.3**	**15.1**	
	Less than 1/mo	32.3	11.1	**22.5**	**34.1**		39.0	20.2	**26.1**	**14.7**	*
	1/mo or more	32.9	7.2	**20.8**	**39.1**		37.9	23.6	**24.8**	**13.7**	
	1/wk or more	38.0	8.9	**13.4**	**39.6**		51.3	30.9	**7.9**	**9.8**	
Age at Wave 4	29 or older	37.8	10.8	**15.6**	**35.7**		36.6	32.3	**17.7**	**13.4**	
	28 or younger	35.3	3.8	**18.7**	**39.2**		49.3	20.5	**18.2**	**12.0**	
Immigrant status	1st generation	60.0	0.0	**0.0**	**40.0**		44.4	34.1	**16.6**	**4.9**	
	2nd generation	60.2	6.1	**12.9**	**21.0**		46.9	25.9	**19.0**	**8.1**	*
	3rd generation	35.4	8.7	**17.6**	**38.3**		40.6	18.7	**17.5**	**23.3**	

P-value: ***p<0.001. **p<0.01. *p<0.05

Table 4.3. Subhazard Ratios from Competing-Risks Regression for Nonmarital Childbirth for the Total Sample (N=5,636).

		Model 1			Model 2		
		C/N	S/N	C/S	C/N	S/N	C/S
Family socialization							
Additional 10% of childhood spent in: (ref: intact)	Stepfamily	**1.08** ***	1.03	1. 05			
	Single-parent family	**1.04** *	**1.10** ***	0. 95			
	No-bio parent family	**1.09** **	**1.15** **	0. 95			
Parent cohabitation (a)	Yes	**1.47** **	1.27	1. 16			
Mom's age at R's birth (a)	20 or younger	**1.65** ***	**1.53** **	1. 08			
Opportunity Costs							
How likely going to college	Unlikely (1-2)				0.91	1.16	0. 78
	Somewhat likely (3)				1.20	1.08	1. 11
(ref: very likely=5)	Likely (4)				**1.35** *	0.89	1. 52
GPA	Additional 1 point				**0.68** ***	**0.59** ***	1. 15
Vocab test	Add. 10% in distribution				**0.87** **	**0.86** ***	1. 01
Family income (a)	$0-15,999				**1.50** *	**1.73** **	0. 87
(ref: $51,000-)	$16,000-31,999				**1.65** ***	**1.60** **	1. 03
	$32,000-50,999				1.25	1.13	1. 11
Parental education (a)	Less than high school				1.06	0.80	1. 33
(ref: high school)	Some college				0.86	0.93	0. 92
	Bachelor or higher				**0.51** ***	**0.71** *	0. 72
Control							
Region	West	0.87	0.95	0. 92	0.79	0.91	0. 87
(ref: Midwest)	South	**0.72** *	**1.71** **	0. 42	**0.61** **	**1.61** **	0. 38
	Northeast	0.64	0.94	0. 68	**0.60** *	0.92	0. 65
F		138.20	138.76		236.30	215.69	
df		10	10		16	16	
Pr		0.0000	0.0000		0.0000	0.0000	

(a) "Missing" categories are controlled, but not displayed.
C/N: subhazard ratio of in-cohab birth to no nonmarital birth, S/N: subhazard ratio of single-parent birth to no nonmarital birth, C/S: ratio of in-cohabitation birth to single-parent birth.
P-value: *p<0.05, **p<0.01, *** p<0.001

Table 4.3. Subhazard Ratios from Competing-Risks Regression for Nonmarital Childbirth for the Total Sample (N=5,636), continued.

		Model 3			Model 4		
		C/N	S/N	C/S	C/N	S/N	C/S
Family socialization							
Additional 10% of childhood spent in:	Stepfamily	**1.07** **	1.02	1. 05	**1.06** **	1.01	1. 05
	Single-parent family	1.00	**1.07** **	0. 93	1.00	1.04	0. 96
(ref: intact)	No-bio parent family	1.06	1.09	0. 97	1.06	1.07	0. 99
Parent cohabitation (a)	Yes	1.19	1.05	1. 12	1.11	1.01	1. 10
Mom's age at R's birth (a)	20 or younger	**1.41** **	**1.37** *	1. 03	**1.43** **	1.29	1. 11
Opportunity Costs							
How likely going to college	Unlikely (1-2)	0.84	1.12	0. 74	0.82	1.25	0. 66
	Somewhat likely (3)	1.19	1.07	1. 11	1.12	1.03	1. 09
(ref: very likely=5)	Likely (4)	**1.34** *	0.89	1. 51	1.26	0.93	1. 35
GPA	Additional 1 point	**0.69** ***	**0.60** ***	1. 15	**0.69** ***	**0.62** ***	1. 11
Vocab test	Add. 10% in distribution	**0.87** ***	**0.87** ***	1. 00	**0.86** ***	0.92	0. 93
Family income (a)	$0-15,999	1.38	1.34	1. 03	1.45	0.97	1. 49
(ref: $51,000-)	$16,000-31,999	**1.59** **	**1.42** *	1. 12	**1.65** **	1.16	1. 41
	$32,000-50,999	1.24	1.10	1. 13	**1.27** *	1.00	1. 27
Parental education (a)	Less than high school	1.04	0.80	1. 30	1.01	0.94	1. 07
(ref: high school)	Some college	0.88	0.93	0. 95	0.91	1.03	0. 88
	Bachelor or higher	**0.55** ***	0.75	0. 73	**0.59** ***	0.87	0. 68
Control							
Family income (a)	$0-15,999				0.96	1.25	0. 77
(ref: $51,000-)	$16,000-31,999				1.01	1.13	0. 89
	$32,000-50,999				1.03	**1.43** **	0. 72
Parental education (a)	Less than high school				1.15	1.01	1. 14
(ref: high school)	Some college				1.03	1.34	0. 77
	Bachelor or higher				0.88	1.16	0. 76
Parental occup	Non-prof/managerial				1.04	1.35	0. 77
(ref: prof/manage)	Unemployed/missing				1.04	0.94	1. 11
Economic hardship	Yes				0.97	1.19	0. 82
Family size	No sibling				**0.55** **	1.07	0. 51
(ref: 1 or 2 siblings)	3 or more siblings				1.20	1.17	1. 03

Table 4.3. Subhazard Ratios from Competing-Risks Regression for Nonmarital Childbirth for the Total Sample (N=5,636), continued.

		Model 3			Model 4		
		C/N	S/N	C/S	C/N	S/N	C/S
Control (continued)							
Parental religion	Evangelical Protestant				1.03	1.34	0.77
(ref: Mainline Protestant)	Catholic				0.88	1.16	0.76
	Other religion				0.90	1.28	0.70
	No religion				1.04	1.35	0.77
Parental religiosity	Less than once a month				1.04	0.94	1.11
(ref: never attend)	Once a month or more				0.97	1.19	0.82
	Once a week or more				**0.55 ****	1.07	0.51
Age at Wave 4	28 or younger				1.20	1.17	1.03
Immigrant status	1st generation				0.98	**0.24 *****	4.08
(ref: 3rd generation-)	2nd generation				1.07	**0.37 *****	2.89
Race/ethnicity	Black				0.78	**2.27 *****	0.34
(ref: White)	Native American				0.72	**0.09 *****	8.11
	Asian				1.09	1.63	0.67
	Hispanic				1.07	**1.99 ****	0.54
	Mixed non-Hispanic				0.92	1.03	0.89
Region	West	0.82	0.93	0.88	0.80	1.01	0.79
(ref: Midwest)	South	**0.63 ****	**1.61 ****	0.39	**0.69 ***	**1.38 ***	0.50
	Northeast	**0.63 ***	0.94	0.67	**0.63 ***	1.04	0.61
F		366.89	289.70		496.18	671.67	
df		23	23		43	43	
Pr		0.0000	0.0000		0.0000	0.0000	
Wald-F test (b)							
F		165.79	136.24		44.07	172.42	
df		13	13		20	20	
Pr		0.0000	0.0000		0.0015	0.0000	

(b) Model 3: whether opportunity cost variables significantly improves the fit of the model from Model 1.

Model 4: whether control variables significantly improves the fit of the model from Model 3.

C/N: subhazard ratio of in-cohab birth to no nonmarital birth, S/N: subhazard ratio of single-parent birth to no nonmarital birth, C/S: ratio of in-cohabitation birth to single-parent birth.

P-value: *p<0.05, **p<0.01, *** p<0.001

Table 4. 4. 1. Subhazard Ratios from Competing-Risks Regression for Nonmarital Childbirth for Whites (N=3,195).

| | | White (N=3,195) 443 in-cohabitation childbirths; 299 single-parent childbirths | | | | | |
| | | Model 1 | | | Model 2 | | |
		C/N	S/N	C/S	C/N	S/N	C/S
Family Socialization							
Additional 10% of childhood spent in:	Stepfamily	**1.05 ***	1.05	1. 00	1.01	1.02	0. 99
	Single-parent family	**1.06 ***	**1.10 ****	0. 96	1.01	1.04	0. 97
(ref: intact)	No-bio parent family	**1.10 ***	**1.21 ****	0. 91	1.06	1.08	0. 98
Parent cohabitation (a)	Yes	**1.62 ****	0.73	2. 21	1.21	**0.53 ***	2. 24
Mom's age at R's birth (a)	20 or younger	**1.97 *****	**1.97 ****	1. 00	**1.77 ****	**1.71 ****	1. 03
Opportunity Cost							
How likely going to college	Unlikely (1-2)				0.79	1.28	0. 62
	Somewhat likely (3)				0.99	1.24	0. 80
(ref: very likely=5)	Likely (4)				1.30	0.77	1. 69
GPA	Additional 1 point				**0.65 *****	**0.61 *****	1. 07
Vocab test	Additional 10% in dist.				**0.81 ****	0.90	0. 90
Family income (a)	$0-15,999				1.20	1.16	1. 03
(ref: $51,000-)	$16,000-31,999				**1.43 ***	1.31	1. 09
	$32,000-50,999				1.25	1.14	1. 09
Parental education (a)	Less than high school				0.91	0.81	1. 12
(ref: high school)	Some college				0.94	0.95	0. 99
	Bachelor or higher				**0.56 *****	0.81	0. 69
Control							
Parental occupation	Non-prof/managerial				0.96	1.45	0. 66
	Unemployed				1.07	1.32	0. 81
Economic hardship	Yes				1.27	**1.55 ****	0. 82
Family size	No siblings				0.94	**1.63 ****	0. 58
(ref: 1 or 2 siblings)	3 or more siblings				1.23	0.95	1. 29

(a) "Missing" categories are controlled, but not displayed.
C/N: subhazard ratio of in-cohab birth to no nonmarital birth, S/N: subhazard ratio of single-parent birth to no nonmarital birth, C/S: ratio of in-cohab birth to single-parent birth
P-value: *p<0.05, **p<0.01, *** p<0.001

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Table 4. 4. 1. Subhazard Ratios from Competing-Risks Regression for Nonmarital Chidbirth by Race: Whites (N=3,195), continued.

| | | White (N=3,195) 443 in-cohabitation childbirths; 299 single-parent childbirths | | | | | |
| | | Model 1 | | | Model 2 | | |
		C/N	S/N	C/S	C/N	S/N	C/S
Control (continued)							
Parental religion	Evangelical				1.03	1.24	0. 83
(ref: Mainline	Catholic				0.92	1.29	0. 71
Protestant)	Other religion				0.85	1.17	0. 73
	No religion				0.85	1.45	0. 59
Parental religiosity	Less than 1/month				0.82	0.88	0. 93
(ref: never attend)	1/month or more				0.80	1.14	0. 70
	1/ week or more				**0.52 ****	0.78	0. 67
Age at Wave 4	28 or younger				1.27	1.28	0. 99
Immigrant status	1st generation				2.09	1.29	1. 62
	2nd generation				1.02	**0.02 *****	51. 00
Region	West	0.68	1.01	0. 67	0.74	1.10	0. 67
(ref: Midwest)	South	0.81	1.14	0. 71	0.81	1.13	0. 72
	Northeast	0.60	0.93	0. 65	**0.57 ***	0.93	0. 61
F		87.09	50.44		415.57	344.25	
df		10	10		38	36	
Pr		0.0000	0.0000		0.0000	0.0000	
Wald-F test (b)							
F					28.77	75.65	
df					15	15	
Pr					0.0172	0.0000	

(b) Test for whether opportunity cost and control variables significantly improves the fit of the model from Model 1.
C/N: subhazard ratio of in-cohab birth to no nonmarital birth, S/N: subhazard ratio of single-parent birth to no nonmarital birth, C/S: ratio of in-cohab birth to single-parent birth
P-value: *p<0.05, **p<0.01, *** p<0.001

Table 4. 4. 2. Subhazard Ratios from Competing-Risks Regression for Nonmarital Childbirth for Blacks (N=1,066).

		Black (N=1,066) 163 in-cohabitation childbirths; 363 single-parent childbirths					
		Model 1			Model 2		
		C/N	S/N	C/S	C/N	S/N	C/S
Family Socialization							
Additional 10% of childhood	Stepfamily	1.08	0.99	1. 09	1.10	0.97	1. 13
spent in:	Single-parent family	0.99	1.02	0. 97	0.96	1.02	0. 94
(ref: intact)	No-bio parent family	1.05	1.01	1. 04	1.03	1.00	1. 03
Parent cohabitation (a)	Yes	1.24	**1.79 ***	0. 69	1.16	**1.81 **	0. 64
Mom's age at resp's birth (a)	20 or younger	1.29	0.88	0. 01	1.25	0.93	1. 34
Opportunity Cost							
How likely going to college	Unlikely (1-2)				0.74	1.34	0. 55
	Somewhat likely (3)				1.40	0.82	1. 71
(ref: very likely=5)	Likely (4)				1.01	1.20	0. 84
GPA	Additional 1 point				0.97	**0.63 ***	1. 54
Vocab test	Additional 10% in dist.				**0.85 ***	1.00	0. 85
Family income (a)	$0-15,999				1.23	0.94	1. 31
(ref: $51,000-)	$16,000-31,999				1.87	1.03	1. 82
	$32,000-50,999				0.82	0.96	0. 85
Parental education (a)	Less than high school				0.96	1.19	0. 81
(ref: high school)	Some college				0.76	1.27	0. 60
	Bachelor or higher				0.57	1.19	0. 48
Control							
Parental occupation	Non-prof/managerial				0.88	1.00	0. 88
	Unemployed				1.17	0.93	1. 26
Economic hardship	Yes				0.59	**1.54 ***	0. 38
Family size	No siblings				1.28	0.74	1. 73
(ref: 1 or 2 siblings)	3 or more siblings				1.16	1.04	1. 12

(a) "Missing" categories are controlled, but not displayed.
C/N: subhazard ratio of in-cohab birth to no nonmarital birth, S/N: subhazard ratio of single-parent birth to no nonmarital birth, C/S: ratio of in-cohab birth to single-parent birth
P-value: *p<0.05, **p<0.01, *** p<0.001

Table 4. 4. 2. Subhazard Ratios from Competing-Risks Regression for Nonmarital Chidbirth by Race: Blacks (N=1,066).

		Black (N=1,066)					
		163 in-cohabitation childbirths; 363 single-parent childbirths					
		Model 1			Model 2		
		C/N	S/N	C/S	C/N	S/N	C/S
Control (continued)							
Parental religion	Evangelical				1.07	1.27	0. 84
(ref: Mainline	Catholic				0.69	0.77	0. 90
Protestant)	Other religion				1.26	1.35	0. 93
	No religion				1.31	2.11	0. 62
Parental religiosity	Less than 1/month				1.26	1.69	0. 75
(ref: never attend)	1/month or more				1.35	2.15	0. 63
	1/ week or more				0.81	**2.57 ***	0. 32
Age at Wave 4	28 or younger				1.18	1.22	0. 15
Immigrant status	1st generation				-- (c)	1.53	--
	2nd generation				-- (c)	0.51	--
Region	West	0.63	0.61	1. 03	0.66	0.68	0. 97
(ref: Midwest)	South	**0.52 ***	1.66 *	0. 31	**0.45 ****	**1.61 ***	0. 28
	Northeast	**0.70 ***	1.06	0. 66	**0.35 ****	1.41	0. 25
F		36.26	31.14		410.83	332.76	
df		10	10		36	38	
Pr		0.0000	0.0006		0.0000	0.0000	
Wald-F test (b)							
F					18.08	24.87	
df					13	15	
Pr					0.1546	0.0517	

(b) Test for whether opportunity cost and control variables significantly improves the fit of the model from Model 1.

(c) I did not include immigrant status covariates due to small cell sizes of first- and second-generation immigrants.

C/N: subhazard ratio of in-cohab birth to no nonmarital birth, S/N: subhazard ratio of single-parent birth to no nonmarital birth, C/S: ratio of in-cohab birth to single-parent birth

P-value: *p<0.05, **p<0.01, *** p<0.001

Table 4. 4. 3. Subhazard Ratios from Competing-Risks Regression for Nonmarital Childbirth for Hispanics (N=783).

		Hispanic (N=783) 126 in-cohabitation childbirths; 102 single-parent childbirths					
		Model 1			Model 2		
		C/N	S/N	C/S	C/N	S/N	C/S
Family Socialization							
Additional 10% of	Stepfamily	**1.16 ***	1.05	1. 10	**1.22 ***	1.01	1. 21
childhood spent in:	Single-parent family	1.06	**1.12 ***	0. 95	1.03	1.12	0. 92
(ref: intact)	No-bio parent family	1.07	1.15	0. 93	1.13	1.25	0. 90
Parent cohabitation (a)	Yes	0.98	1.86	0. 53	0.80	1.79	0. 45
Mom's age at resp's birth (a)	20 or younger	1.59	**2.16 ***	0. 74	1.49	**2.93 ***	0. 51
Opportunity Cost							
How likely going to college	Unlikely (1-2)				1.99	0.95	2. 09
	Somewhat likely (3)				1.79	0.87	2. 06
(ref: very likely=5)	Likely (4)				1.20	0.52	2. 31
GPA	Additional 1 point				0.95	0.64	1. 48
Vocab test	Additional 10% in dist.				0.99	0.90	1. 10
Family income (a)	$0-15,999				**7.29 ***	0.36	20. 25
(ref: $51,000-)	$16,000-31,999				3.95	0.58	6. 81
	$32,000-50,999				4.20	0.35	12. 00
Parental education (a)	Less than high school				1.29	0.85	1. 52
(ref: high school)	Some college				0.91	**0.32 ***	2. 84
	Bachelor or higher				0.61	0.80	0. 76
Control							
Parental occupation	Non-prof/managerial				0.78	1.57	0. 50
	Unemployed				0.75	1.06	0. 71
Economic hardship	Yes				0.87	1.28	0. 68
Family size	No siblings				0.66	1.43	0. 46
(ref: 1 or 2 siblings)	3 or more siblings				0.92	0.97	0. 95

(a) "Missing" categories are controlled, but not displayed.
C/N: subhazard ratio of in-cohab birth to no nonmarital birth, S/N: subhazard ratio of single-parent birth to no nonmarital birth, C/S: ratio of in-cohab birth to single-parent birth
P-value: *p<0.05, **p<0.01, *** p<0.001

Table 4. 4. 3. Subhazard Ratios from Competing-Risks Regression for Nonmarital Chidbirth by Race: Hispanics (N=783), continued.

