Family Influences, Family Planning Services, and Early Sexual Behavior

by

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In 1995, the average age of women at their first intercourse was 17.3 with 71 percent of those aged 18 having had sex. Among women under age 25, the average age of first intercourse was 13.8. Thirty percent of these women did not use contraception at their first intercourse. Simply put, a large proportion of teenagers have unprotected sex, putting them at high risk of unintended pregnancy. Eighty-two percent of pregnancies to women aged 15-19 were unintended, as were sixty-one percent of pregnancies to women aged 20-24 (Brown and Eisenberg 1995).

Intention status of pregnancies has consequences for both the mother and the child. Mother's may be at increased risk for mental health and economic problems (Barber, Axinn and Thornton 1999; Brown and Eisenberg 1995), and are more likely to experience relationship instability (Maughan and Lindelow 1997; Morgan and Rindfuss 1985; Waite and Lillard 1991). Women with unintended pregnancies are less likely to seek out prenatal care and more likely to engage in behaviors harmful to the fetus (Brown and Eisenberg 1995). Consequently, babies resulting from unintended pregnancies are more likely to have low birth weights and have higher rates of infant mortality (Brown and Eisenberg 1995). They are also at higher risk of mental health and economic problems than children born from planned pregnancies (Axinn, Barber and Thornton 1998; Brown and Eisenberg 1995). The full extent of the effect of pregnancy intention and the mechanisms through which this occurs are not fully understood, but the literature supports a connection between pregnancy intention and subsequent outcomes.

Previous research provides evidence that family structure is an important influence on the timing of first sexual intercourse, contraceptive use, and unintended pregnancy (e.g.

Casper 1990; McLanahan and Sandefur 1994; Wu 1996; Wu and Martinson 1993). Both the number of family situations a woman has lived in and the specific type of situation have been linked to early sexual debut and nonmarital pregnancy (McLanahan 1988; Thornton and Camburn 1987; Wu 1996; Wu and Martinson 1993). Women growing up with single parents, whose parent remarried after her birth, and who experienced multiple family transitions have sex earlier.

An important cause of unintended pregnancy is incorrect or lack of contraceptive use (Brown and Eisenberg 1995; Mosher 1990). Researchers claim that family planning services help women avoid over 1.3 million unintended pregnancies (The Alan Guttmacher Institute), and the federal government spends at least $325 million on family planning programs with the direct aim of decreasing teenage and unintended pregnancies. Research on the family planning services in international settings has shown that provision of services does influence contraceptive use (Entwisle et al 1996, 1997; Freedman and Takeshita 1969; Knodel, Aphichat and Debavalya 1987). However, methodologically sophisticated investigations into the direct relationship between family planning services and contraceptive use in the United States are rare, and those that consider family planning services along with other characteristics known to influence sexual behavior are even fewer.

This study provides an extensive look at how family structure and family planning services affect the timing of first sexual intercourse and contraceptive use. Although there are vast bodies of literature concerning young women's decisions to have sexual intercourse, the effect of various family structures on this decision, and the impact of family planning services on women's use of contraception, there has been little integration between these topics. This investigation is now possible because the 1995 National Survey of Family

Growth (Cycle V) includes detailed event history measures of family structure, exposure to family planning services, sexual behavior, and contraceptive use.

With this paper, I contribute to these bodies of literature in three ways. First, I draw on multiple theoretical frameworks from the literature on family and family planning services to form my hypotheses and present a thorough discussion of the influences on young women's sexual behavior and the weaknesses of commonly used theoretical approaches. Second, I present a comprehensive investigation into the complex relationship between family structure, the receipt of family planning services, and sexual behavior among young women in the United States. The intersection of family, services, sexual intercourse, and contraceptive use has not been previously studied in this context. Third, I take advantage of a rich and underused data source, the NSFG, and apply sophisticated methodology to this substantive area. I am able to use dynamic models of first intercourse that incorporate change over the individuals' life course and multiple outcomes at first intercourse.

Theoretical Framework

While contraceptive failures do occur, sex without protection from pregnancy is the major cause of unintended pregnancy (Brown and Eisenberg 1995). Consequently, we must understand what affects a woman's decision to have sex without using contraceptives. This consists of examining the factors that influence the decisions to have sex and the separate decision to use contraceptives.

Social scientists have relied on various theories to describe sexual and contraceptive behavior. There are obvious weaknesses to these frameworks, and I address them later in this paper. Here, I highlight the similarities between the microeconomic theory and the social-psychological theory of planned behavior and discuss how they help inform us about sexual-

behavior decision-making. Under microeconomic theory, individuals weigh the costs and benefits associated with each behavioral option before acting (Becker 1991; Easterlin and Crimmins 1985). An individual's assessment of the benefits of contraceptive use will reflect her beliefs about the probability of pregnancy with and without contraception, her preferences regarding childbearing versus other goals such as careers and education, and her knowledge of how a pregnancy will affect her ability to obtain those goals.[1] The costs of contraception include the dollar value of a method, physical access to that method, and the individual's knowledge about how to obtain and use contraception. Additional psychic costs may result from social taboos against contraceptive use or from the individual's beliefs about social norms regarding sexual behavior. A woman will consider all of these factors in deciding whether to have sex and whether to use contraception.