		Hispanic (N=783) 126 in-cohabitation childbirths; 102 single-parent childbirths					
		Model 1			Model 2		
		C/N	S/N	C/S	C/N	S/N	C/S
Control (continued)							
Parental religion	Evangelical				1.35	1.15	1. 17
(ref: Mainline	Catholic				0.87	1.14	0. 76
Protestant)	Other religion				1.56	2.07	0. 75
	No religion				1.37	0.54	2. 54
Parental religiosity	Less than 1/month				2.12	1.04	2. 04
(ref: never attend)	1/month or more				2.32	1.79	1. 30
	1/ week or more				0.49	1.26	0. 39
Age at Wave 4	28 or younger				1.25	1.21	1. 03
Immigrant status	1st generation				1.10	**0.18 **	6. 11
	2nd generation				1.39	0.41	3. 39
Region	West	1.50	0.39	3. 85	1.65	0.41	4. 02
(ref: Midwest)	South	0.90	0.43	2. 09	0.95	0.76	1. 25
	Northeast	1.4	0.46	3. 04	2.39	0.38	6. 29
F		28.15	21.69		247.22	367.00	
df		10	10		38	38	
Pr		0.0017	0.0168		0.0000	0.0000	
Wald-F test (b)							
F					28.56	44.91	
df					15	15	
Pr					0.0183	0.0001	

(b) Test for whether opportunity cost and control variables significantly improves the fit of the model from Model 1.
C/N: subhazard ratio of in-cohab birth to no nonmarital birth, S/N: subhazard ratio of single-parent birth to no nonmarital birth, C/S: ratio of in-cohab birth to single-parent birth
P-value: *p<0.05, **p<0.01, *** p<0.001