The social-psychological theory of planned behavior states that there are three factors—attitudes, subjective norms, and behavioral control—which affect an individual's intentions and subsequently the individual's behavior (Ajzen 1991). The relevant attitudes for decisions regarding sexual behavior include attitudes towards sex, pregnancy, contraception, and competing behaviors such as career and education. Subjective norms are the individual's beliefs about what is socially acceptable within her family and community. Again, these include beliefs about pregnancy, contraceptive use, and competing behaviors. Perceived behavioral control is the individual's belief about her ability to control the behavior or situation—that is her belief that she can dictate whether the couple has sex or uses contraception. Actual behavioral control refers to the constraints individuals face when

[1] Another benefit to contraception is the decreased risk of sexually transmitted disease (STD) infection. However, because not all contraceptive methods protect against STDs, and this paper is not differentiating among contraceptive methods, I discuss pregnancy and not STD infection as the relevant consequence of not using contraception.

making decisions—the physical barriers that constrain their behavior. As with the cost-benefit analysis, all of these factors influence a young woman's decisions regarding sex and contraception.

Given the prevalence of and serious consequences linked to sexual activity occurring early in the life course, it is important for us to discern what factors these frameworks point to as influential in young people's decisions regarding sexual behavior, and to test those factors empirically. Both microeconomic and social-psychological frameworks incorporate motivations and barriers in their models of decision-making. Motivations include an individual's desire for engaging in sexual intercourse, her feelings towards or about contraceptives, including any side effects of specific contraceptive methods, and her beliefs about pregnancy. A young woman will need to evaluate the likelihood of becoming pregnant with and without using contraception, the challenges and benefits associated with pregnancy, including the costs of continuing the pregnancy to term or having an abortion, and the desire to be a caregiver. Importantly, she must also consider competing behaviors in her decision. Her career and education aspirations are a critical component in her sexual behavior decision-making. The barriers she may encounter, availability of and access to contraceptives, are also relevant. These include physical access and emotional or social access—that is, her ability to act on her intentions and social norms regarding contraceptive use.

While the frameworks discussed above describe how motivations and barriers work together to influence sexual behavior decision-making, they do not articulate the specific mechanisms through which this occurs. I now turn to this topic. This paper incorporates on two important spheres of influence that affect the formation of an individual's motivations

and understanding of the barriers she may face in her sexual behavior decision-making: family influences and community resources, specifically family planning services.

Family Influences

The existing literature on family effects focuses on five major pathways through which family influences individual behavior: socialization, social control, stress, maturation, and economic resources. All of these mechanisms are ways in which parent's attitudes or beliefs and behaviors influence their children's assessment of the various components involved in sexual behavior decision-making. I now briefly discuss each of these in turn.

Socialization. Theory and research suggest that by expressing their own preferences or beliefs in the presence of their children parents transit those attitudes to their children. By exposing their children to specific behaviors, parents are communicating that they either approve of or, at the very least, condone similar behaviors in their children. Consequently, children should exhibit similar attitudes and behaviors to their parents.

Studies on the intergenerational transmission on attitudes and behaviors support the hypothesis that parental attitudes and behaviors are an important determinant of an individual's attitudes and behavior (e.g. Axinn and Thornton 1992, 1993; Barber 2000, 2001a, 2001b; Dittus and Jaccard 2000; McLanahan 1988; McNeely et al. 2002). Socialization hypotheses typically refer to behaviors and attitudes that occur in early in the child's lifetime (Wu 1996; Wu and Martinson 1993). Individuals growing up with single parents are more likely to be single parents themselves (McLanahan 1988; McLanahan and Sandefur 1994) and those who were born to young mothers are more likely to become young mothers themselves (Barber 2001b).

Parental attitudes and behavior that occur later in the child's life may also influence the child. Specifically with regard to sexual behavior, research has shown that adolescents whose mother's disapprove of them engaging in sexual activity, and adolescent's who believe that their mother's disapprove, are less likely to have sex or to become pregnant (Dittus and Jaccard 2000; McNeely et al. 2002). Also, when parents date or participate in the courtship process they demonstrate what are acceptable courtship behaviors to their children. Children who experience such an event may be more likely to engage in sexual behavior earlier because they believe that sexual activity is an acceptable part of the courtship process (Thornton and Camburn 1987).

Parental attitudes and behaviors towards sexual activity are not the only attitudes and behaviors that may influence children's sexual behavior. As discussed above, the alternatives to having sex and becoming pregnant are also important components of an individual's decisions whether to have sex or to use contraception. For example, parents with high educational attainment may transmit their belief in the importance of education, just as they transmit their beliefs regarding sexual behavior, influencing their children to be motivated to continue their education and therefore not to become pregnant.

Social control. A second mechanism through which parents may influence their children is social control. Parents can use physical, mental and economic resources to affect their children's behavior (Axinn and Thornton 1992a; Hogan and Kitagawa 1985; Thornton 1991). With higher levels of social control parents may be able to more closely monitor their children's behavior, thereby limiting their possible exposure to risky sexual behavior, delaying the onset of sexual activity. Women who engage in sexual behavior earlier in the life course may have different motivations and perceptions of barriers associated with

pregnancy than women who wait until they are more mature. For example, younger women may not be aware of the true costs of raising a child and will therefore underestimate the costs of not using contraception. They may have less physical access to contraception because they have less independence or knowledge about their community's resources. Consequently, women whose first sexual activity is at a young age may be less likely to use contraception.