Figure 4.1. Patterns of Failure in Nonmarital Childbirth.
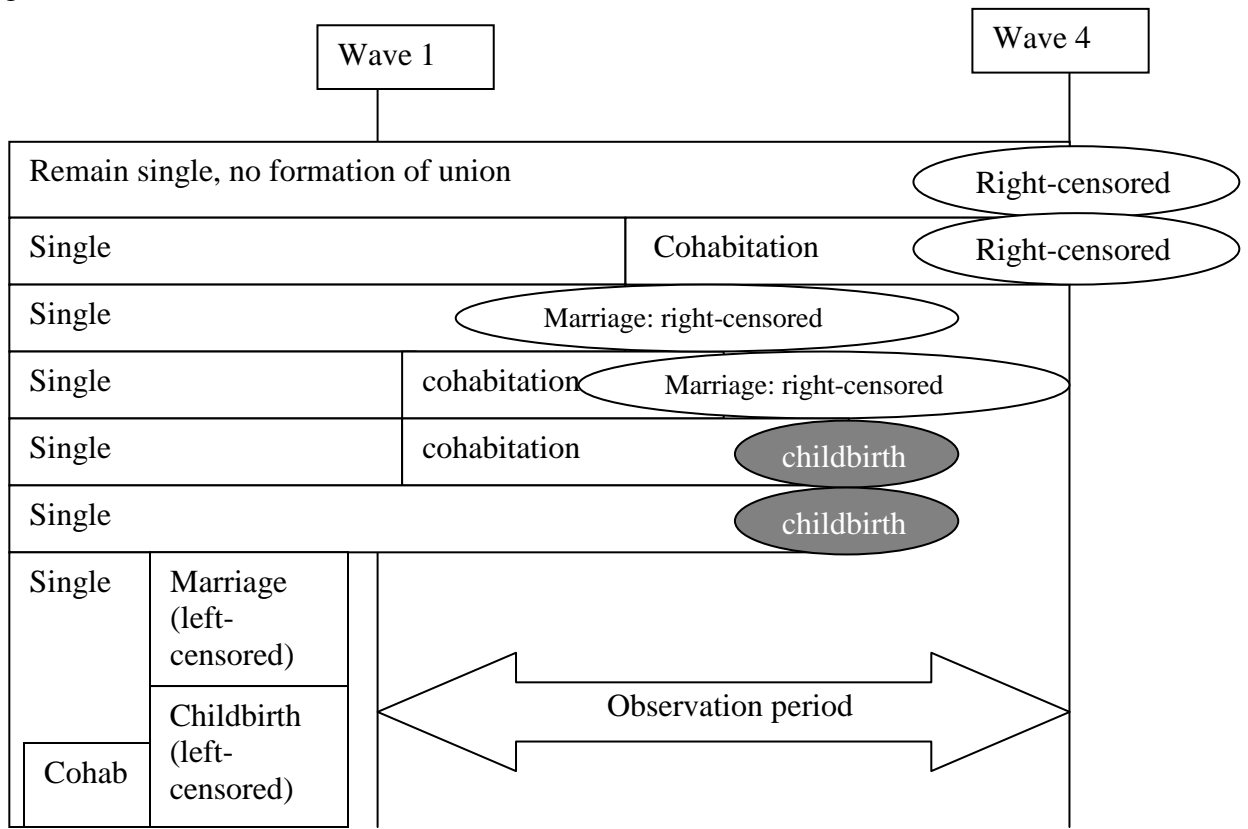
Figure 4. 2. 1. The Cumulative Incidence of In-Cohabitation Childbirth by Percentage of Childhood Spent in Intact Families (N=5,636).
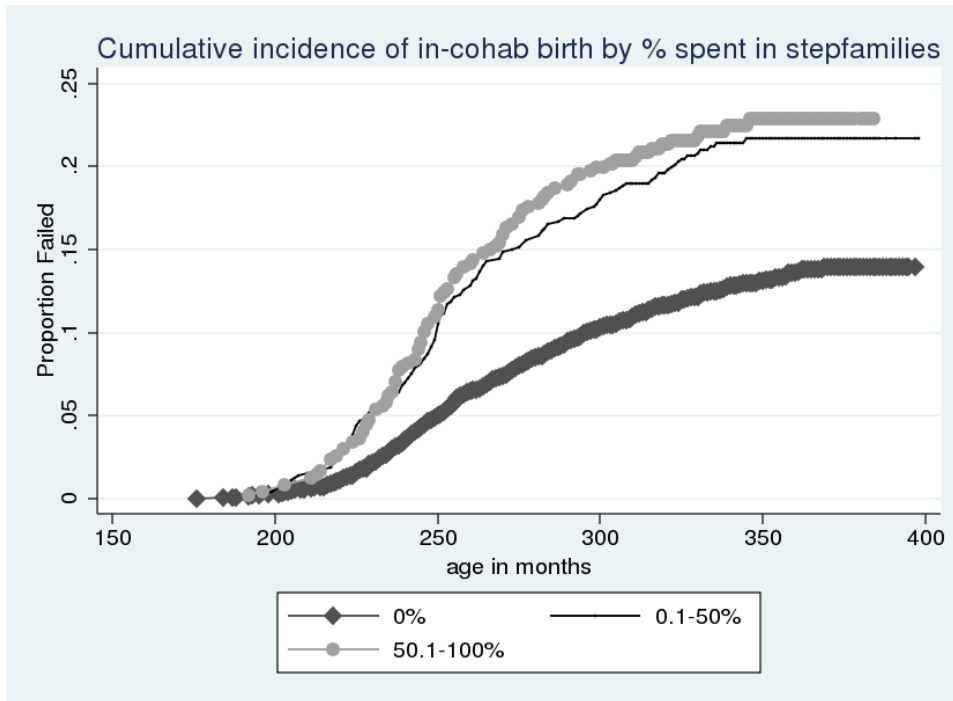
Figure 4. 2. 2. The Cumulative Incidence of In-Cohabitation Childbirth by Percentage of Childhood Spent in Stepfamilies (N=5,636).
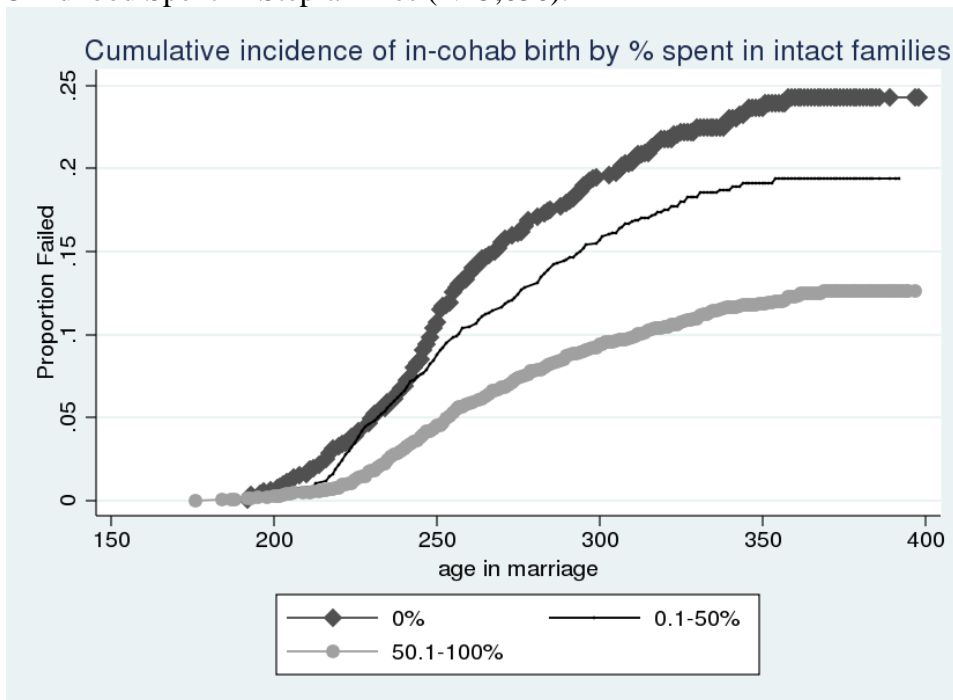
Figure 4. 2. 3. The Cumulative Incidence of In-Cohabitation Childbirth by Percentage of Childhood Spent in Single-Parent Families (N=5,636).
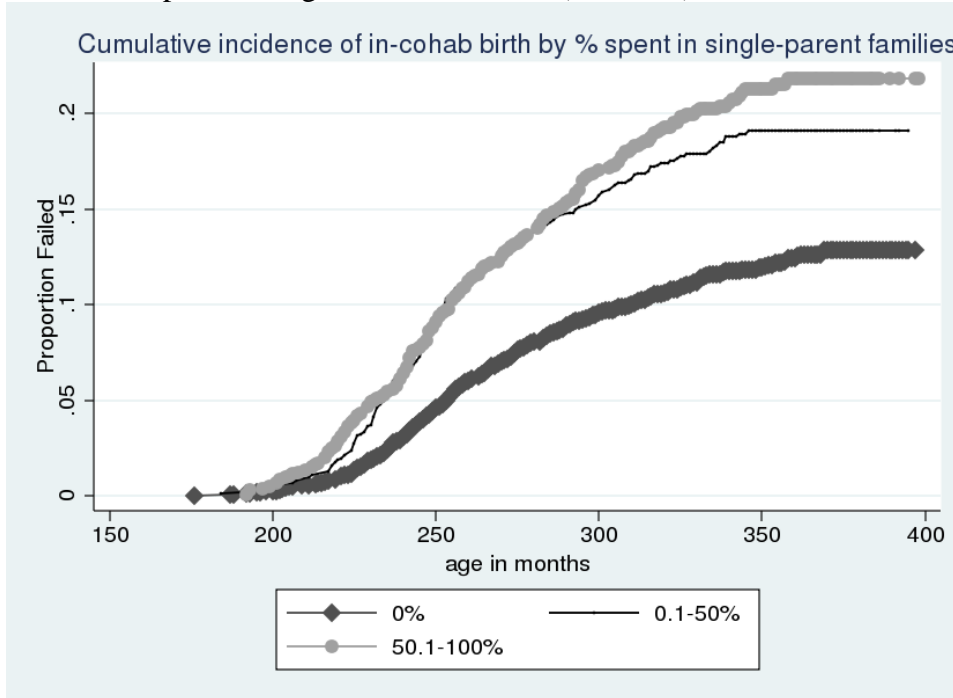
Figure 4. 2. 4. The Cumulative Incidence of In-Cohabitation Childbirth by Percentage of Childhood Spent in No-Biological Parent Families (N=5,636).
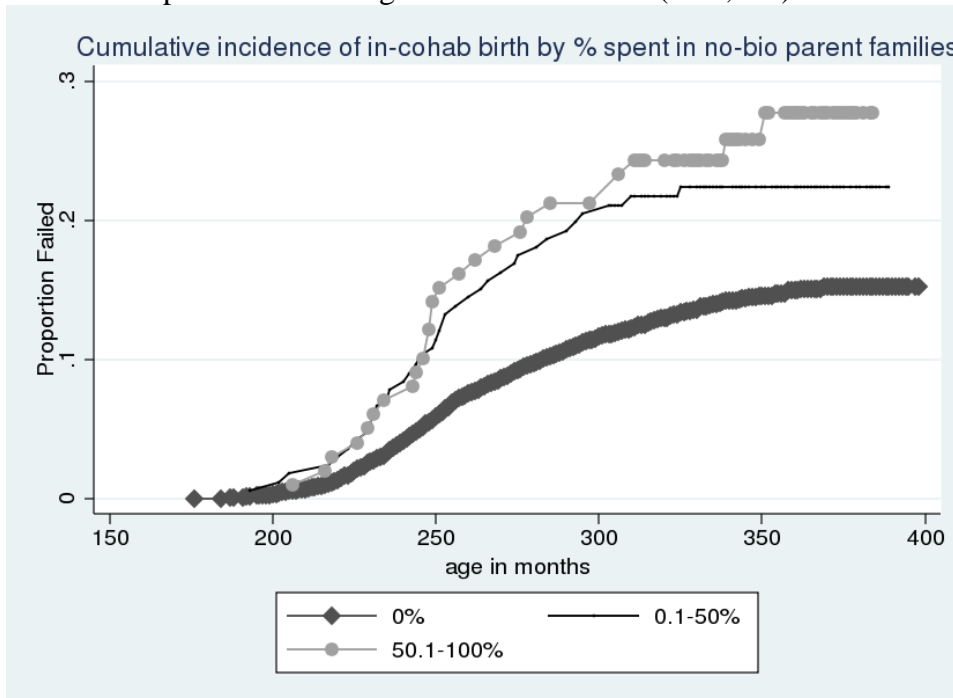
Figure 4. 2. 5. The Cumulative Incidence of In-Cohabitation Childbirth by Experience of Parental Cohabitation (N=5,636).
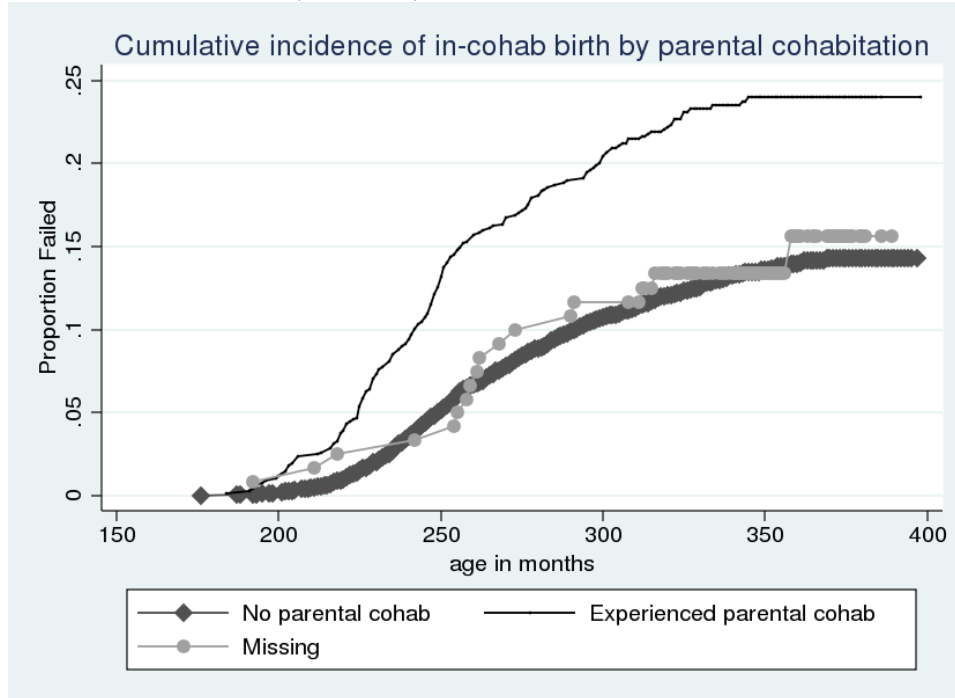
Figure 4. 2. 6. The Cumulative Incidence of In-Cohabitation Childbirth by Mother's Age at Respondent's Birth (N=5,636).
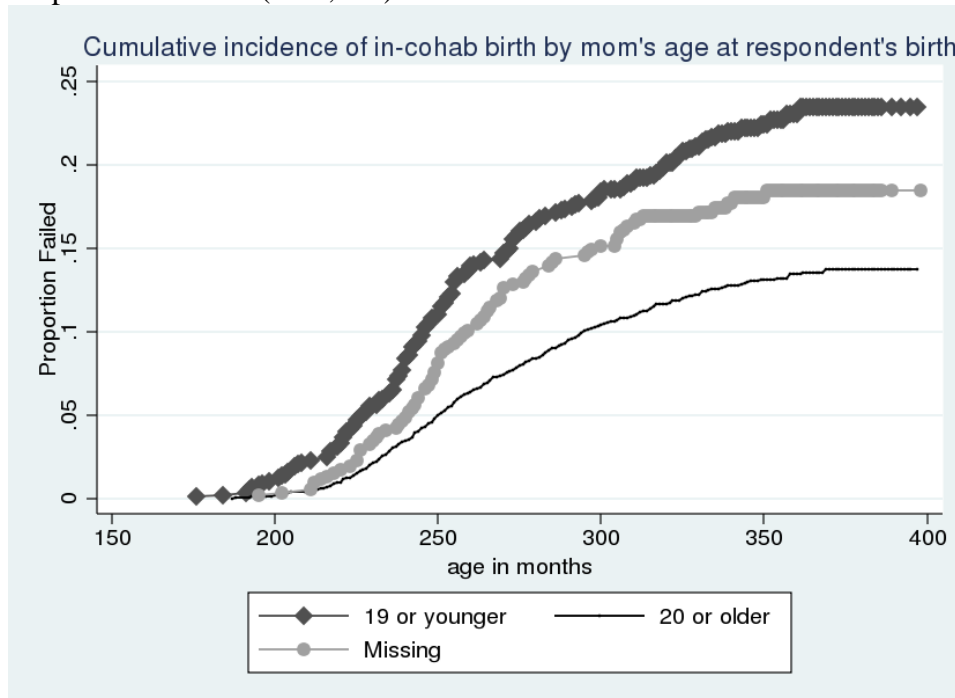
Figure 4. 2. 7. The Cumulative Incidence of Cohabitation by Percentage of Childhood Spent in Intact Families (N=5,636).
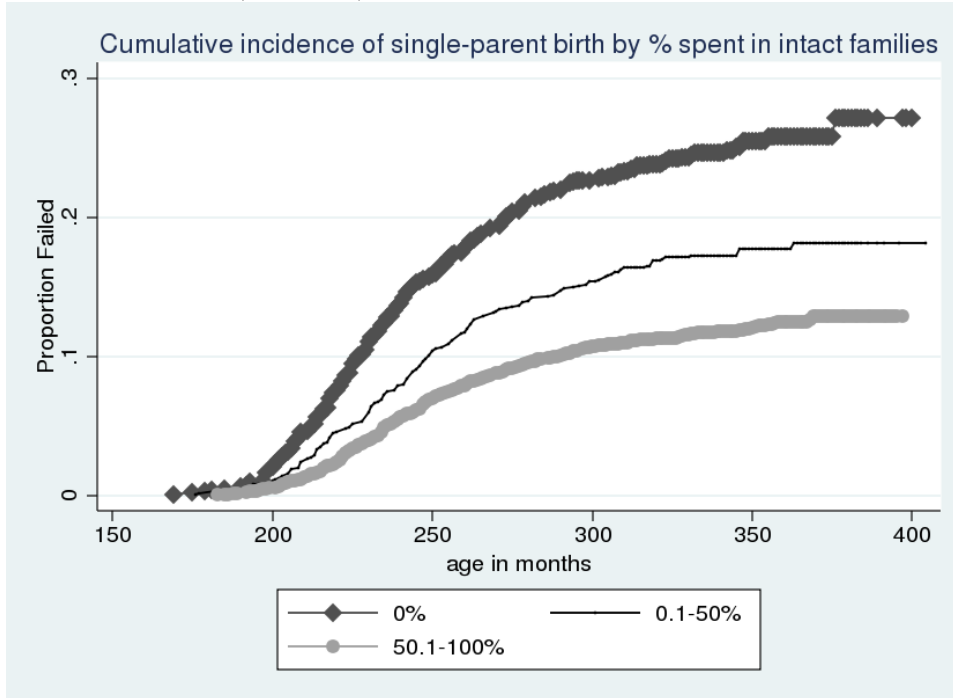
Figure 4. 2. 8. The Cumulative Incidence of Single-Parent Childbirth by Percentage of Childhood Spent in Stepfamilies (N=5,636).
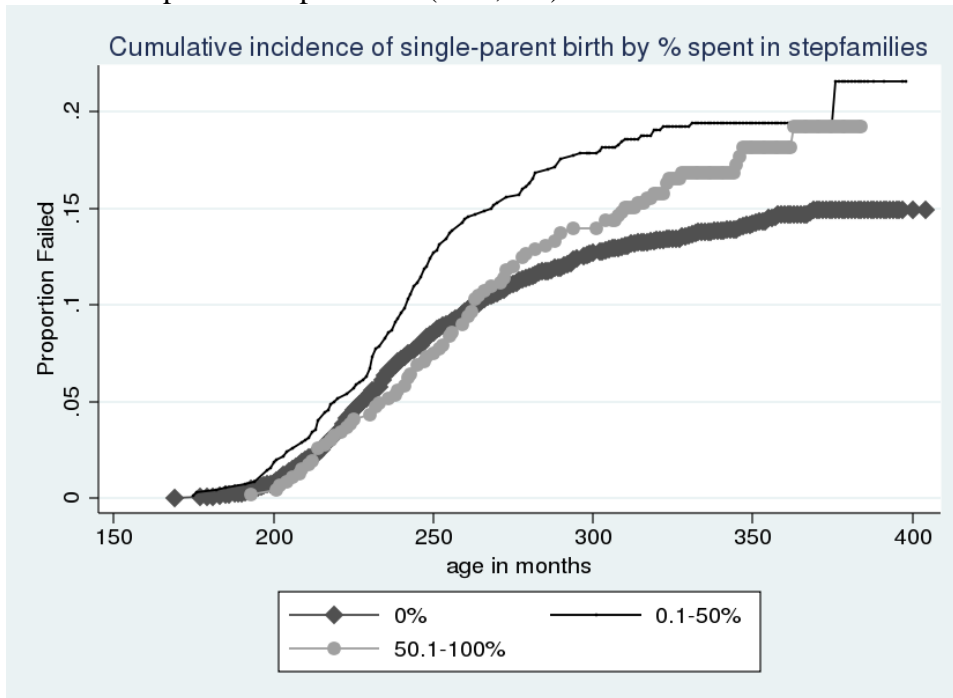
Figure 4. 2. 9. The Cumulative Incidence of Single-Parent Childbirth by Percentage of Childhood Spent in Single-Parent Families (N=5,636).
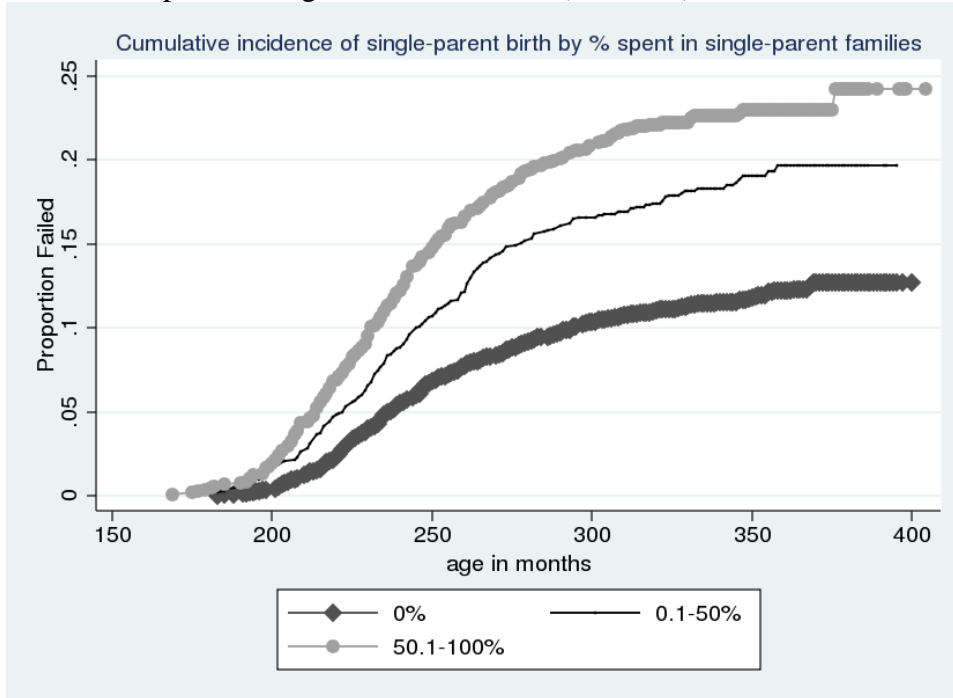
Figure 4. 2. 10. The Cumulative Incidence of Single-Parent Childbirth by Percentage of Childhood Spent in No-Biological Parent Families (N=5,636).
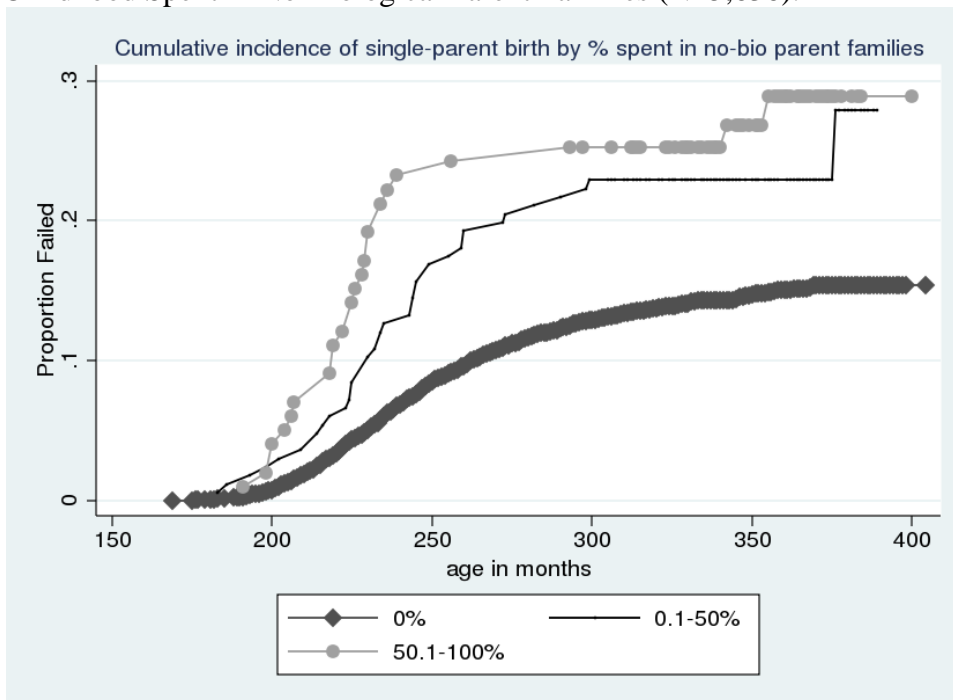
Figure 4. 2. 11. The Incidence of Single-Parent Childbirth by Experience of Parental Cohabitation (N=5,636).
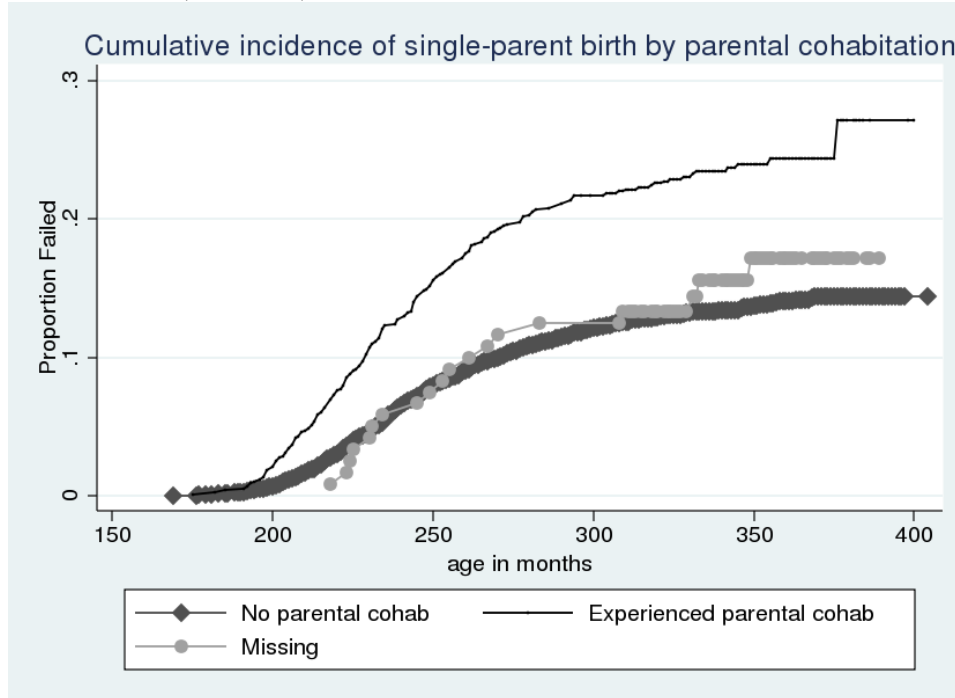
Figure 4. 2. 12. The Incidence of Single-Parent Childbirth by Mother's Age at Respondent's Birth (N=5,636).
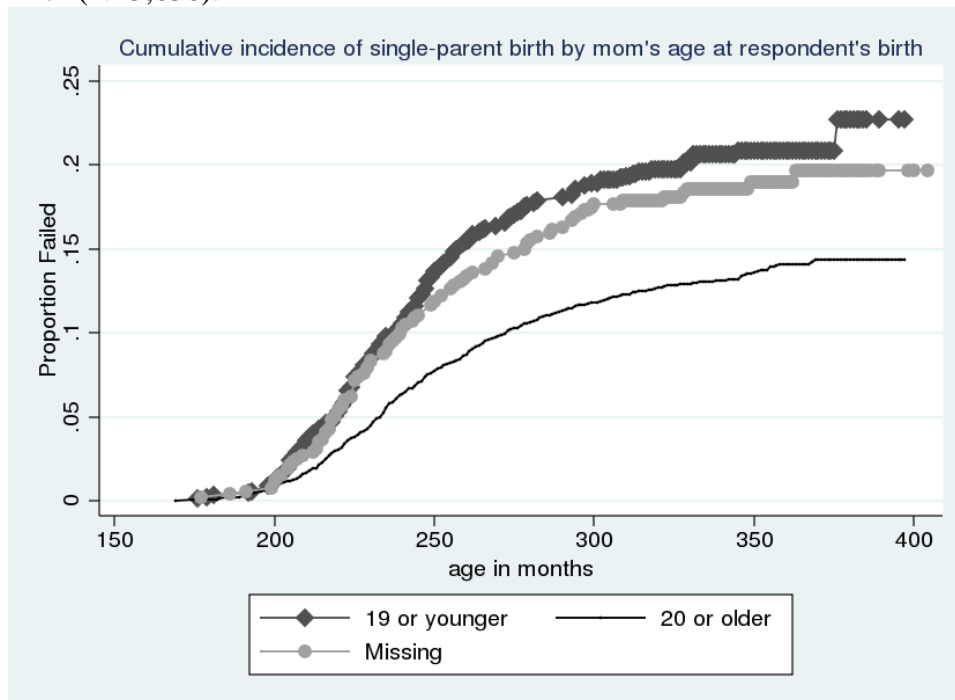
Figure 4. 3. 1. Cumulative Incidence Function of Competing-Risks Regression for In-Cohabitation Childbirth by Percentage of Childhood Spent in Stepfamilies (N=5,636).
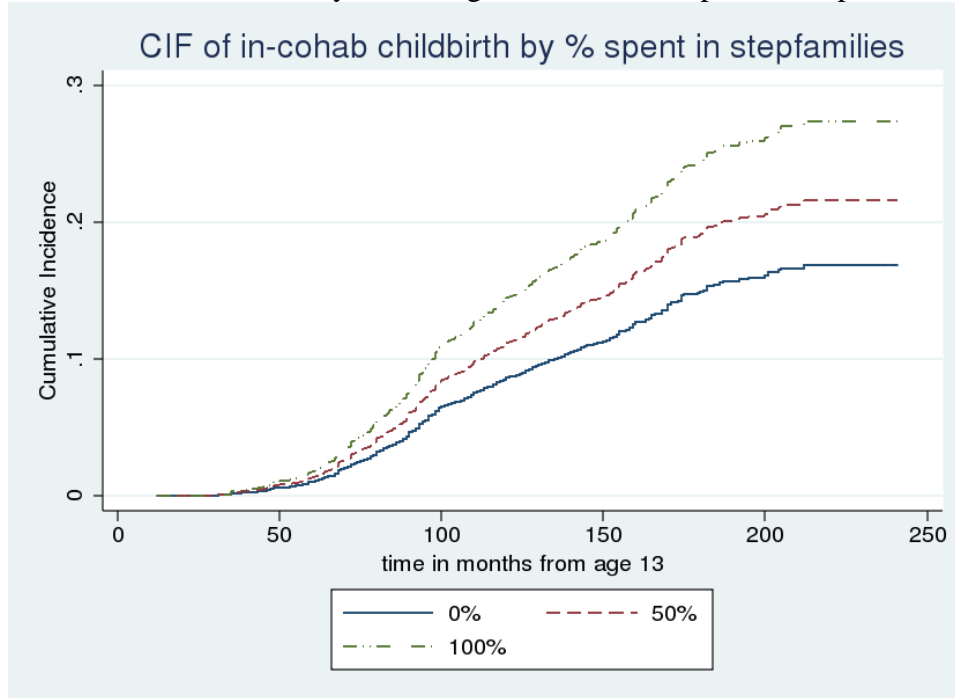
Figure 4. 3. 2. Cumulative Incidence Function of Competing-Risks Regression for In-Cohabitation Childbirth by Mother's Age at Respondent's Birth (N=5,636).
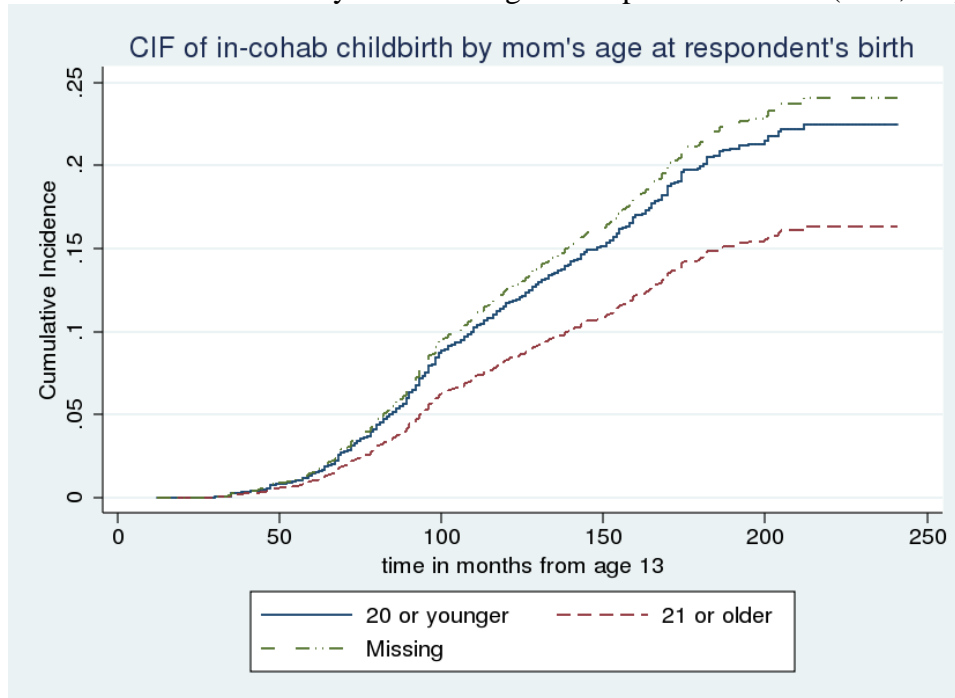
Figure 4. 3. 3. Cumulative Incidence Function of Competing-Risks Regression for In-Cohabitation Childbirth by GPA (N=5,636).
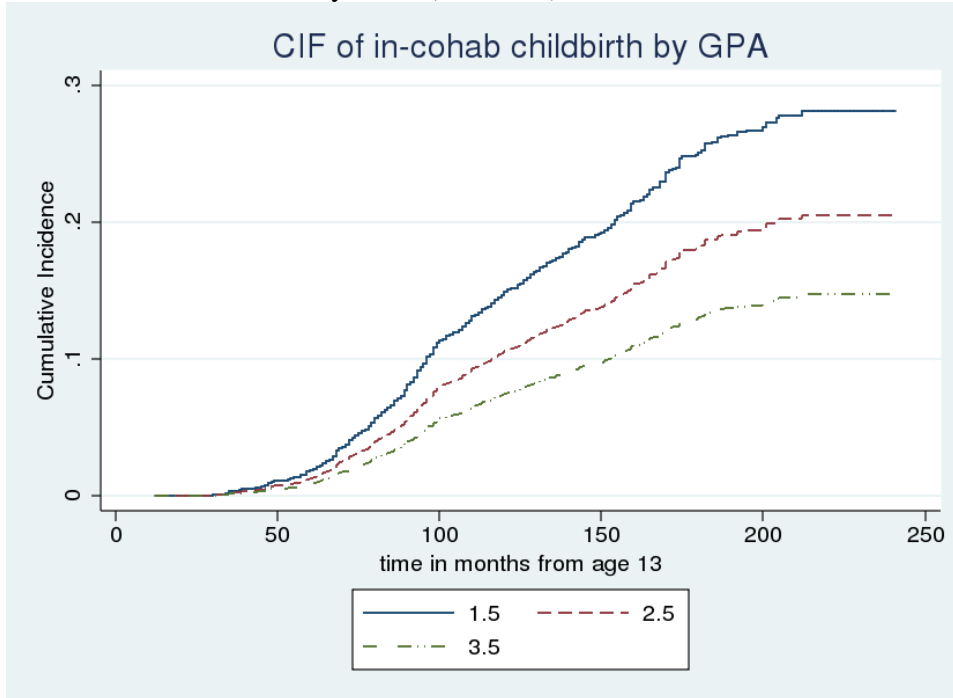
Figure 4. 3. 4. Cumulative Incidence Function of Competing-Risks Regression for In-Cohabitation Childbirth by Vocabulary Test Score (N=5,636).
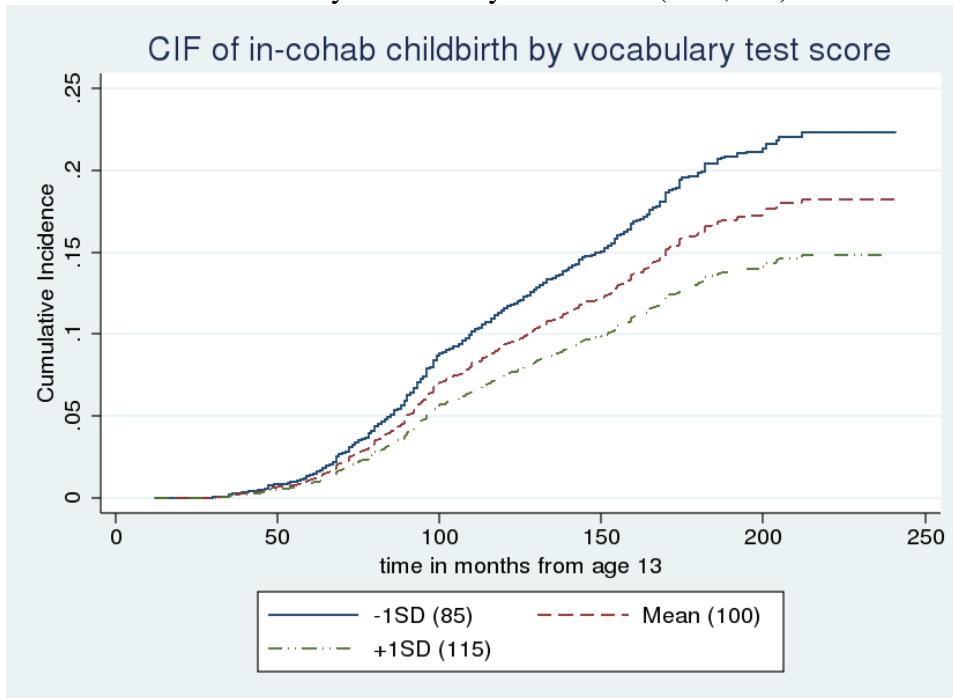
Figure 4. 3. 5. Cumulative Incidence Function of Competing-Risks Regression for In-Cohabitation Childbirth by Family Income (N=5,636).
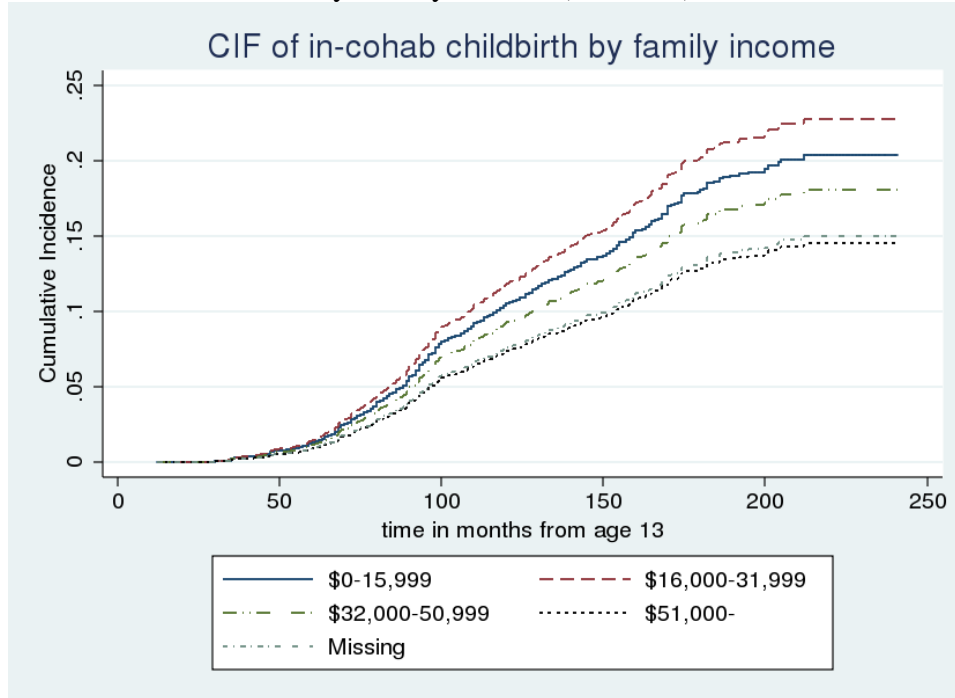
Figure 4. 3. 6. Cumulative Incidence Function of Competing-Risks Regression for In-Cohabitation Childbirth by Parent's Educational Achievement (N=5,636).
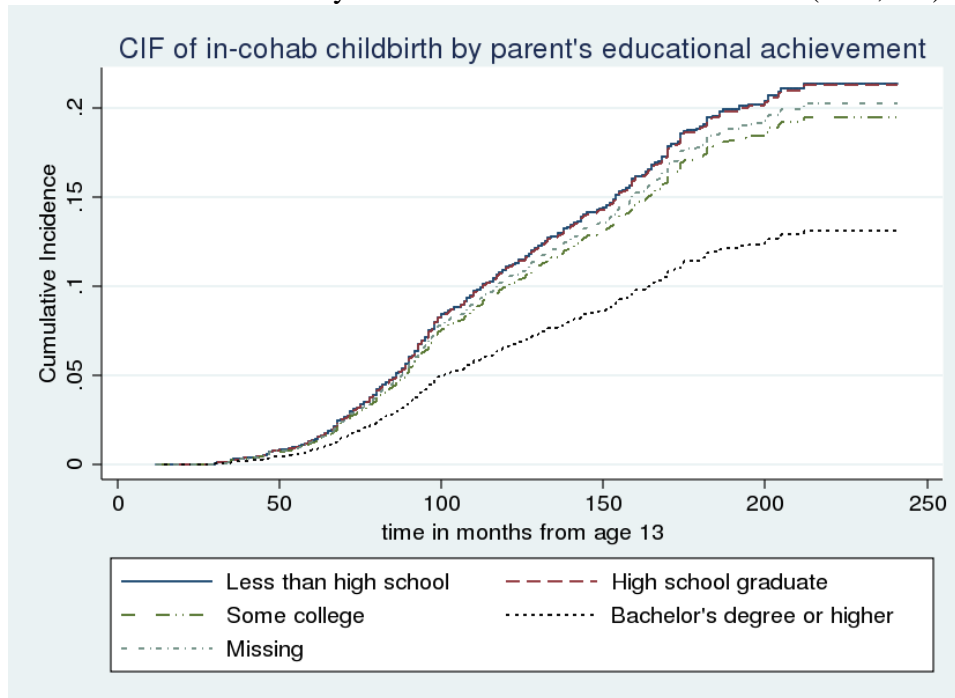
Figure 4. 3. 7. Cumulative incidence function of competing-risks regression for single-parent childbirth by GPA (N=5,636)
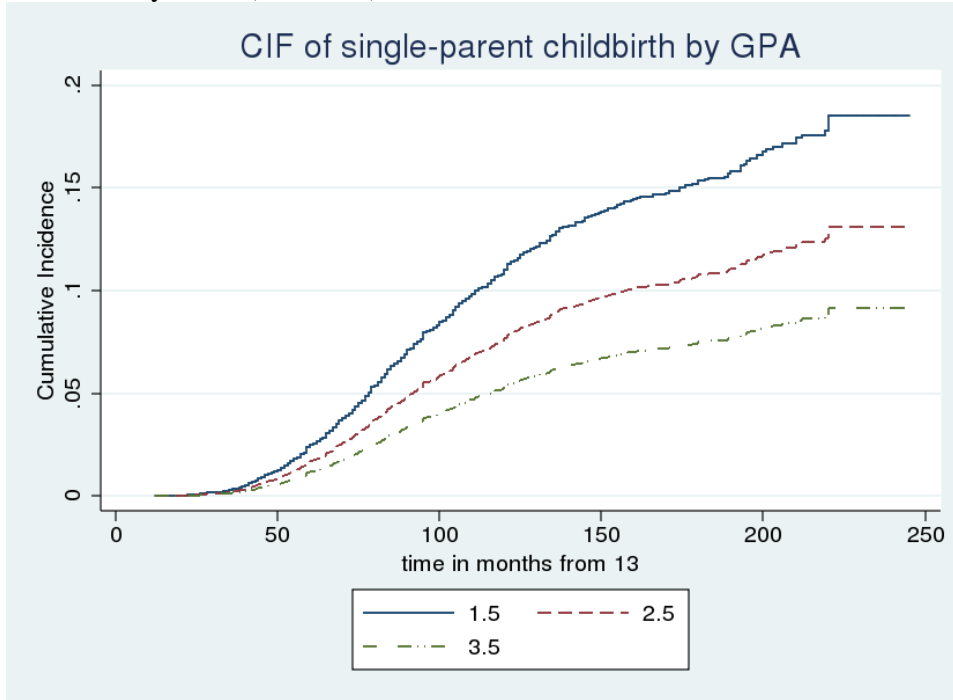
CHAPTER 5:
CONCLUSION