This mechanism is typically discussed in reference to single parents, and less often to step-families, versus two-biological parent families. Two parent families are able to delegate one parent as the primary caregiver and one as the primary wage earner or share both responsibilities. Single parents, however, must divide their time between these two roles, often resulting in less time to spend with their children and less money to spend on them. Children with more unsupervised time have greater access to sex. Spending less time together may weaken the relationship between parents and children, which may affect the children's motivations for contraceptive use in several ways. Parents and children who spend less time together have fewer opportunities to discuss sex and contraceptives so children may be less aware of contraceptive methods. They may also discuss plans less often. Also, these children may be more independent or may look outside the family for comfort or loving relationships. This may increase the access to sex and also affect the child's motivations regarding pregnancy.

Children with step-parents may also experience less supervision than children with two-biological parents in the home because the stepparent often has less authority over the stepchild than a biological parent would have. The presence of stepparents may also weaken the relationship between the biological parent and the child, thereby lessening the amount of

social control the biological parent has over the child. Children whose parents have more social control over them may also have different attitudes towards the future. Their parents may have conveyed more interest in them going to college, which may affect the child's motivation to use contraception.

Stress. Family instability is another way in which parental behavior influences their children's behavior. Both the type and number of transitions children experience can influence their attitudes and behaviors (Thornton and Camburn 1987; Wu 1996). Divorce or separation typically results in mothers and children suffering financial losses and may also cause increased emotional stress (Smock 1993; Smock, Manning, and Gupta 1999). Both of these types of stress may weaken the parent-child bond causing parents and children to communicate less about sex, contraceptives, and future goals.

Divorce is not the only stressful transition that may influence sexual behavior. Parental marriage or remarriage has also been linked to increased sexual behavior (Axinn and Thornton 1996; McLanahan and Bumpass 1988; McLanahan and Sandefur 1994; Wu 1996). The child may feel as if she has been replaced by a stepparent and consequently look outside the family for emotional ties. A young woman may look to substitute a sexual relationship or a child of her own for the relationship she previously held with her parent.

Each successive transition places the family under additional stress; further weakening the parent-child relationship. This relationship may continue to weaken, resulting in less and less communication between parents and their children regarding sex, contraceptives, and the costs of not using contraception such as pregnancy or the inability to pursue other activities in the future.

Maturation. Young women who reach menarche earlier have been found to have their first sexual experiences before women who are slower to physically mature (Brooks-Gunn 1988; Brooks-Gunn and Furstenberg 1989). Because younger women may have different motivations and barriers they may be less likely to use contraception during sexual intercourse.

Early maturation may result from two aspects of family influence: genetics and the distribution of household responsibilities. There may be a genetic component to engaging in sexual behavior at an early age. We know that age at physical maturation is hereditary and that age at maturation is related to age at first intercourse. It is also possible that some women may be biologically predisposed to having stronger side effects from certain contraceptive methods.

Another potential cause of early maturation concerns the distribution of household labor. Single parents who do not have time themselves to complete household chores may assign those tasks to their children. These children who have been helping to sustain the household may feel that they are ready to participate in sexual relationships or be a parent at a younger age than their peers who have not been contributing in the same way to the household functioning.

Economic resources. There are several reasons the financial resources available within a family may have important impacts on child outcomes. It is possible that the relationship between parental and child behavior is not due to socialization, but is in fact a result of both the parent and the child growing up in similar economic situations. Economic resources are also important in terms of social control because families with fewer resources may be less able to carry out their social control desires. They have less leverage with which to bargain

with their children (Axinn and Thornton 1992). They may also be less able to purchase services that would make up for their lack of time spent monitoring their children. For instance, wealthier families can afford to involve their children in after school programs while many poorer families do not have that luxury. Children in those poorer families may therefore spend more time unsupervised and have greater access to sexual behavior. Children from less well off parents may also have fewer educational and career opportunities and therefore have less incentive to avoid pregnancy.

As this discussion shows, there is high correlation between family type and family resources. Consequently, some researchers attribute any affect of family type to economic differences. However, other research on family formation has shown that economic resources do not account for the full effect of family type (Thornton 1991; Wu 1996).

Community resources

There is a growing body of literature offering support for the hypothesis that community characteristics influence individual behavior and outcomes (e.g. Billy, Brewster, and Grady 1994; Brewster, Billy and Grady 1993; Morenoff 2003; Wilson 1987, 1991). Much of this literature focuses on the structural characteristics of the neighborhood or community (Billy, Brewster 1994a, 1994b; Brewster, Billy and Grady 1993). This includes the physical infrastructure of the neighborhood, but also population characteristics such as the concentration of poverty and unemployment. Community stresses such as those resulting from violent crime have also been identified as an important influence on individual behavior (Morenoff 2003). The neighborhood or community literature also investigates the social relations or social ties within a community (Sampson, Morenoff and Earls 1999). Just as parental social control is an important influence on individual behavior, how much

community members are involved in their neighbors' lives, that is how much they monitor and control each other's behavior, affects individuals.

Family planning services. This study focuses on the first of these components, the physical infrastructure in the community. Specifically, I investigate the influence family planning services have on sexual behavior. Previous research has found that the availability of family planning services does influence contraceptive use and premarital pregnancy. These studies typically include macro-level measures such as the number of family planning providers per 1,000 women in a census tract. This study asks a different question. Instead of investigating the relationship between the availability of family planning services and sexual behavior, I investigate the relationship between actual receipt of family planning services and sexual behavior. Simply because family planning services exist in a community does not mean that young women use them.

Following from the theoretical framework discussed above receipt of family planning services may have an important influence on sexual behavior by affecting both the motivation to use contraception and the barriers young women face. Her receipt of family planning services may alter a young woman's view of what is socially acceptable. That is she may see contraceptives as more acceptable after talking with a practitioner.

Receipt of family planning services may decrease physical costs by informing women where to go to receive contraceptives and how to use them correctly. Receiving family planning services early in one's life course may decrease the psychic costs or increase her perceived behavioral control of using contraception, not because the individual may have the same method in her possession when she is having sexual intercourse, but because it may

increase her familiarity with the method and may make her more comfortable using it or bringing up the topic of contraception in a conversation with her partner.

Family and services interactions. Another way receipt of family planning services may impact sexual behavior is by moderating the affect of other factors. As discussed above, growing up in an unsupervised household is correlated with engaging in risky sexual behavior. However, family planning services may lessen the effect of family structure on sexual behavior. Because of time constraints, single parents may be less likely to talk with their children about future options or about effective contraceptive use affecting their children's calculations of the costs and benefits of contraceptive use. However, receiving a check up or counseling related to family planning may alter this effect by providing children with the information they would have otherwise not had. Similar effects may be expected for individual's who experience a parental divorce or remarriage.

Limitations to theoretical framework

Previous research has pointed out several limitations to the theoretical frameworks drawn on for this paper, specifically in their application to young women's sexual behavior (Luker 1996; Robinson 1997). One criticism is that conducting a cost-benefit analysis requires such a vast amount of information that it is an unlikely explanation for the behavior of young women in real world situations (Luker 1996). It is easy to see that young women may not have all the necessary information available to them. Even if they do have the requisite information, it is unlikely that in the "heat of the moment" women sit back and evaluate the situation in its entirety (Luker 1996). While it may be true that young women may not be able to weigh the *actual* costs and benefits associated with contraceptive use, that does not mean they do not weigh their *perceptions* of the costs and benefits. The fact that

women may not have complete information does not mean that they do not consider the information that they do have.

A second criticism some researchers posit is that young women do not have sufficient cognitive skills to understand fully the situation at hand and therefore will not behave in a way predicted by the cost-benefit framework (Luker 1996). While likely true for very young sexually active women, it is difficult to argue that a 17 year old is not capable of making sound decisions. Typical high school assignments require the application of valid reasoning skills. If we believe they are capable of completing their homework there is little support for the idea that they are not capable of making decisions regarding their own lives. To address this critique, I have excluded the one woman who had sexual intercourse before age 10 from these models.

A third criticism acknowledges the variety in circumstances surrounding early sexual experiences (Abma et al. 1998; Laumann et al. 1994; Moore, Nord and Peterson 1989). For many young women sexual intercourse is not a voluntary activity—they are often raped or pressured into engaging in sexual activities against their will (Abma et al. 1998). In these circumstances, they are unable to demand their attacker use contraception. However, this study addresses a woman's behavior in a situation where she has the ability to choose whether the couple uses contraception. Therefore, non-voluntary intercourse is not relevant to the hypotheses examined in this paper. In my analysis sample, I include only women whose first sexual experience was voluntary.

Despite these criticisms, aspects of rational choice theory are still relevant for application to young women's decisions regarding sexual behavior. The literature portrays the above criticisms as reasons not to apply this framework to these questions. However,

excluding the critique that young women are not cognitively capable of making decisions, they do not actually say the framework is wrong, just that the circumstances specific to young women's decision-making may affect the processes in some way. Importantly, excluding the second criticism, the critiques do not say that young women are acting irrationally, only that their behaviors may appear irrational because the individual's perceptions of the various costs and benefits are different from the observer's perceptions.

Data and Methods

The data for these analyses come from the 1995 National Survey of Family Growth Cycle V (NSFG), a nationally representative survey of women aged 15-44. The sample was drawn from households who responded to the 1993 National Health Interview Survey. The survey has a complex design, over-sampling blacks and Hispanics, yielding 10,847 total interviews. For a detailed discussion of sampling procedures and study design see Kelly et al. 1997. The analyses presented in this paper use information from 2,517 black (N=604) and white (N=1,913) women who were under age 25 at the time of the interview.[2]

I conducted separate analyses were for whites and blacks. Most research on young women's sexual behavior in the United States either conducts separate analyses for racial groups, or at the very least includes controls for race. It is especially important examine separate models for blacks and whites for this research question. Young white and black women have very different distributions of family living situations. They also live in very different communities and have very different rates of intercourse and contraceptive use. Importantly, these differences may mean that there are different mechanism or processes through which family affects individual's decision making.