Families in the United States are diverse today. Many young adults cohabit and have a child before first marriage, and the conventional course of family formation that starts with courtship with celibacy, followed by wedding, and finally the birth of first child is no longer the path everyone follows. At the same time, many young adults did not grow up in families where both parents peacefully stay together; they grew up in various family forms and experienced family status changes such as parental divorce, single-parenthood, and family reformation. The claim of socialization theory that parents' attitudes and behaviors are transmitted to their children is suggestive of what happens when children make the transition into adulthood and start to form their own families. According to this theory, the diversity in young adults' family formation patterns relates to the family disruption and reformation in their family of origin. Therefore, it is expected that exploring the association between parental family behaviors in family of origin and adult children's family formation behaviors will reflect the dynamics of family structure transitions across generations.

Using socialization theory, I conducted three studies in this dissertation that explored the processes of nontraditional family formation, such as cohabitation and nonmarital childbearing, using recent national data on young adults from Add Health. First, I examined the relationship between parental union behaviors and children's first union formation in early adulthood, with the theoretical expectation of similar behavioral patterns of union formation by children to those of their parents.

In my second chapter, I used an ecological perspective focusing on the influence of family structure composition in neighborhoods and schools on individuals' first union type. I examined whether family structure composition in these meso-level social contexts has an independent association with the type of first union (cohabitation and marriage). In addition, I examined whether these meso-level contexts interact with the structure of an individual's own family of origin in their association with union formation.

In the third chapter, I shifted my focus to examine the association between parental union behaviors and daughters' nonmarital childbearing. Along with socialization theory that assumes an intergenerational transition of nontraditional family behaviors by spending childhood and adolescence in non-intact families, I also examined the effects of opportunity costs. Opportunity cost theory argues that disadvantaged young women tend to have a child at a young age and often outside of marriage because they lack socioeconomic opportunities for education and employment and therefore have little to lose by having a child while unmarried and young.

GENERAL FINDINGS

One major finding of this dissertation is that family formation that does not start with marriage is very common among today's young adults. In my analytic sample, almost 80 percent of first unions started with cohabitation, and over half of first births occurred outside of marriage. These proportions are considerably higher than the ones provided using other data, such as 61 percent of women between ages 35 and 39 in 2002 had ever cohabited (Centers for Disease Control and Prevention. 2010) and "about half of women experience cohabitation by age 30" (Centers for Disease Control and Prevention. 2002). The high

proportions of nontraditional family behaviors in my study may come from the relatively young ages of respondents in the Add Health data. For example, CDC's vital statistics report covers ages 15-44 as the target age range of analysis, whereas the respondents in the Add Health data were aged 24-32 at the time of Wave 4. This narrower age range does not capture first union formation and childbirth at older adult ages, and cohabitation and nonmarital childbirth are more common among younger individuals.

Another important finding in this study is that nontraditional family formation is common even among individuals from intact families who never experienced parental cohabitation and family status transition. In the Add Health data, cohabitation is the type of first union for about 60 percent of young adults who never experienced non-intact families and parental cohabitation, and almost half of first childbirth occurs outside of marriage for women from intact families. This suggests that a retreat from the conventional course of family formation is a macro-level trend, and not simply an outcome of increased family disruptions experienced in childhood.

FINDINGS ON SOCIALIZATION

All in all, this dissertation confirmed the importance of socialization processes on first family formation. Socialization occurs both inside and outside of the family, and duration effects of socialization within the family were also found. Meanwhile, the studies in this dissertation showed that socialization does not occur in a uniform manner for all races and for all types of family formation behavior.

In Chapter 2, it was found that longer exposure to non-intact families strengthens the socialization effects for marriage. Individuals who spent a large proportion of childhood in

non-intact families were less likely to marry as a first union compared to those who spent a small proportion of childhood in non-intact families. However, the likelihood of cohabitation is approximately the same among those who ever lived in non-intact families no matter how long they live in non-intact families. There are two potential explanations for this differential duration effect for marriage and cohabitation. First, the family environment of non-intact families may be less comfortable compared to intact families, leaving home early by forming their own union may be a response (Bernhardt, Gahler, and Goldscheider 2005; Cherlin 1995; Goldscheider and Goldscheider 1998). Second, young people may be less confident in the bond of marriage due to their childhood experiences of non-intact family structures and opt for cohabitation as a more cautious relationship step before marriage (Amato 1988; Gahler, Hong, and Bernhardt 2009; Teachman 2004).

Chapter 2 also found that socialization processes vary by race, but not by gender. Socialization for Whites operates mainly through parental cohabitation and mother's age at her first marriage. On the other hand, family status (intact or non-intact) is the main venue of socialization for Hispanics. Socialization by parental union behaviors is not evident for Blacks, with the exception that parental cohabitation is associated with higher likelihood of cohabitation. Asians also showed little association between parent's union behaviors and first union formation.

Such racial differences in the processes of socialization seem to reflect the cultural backgrounds on family norms and behaviors. Whites have a relatively high proportion of intact families, and parents' non-normative family behaviors such as cohabitation and early marriage may reflect their personal beliefs and values and be especially unique in white culture (e.g., Lye and Waldon 1995). On the other hand, Hispanics tend to revere traditional

family and marriage (Acevedo 2009; Willoughby 2010). Blacks and Asians also have unique family cultures. Intact and stable union relationships are not widely observed among Blacks, and this rarity of stable intact families may delude the effect of socialization for Blacks. On the contrary, family disruption and parental cohabitation is rare among Asians, which may weaken socialization effects.

In Chapter 3, I explored the socialization processes at family, neighborhood, and school levels. First, I examined the association between the prevalence of non-intact families in neighborhood and first union type, and I found socialization effects of neighborhood family structure on first union formation. Individuals who lived in neighborhoods with a higher percentage of non-intact families had a higher incidence of cohabitation and lower incidence of marriage. Unlike my findings in Chapter 2 that socialization processes vary by race, this neighborhood effect was similar across all racial groups of Whites, Blacks, and Hispanics. It is unclear why no racial difference is present at the neighborhood level, but one potential explanation is the crudeness of the index. The neighborhood family structure index I used is not adjusted for neighbors' racial composition and the racial gap in family structure. The potential impact of this effect should be explored with more precise neighborhood measures in future studies.

Another important finding in Chapter 3 is that school peers' parental family behaviors have an influence on first union type, but these associations were suppressed in the total sample analysis due to opposing direction of the effect among Blacks and Hispanics. For Hispanics, a higher percentage of students who experienced parental cohabitation is associated with a higher incidence of cohabitation and lower incidence of marriage, as expected from socialization theory. However, a higher percentage of students with parental

cohabitation experience is associated with a lower incidence of cohabitation and higher incidence of marriage for Blacks, opposite socialization theory. Again, Black's dynamic and diverse family structure may explain this relationship. Perhaps any type of coresidential union may operate as a template for coresidential unions for Blacks.

I also found interactions between family socialization and meso-level socialization, which varied by race. I found support for the protective model for Blacks and the potentiator model for Whites. Blacks born to a teenage mother had a lower incidence of cohabitation when they lived in a neighborhood where the prevalence of non-intact families is low. Whites who never experienced parental cohabitation showed even lower incidence of cohabitation over marriage when they attended a school with few students had lived with a cohabiting parent. These findings suggest interesting implications about socialization processes at the intersection of multiple social contexts. The finding that the protective model operates for Blacks implies that the potential effects of disadvantaged family of origin context can be modified by living in more advantaged family environments in other social contexts. Meanwhile, the finding that the potentiator model operates for Whites, combined with widespread racial residential segregation (Massey 2001), explains why Whites are more likely to maintain intact and traditional unions to a greater extent than minorities.

In Chapter 4, socialization theory was tested in the context of nonmarital childbirth. The theory was supported for nonmarital childbirth, but the association between parental family behaviors and childbirth outside of a coresidential union was weak. Furthermore, the type of non-intact family experienced in childhood and the union status at the time of nonmarital childbirth were not associated as straightforwardly. I hypothesized that living in single-parent families increases the incidence of single-parent childbirth and that living with

a cohabiting parent increases the incidence of in-cohabitation childbirth. However, parental cohabitation did not significantly increase the likelihood of nonmarital childbirth in cohabitation, and single-parent family status did not significantly increase the likelihood of nonmarital childbirth outside a coresidential union. Rather, the results indicated that the effects of parental cohabitation experience on the incidence of in-cohabitation childbirth vary by race, and that a large part of the effects of single-parent childbirth is explained by the financial hardship of single-parent families (McLanahan and Sandefur 1994; Thomson, Hanson, and McLanahan 1994).

I also tested opportunity cost theory in Chapter 4. This theory was supported for all racial groups, but the effect was more evident for childbirth in cohabitation than for childbirth outside of a union. In addition, Whites experienced more opportunity costs than Blacks and Hispanics, consistent with the theory. White women face higher opportunity costs to their educational and employment careers by nonmarital childbirth, whereas minority women have less to lose by having a child outside of marriage while they are relatively young.

POLICY IMPLICATIONS

In the past decade, the government has tried to strengthen American families through various anti-poverty policies. The Healthy Marriage Initiative under the Bush administration aimed to promote marriage through federal funding for marriage promotion programs, primarily focused on poor populations. The government funded marriage education and research since 2002, but this policy had several problems. First, marriage was expected to be a panacea for all family-related problems such as family poverty, children's behavioral

problems, and teenage pregnancy. Studies have questioned such a unilateral causal relationship between marriage and family problems (Dailard 2005; Luker 1996), and reliance upon such a fallacious single easy solution has been criticized by scholars (e.g., Lichter, Graefe, and Brown 2003). Second, marriage promotion programs were pushed by the conservative Republicans who believe in traditional families (Struening 2007), and federal funding was allocated to local organizations with no assessment of the effectiveness as long as they provided marriage-promotion services (McLanahan et al. 2010). Amato's (2005) sociological study concluded that federal intervention to promote intact family "would improve the overall well-being of U.S. children only modestly, because children's social or emotional problems have many causes, of which family structure is but one." (p. 75)

Recently the Obama administration proposed the Fatherhood, Marriage, and Families Innovation Fund as an alternative of the Healthy Marriage Initiative. McLanahan and her colleagues (2010) summarize three major changes in this new policy from the Bush marriage promotion. First, there is a change in the recipient of funding. Under the Bush administration, community-based organizations received federal funding based on their application. Under the Obama administration, states or coalitions of states receive the competitive federal funds (Administration for Children and Families 2010). Second, their emphasis is on fathers' responsibility for children and governmental promotion of self-sufficiency regardless of family structure, and while marriage programs are still in the scope, they are no longer the main goal of the program. Finally, the Obama initiative focuses much more on assessing program effectiveness.

How is this policy change evaluated in light of the findings of this dissertation? First, the fact that the great majority of today's young adults experience premarital cohabitation

suggests that they no longer have an idea that marriage is the only legitimate form of union. In particular, the fact that a majority of respondents from intact families and with higher education cohabit as a form of first union indicates that cohabitation is no longer a deviant behavior for today's young adults but a normative behavior. Second, Chapter 4 in this dissertation supports a recent research finding that a considerable portion (about 40%) of childbirths occur outside of marriage (Hamilton, Martin, and Ventura 2010) and about half of nonmarital births occur among cohabiting parents (McLanahan 2008). Altogether, these results provide evidence that the way today's young adults start their family cannot be captured with the conventional framework of family, and policies focused on the conventional framework will fail to reach the population of interest. The Obama initiative tries to cover various types of families by focusing on paternal responsibility and self-sufficiency of families and therefore seems to be a more realistic approach than trying to promote marriage, especially in light of studies that show various obstacles for marriage such as financial instability, the culture that idealize marriage, and high incarceration rates of young minority men (e.g., Edin and Reed 2005; Gibson-Davis, Edin, and McLanahan 2006; Wilson 1986).

STRENGTHES AND LIMITATIONS

This dissertation has four major contributions. First, Add Health provides most recent data of young adults in a relatively small age range with a plethora of rich longitudinal information on family structure from respondents' birth, adolescent life circumstance, and parental backgrounds. These longitudinal data enable us to better understand how past events, experiences, and environments are connected to later life events, which makes it possible to

examine family formation behaviors in life course perspective. Although there are several

other panel studies on family such as National Survey of Families and Households, Fragile

Families and Child Well-Being Study, and Panel Study of Income Dynamics, the rich

information available in the Add Health data makes this study sophisticated in measurement.

Second, a large minority sample size in the Add Health data makes it possible to

analyze specific race and ethnic groups. One major contribution of this study is that Asian

Americans' family structure and union formation behaviors are examined. As long as I have

searched, there is no prior research that examined socialization effects of family of origin on

union formation behaviors by race and ethnicity (including Hispanics and Asians) using a

nationally representative data. The unique family and union formation patterns shown in

Chapter 2 gives new insights into the influence of race-specific culture on family structure

and behaviors.