Measures of sexual behavior

The NSFG is replete with questions concerning respondents' sexual activity and contraceptive use. Because of this increasing complexity of decisions at later stages in the life course, the analyses presented in this paper focus on an event that occurs early on, specifically first sexual intercourse after menarche. Women were excluded from the sample if their first sexual experience was not voluntary or was not after menarche (N=182). As I mentioned, non-voluntary intercourse is not covered by the theoretical framework discussed above.

A woman who has sexual intercourse before menarche has less motivation for using contraception during that experience than if that experience was after menarche. A pre-menarche woman is only concerned with preventing the transmission of sexually transmitted diseases (STDs) as opposed to a post-menarche woman who is concerned with preventing the transmission of STDs and preventing pregnancy.

I use first voluntary sexual intercourse as the reference event is desirable for several reasons. First, first sexual intercourse is a memorable event, therefore women are likely to accurately remember when, and within what circumstances, it occurred (Luker 1996). Second, research has found early contraceptive practices to be indicative of future behavior (Mauldon and Luker 1996). Third, previous sexual experiences may impact both the likelihood of receiving family planning services and the likelihood of using contraception (Reinecke et al. 1996). For instance, a woman who has unprotected sex, becomes pregnant, and decides to terminate the pregnancy may be more likely to use contraception at future sexual encounters to avoid the stress of undergoing another abortion.

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[2]Only women under age 25 were included in the sample because the questions concerning receipt of family planning services were only asked of these women. An additional 19 women were excluded because they were

A respondent's sexual and contraceptive behavior was coded into a trichotomous measure. If a respondent had not had intercourse by the date of the interview, she was coded as zero for the measure of contraceptive use at first sex. Table 1 presents descriptive statistics for variables included in the analyses. Thirty-one percent of the white women and twenty-two percent of the black women in this sample had not had sex by the date of the interview (see Table 1). Women who reported having sexual intercourse were asked whether they had used any birth control method the first time they had intercourse. Fewer than twenty percent of the white women in the sample and thirty percent of the black women responded that they had not used contraception, they were given the code of one. Half of the white women reported they had used contraception and were coded as two. Only slightly fewer black women, forty-seven percent, also reported using contraception. This measure is discussed further in my description of the analytic process.

Measures of family influence

Because the specific family situation an individual is living in changes over time, I have included both time-varying and time-invariant measures of family structure. The time invariant measures refer to the individual's life before age 10. The time-varying measures refer to the individual's situation in the previous month.

The time invariant measures are dichotomous measures for whether the respondent's mother was under age 18 when she gave birth to her first child and whether the respondent's parents were married when she was born. If the respondent's mother was under age 18 this measure equals one, otherwise it equals zero.[3] Twelve percent of white women and almost

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married or began cohabiting at least one month before their first sexual experience.

[3] Ideally, I would have liked to use mother's age at her first birth as a continuous measure. However, 36 of the respondents did not know the exact age of their mother when she had her first child. Fourteen of those respondents did report whether they believed she was older or younger than age 18. I estimated the models for

thirty percent of black women reported that their mother's had been under age eighteen when they had their first child. If the respondent's parents were married to each other at the time of her birth that dichotomous measure was coded equal to one. Ninety-three percent of the white sample, and fifty-nine percent of the black sample reported that their parents had been married to each other at the time of their birth.

Five, time-varying, mutually exclusive dichotomous measures of family type were created. Since the measures were based on the hypotheses regarding social control and socialization, I attempt to capture both the number of adults living with the respondent and the respondent's relationship to those adults. The five types of family presented in this paper are: living with two biological parents,[4] living with a stepparent, living with a single parent his or her cohabiting partner, living with a single parent, and living in a nonfamilial living situation (this includes dorms, group houses and living alone). For any month, only one measure can be coded as one, the other four are all coded as zero. Two-parent family households is the reference category. In Table 1, for time-varying measures, I present the distribution for the last person-month of data each woman contributes. If the respondent had sex before the date of the interview the month in which she had sex is the last person-month. For women who did not have sex by the date of the interview the interview date is the last person-month. Among the white sample, half of the women were living with two-biological parents, twelve percent were living with a stepparent, and just under twenty percent were living with a single parent. For black women in the sample, thirty-four percent were living

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the subsample of women who did report an exact age for their mother at her first birth and found no significant differences between the models.

[4] This includes 22 women who were living with two adopted parents. I also tested whether there was a separate effect of living with adopted parents but found similar behavioral patterns for two biological and two adopted parent households. For parsimony I combined those into one group and refer to them as two biological households.

with two-biological parents, ten percent with a stepparent and thirty-eight percent with only a single parent.

Three dichotomous, time-varying measures, for family transitions are included in the models. The first measure captures whether someone who was born into a single parent only household experienced a parental marriage. This measure equals one for all the months after a person's single parent marries for the first time until the hazard ends. Only one percent of the white sample and three percent of the black sample experienced this event. It is not surprising that these percents are so low given the high percent of women whose parents were married at their birth. It was, however, important to separate this situation from a parental remarriage in order to determine whether any observed effect was actually for experiencing marriage or for experiencing divorce.

Separate time-varying measure for having experienced a parental divorce and a parental remarriage were also created. These measures equal one for all the months following a divorce or remarriage until the hazard ends. Twenty-two percent of the white sample and ten percent of the black sample had experienced a parent divorce (Table 1).

A final measure of family influence included in the models is a time-varying measure for the number of transitions a respondent had experienced up to that point. This includes any change in family—divorce, remarriage, starting or ending of cohabitation, moving in with grandparents, etc. These measures for family transitions follow previous work by Wu (1996). The mean number of transitions experienced by both samples was less than one.

Measures of family planning services

The NSFG asked each respondent a series of questions concerning her receipt of family planning services. If she reported having received at least one service ever in her life,

and was under age 25 at the time of the interview, she was then asked the specific date she first received services. Four separate time-varying dichotomous measures for receipt of family planning services were created based on these questions: receiving counseling, receiving a check up, receiving a prescription for or an actual method, and receiving any service. This final measure is a composite of the other three categories. Respondents could have reported receiving more than one type of service at this one visit. A measure is coded as one 12 months after the respondent's first family planning visit.

Four percent of the white sample and five percent of the black sample had received a check up for birth control or counseling about birth control at their first family planning visit. Slightly more women, five percent of the white sample and seven percent of the black sample, reported receiving a method or prescription for a method at their first family planning visit. Over six percent of white respondents and eight percent of black respondents reported receiving any services at least 12 months prior.

The use of a twelve-month lag for the measure of service receipt ensures that the temporal ordering among measures matches the hypotheses. Receipt of family planning services is predicted to affect an individual's motivations to use contraception. This is not the case if she has already decided to use contraception and then seeks out family planning services to obtain the specific method. In this situation, her motivations were established before she received family planning services and they were greater than any barriers to obtaining contraceptives she may have faced. The choice of a twelve-month lag helps to ensure that the motivation for receiving family planning services was not an imminent sexual encounter. Of course, the choice of a lag time is arbitrary. To test the robustness of my

estimates against variations in the lag alternative specifications were estimated. The variability in results produced by these alternatives is discussed in the results below.

Measures of family influence and family planning service interactions

I include five interaction terms in my analyses. I interact each measure of family planning service receipt with the time-varying measures of living with a stepparent, living in a single parent household, ever having experienced a divorce, ever having experienced a remarriage, and the number of transitions experienced. All measures, except for that for the number of transitions, are dichotomous since they are simply multiplications of the two original dichotomous measures. The interaction term with the number of transitions is a continuous measure.

Table 2 shows descriptive statistics for all interaction terms analyzed. The frequencies for these measures are quite low, less than one percent of either sample. The exceptions are the interaction terms with parental divorce and family planning services for whites and single-parent households and family planning services for blacks. Among whites, just over one percent of the sample had experienced a parental divorce and received a check up relating to family planning, counseling about family planning or a method or prescription for a method. Two percent of the sample had experienced a parental divorce and received any family planning services. Among the black sample, over two percent of respondents were living with a single parent and had received a check up or counseling related to family planning. Over three percent were living with a single parent and had received a method or prescription for a method and almost four percent was living with a single parent and had received any type of family planning service.

Controls

There is the possibility that there are that factors that increase the likelihood of receiving family planning services may also affect an individual's motivations and barriers regarding sexual behavior. In order to insure that our estimates are not spurious we include measures of characteristics that may influence both receipt of family planning services and sexual behavior. The descriptive statistics for all the control measures are reported in Table 1.

As mentioned above, family income may play an important role in determining sexual behavior. While some research has found that family influences are independent of economic resources (Thornton 1991; Wu 1996) it is still important to control for this possible effect to understand the independent effect of family. Because I do not have a measure of family income during childhood I use parental education as a proxy for economic resources. Education levels change less over time than income does, especially once adults have children. It is therefore reasonable to assume that parent's education did not change significantly across the respondent's life course. Additionally, research has found that parents' education is a predictor of both sexual activity and receipt of family planning services (Frost 2001; Mott et al. 1996). Parental education is included as two continuous measures, one for female caregiver and one for male caregiver during childhood, and reflects the highest grade the parent completed. If a parent had obtained any education beyond grade 18, that is a college diploma, they were coded as 19. The mean years of male caregiver's education was just over twelve for whites and blacks (Table 1). For female caregiver, the mean years of education was slightly lower, but still just over twelve years. Almost 8 percent of white and twenty-two percent of black respondents did not report the education level of their male caregiver. For female caregivers, the comparable percents are three and five.

These respondents were assigned the mean value for the missing parent's education. It was therefore necessary to include two dichotomous measures equal to one for the respondents who did not know the education level of that caregiver.[5]

I also control for age at menarche. As discussed above, girls who physically develop earlier may engage in sexual activity earlier (Brooks-Gunn 1988; Brooks-Gunn and Furstenberg 1989). Since hazard analysis estimates the timing of events, it is important to control for this. Age at menarche is included as continuous variable of exact ages. The mean age at menarche for the white sample was 12.4 and for the black sample it was 12.2.

Ethnicity and religion, factors which have been found to influence sexual activity and receipt of family planning services and were also controlled for (Frost 2001; Mosher 1988; Mosher and Horn 1988). Ethnicity is controlled for as a dichotomous measure equal to one if the woman reported being Hispanic and zero otherwise. Seventeen percent of the white sample and four percent of the black sample reported being of Hispanic ethnicity.