Third, Chapter 3 in this dissertation explored socialization processes contexts, and the

finding that socialization of union behaviors also occurs outside the family provides us with a

better understanding of socialization from an ecological perspective.

Finally, Chapter 4 is one of a few studies that quantitatively examined nonmarital

childbirth by the status of cohabitation. Harris and Cheng (2005) conducted a similar analysis

using data up to Wave 3 of Add Health (and recently updated with analysis with Wave 4

data), but they focus on a different set of socialization processes in the social contexts of

adolescent life. While past studies have reported the prevalence of cohabitation among

unmarried mothers (Sassler and Cunningham 2008; Schoen, Landale, Daniels, and Cheng

2009), it has rarely been examined how the paths to childbearing vary for women who have a

child in cohabitation and outside a coresidential living arrangement (Schoen 2009). The

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finding that certain parental family behaviors have different associations with the incidence of in-cohabitation childbirth and single-parent childbirth provides us a first step on which to further explore the different processes that lead to nonmarital childbearing.

This study also has some limitations. First, I designed the family status experience measures using the annual family data array, which was available only up to Wave 1. Although I addressed this limitation by constructing the proportion of life spent in certain types of non-intact families by age at Wave 1, the actual length of time spent in certain family types varies by respondents' age (and thus exposure time). For example, 50 percent of lifetime up to Wave 1 for an 18-year-old respondent is 9 years, whereas the same percentage of lifetime up to Wave 1 for a 12-year-old respondent is only 6 years. Thus, this research design does not capture family structure change for younger respondents during their later adolescence years. Therefore, exposure to non-intact families or parental cohabitation may have been underestimated. .

Second, some pieces of information (especially control variables) are not capturing the most accurate background picture for some respondents. For example, socialization effect of the timing of childbirth can be best measured by knowing mother's age at her first childbirth, but this information is not available for all respondents. Another example is neighborhood indices that were created based the 1990 Census data using information of the tracts in which respondents lived in 1995. Although the great majority of respondents lived in the neighborhood in 1990, it is possible that there were some socioeconomic and family structure change over time due to booming economy or moving of industry from the area. Finally, residency and school changes during adolescence are not captured in this study. Therefore, some respondents might have experienced different environments by moving to a

new neighborhood and school later in adolescence, although the number of such respondents is expected to be small.

Finally, my study focused only on the first incidence of family formation behaviors such as union formation and nonmarital childbearing, and it does not capture the stability of unions or later transitions to another form of family. Although they are beyond the focus of this study, it is important to understand how young adults' union and family forms change over their life course, and how their family change is associated with the structure and experiences in their family of origin.

DIRECTION FOR FUTURE RESEARCH

Findings and limitations of this dissertation suggests the directions for future research. One important question that will help to better understand the processes of socialization is whether and how the timing of life course exposure to certain parental behavior matters for family formation behaviors in adulthood. Although many studies have examined this question, their findings are mixed. Some argue that the impact of parental socialization is greater during early childhood (Krein and Beller 1988; McLanahan 1985; McLanahan and Bumpass 1988), others argue that adolescents are more susceptible to parental behaviors (Furstenberg and Kiernan 2001), and still others argue that there is no significant difference according to children's developmental stage (Teachman 2003; Wu and Martinson 1993).

A second question is whether and how the effects of socialization diminish across the life course. Although early researchers have found that childhood living arrangements and interactions between parents and children during childhood have long-term and relatively permanent effects on children (Hetherington 1972; Rutter 1971), many individuals come to

be exposed to more non-family social contexts as they grow up. It is possible that the individual's behaviors become less influenced by parental behaviors as they grow older, spending longer time outside the family of origin. Therefore, it would be useful to examine how socialization effects wane as children grow up. For example, one can test whether union formation behaviors in early 20s have stronger association with their parental union behaviors than union formation behaviors in early 30s.

Third, as I explained in the section on limitations of this study, it is important to examine how socialization in family of origin influences multiple family transitions of young adults. For example, do single mothers who experienced parental cohabitation have lower likelihood of marriage compared to single mothers from stepfamilies? Do cohabiting individuals who experienced parental cohabitation have higher likelihood of having a child without marrying than those whose parents never cohabited? Do individuals from stepfamilies have higher likelihood of union break-up than individuals who spent the entire childhood and adolescence in single-parent families? Addressing these questions will increase our understanding of the impact of parental union behaviors on adult children's union behaviors across their life course.

Fourth, more research is should be conducted on the socialization at meso-level social contexts. Although this dissertation examined the effect of family structure of students in the entire school, how do close peers' family structure affect individual's family behaviors (Harris and Cheng 2005)? Are there any differences in socialization processes when an adolescent attends the school in the same area where they reside as opposed to outside their residential area? How do neighborhood solidarity and interactions affect the level of socialization? How does the timing of exposure to meso-level environments affect

socialization differences? Studying these questions will further our understanding of socialization processes beyond the micro context within family.

Finally, more research is needed on racial differences in socialization processes. Findings in my study that racial groups have opposing effects that are missed in the total sample analysis suggest the importance of analysis by race not only for the different processes of association for each racial group but also for the entire picture of the socialization processes. Although I listed some potential explanations for racial differences in socialization processes and their effects, such as cultural and normative differences in family formation, empirical studies are needed to test whether these explanations are correct. Furthermore, large inequality in the distribution of family types and socioeconomic standards by race indicate that racial comparison would be improved by developing race-adjusted measures to assess the impact of the meso-level environments. For example, neighborhood family structure indices designed for each racial group (e.g., race-specific mean and standard deviation) may produce better estimates of the impacts of neighborhood family structure on union formation behaviors.

Appendix 2. 2. 1. Gender Interaction Test for the Total Sample.

		Total Cohabitation 7,385 out of 11,541			Total Marriage 2,081 out of 11,541		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Family Structure							
Additional 10% of	Stepfamily	0.02	0.04	0.04	0.01	0.00	0.00
childhood spent in:	Single-parent family	0.01	0.01	0.01	-0.03	-0.02	-0.02
	No-bio parent family	-0.01	0.02	0.02	0.02	0.02	0.02
Parental cohabitation	Yes	0.21 ***	0.17 **	0.21 ***	-0.36 **	-0.42 *	-0.36 **
(ref: no)	Missing	-0.07	-0.03	-0.08	-0.21	-0.22	-0.19
Mom's age at marriage	19 or younger	0.06	0.06	0.04	0.27 ***	0.27 ***	0.35 ***
	Missing	0.05	0.05	0.07	0.01	0.01	0.21
Control							
Family income	$0-15,999	0.07	0.07	0.07	0.20	0.20	0.19
(ref: $51,000-)	$16,000-31,999	0.09	0.09	0.09	0.11	0.11	0.11
	$32,000-50,999	0.03	0.03	0.03	0.07	0.07	0.07
	Missing	0.02	0.02	0.02	0.01	0.01	0.01
Parental education	Less than high school	0.08	0.09	0.09	0.06	0.06	0.06
(ref: high school)	Some college	-0.03	-0.03	-0.03	0.06	0.06	0.06
	Bachelor or higher	-0.19 ***	-0.19 ***	-0.19 ***	-0.02	-0.02	-0.02
	Missing	-0.10	-0.10	-0.11	-0.02	-0.01	-0.02
Parental occupation	Non-prof/managerial	0.02	0.02	0.02	-0.04	-0.04	-0.04
(ref: prof/manage)	Unemployed/missing	0.05	0.04	0.04	-0.04	-0.05	-0.04
Economic hardship	Yes	0.02	0.02	0.02	-0.08	-0.08	-0.08
Family size	No sibling	-0.01	-0.01	-0.01	0.07	0.07	0.07
	3 or more siblings	-0.06	-0.06	-0.06	0.11	0.11	0.11
Parental religion	Evangelical	-0.08	-0.07	-0.07	0.42 ***	0.42 ***	0.42 ***
(ref: Mainline	Catholic	0.04	0.04	0.04	-0.20	-0.20	-0.20
Protestatnt)	Other religion	-0.10	-0.10	-0.10	0.35 **	0.35 **	0.35 **
	No religion	-0.08	-0.08	-0.07	0.30	0.30	0.31
Parental religiosity	Less than 1/mo	-0.07	-0.07	-0.07	0.16	0.16	0.15
(ref: no church	1/mo or more	-0.17 **	-0.17 **	-0.17 **	0.31 *	0.32 *	0.31 *
attendance)	1/wk or more	-0.47 ***	-0.47 ***	-0.47 ***	0.76 ***	0.76 ***	0.76 ***

P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 2. 2. 1. Gender Interaction Test for the Total Sample, continued.

		Total Cohabitation 7,385 out of 11,541			Total Marriage 2,081 out of 11,541		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Control							
Age at Wave 4	28 or younger	0.18 ***	0.18 ***	0.18 ***	-0.32 ***	-0.32 ***	-0.32 ***
Immigrant Status	1st generation	-0.58 ***	-0.58 ***	-0.58 ***	0.76 ***	0.72 ***	0.72 ***
(ref: 3rd or higher)	2nd generation	-0.14	-0.15 *	-0.15 *	0.34 **	0.34 **	0.34 **
Gender	Female	0.10 **	0.14 ***	0.13 *	0.31 ***	0.31 ***	0.41 ***
Race	Black	-0.04	-0.04	-0.04	-0.98 ***	-0.98 ***	-0.98 ***
	Native American	-0.03	-0.01	-0.01	-0.86 *	-0.86 *	-0.84 *
	Asian	-0.10	-0.11	-0.11	-0.39	-0.39	-0.40
	Hispanic	-0.12	-0.12	-0.12	-0.03	-0.03	-0.03
	Mixed race	-0.02	-0.02	-0.02	0.27	0.27	0.27
Region	West	-0.06	-0.06	-0.06	0.12	0.12	0.11
	South	-0.13	-0.14	-0.14	0.36 **	0.36 **	0.36 **
	Northeast	-0.13 *	-0.13 *	-0.13 *	-0.15	-0.15	-0.15
Gender Interaction							
Additional 10% of	**Stepfamily*female**	0.03			-0.01		
childhood spent in:	**Single-parent*female**	0.00			0.01		
	No-bio parent *female	0.05			0.00		
Parental cohabitation	**Yes*female**		0.07			0.09	
(ref: no)	Missing*female		-0.08			0.04	
Mom's age at marriage	**19 or younger *female**			0.04			-0.14
(ref: 20 or older)	Missing*female			-0.05			-0.42
F		567.59	590.90	563.41	769.87	853.25	749.16
df		42	41	41	42	41	41
Pr		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Wald F-test (a)							
F		5.50	0.93	0.52	0.52	0.20	3.03
df		3	2	2	3	2	2
Pr		0.1388	0.6270	0.7719	0.9135	0.9051	0.2197

(a) Test for whether adding each gender interaction significantly improves the fit of the model without the interaction term.
P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 2. 2. 2. Gender Interaction Test for White Sample.

		White Cohabitation 4,373 out of 6,563			White Marriage 1,242 out of 6,563		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Family Structure							
Additional 10% of	Stepfamily	0.02	0.03 ***	0.03 ***	0.01	0.00	0.00
childhood spent in:	Single-parent family	0.00	0.01	0.01	-0.03	-0.03	-0.03
	No-bio parent family	-0.03	0.01	0.01	0.03	0.02	0.01
Parental cohabitation	Yes	0.24 **	0.23 **	0.24 ***	-0.61 ***	-0.85 **	-0.61 ***
(ref: no)	Missing	0.00	0.00	0.00	0.05	0.10	0.05
Mom's age at marriage	19 or younger	0.08	0.07	0.05	0.30 ***	0.30 ***	0.40 ***
	Missing	0.14	0.14	0.11	0.03	0.03	0.08
Control							
Family income	$0-15,999	0.07	0.07	0.07	0.16	0.15	0.15
(ref: $51,000-)	$16,000-31,999	0.08	0.09	0.09	0.05	0.05	0.05
	$32,000-50,999	0.04	0.04	0.04	0.08	0.08	0.08
	Missing	0.03	0.04	0.04	-0.01	-0.01	-0.01
Parental education	Less than high school	0.08	0.08	0.08	-0.01	-0.01	0.00
(ref: high school)	Some college	-0.03	-0.03	-0.03	0.05	0.05	0.06
	Bachelor or higher	-0.20 **	-0.20 **	-0.21 ***	-0.05	-0.05	-0.04
	Missing	-0.17	-0.19	-0.19	0.15	0.17	0.14
Parental occupation	Non-prof/managerial	0.02	0.02	0.02	-0.09	-0.09	-0.08
(ref: prof/manage)	Unemployed/missing	0.17	0.16	0.16	0.05	0.04	0.05
Economic hardship	Yes	-0.01	0.00	0.00	-0.01	-0.01	-0.01
Family size	No sibling	-0.03	-0.03	-0.03	0.11	0.11	0.14
	3 or more siblings	0.01	0.01	0.01	0.09	0.08	0.08
Parental religion	Evangelical	-0.07	-0.07	-0.07	0.43 ***	0.43 ***	0.44 ***
(ref: Mainline	Catholic	0.05	0.05	0.05	-0.26	-0.26	-0.26 *
Protestant)	Other religion	-0.08	-0.09	-0.09	0.34 **	0.34 **	0.34 **
	No religion	-0.10	-0.10	-0.11	0.33	0.33	0.33
Parental religiosity	Less than 1/mo	-0.16 **	-0.16 *	-0.16 *	0.31 *	0.30 *	0.31 *
(ref: no church	1/mo or more	0.26 ***	0.26 ***	-0.26 ***	0.39 *	0.38 *	0.39 *
attendance)	1/wk or more	-0.54 ***	-0.54 ***	-0.54 ***	0.86 ***	0.86 ***	0.86 ***

P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 2. 2. 2. Gender Interaction Test for the Total Sample, continued.

		White Cohabitation 4,373 out of 6,563			White Marriage 1,242 out of 6,563		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Control							
Age at Wave 4	28 or younger	0.16 ***	0.16 ***	0.16 ***	-0.26 **	-0.26 **	-0.26 **
Immigrant Status	1st generation	-0.40	-0.40	-0.40	-0.90	-0.90	-0.90
(ref: 3rd or higher)	2nd generation	-0.04	-0.04	-0.04	0.33	0.33	0.33
Gender	Female	0.18 ***	0.18 ***	0.16 **	0.32 ***	0.30 ***	0.41 ***
Region	West	-0.14	-0.14	-0.14	0.25	0.25	0.25
	South	-0.10	-0.10	-0.09	0.33 *	0.32 *	0.33 *
	Northeast	-0.15 *	-0.15 *	-0.15 *	-0.20	-0.20	-0.20
Gender Interaction							
Additional 10% of	**Stepfamily*female**	0.02			-0.01		
childhood spent in:	**Single-parent*female**	0.02			0.01		
	No-bio parent *female	**0.10 ***			-0.02		
Parental cohabitation	**Yes*female**		0.03			0.38	
(ref: no)	**Missing*female**		0.00			-0.12	
Mom's age at marriage	**19 or younger *female**			0.04			-0.18
(ref: 20 or older)	**Missing*female**			0.07			-0.10
F		420.48	416.23	441.11	577.74	580.99	573.37
df		37	36	36	37	36	36
Pr		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Wald F-test (a)							
F		7.94	0.06	0.30	0.25	1.46	1.22
df		3	2	2	3	2	2
Pr		**0.0473 (b)**	0.9692	0.8610	0.9683	0.4826	0.5430

(a) Test for whether adding each gender interaction significantly improves the fit of the model without the interaction term.

(b) Although the Wald-chi square test shows a significant p-value, this result is largely derived from the extreme value of "missing" category for mom's age at first marriage with a small cell size.

P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 2. 2. 3. Gender Interaction Test for Black Sample.

		Black Cohabitation 1,347 out of 2,104			Black Marriage 228 out of 2,104		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Family Structure							
Additional 10% of	Stepfamily	-0.01	0.02	0.02	-0.01	0.01	0.00
childhood spent in:	Single-parent family	0.00	0.00	0.00	-0.02	0.02	0.02
	No-bio parent family	-0.01	-0.01	0.00	-0.01	0.09	0.09
Parental cohabitation	Yes	0.23 *	0.07	0.22 *	0.04	0.05	0.05
(ref: no)	Missing	-0.56	-0.55	-0.56	0.88	0.80	0.82
Mom's age at marriage	19 or younger	-0.01	-0.06	-0.13	0.00	0.00	0.09
	Missing	0.08	0.06	0.00	-0.79 *	-0.79 *	-0.12
Control							
Family income	$0-15,999	0.00	0.07	0.00	0.30	0.30	0.30
(ref: $51,000-)	$16,000-31,999	0.13	0.14	0.13	0.38	0.39	0.40
	$32,000-50,999	-0.17	-0.16	-0.17	0.61	0.60	0.60
	Missing	-0.05	-0.04	-0.05	0.31	0.36	0.41
Parental education	Less than high school	0.13	0.14	0.13	0.20	0.27	0.27
(ref: high school)	Some college	0.08	0.10	0.09	-0.14	-0.11	-0.12
	Bachelor or higher	-0.18	-0.18	-0.18	-0.06	-0.04	-0.02
	Missing	-0.08	-0.05	-0.07	-0.33	-0.39	-0.32
Parental occupation	Non-prof/managerial	0.01	0.01	0.01	0.19	0.19	0.19
(ref: prof/manage)	Unemployed/missing	-0.06	-0.05	-0.06	-0.13	-0.16	-0.17
Economic hardship	Yes	-0.06	-0.06	-0.07	-0.20	-0.20	-0.19
Family size	No sibling	0.02	0.03	0.03	-0.20	-0.23	-0.24
	3 or more siblings	-0.05	-0.05	-0.04	0.00	-0.01	-0.01
Parental religion	Evangelical	0.06	0.06	0.06	-0.04	-0.03	0.01
(ref: Mainline	Catholic	-0.13	-0.13	-0.11	-0.42	-0.39	-0.30
Protestant)	Other religion	-0.06	-0.07	-0.04	0.51	0.55	0.61
	No religion	0.31	0.33	0.34	0.26	0.31	0.35
Parental religiosity	Less than 1/mo	0.33 *	0.34	0.35 *	-0.01	-0.04	-0.05
(ref: no church	1/mo or more	0.19	0.21	0.20	0.44	0.41	0.40
attendance)	1/wk or more	-0.01	0.00	0.00	0.59	0.57	0.57

P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 2. 2. 3. Gender Interaction Test for Black, continued.

		Black Cohabitation 1,347 out of 2,104			Black Marriage 228 out of 2,104		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Control							
Age at Wave 4	28 or younger	0.21 *	0.21 *	0.22 *	-0.34	-0.32	-0.33
Immigrant Status	1st generation	-0.93 *	-0.64 *	-0.93 *	-1.89 *	-1.87 *	-1.89 *
(ref: 3rd or higher)	2nd generation	-0.34	-0.34	-0.34	0.91 *	0.89 *	0.92 *
Gender	Female	-0.17	-0.17	-0.18	-0.16	0.15	0.36
Region	West	-0.16	-0.17	-0.16	-0.13	-0.16	-0.16
	South	0.23	-0.25	-0.23	0.52 *	0.51 *	0.51 *
	Northeast	-0.17	-0.19	-0.17	-0.27	-0.26	-0.24
Gender Interaction							
Additional 10% of	**Stepfamily*female**	0.06			0.03		
childhood spent in:	**Single-parent*female**	0.01			0.07		
	No-bio parent *female	0.01			0.17		
Parental cohabitation	**Yes*female**		0.30			-0.04	
(ref: no)	Missing*female		-0.04			0.04	
Mom's age at marriage	**19 or younger *female**			0.24			-0.15
(ref: 20 or older)	Missing*female			0.14			-1.29 **
F		179.79	234.68	161.28	423.02	356.78	359.50
df		37	36	36	37	36	36
Pr		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Wald F-test (a)							
F		3.46	4.18	1.52	4.25	0.02	8.47
df		3	2	2	3	2	2
Pr		0.3254	0.1235	0.4675	0.2354	0.9921	**0.0144 (b)**

(a) Test for whether adding each gender interaction significantly improves the fit of the model without the interaction term.
(b) Although the Wald F-test shows a significant p-value, this result is largely derived from the extreme value of "no-bio parent" category with a small sample size.
P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 2. 2. 4. Gender Interaction Test for Hispanic Sample.