Religion was controlled for as six dichotomous measures based on the respondent's current religion. The six categories are: Baptist, Catholic, fundamentalist Protestant and Mormon, non-fundamentalist Protestant, other (including Jews), and no religion reported. The reference category is non-fundamentalist Protestant.

The last control included is age and age squared. These are counter variables that are initially equal to ten, the age the hazard starts, and are increased for each person month the individual contributes. These measures estimate the baseline hazard which increases with time after age ten and then decreases at ages closer to 25. All controls, except for age, are time-invariant.

[5] While it may appear that including these controls for missing parental education information over control for family type, I estimated the models with and without these controls and found no substantial differences

Analytic Techniques

The richness of the NSFG allows me to investigate the relationship between family background, family planning services and sexual behavior through several different approaches. Event-history estimation techniques enable me to incorporate the detailed information available in the NSFG and examine both the effects on the rate of sexual intercourse and on contraceptive use at first sex. My analysis consists of three parts. First, I estimate hazard models of the relationship between family influences and first sexual intercourse. The hazard ends either the month the respondent had sex or, if she did not have sex, in the month of the interview. The measure of sexual behavior discussed above is recoded into a dichotomous measure equal to one the month the respondent had sex (or the date of the interview if she had not had sex) and zero otherwise.

Second, because I am interested in two paths for exiting the state of never having had sex—using contraception at first sexual intercourse and not using contraception at first sexual intercourse—I estimate competing-risk hazard models of the relationship between family influences, receipt of family planning services and contraceptive use at first sexual intercourse. The measure of contraceptive use discussed above is recoded into two separate measures. The first measure is used as the dependent variable in the hazard of sex with contraception. This measure equals one if the woman had sex and used contraception and zero if she did not use contraception at first sex or was censored at the interview. The second measure is the dependent variable for the hazard of sex without contraception. Here, the measure equals one if the respondent had sex but did not use contraception and zero if she had used contraception at first sex or was censored at the interview.

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between models.

Third, I estimate the probability of using contraception among the women who had sex by the date of the interview. For the subset of women who had sex by the date of the interview I estimate models of the relationship between family influences, receipt of family planning services and contraceptive use. These models are not hazard models. There are no time varying measures in these models. Instead the measures capture the effect of ever having experienced a given situation such as living in a single parent household or with a stepparent. The measures of receipt of family planning services are still lagged by 12 months.

The data are precise to the month, so for the first two types of analyses I use discrete-time methods are used to estimate the models. The unit of analysis is person-months of exposure. The hazard begins for each woman when she turns ten years old.

All of the models are estimated using logistic regression in the form:

$$\ln\left(\frac{p}{1-p}\right) = a + \sum (\beta_k)(X_k),$$

where p is the probability of having sex either with or without contraception (for the hazard models this is the monthly probability), $p/1\text{-}p$ is the odds of that type of sexual activity occurring, a is a constant term, β_k represents the effects parameters of the explanatory variables, and X_k represents the explanatory variables in the model. The time-varying measures of characteristics of the respondents are measured in the year *prior* to the current year of permanent contraceptive use.

Results

Tables 3 through 5 present estimates for the white sample and tables 6 through 8 for the black sample. I use the life course perspective to guide the development of the models. Events that happened earlier in the respondent's life course are included first in the models and those that occur later are then added to the models. For parsimony, I do not display the

coefficients for the control measures. Those coefficients displayed are the multiplicative effects on the odds of using contraceptives at first sex in a one-month interval. A coefficient greater than 1.00 represents a positive effect, less than 1.00 a negative effect and equal to 1.00, no effect on the odds. Because few events occur within any one interval, the odds of using contraceptives at first sex are similar to the rate of contraceptive use at first sex. The latter term is used in the discussion of the findings.

Whites

First sexual intercourse, hazard models. Table 3 presents the estimates for the effects of family influences on the hazard of having sexual intercourse for whites. Model 1 shows the effects of family influences that occurred early in the life course—mother's age at first birth and parents' marital status. Young women whose mothers were under age 18 at their first birth had faster rates of sexual intercourse than women whose mothers were older at their first birth. Similarly, women whose parents were married at the time of the respondent's birth had their first sexual intercourse later. Model 2 adds in the respondent's experiences with marriage, divorce, and remarriage. Only having experienced divorce was significantly related to the rate of sexual intercourse. Those who had experienced a divorce had sex faster than those who had not.

In Model 3 I add in the measures for last months living situation. There are two important findings to note here. First, all of the measures of last months living situation were significantly related to the rate of sexual intercourse, meaning that women living in two parent households (the excluded or reference category) had slower rates of sexual intercourse than women in other types of living situations. Second, including measures of last months living situation results in the effect of divorce becoming non-significant. In other analyses

not shown it appears that it is inclusion of the measure for living in a single parent household that causes the divorce effect to become insignificant.

In Model 4 I show the effect of the other measure of family transition, number of transitions experienced, along with mother's age at her first birth and parent's marital status at the respondent's birth. The number of transitions experienced is significantly related to the rate of sexual intercourse, with young women who experienced more transitions having sex earlier.

Model 5 adds in last months living situation to Model 4. Including last months living situation does not remove the effect of the number of transitions, but it does substantially reduce it. Model 6 is our final model which includes all of the measures. Young women whose mother who was under age 18 at her own first birth, parents were married at her birth, lived in two-parent households and had fewer family transitions had slower rates of sexual intercourse.