		Hispanic Cohabitation 924 out of 1,637			Hispanic 408 out of 1,637		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Family Structure							
Additional 10% of childhood spent in:	Stepfamily	0.01	0.07 **	0.07 **	-0.05	-0.09 *	-0.09
	Single-parent family	0.03	0.01	0.01	-0.12 *	-0.07 **	-0.08 **
	No-bio parent family	0.06	0.09 **	0.09 **	-0.13	-0.17 *	-0.17 *
Parental cohabitation	Yes	0.08	-0.02	0.03	-0.05	-0.36	-0.03
(ref: no)	Missing	0.54 *	0.88 *	0.51 *	-1.43 *	-2.41 **	-1.39 *
Mom's age at marriage	19 or younger	-0.02	-0.02	-0.05	0.15	0.14	0.25
	Missing	-0.01	-0.01	0.22	0.07	0.10	-0.11
Control							
Family income	$0-15,999	0.13	0.10	0.10	0.45	0.48	0.48
(ref: $51,000-)	$16,000-31,999	-0.05	-0.07	-0.06	0.20	0.22	0.22
	$32,000-50,999	0.05	0.03	0.02	-0.38	-0.35	-0.36
	Missing	0.08	0.09	0.08	-0.07	-0.06	-0.05
Parental education	Less than high school	0.21	0.25	0.25	0.11	0.09	0.08
(ref: high school)	Some college	0.10	0.10	0.10	0.11	0.09	0.08
	Bachelor or higher	0.01	0.01	0.01	0.21	0.18	0.18
	Missing	0.35	0.31	0.34	0.19	0.22	0.21
Parental occupation	Non-prof/managerial	0.01	0.02	0.03	-0.07	-0.10	-0.11
(ref: prof/manage)	Unemployed/missing	0.05	-0.01	0.02	-0.13	-0.15	-0.15
Economic hardship	Yes	0.15	0.15	0.15	-0.15	-0.16	-0.16
Family size	No sibling	0.04	0.04	0.01	0.29	0.28	0.31
	3 or more siblings	-0.06	-0.10	-0.08	0.14	0.15	0.15
Parental religion	Evangelical	0.08	0.09	0.11	-0.34	-0.33	-0.31
(ref: Mainline	Catholic	0.15	0.11	0.14	-0.63	-0.62	-0.60
Protestant)	Other religion	0.17	0.16	0.18	-0.33	-0.34	-0.32
	No religion	0.01	-0.01	0.03	-0.49	-0.49	-0.48
Parental religiosity	Less than 1/mo	0.32	0.26	0.27	-0.39	-0.38	-0.38
(ref: no church	1/mo or more	0.19	0.18	0.16	0.04	0.03	0.03
attendance)	1/wk or more	-0.49 ***	-0.47 ***	-0.49 ***	0.43	0.41	0.41

P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 2. 2. 4. Gender Interaction Test for Hispanic Sample, continued.

		Hispanic Cohabitation 924 out of 1,637			Hispanic 408 out of 1,637		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Control							
Age at Wave 4	28 or younger	0.45 ***	0.44 ***	0.45 ***	-0.47	-0.47 **	-0.49 **
Immigrant Status	1st generation	-0.66 ***	-0.66 ***	-0.67 ***	0.60	0.61 *	0.62 *
(ref: 3rd or higher)	2nd generation	-0.16	-0.18	-0.17	0.20	0.20	0.21
Gender	Female	0.15	0.13	0.16	0.42	0.44 *	0.56 *
Region	West	0.04	0.11	0.08	-0.24	-0.25	-0.24
	South	-0.24	-0.21	-0.24	0.39	0.38	0.39
	Northeast	-0.02	0.03	-0.01	-0.17	-0.17	-0.14
Gender Interaction							
Additional 10% of childhood spent in:	**Stepfamily*female**	0.09			-0.06		
	Single-parent*female	-0.06			0.09		
	No-bio parent *female	0.07			-0.12		
Parental cohabitation	**Yes*female**		0.14			0.55	
(ref: no)	Missing*female		-0.60			1.26	
Mom's age at marriage	**19 or younger *female**			0.06			-0.16
(ref: 20 or older)	Missing*female			-0.53			0.44
F		410.71	419.38	415.69	529.74	352.52	434.87
df		37	36	36	37	36	36
Pr		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Wald F-test (a)							
F		9.70	2.64	2.44	2.42	2.07	1.14
df		3	2	2	3	2	2
Pr		**0.0213**	0.2665	0.2952	0.4897	0.3543	0.5666

(a) Test for whether adding each gender interaction significantly improves the fit of the model without the interaction term.
P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 2. 2. 5. Gender Interaction Test for Asian Sample.

		Asian 254 out of 512			Asian 92 out of 512		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Family Structure							
Additional 10% of childhood spent in:	Stepfamily	0.09	0.04	0.06	-0.24	--	-0.43
	Single-parent family	-0.03	0.05	0.05	0.09	--	0.07
	No-bio parent family	-0.41 *	-0.27	-0.18	0.20 **	--	0.22 *
Parental cohabitation	Yes	-0.10	-0.64	-0.49	0.74 *	--	2.16 *
(ref: no)	Missing	-2.03 **	0.17	-2.10 **	1.30	--	1.30
Mom's age at marriage	19 or younger	0.17	0.29	0.53	0.72	--	0.10
	Missing	0.62	0.60	0.62	-0.31	--	-0.79
Control							
Family income	$0-15,999	-0.09	0.08	0.10	-0.14	--	-0.56
(ref: $51,000-)	$16,000-31,999	0.41	0.39	0.42	0.39	--	0.20
	$32,000-50,999	0.21	0.16	0.18	0.27	--	0.06
	Missing	-0.53	-0.51	-0.51	1.13	--	1.11
Parental education	Less than high school	-1.53	-1.28	-1.24	0.96	--	0.80
(ref: high school)	Some college	-0.72	-0.75	-0.74	0.37	--	0.74
	Bachelor or higher	-0.50	-0.54	-0.51	0.53	--	0.36
	Missing	-0.45	-0.31	0.30	0.01	--	-0.56
Parental occupation	Non-prof/managerial	0.01	0.06	0.07	-0.43	--	-0.43
(ref: prof/manage)	Unemployed/missing	1.07	1.19	1.29	-0.43	--	-0.37
Economic hardship	Yes	-0.18	-0.19	-0.18	0.21	--	0.15
Family size	No sibling	0.28	0.18	0.15	-0.17	--	-0.29
	3 or more siblings	-0.01	-0.05	-0.09	-0.10	--	-0.01
Parental religion	Evangelical	-0.36	-0.32	-0.33	1.75 **	--	2.08 **
(ref: Mainline	Catholic	0.13	-0.01	0.02	1.23	--	1.22
Protestant)	Other religion	-0.24	-0.37	-0.35	2.39 **	--	2.28 ***
	No religion	-0.91	-0.73	-0.41	1.16	--	1.16
Parental religiosity	Less than 1/mo	0.10	0.33	0.33	-3.72 ***	--	-3.87 ***
(ref: no church	1/mo or more	0.00	0.09	0.06	-0.01	--	-0.16
attendance)	1/wk or more	-0.57	-0.36	-0.39	0.29	--	0.18

P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 2. 2. 5. Gender Interaction Test for Asian, continued.

		Asian 254 out of 512			Asian 92 out of 512		
		Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Control							
Age at Wave 4	28 or younger	-0.13	-0.09	-0.09	-0.18	--	-0.36
Immigrant Status	1st generation	-0.77 **	-0.68 **	-0.70 **	2.51 **	--	2.82 *
(ref: 3rd or higher)	2nd generation	-0.68 *	-0.55	-0.57	1.81 *	--	2.04 *
Gender	Female	0.69 ***	0.82 ***	0.94 ***	0.24	--	-0.28
Region	West	-0.47	-0.34	-0.37	0.02	--	0.07
	South	-0.61	-0.54	-0.55	0.36	--	0.83
	Northeast	-0.99	-0.85 *	-0.88 *	-0.14	--	0.12
Gender Interaction							
Additional 10% of childhood spent in:	**Stepfamily*female**	-0.22			-2.03 *		
	Single-parent*female	0.20			0.09		
	No-bio parent *female	**0.51 ***			-0.72		
Parental cohabitation	**Yes*female**		0.61			--	
(ref: no)	Missing*female		-2.83			--	
Mom's age at marriage	**19 or younger *female**			-0.41			1.27
(ref: 20 or older)	Missing*female			-0.11			1.48
F		1342.72	3558.51	748.13	1092.12		2043.33
df		37	36	36	37		36
Pr		0.0000	0.0000	0.0000	0.0000		0.0000
Wald F-test (a)							
F		10.00	3.19	0.39	4.87	(c)	3.68
df		3	2	2	3		2
Pr		**0.0186 (b)**	0.2025	0.8222	0.1813		0.1589

(a) Test for whether adding each gender interaction significantly improves the fit of the model without the interaction term.

(b) Although the Wald-chi square test shows a significant p-value, this result is largely derived from the extreme value of "missing" category for mom's age at first marriage with a small cell size.

(c) This model cannot be analyzed using competing-risks analysis due to a small sample size with extreme values.

P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 3.1. Frequency and Percentage Distribution of Analytic Sample and Dropped Cases.

| | Category | Total | | | | Had a union by Wave 1 | |
| | | Analytic sample N=11,287 | | Dropped sample N=4,414 | | N=453 | |
		Freq	%	Freq	%	Freq	%
Family variables							
% of childhood spent in intact family	0%	1,780	**15.8**	1,257	**28.5**	146	**32.2**
	0.1-50%	1,799	**15.9**	882	**20.0**	117	**25.8**
	50.1%-	7,708	**68.3**	2,270	**51.4**	190	**41.9**
	Missing	0	**0.0**	5	**0.0**	0	**0.0**
% of childhood spent in stepfamily	0%	9,011	**79.8**	3,633	**82.3**	354	**78.2**
	0.1-50%	1,371	**12.2**	467	**10.6**	58	**12.8**
	50.1%-	905	**8.0**	309	**7.0**	41	**9.1**
	Missing	0	**0.0**	5	**0.1**	0	**0.0**
% of childhood spent in single-parent family	0%	7,263	**64.4**	2,226	**50.4**	189	**41.7**
	0.1-50%	1,986	**17.6**	976	**22.1**	128	**28.3**
	50.1%-	2,038	**18.1**	1,207	**27.3**	136	**30.0**
	Missing	0	**0.0**	5	**0.1**	0	**0.0**
% of childhood spent in no-bio parent family	0%	10,766	**95.4**	3,361	**76.1**	272	**60.0**
	0.1-50%	330	**2.9**	615	**13.9**	121	**26.7**
	50.1%-	191	**1.7**	433	**9.8**	60	**13.3**
	Missing	0	**0.0**	5	**0.1**	0	**0.0**
Parental cohabitation	No	9,584	**84.9**	1,781	**40.4**	224	**49.5**
	Yes	1,482	**13.1**	504	**11.4**	83	**18.3**
	Missing	0	**0.0**	2,129	**48.2**	146	**32.2**
Mother's age at first marriage	19 or younger	4,331	**38.4**	632	**14.3**	147	**32.5**
	20 or older	5,903	**52.3**	745	**16.9**	93	**20.5**
	Missing	1,053	**9.3**	3,037	**68.8**	213	**47.0**
Neighborhood variables							
Neighborhood disadvantage index	Less than -1.8	4,375	**38.8**	1,257	**28.5**	102	**22.5**
	-1.8-1.8	3,324	**29.5**	1,392	**31.5**	133	**29.4**
	1.8 or over	3,588	**31.8**	1,627	**36.9**	207	**45.7**
	Missing	0	**0.0**	138	**3.1**	11	**2.4**
Neighborhood family structure index	Less than -1.8	4,424	**39.2**	1,357	**30.7**	157	**34.7**
	-1.8-1.8	4,680	**41.5**	1,771	**40.1**	165	**36.4**
	1.8 or over	2,183	**19.3**	1,147	**26.0**	120	**26.5**
	Missing	0	**0.0**	139	**3.2**	11	**2.4**

Appendix 3.1. Frequency and Percentage Distribution of Analytic Sample and Dropped Cases, continued.

| | Category | Total | | | | Had a union by Wave 1 | |
| | | Analytic sample N=11,287 | | Dropped sample N=4,414 | | N=453 | |
		Freq	**%**	Freq	**%**	Freq	%
School variables							
% of students living in two-parent family	Less than 60%	4,266	**37.8**	2,135	**48.4**	233	**51.4**
	60-69.9%	3,428	**30.4**	1,146	**26.0**	132	**29.1**
	70%-	3,593	**31.8**	858	**19.4**	72	**15.9**
	Missing	0	**0.0**	275	**6.2**	16	**3.5**
% of students who experienced parental cohabitation	Less than 7%	4,040	**35.8**	1,521	**23.5**	123	**27.2**
	7-12.9%	3,159	**28.0**	1,162	**26.3**	133	**29.4**
	13%-	4,088	**26.2**	1,731	**39.2**	197	**43.5**
% of students parental cohabitation info missing	Less than 10%	4,327	**38.3**	1,156	**26.2**	117	**25.8**
	10-16.9%	4,023	**35.6**	1,573	**35.6**	186	**41.1**
	17%-	2,937	**26.0**	1,685	**38.2**	150	**33.1**
% of students whose mom married as a teenager	Less than 30%	4,777	**42.3**	2,365	**53.6**	167	**36.9**
	30-44.9%	4,734	**41.9**	1,491	**33.8**	197	**43.5**
	45%-	1,776	**15.7**	558	**12.6**	89	**19.7**
% of students whose mom's age at marriage missing	Less than 12%	1,007	**8.9**	143	**3.2**	8	**1.8**
	12-19.9%	3,877	**34.4**	1,065	**24.1**	135	**29.8**
	20%-	6,403	**56.7**	3,206	**72.6**	310	**68.4**
School type	Public	10,397	**92.1**	3,918	**88.8**	431	**95.1**
	Private	890	**7.9**	220	**5.0**	6	**1.3**
	Missing	0	**0.0**	276	**6.3**	16	**3.5**
School size	Small	1,656	**14.7**	605	**13.7**	64	**14.1**
	Medium	4,290	**38.0**	1,464	**33.2**	138	**30.5**
	Large	5,341	**47.3**	2,069	**46.9**	235	**51.9**
	Missing	0	**0.0**	276	**6.3**	16	**3.5**
School urbanicity	Urban	3,290	**29.2**	1,188	**26.9**	131	**28.9**
	Suburban	5,917	**52.4**	2,381	**53.9**	209	**46.1**
	Rural	2,080	**18.4**	569	**12.9**	97	**21.4**
	Missing	0	**0.0**	276	**6.3**	16	**3.5**
Dependent variable							
First Union	No union	2,000	**17.7**	637	**14.4**	0	**0.0**
	Marriage	2,048	**18.1**	741	**16.8**	48	**10.6**
	Cohabitation	7,239	**64.1**	3,017	**68.4**	405	**89.4**
	Missing	0	**0.0**	19	**0.4**	0	**0.0**
Control variables							
Household income in 1994	$0-15,999	1,507	**13.4**	468	**10.6**	64	**14.1**
	$16,000-31,999	2,352	**20.8**	523	**11.9**	96	**21.2**
	$32,000-50,999	2,833	**25.1**	455	**10.3**	67	**14.8**
	$51,000-	3,303	**29.3**	476	**10.8**	35	**7.7**
	Missing	1,292	**11.5**	2,392	**56.5**	191	**42.2**

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Appendix 3. 1. Frequency and Percentage Distribution of Analytic Sample and Dropped Cases, continued.

| | Category | Total | | | | Had a union by Wave 1 | |
| | | Analytic sample N=11,287 | | Dropped sample N=4,414 | | N=453 | |
		Freq	**%**	Freq	**%**	Freq	%
Control variables							
Parental education	Less than HS	1,223	**10.8**	700	**15.9**	95	**21.0**
	High school	3,202	**28.4**	1,349	**30.5**	165	**36.4**
	Some college	2,423	**21.5**	867	**19.6**	91	**20.1**
	Bachelor-	4,163	**36.9**	1,276	**28.9**	79	**17.4**
	Missing	276	**2.5**	224	**5.1**	23	**5.1**
Parental occupation	Prof/manage	4,649	**41.2**	1,392	**31.1**	77	**17.0**
	Non-prof/mng	5,971	**52.9**	2,373	**53.8**	241	**53.2**
	Unempl/missing	667	**5.9**	669	**15.2**	135	**29.8**
Economic hardship	No	6,704	**59.4**	2,606	**59.0**	178	**39.3**
	Yes	4,583	**40.6**	1,808	**41.0**	275	**60.7**
Number of siblings	0	2,133	**18.9**	1,102	**25.0**	193	**42.6**
	1	4,500	**39.9**	1,421	**32.2**	132	**29.1**
	2	2,900	**25.7**	1,053	**23.9**	66	**14.6**
	3 or more	1,754	**15.5**	805	**18.2**	62	**13.7**
	Missing	0	**0**	33	**0.8**	0	**0.0**
Parental religion	Mainline Protestant	2,424	**21.5**	412	**9.3**	49	**10.8**
	Evangelical	3,538	**31.4**	816	**18.5**	101	**22.3**
	Catholic	3,230	**28.6**	610	**13.8**	80	**17.7**
	Other religion	1,390	**12.3**	271	**6.1**	47	**10.4**
	No religion	705	**6.3**	133	**3.0**	35	**7.7**
	Missing	0	**0**	2,172	**49.2**	141	**31.1**
Parental relgiosity	No attendance	2,092	**18.5**	483	**10.9**	108	**23.8**
	Less than 1/mo	2,689	**23.8**	523	**11.9**	82	**18.1**
	1/mo or more	2,048	**18.1**	460	**10.4**	57	**12.6**
	1/wk or more	4,458	**39.5**	791	**17.9**	65	**14.4**
	Missing	0	**0**	2,157	**48.9**	141	**31.1**
Age at Wave 4	29 or older	5,622	**49.8**	2,531	**57.3**	390	**86.1**
	28 or younger	5,665	**50.2**	1,883	**42.7**	63	**13.9**
Immigrant status	1st generation	635	**5.6**	405	**9.2**	23	**5.1**
	2nd generation	1,815	**13.5**	666	**15.1**	60	**13.3**
	3rd generation-	9,134	**80.9**	3,343	**75.7**	270	**81.7**
Race and Ethnicity	White	6,377	**56.5**	1,889	**42.8**	255	**56.3**
	Black	2,077	**18.4**	1,155	**26.2**	73	**16.1**
	Native American	55	**0.5**	18	**0.4**	3	**0.7**
	Asian	507	**4.5**	358	**8.1**	19	**4.2**
	Hispanic	1,608	**14.3**	714	**16.2**	76	**16.8**
	Mixed	663	**5.9**	280	**6.3**	27	**6.0**
Gender	Male	5,344	**47.4**	2,008	**57.3**	132	**29.1**
	Female	5,943	**52.7**	2,404	**42.7**	321	**70.9**
	Missing	0	**0.0**	2	**0.0**	0	**0.0**

Appendix 3. 2. 1. Gender Interaction Test for Neighborhood and School Variables (Cohabitation).

		Cohabitation (7,239 out of 11,287)				
		1	2	3	4	5
Family						
Every additional 10% of childhood spent in:	Stepfamily	0.03 ***	0.03 ***	0.03 ***	0.03 ***	0.03 ***
	Single-parent family	0.01	0.01	0.10	0.10	0.10
(ref: intact)	No-bio parent family	0.02	0.02	0.02	0.02	0.02
Parental cohabitation (a)	Yes	0.21 ***	0.21 ***	0.21 ***	0.21 ***	0.21 ***
Mom's age at marriage (a)	19 or younger	0.06	0.06	0.06	0.05	0.06
Neighborhood						
Neighborhood disadvantage index		0.00	0.00	0.00	0.00	0.00
neighborhood family structure index		0.02	0.01	0.02 *	0.02 *	0.02 *
School						
% of students living with 2 parents(10%)		0.00	0.00	0.00	0.00	0.00
% ever lived w/ cohab parent (5%) (a)		-0.02	-0.02	-0.03	-0.04	-0.02
% of students mom married age<20 (5%) (a)		0.01	0.01	0.03	0.01	0.01
School type (ref: public)	Private	-0.12	-0.12	0.00	-0.12	-0.11
Size	Small	0.00	0.00	0.00	0.00	0.00
(ref: medium)	Large	-0.10 *	-0.11 *	-0.11	-0.10	-0.10
Location	Urban	-0.01	-0.01	0.00	-0.01	-0.02
(ref: suburban)	Rural	0.00	0.00	0.05	0.00	0.00
Control						
Family income (a)	$0-15,999	0.05	0.05	0.07	0.05	0.05
(ref: $51,000-)	$16,000-31,999	0.07	0.07	0.03	0.08	0.07
	$32,000-50,999	0.03	0.03	0.00	0.03	0.03
Parental education (a)	Less than HS	0.09	0.08	0.09	0.08	0.09
(ref: high school)	Some college	-0.02	-0.02	-0.02	-0.02	-0.02
	Bachelor or higher	-0.16 **	-0.16 **	-0.16 **	-0.16 **	-0.16 **
Parental occupation	Non-prof/manage	0.03	0.03	0.03	0.03	0.03
(ref: prof/manage)	Unemployed/miss	0.05	0.05	0.05	0.05	0.05
Economic hardship	Yes	0.01	0.01	0.01	0.01	0.01
Family size	No sibling	-0.02	-0.02	-0.02	-0.02	-0.02
(ref: 1 or 2 siblings)	3 or more siblings	-0.07	-0.07	-0.07	-0.07	-0.07
Parent's religion	Evangelical	-0.09	-0.09	-0.09	-0.09	-0.09
(ref: Mainline	Catholic	0.05	0.04	0.04	0.04	0.05
Protestant)	Other religion	-0.10	-0.10	-0.10	-0.10	-0.10
	No religion	-0.09	-0.09	-0.09	-0.09	-0.09
Parent's religiosity	Less than 1/mo	-0.06	-0.06	-0.06	-0.06	-0.05
(ref: no church	1/mo or more	-0.19 ***	-0.19 ***	-0.19 ***	-0.19 ***	-0.19 ***
attendance)	1/wk or more	-0.45 ***	-0.45 ***	-0.45 ***	-0.45 ***	-0.45 ***

(a) "Missing" categories are controlled, but not displayed.
P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 3. 2. 1. Gender Interaction Test for Neighborhood and School Variables (Cohabitation), continued.

		Cohabitation (7,239 out of 11,287)				
		1	2	3	4	5
Age at Wave 4	28 or younger	0.15 ***	0.15 ***	0.15 ***	0.15 ***	0.15 ***
Immigrant Status	1st generation	-0.53 ***	-0.53 ***	-0.53 ***	-0.53 ***	-0.53 ***
(ref: 3rd gen-)	2nd generation	-0.12	-0.12	-0.12	-0.12	-0.12
Gender	Female	0.15 ***		0.08	0.12	0.26
Race	Black	-0.12	-0.12	-0.12	-0.12	-0.12
(ref: White)	Native American	-0.03	-0.04	-0.03	-0.05	-0.03
	Asian	-0.14	-0.14	-0.14	-0.15	-0.15
	Hispanic	-0.14	-0.14	-0.14	-0.14	-0.14
	Mixed race	-0.04	-0.04	-0.04	-0.04	-0.04
Region	West	-0.01	-0.01	-0.01	-0.01	-0.01
(ref: Midwest)	South	-0.15	-0.15	-0.15	-0.15	-0.15
	Northeast	-0.11	-0.11	-0.11	-0.11	-0.11
Gender Interaction						
Neighborhood disadvantage index		-0.01				
Neighborhood family structure index			0.01			
% of students living with 2 parents(10%)				0.01		
% ever lived w/ cohab parent (5%) (a)					0.04	
% of students mom married age<20 (5%) (a)						0.00
F		740.40	744.12	721.82	742.74	745.16
df		52	52	52	53	53
Pr		0.0000	0.0000	0.0000	0.0000	0.0000
Wald-F test (b)						
F		0.45	0.84	0.15	4.59	2.66
df		1	1	1	2	2
Pr		0.5009	0.3602	0.6953	0.1009	0.2672

(a) "Missing" categories are controlled, but not displayed.
(b) Test for whether adding each gender interaction significantly improves the fit of the model without the interaction term.
Gender interaction test for family variables is conducted in Chapter 2, and no gender interaction was found (See Chapter 2 Appendix 2).
P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 3. 2. 2. Gender Interaction Test for Neighborhood and School Variables (Marriage).

		Marriage (2,048 out of 11,287)				
		1	2	3	4	5
Family						
Every additional 10% of	Stepfamily	0.00	0.00	0.00	0.00	0.00
childhood spent in:	Single-parent	-0.02	-0.02	-0.02	-0.02	-0.02
(ref: intact)	No-bio parent	0.01	0.01	0.01	0.01	0.01
Parental cohabitation (a)	Yes	-0.32 **	-0.33 **	-0.33 **	-0.32 **	-0.33 **
Mom's age at marriage (a)	19 or younger	0.22 **	0.22 **	0.22 **	0.22 **	0.22 **
Neighborhood						
Neighborhood disadvantage index		0.02	0.03 **	0.03 **	0.03 **	0.03 **
neighborhood family structure index		-0.08 ***	-0.06 **	-0.07 ***	-0.08 ***	-0.08 ***
School						
% of students living with 2 parents(10%)		0.00	0.00	-0.02	0.00	0.00
% ever lived w/ cohab parent (5%) (a)		-0.03	-0.03	-0.03	-0.01	-0.03
% of students mom married age<20 (5%) (a)		0.04	0.04	0.04	0.04	0.01
School type (ref: public)	Private	0.25	0.27	0.26	0.27	0.24
Size	Small	0.13	0.13	0.13	0.12	0.13
(ref: medium)	Large	0.15	0.16	0.16	0.16	0.15
Location	Urban	0.04	0.03	0.04	0.03	0.03
(ref: suburban)	Rural	-0.06	-0.06	-0.06	-0.06	-0.06
Control						
Family income (a)	$0-15,999	0.09	0.09	0.10	0.09	0.09
(ref: $51,000-)	$16,000-31,999	0.03	0.02	0.03	0.02	0.02
	$32,000-50,999	-0.02	-0.02	-0.02	-0.02	-0.02
Parental education (a)	Less than HS	0.01	0.02	0.01	0.01	0.01
(ref: high school)	Some college	0.04	0.04	0.04	0.04	0.04
	Bachelor -	-0.01	-0.01	-0.01	-0.01	-0.02
Parental occupation	Non-prof/mng	-0.08	-0.08	-0.08	-0.08	-0.08
(ref: prof/manage)	Unempl/miss	-0.04	-0.03	-0.03	-0.04	-0.03
Economic hardship	Yes	-0.06	-0.06	-0.06	-0.06	-0.06
Family size	No sibling	0.08	0.08	0.08	0.08	0.08
(ref: 1 or 2 siblings)	3 or more siblings	0.12	0.12	0.12	0.12	0.12
Parent's religion	Evangelical	0.38 ***	0.38 ***	0.38 ***	0.38 ***	0.38 ***
(ref: Mainline	Catholic	-0.18	-0.18	-0.18	-0.18	-0.18
Protestant)	Other religion	0.37 ***	0.37 ***	0.37 ***	0.38 ***	0.37 ***
	No religion	0.29	0.29	0.29	0.29	0.28
Parent's religiosity	Less than 1/mo	0.13	0.12	0.12	0.12	0.12
(ref: no church attendance)	1/mo or more	0.36 ***	0.31 ***	0.35 **	0.35 **	0.35 **
	1/wk or more	0.72 ***	0.71 ***	0.71 ***	0.71 ***	0.72 ***

(a) "Missing" categories are controlled, but not displayed.

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Appendix 3. 2. 2. Gender Interaction Test for Neighborhood and School Variables (Marriage), continued.

		Marriage (2,048 out of 11,287)				
		1	2	3	4	5
Age at Wave 4	28 or younger	-0.30 ***	-0.29 ***	-0.29 ***	-0.29 ***	-0.29 ***
Immigrant Status	1st generation	0.71 ***	0.71 ***	0.71 ***	0.71 ***	0.71 ***
(ref: 3rd ge-)	2nd generation	0.32 **	0.32 **	0.32 **	0.31 **	0.31 **
Gender	Female	0.33 ***	0.31 ***	-0.03	0.48 *	-0.17
Race	Black	-0.76 ***	-0.75 ***	-0.75 ***	-0.75 ***	-0.75 ***
(ref: White)	Native American	-0.82 *	-0.81 *	-0.81 *	-0.80 *	-0.83 *
	Asian	-0.40	-0.39	-0.40	-0.40	-0.40
	Hispanic	0.01	0.02	0.01	0.01	0.01
	Mixed race	0.28	0.28	0.29	0.29	0.28
Region	West	0.18	0.18	0.18	0.18	0.19
(ref: Midwest)	South	0.26 *	0.27 *	0.27 *	0.27 *	0.26 *
	Northeast	-0.01	-0.01	-0.02	-0.02	-0.01
Gender Interaction						
Neighborhood disadvantage index		0.02				
Neighborhood family structure index			-0.03			
% of students living with 2 parents(10%)				0.03		
% ever lived w/ cohab parent (5%) (a)					-0.05	
% of students mom married age<20 (5%) (a)						0.06
F		1076.11	1090.91	1073.22	1205.27	1059.26
df		52	52	52	53	53
Pr		0.0000	0.0000	0.0000	0.0000	0.0000
Wald-F test						
(b)						
F		1.34	1.51	1.00	0.71	3.51
df		1	1	1	2	2
Pr		0.2462	0.2198	0.3175	0.7003	0.1728

(a) "Missing" categories are controlled, but not displayed.

(b) Test for whether adding each gender interaction significantly improves the fit of the model without the interaction term.

Gender interaction test for family variables is conducted in Chapter 2, and no gender interaction was found (See Chapter 2 Appendix 2).

Appendix 3. 3. 1. Race Interaction Test for Family, Neighborhood, and School Variables (Cohabitation).

		Cohabitation (7,239 out of 11,287)						
		1	2	3	4	5	6	7
Family								
Every additional 10% of	Stepfamily	0.03 ***	0.03 ***	0.03 ***	0.03 ***	0.03 ***	0.03 ***	0.03 ***
child hood spent in	Single-parent family	0.02 *	0.01	0.01	0.01	0.01	0.01	0.01
(ref: intact)	No-bio parent family	0.01	0.01	0.02	0.01	0.01	0.01	0.02
Parental cohabitation (a)	Yes	0.21 ***	0.24 ***	0.22 ***	0.21 ***	0.21 ***	0.21 ***	0.21 ***
Mom's age at marriage (a)	19 or younger	0.06	0.06	0.08	0.05	0.06	0.06	0.06
Neighborhood								
Neighborhood disadvantage index		0.00	0.00	0.00	0.01	0.00	0.00	0.00
neighborhood family structure index		0.02 *	0.02 *	0.02 *	0.02	0.02 *	0.02 *	0.02 *
School								
% of students living with 2 parents(10%)		0.00	0.00	0.00	0.00	-0.01	0.00	0.00
% ever lived w/ cohab parent (5%) (a)		-0.02	-0.02	-0.02	-0.01	-0.02	0.00	-0.02
% of students mom married age<20 (5%) (a)		0.01	0.01	0.01	0.00	0.01	0.01	0.02
Type (ref: public)	Private	-0.12	-0.12	-0.12	-0.14	-0.12	-0.12	-0.15
Size	Small	-0.01	0.00	0.00	-0.01	0.00	0.00	0.00
(ref: medium)	Large	-0.11 *	-0.11 *	-0.11 *	-0.10 *	-0.11 *	-0.12 *	-0.11 *
Location	Urban	-0.02	-0.01	-0.01	0.01	-0.01	-0.01	-0.01
(ref: suburban)	Rural	0.00	0.00	0.00	0.00	0.01	0.01	0.00
Control (b)								
Gender	Female	0.15 ***	0.15 ***	0.15 ***	0.15 ***	0.15 ***	0.15 ***	0.15 ***
Race	Black	-0.03	-0.08	-0.06	-0.09	-0.10	0.01	0.19
	Hispanic	-0.16	-0.13	-0.07	-0.15	-0.14	-0.23	0.36
	Other	-0.04	-0.09	-0.04	-0.13	-0.13	0.47 *	0.81 **

(a) "Missing" categories are controlled, but not displayed.

(b) All control variables shown in Table 3 are included in these models, but not displayed.

P-value: ***p<0.001. **p<0.01. *p<0.05

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Appendix 3. 3. 1. Race Interaction Test for Family, Neighborhood, and School Variables (Cohabitation), continued.

		Cohabitation (7,239 out of 11,287)						
		1	2	3	4	5	6	7
Race interaction								
Every additional 10% of childhood spent in:								
Black	**Stepfamily**	-0.01						
	Single-parent family	-0.02						
	No-bio parent family	-0.01						
Hispanic	**Stepfamily**	0.02						
	Single-parent family	-0.01						
	No-bio parent family	0.08 *						
Other	**Stepfamily**	-0.02						
	Single-parent family	-0.01						
	No-bio parent family	-0.08						
Parental cohabitation (a)								
Yes	**Black**		-0.09					
	Hispanic		-0.09					
	Other		-0.09					
Mother's age at her first marriage (a)								
19 or younger	**Black**			-0.08				
	Hispanic			-0.11				
	Other			-0.13				
Neighborhood family structure index								
Additional 1 point	**Black**				0.00			
	Hispanic				0.02			
	Other				-0.01			

(a) "Missing" categories are controlled, but not displayed.
P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 3. 3. 1. Race Interaction Test for Family, Neighborhood, and School Variables (Cohabitation), continued.

		Cohabitation (7,239 out of 11,287)						
		1	2	3	4	5	6	7
% of students living with 2 parents								
Additional 10%	**Black**					0.02		
	Hispanic					0.02		
	Other					0.05		
% of students lived with cohab parents (a)								
Additional 5% in "Yes"	**Black**						-0.04	
	Hispanic						0.01	
	Other						-0.13 **	
% of students whose mom married before age 20 (a)								
Additional 5% in "Yes"	**Black**							-0.02
	Hispanic							-0.06
	Other							-0.07 *
F		983.99	801.17	767.11	720.85	723.29	791.69	730.20
df		58	55	55	55	52	55	55
Pr		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Wald F-test (c)								
F		18.82	7.40	3.84	12.36	2.51	13.93	11.17
df		9	6	6	6	3	6	6
Pr		**0.0267**	0.2854	0.6978	0.0543	0.4743	**0.0304**	0.0832

(a) "Missing" categories are controlled, but not displayed.

(c) Test for whether adding each race interaction significantly improves the fit of the model without the interaction term.

P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 3. 3. 2. Race Interaction Test for Family, Neighborhood, and School Variables (Marriage).

		Marriage (2,048 out of 11,287)						
		1	2	3	4	5	6	7
Family								
Every additional 10% of	Stepfamily	0.00	0.01	0.00	0.00	0.00	0.00	0.00
child hood spent in	Single-parent family	-0.03	-0.02	-0.02	-0.01	-0.02	-0.02	-0.02
(ref: intact)	No-bio parent family	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Parental cohabitation (a)	Yes	-0.32 **	-0.54 ***	-0.33 **	-0.33 **	-0.33 **	-0.34 **	-0.33 **
Mom's age at marriage (a)	19 or younger	0.22 **	0.22 **	0.24 **	0.22 ***	0.22 ***	0.22 ***	0.22 ***
Neighborhood								
Neighborhood disadvantage index		0.03 *	0.03 *	0.03 *	0.02	0.03	0.03	0.03
neighborhood family structure index		-0.08 ***	-0.08 ***	-0.08 ***	-0.08 **	-0.08 ***	-0.08 ***	-0.08 ***
School								
% of students living with 2 parents(10%)		0.00	0.00	0.00	0.00	0.01	0.00	0.00
% ever lived w/ cohab parent (5%) (a)		-0.03	-0.03	-0.03	-0.04	-0.03	-0.07	-0.03
% of students mom married age<20 (5%) (a)		0.04	0.05	0.04	0.05 *	0.05	0.05	0.04
Type (ref: public)	Private	0.26	0.26	0.27	0.28	0.25	0.24	0.27
Size	Small	0.13	0.12	0.12	0.14	0.13	0.13	0.12
(ref: medium)	Large	0.15	0.15	0.15	0.15	0.16	0.16	0.15
Location	Urban	0.05	0.05	0.05	0.01	0.03	0.04	0.05
(ref: suburban)	Rural	-0.06	-0.06	-0.06	-0.08	-0.08	-0.06	-0.06
Control (b)								
Gender	Female	0.34 ***	0.34 ***	0.34 ***	0.34 ***	0.34 ***	0.34 ***	0.34 ***
Race	Black	-0.83 ***	-0.80 ***	-0.56 **	-0.71 ***	-0.59	-1.25 ***	-1.12
	Hispanic	0.18	0.08	0.19	0.09*	1.27	-0.12	-0.56
	Other	-0.27	-0.12	-0.24	-0.02	0.37	-0.57	-0.77

(a) "Missing" categories are controlled, but not displayed.
(b) All control variables shown in Table 3 are included in these models, but not displayed.
P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 3. 3. 2. Race Interaction Test for Family, Neighborhood, and School Variables (Marriage), continued.

		Marriage (2,048 out of 11,287)						
		1	2	3	4	5	6	7
Race interaction								
Every additional 10% of childhood spent in:								
Black	**Stepfamily**	0.03						
	Single-parent family	0.03						
	No-bio parent family	0.03						
Hispanic	**Stepfamily**	-0.04						
	Single-parent family	-0.01						
	No-bio parent family	-0.17						
Other	**Stepfamily**	0.05						
	Single-parent family	0.03 **						
	No-bio parent family	0.13						
Parental cohabitation (a)								
Yes	**Black**		0.52					
	Hispanic		0.32					
	Other		0.72 *					
Mother's age at her first marriage (a)								
19 or younger	**Black**			-0.24				
	Hispanic			-0.20				
	Other			0.37				
Neighborhood family structure index								
Additional 1 point	**Black**				0.00			
	Hispanic				0.02			
	Other				0.01			

(a) "Missing" categories are controlled, but not displayed.
P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 3. 3. 2. Race Interaction Test for Family, Neighborhood, and School Variables (Marriage), continued.

	Marriage (2,048 out of 11,287)						
	1	2	3	4	5	6	7
% of students living with 2 parents							
Additional 10% **Black**					-0.01		
Hispanic					-0.08		
Other					-0.03		
% of students lived with cohab parents (a)							
Additional 5% in "Yes" **Black**						0.12	
Hispanic						0.09	
Other						0.16	
% of students whose mom married before age 20 (a)							
Additional 5% in "Yes" **Black**							0.03
Hispanic							0.04
Other							0.05
F	1249.71	1208.05	1131.41	958.69	977.49	1021.06	968.42
df	58	55	55	55	52	55	55
Pr	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Wald F-test (c)							
F	23.36	22.42	9.74	6.99	3.71	11.08	2.41
df	9	6	6	6	3	6	6
Pr	**0.0054**	**0.0010**	0.1362	0.3222	0.2943	0.0859	0.8788

(a) "Missing" categories are controlled, but not displayed.

(c) Test for whether adding each race interaction significantly improves the fit of the model without the interaction term.

P-value: ***p<0.001. **p<0.01. *p<0.05

Appendix 4. 1. Frequency and Percentage Distribution of Analytic Sample and Dropped Cases.

	Category	Total				Married/had a child by Wave 1	
		Analytic sample N=5,636		Dropped sample N=2,711		N=248	
		Freq	%	Freq	%	Freq	%
Socialization Variables							
% of childhood spent in intact family	0%	913	16.2	799	29.5	94	37.9
	0.1-50%	931	16.5	515	19.0	51	20.6
	50.1%-	3,792	67.3	1,394	51.4	103	41.5
	Missing	0	0.0	3	0.1	0	0.0
% of childhood spent in stepfamily	0%	4,470	79.3	2,252	83.1	204	82.3
	0.1-50%	699	12.4	272	10.0	25	10.1
	50.1%-	467	8.3	184	6.8	19	7.7
	Missing	0	0.0	3	0.1	0	0.0
% of childhood spent in single-parent family	0%	3,575	63.4	1,354	49.9	111	44.8
	0.1-50%	1,011	17.9	597	22.0	57	23.0
	50.1%-	1,050	18.6	757	27.9	80	32.3
	Missing	0	0.0	3	0.1	0	0.0
% of childhood spent in no-bio parent family	0%	5,371	95.3	2,080	76.7	148	59.7
	0.1-50%	166	2.9	363	13.4	67	27.0
	50.1%-	99	1.8	265	9.8	33	13.3
	Missing	0	0.0	3	0.1	0	0.0
Parental cohabitation	No	4,752	84.3	1,198	44.2	133	53.6
	Yes	765	13.6	338	12.5	51	20.6
	Missing	120	2.1	1,175	43.4	64	25.8
Mom's age at respondent's birth	20 or younger	869	15.4	406	15.0	38	15.3
	21 or older	4,252	75.5	1,538	56.7	110	44.4
	Missing	515	9.1	767	28.3	110	40.3
Opportunity Cost Variables							
Likelihood of attending college	1 & 2 (unlikely)	371	6.6	290	10.7	59	23.8
	3	634	11.3	386	14.2	44	17.7
	4	1,077	19.1	542	20.0	50	20.2
	5 (very likely)	3,554	63.1	1,454	53.7	93	37.5
	missing	0	0.0	39	1.4	2	0.8
GPA	2 or lower	919	16.3	520	19.2	50	14.2
	higher than 2	2,344	41.6	1,115	41.1	104	37.1
	higher than 3	2,373	42.1	1,076	39.7	62	48.7
	Missing	0	0.0	244	9.0	32	10.1
Standardized Add Health Picture Vocaburay Test score (mean=100)	85 or lower	708	12.6	507	18.7	64	25.8
	86-95	1,236	21.9	643	23.7	68	27.4
	96-105	1,386	24.6	554	20.4	59	23.8
	106-115	1,371	24.3	439	16.2	36	14.5
	116 or hither	935	16.6	208	7.7	7	2.8
	Missing	0	0.0	360	13.3	14	5.7

Appendix 4. 1. Frequency and Percentage Distribution of Analytic Sample and Dropped Cases, continued.

| | Category | Total | | | | Married/had a child by Wave 1 | |
| | | Analytic sample N=5,636 | | Dropped sample N=2,711 | | N=248 | |
		Freq	%	Freq	%	Freq	%
Opportunity Cost Variables							
Household income in 1994	$0-15,999	758	13.5	320	11.8	37	14.9
	$16,000-31,999	1,183	21.0	356	13.1	56	22.6
	$32,000-50,999	1,367	24.3	297	11.0	37	14.9
	$51,000-	1,652	29.3	309	11.4	19	7.7
	Missing	676	12.0	1,429	52.7	99	39.9
Parental education	Less than HS	648	11.5	453	16.7	50	20.2
	High school	1,584	28.1	834	30.7	80	32.3
	Some college	1,244	22.1	561	20.7	55	22.2
	Bachelor-	2,045	36.3	733	27.1	46	18.6
	Missing	115	2.0	130	4.8	17	6.9
Dependent Variables							
Status at first child birth	Never had a birth	2,595	46.0	943	34.8	6	2.4
	Married	1,369	24.3	599	22.1	40	16.1
	Cohabiting	826	14.7	507	18.7	43	17.3
	Single	846	15.0	662	24.4	159	64.1
Control Variables							
Parents' occupation	Prof/Manage	2,256	40.0	818	40.0	47	19.0
	Non-prof/manage	3,031	53.8	1,453	53.8	115	46.4
	Unemployed	349	6.2	440	6.2	86	34.7
Economic hardship	No	3,316	58.8	1,529	58.8	85	34.3
	Yes	2,320	41.2	182	41.2	163	65.7
Number of siblings	0	1,039	18.4	680	25.1	111	44.8
	1	2,265	20.2	892	32.9	59	23.8
	2	1,428	25.3	633	23.4	46	18.6
	3 or more	904	16.0	491	18.1	32	12.9
	Missing	0	0.0	15	0.6	0	0.0
Parental religion	Mainline	1,193	21.2	312	11.5	37	14.9
	Evangelical	1,773	31.5	568	21.0	78	16.2
	Catholic	1,600	28.4	362	13.4	41	31.5
	Other religion	682	12.1	190	7.0	18	7.3
	No religion	388	6.9	89	3.3	10	4.0
	Missing	0	0.0	1,190	43.9	64	25.8
Parental religiosity (church attendance)	No attendance	1,086	19.3	315	11.6	41	16.5
	Less than 1/mo	1,312	23.3	352	13.0	44	17.7
	1/mo or more	1,066	18.9	331	12.2	46	18.9
	1/wk ot more	2,172	38.5	535	19.7	54	21.8
	Missing	0	0.0	1,178	43.5	63	25.4
Age at Wave 4	29 or older	2,576	45.7	1,570	57.9	217	87.5
	28 or younger	3,060	54.3	1,141	42.1	31	12.5

Appendix 4. 1. Frequency and Percentage Distribution of Analytic Sample and Dropped Cases, continued.

| Category | | Total | | | | Married/had a child by Wave 1 | |
| | | Analytic sample N=5,636 | | Dropped sample N=2,711 | | N=248 | |
		Freq	%	Freq	%	Freq	%
Control Variables							
Immigrant status	1st generation	313	5.6	223	8.2	19	0.5
	2nd generation	725	12.9	415	15.3	24	5.8
	3rd generation-	4,598	81.6	2,073	76.5	215	93.7
Race/ethnicity	White	3,195	56.7	1,143	42.1	111	44.8
	Black	1,066	18.9	749	27.6	88	35.5
	Native American	27	0.5	8	0.3	0	0.0
	Asian	219	3.9	200	7.4	6	2.4
	Hispanic	783	13.9	435	16.1	36	14.5
	Mixed non-Hisp	346	6.1	173	6.5	7	2.8

Appendix 4. 2. 1. Race Interaction Test: In-Cohabitation Childbirth.

		In-cohabitation childbirth (826 out of 5,636)							
		1	2	3	4	5	6	7	8
Socialization									
Every additional 10% of	Stepfamily	0.04	0.05 **	0.06 **	0.05 *	0.06 **	0.05 **	0.05 **	0.05 **
childhood spent in:	Single-parent family	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(ref: intact)	No-bio parent family	0.07	0.06	0.06	0.06	0.06	0.06 *	0.07 *	0.06 *
Parental cohabitation	Yes	0.11	0.14	0.09	0.09	0.11	0.11	0.11	0.09
	Missing	-0.31	-0.16	-0.34	-0.33	-0.35	-0.35	-0.35	-0.32
Mother's age at	20 or younger	0.36	0.35 **	0.47 **	0.36 **	0.34 **	0.35 **	0.35 **	0.34 **
respondent's birth	Missing	0.41 *	0.42 **	0.47 *	0.42 **	0.45 **	0.42 **	0.41 *	0.41 *
Opportunity Cost									
How likely going to	Unlikely (1-2)	-0.18	-0.19	-0.17	-0.11	-0.20	-0.20	-0.21	-0.18
college	Somewhat likely (3)	0.13	0.12	0.13	0.09	0.12	0.13	0.11	0.12
(ref: very likely=5)	Likely (4)	0.24	0.23	0.24	0.32	0.22	0.22	0.23	0.23
GPA	Additional 1 point	-0.35 ***	-0.36 ***	-0.36 ***	-0.36 ***	-0.45 ***	-0.35 ***	-0.36 ***	-0.37 ***
Vocab test	Additional 10% in std dev	-0.16 ***	-0.15 ***	-0.15 ***	-0.15 **	-0.15 ***	-0.21 ***	-0.15 ***	-0.15 ***
Family income	$0-15,999	0.36	0.36	0.37	0.36	0.36	0.37	0.48	0.37
(ref: $51,000-)	$16,000-31,999	0.48 **	0.50 **	0.51 **	0.50 **	0.48 **	0.49 **	0.52 **	0.51 **
	$32,000-50,999	0.23	0.24 *	0.23	0.23	0.23	0.23	0.30 *	0.24 *
	Missing	0.04	0.03	0.03	0.03	0.02	0.01	-0.13	0.03
Parental education	Less than high school	-0.01	0.00	-0.01	0.00	-0.01	0.01	0.00	0.00
(ref: high school)	Some college	-0.09	-0.10	-0.11	-0.11	-0.10	-0.09	-0.12	-0.02
	Bachelor or higher	-0.53 ***	-0.53 ***	-0.53 ***	-0.54 ***	-0.54 ***	-0.53 ***	-0.54 ***	-0.56 ***
	Missing	-0.07	-0.06	-0.07	-0.03	-0.04	-0.07	-0.06	-0.47
Control (a)									
Race/ethnicity	Black	-0.11	-0.20	-0.13	-0.13	-1.41 *	-1.19	0.03	-0.19
(ref: white)	Hispanic	-0.05	0.09	0.17	0.10	-0.50	-1.42	-0.18	0.00
	Other	-0.03	0.01	0.27	-0.03	-0.18	-0.22	0.23	0.08

(a) All control variables shown in Table 3 are included in these models, but not displayed

P-value: *p<0.05, **p<0.01, *** p<0.001

Appendix 4. 2. 1. Race Interaction Test (In-Cohabitation Childbirth), continued.

		In-cohabitation childbirth (826 out of 5,636)							
		1	2	3	4	5	6	7	8
Race Interaction									
Every additional 10% of childhood in:									
Black	**Stepfamily**	0.02							
	Single-parent family	-0.05							
	No-bio parent family	0.01							
Hispanic	**Stepfamily**	0.10							
	Single-parent family	-0.01							
	No-bio parent family	-0.06							
Other	**Stepfamily**	0.00							
	Single-parent family	0.02							
	No-bio parent family	-0.21							
Parental cohabitation									
Black	**Yes**		-0.13						
	Missing		-0.70						
Hispanic	**Yes**		-0.11						
	Missing		-0.26						
Other	**Yes**		0.03						
	Missing		-0.41						
Mother's age at respondent's birth									
Black	**20 or younger**			-0.41					
	Missing			0.04					
Hispanic	**20 or younger**			-0.23					
	Missing			-0.39					
Other	**20 or younger**			-0.62					
	Missing			-0.32					

P-value: *p<0.05, **p<0.01, *** p<0.001

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Appendix 4. 2. 1. Race Interaction Test (In-Cohabitation Childbirth), continued.

		In-cohabitation childbirth (826 out of 5,636)							
		1	2	3	4	5	6	7	8
Race Interaction (continued)									
Likelihood of college entrance (ref: very likely)									
Black	**Unlikely (1-2)**				-0.43				
	Somewhat likely (3)				-0.02				
	Likely (4)				-0.39				
Hispanic	**Unlikely (1-2)**				0.04				
	Somewhat likely (3)				0.11				
	Likely (4)				-0.29				
Other	**Unlikely (1-2)**				-0.59				
	Somewhat likely (3)				0.26				
	Likely (4)				0.15				
GPA									
Additional 1 point	**Black**					**0.45 ***			
	Hispanic					0.22			
	Other					0.08			
Vocabulary test									
Additional 10% in std	**Black**						0.10		
dev	**Hispanic**						0.15		
	Other						0.02		
Family income (ref: $51,000-)									
Black	**$0-15,999**							-0.50	
	$16,000-31,999							-0.19	
	$32,000-50,999							-0.39	
	Missing							0.08	
Hispanic	**$0-15,999**							0.32	
	$16,000-31,999							0.10	
	$32,000-50,999							0.11	
	Missing							0.83	
Other	**$0-15,999**							-0.41	
	$16,000-31,999							-0.01	
	$32,000-50,999							-0.85	
	Missing							-0.11	

P-value: *p<0.05, **p<0.01, *** p<0.001

Appendix 4. 2. 1. Race Interaction Test (In-Cohabitation Childbirth), continued.

		In-cohabitation childbirth (826 out of 5,636)							
		1	2	3	4	5	6	7	8
Race interaction (cont)									
Parent's educational achievement (ref: HS)									
Black	**Less than high school**								-0.16
	Some college								-0.28
	Bachelor or higher								0.16
	Missing								0.14
Hispanic	**Less than high school**								0.20
	Some college								-0.24
	Bachelor or higher								-0.11
	Missing								1.41 *
Other	**Less than high school**								-0.14
	Some college								-0.22
	Bachelor or higher								0.23
	Missing								-0.49
F		516.13	525.13	576.83	538.16	540.88	521.46	540.88	629.67
df		50	47	47	50	44	44	50	53
Pr		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Wald-F test (b)									
F		8.18	1.15	5.42	4.14	7.21	3.83	6.62	21.71
df		9	6	6	9	3	3	9	12
Pr		0.5158	0.9795	0.4917	0.9019	0.0656	0.2805	0.8815	**0.0409 (c)**

(b) Test for whether adding each race interaction significantly improves the fit of the model without the interaction term.
(c) Although the Wald F-test shows statistical significance of the interaction, this is largely derived from "Missing" category of Hispanics.
P-value: *p<0.05, **p<0.01, *** p<0.001

Appendix 4. 2. 2. Race Interaction Test (Single-Parent Childbirth).

| | | Single-parent childbirth (846 out of 5,636) | | | | | | | |
		1	2	3	4	5	6	7	8
Socialization									
Every additional 10% of	Stepfamily	0.01	0.02	0.02	0.01	0.01	0.01	0.01	0.01
childhood spent in:	Single-parent family	0.05	0.04	0.04	0.03	0.03	0.04	0.04	0.03
(ref: intact)	No-bio parent family	0.10	0.06	0.07	0.07	0.06	0.07	0.07	0.07
Parental cohabitation	Yes	0.03	-0.37	0.01	0.01	0.00	-0.01	0.00	0.00
	Missing	-0.02	-0.27	-0.03	-0.11	-0.08	-0.06	-0.01	-0.09
Mother's age at	20 or younger	0.27	0.24	0.45 *	0.24	0.24	0.24	0.26 *	0.27 *
respondent's birth	Missing	-0.04	-0.04	-0.01	-0.08	-0.04	-0.08	-0.05	-0.06
Opportunity Cost									
How likely going to	Unlikely (1-2)	0.22	0.20	0.25	0.41	0.22	0.22	0.22	0.22
college	Somewhat likely (3)	0.04	0.04	0.03	0.40 *	0.04	0.04	0.02	0.03
(ref: very likely=5)	Likely (4)	-0.04	-0.03	-0.07	-0.14	-0.07	-0.08	-0.06	-0.05
GPA	Additional 1 point	-0.47 ***	-0.48 ***	-0.48 ***	-0.47 ***	-0.57 ***	-0.47 ***	-0.47 ***	-0.46 ***
Vocab test	Additional 10% in std dev	-0.08	-0.08	-0.08	-0.08	-0.08	-0.15 *	-0.08	-0.08
Family income	$0-15,999	-0.05	-0.03	-0.04	-0.07	-0.04	-0.06	0.22	-0.06
(ref: $51,000-)	$16,000-31,999	0.14	0.18	0.15	0.11	0.14	0.12	0.29	0.11
	$32,000-50,999	0.00	0.03	-0.01	-0.02	0.00	-0.01	0.13	-0.03
	Missing	0.02	0.02	0.00	0.01	0.02	0.00	0.21	0.00
Parental education	Less than high school	-0.07	-0.09	-0.10	0.12	-0.09	-0.07	-0.09	-0.18
(ref: high school)	Some college	0.03	0.00	0.01	-0.41	0.01	0.00	0.00	-0.14
	Bachelor or higher	-0.13	-0.17	-0.13	0.24	-0.14	-0.14	-0.15	-0.44 *
	Missing	-0.37	-0.39	-0.40	0.16	-0.36	-0.39	-0.39	-0.39
Control (a)									
Race/ethnicity	Black	1.01 ***	0.67 ***	0.99 ***	0.97 ***	0.20	-0.80	1.20 ***	0.54 **
(ref: white)	Hispanic	0.45	0.50 *	0.55 *	0.79 **	-0.03	-0.19	1.15 **	0.89 *
	Other	0.28	0.40 *	0.09	0.02	0.42	1.64	0.24	-0.37

 (a) All control variables shown in Table 3 are included in these models, but not displayed
P-value: *p<0.05, **p<0.01, *** p<0.001

Appendix 4. 2. 2. Race Interaction Test (Single-Parent Childbirth), continued.

| | | Single-parent childbirth (846 out of 5,636) | | | | | | | |
		1	2	3	4	5	6	7	8
Race Interaction									
Every additional 10% of childhood in:									
Black	**Stepfamily**	-0.03							
	Single-parent family	-0.03							
	No-bio parent family	-0.09							
Hispanic	**Stepfamily**	0.04							
	Single-parent family	0.07							
	No-bio parent family	-0.02							
Other	**Stepfamily**	0.07							
	Single-parent family	**-0.15 ***							
	No-bio parent family	-0.14							
Parental cohabitation									
Black	**Yes**		**0.73 ***						
	Missing		0.68						
Hispanic	**Yes**		**0.96 ***						
	Missing		-0.05						
Other	**Yes**		**-1.38 ***						
	Missing		-15.36 ***						
Mother's age at respondent's birth									
Black	**20 or younger**			**-0.60 ***					
	Missing			0.02					
Hispanic	**20 or younger**			0.42					
	Missing			-0.75					
Other	**20 or younger**			0.04					
	Missing			-0.96					

P-value: *p<0.05, **p<0.01, *** p<0.001

Appendix 4. 2. 2. Race Interaction Test (Single-Parent Childbirth), continued.

		Single-parent childbirth (846 out of 5,636)							
		1	2	3	4	5	6	7	8
Race interaction (continued)									
Likelihood of college entrance (ref: very likely)									
Black	**Unlikely (1-2)**				-0.39				
	Somewhat likely (3)				**-0.78 ****				
	Likely (4)				0.19				
Hispanic	**Unlikely (1-2)**				-0.28				
	Somewhat likely (3)				-0.54				
	Likely (4)				0.03				
Other	**Unlikely (1-2)**				-0.33				
	Somewhat likely (3)				-0.11				
	Likely (4)				0.07				
GPA									
Additional 1 point	**Black**					**0.24 ***			
	Hispanic					0.27			
	Other					-0.15			
Vocabulary test									
Add. 10% in std dev	**Black**						0.17		
	Hispanic						0.08		
	Other						-0.17		
Family income (ref: $51,000-)									
Black	**$0-15,999**							-0.54	
	$16,000-31,999							-0.37	
	$32,000-50,999							-0.29	
	Missing							-0.55	
Hispanic	**$0-15,999**							-0.56	
	$16,000-31,999							-0.35	
	$32,000-50,999							-0.70	
	Missing							-1.00	
Other	**$0-15,999**							-1.00	
	$16,000-31,999							-0.57	
	$32,000-50,999							0.01	
	Missing							0.49	

P-value: *p<0.05, **p<0.01, *** p<0.001

Appendix 4. 2. 2. Race Interaction Test (Single-Parent Childbirth), continued.

| | | Single-parent childbirth (846 out of 5,636) | | | | | | | |
		1	2	3	4	5	6	7	8
Race interaction (continued)									
Parent's educational achievement (ref: HS)									
Black	**Less than high school**								0.33
	Some college								0.38
	Bachelor or higher								0.78 **
	Missing								0.02
Hispanic	**Less than high school**								-0.30
	Some college								-0.80
	Bachelor or higher								0.03
	Missing								-2.02
Other	**Less than high school**								-0.17
	Some college								1.00 *
	Bachelor or higher								0.17
	Missing								1.87 *
F		674.46	1065.13	654.06	641.24	595.04	575.78	654.76	805.06
df		50	47	47	50	44	44	44	53
Pr		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Wald-F test (b)									
F		12.24	287.40	18.25	11.81	5.06	5.22	10.23	36.36
df		9	6	6	9	3	3	12	12
Pr		0.2003	**0.0000**	**0.0056**	0.2240	0.1671	0.1563	0.5960	**0.0003**

(b) Test for whether adding each race interaction significantly improves the fit of the model without the interaction term.

P-value: *p<0.05, **p<0.01, *** p<0.001

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