Father's education, age at menarche, Hispanic ethnicity, and being a Fundamentalist Protestant or Mormon as opposed to Protestant were all negatively and significantly related to the rate of sex with contraception. Women whose father's had more education, went through puberty later, or were Hispanic all had sex with contraception later than women with less educated fathers, who went through puberty earlier or were not Hispanic. Fundamentalist Protestants or Mormons had sex with contraception slower than Protestants.

The coefficient on age was positive and significant and that on age squared was negative and significant. These measures shape the baseline hazard. The hazard, or rate of sex with contraception, increases with age and then starts to decrease as women get closer to age 25.

Mother's and father's education, age at menarche, ethnicity, age and age squared were all significantly related to the rate of sex without contraception. Parental education and age at menarche were negatively related; women with more educated parents had sex without contraception at a slower rate than women with less educated parents. Being Hispanic and age were positively related to the rate of sex without contraception. Hispanic women and older women have higher rates of sex without contraception than non-Hispanic or younger women. Age squared was negative implying that the rate of sex without contraception increases with age until a woman gets closer to age 25 when the rate decreases.

The coefficients on father's education and age at menarche were essentially the same in both hazards—they both were inversely related to the rate of sex but did not affect contraceptive use. Mother's education and age, however, appear to either decrease the occurrence of unprotected sex or increase contraceptive use. Hispanic women appear to use contraception less than non-Hispanic women. These patterns for the control measures were consistent across models and are therefore not discussed further.

Contraceptive use, competing risk hazard models. Because the two hazards, rate of sex using contraception and rate of sex not using contraception are competing hazards, in order to understand the effects of any measures included in the models, you need to consider both hazards simultaneously. If a measure has a positive relationship with the rate of sex with contraception and no effect on the rate of sex without contraception, then that measure is a predictor of using contraception, but not of having sex. If a measure has a positive relationship with sex using contraception and a negative relationship with sex not using contraception then that measure increases the rate of using contraception and decreases the rate of having sex. If the relationship is positive for both hazards the measure increases the

rate of having sex. The effect on contraceptive use is determined by the relative relationship between the coefficients in the two separate hazard models. For each set of measures I first discuss the effects on sex with contraception, then the effects on sex without contraception, and finally the overall interpretation given the findings from both hazards.

Using contraception at first intercourse. Table 4 presents the estimates from the hazard models of the relationship between family influences, receipt of family planning services and the rate of using contraceptives at first intercourse for white respondents. The same life-course perspective motivated procedure was used for constructing models as was used for the hazards of first sexual intercourse. As I mentioned above, the effects of the controls were similar as they were in the models of the rate of first sexual intercourse and are not presented here for parsimony.

Model 1 presents the final step in that process—it includes all of the measures of family influence. Mother's age at her first birth, living with cohabiting parents or single parents (as opposed to a traditional two-parent family), and number of family transitions were all significantly related to the rate of using contraceptives at first intercourse. Women in those circumstances had higher rates of sex with contraception.

Models 2 through 5 show the estimates for the effects of receipt of family planning services on the rate of contraceptive use at first sex. All four measures of receipt of family planning services—check up, counseling, method, or any service—were positively and significantly related to the rate of contraceptive use at first intercourse. The measures presented here incorporate at least a 12 month lag between receipt of family planning services and first sexual intercourse.

Not using contraception at first intercourse. Table 5 presents the results from the hazard models of *not* using contraceptives at first intercourse. Model 1 shows the effects of the measures of family influence on the rate of first sexual intercourse without using contraception. As with the hazard of using contraceptives at first sex women whose mothers' had their first child before age 18 and who were living in cohabiting parent households or single parent households had significantly higher rates of sex without using contraception. Women whose parents were married when they were born had slower rates of sexual intercourse without using contraceptives. Women who were living with stepparents had higher rates of not using contraceptives at first sex than women in two-biological parent households.

Models 2 through 5 show the effects of receiving family planning services on the rate of not using contraceptives at first intercourse. Women who receiving counseling or any family planning service had slower rates of sex without contraceptives.

Comparing our findings from Tables 4 and 5 we see that while several factors increase rate of first intercourse both with and without contraceptives for whites(mother's age at her first birth and living with cohabiting or single parents), others appear to increase contraceptive use. Because the measures for receipt of family planning services increase the rate of first intercourse using contraceptives and either decrease or are not significantly related to the rate of first intercourse not using contraceptives, these findings are evidence that white women who received family planning services at least one year before engaging in their first sexual intercourse experience were significantly more likely to use contraception.

I also explored measures with shorter (six months) and longer lags (24 and 36 months). As we would expect, the effects are stronger for shorter lags and weaker for longer

lags. However, the effects remain significant and in the same direction—women who received family planning services had faster rates of intercourse with contraceptive use and slower rates of intercourse without contraceptive use. The sustentative conclusions did not vary based on the measure specifications.

Interaction models. None of the interaction effects between family influences and family planning services are significant in the models of the rates of sex with and without contraception. This implies that the effect of family influences is not affected by receipt of family planning services. For parsimony these findings are not presented in the tables.

Contraceptive use, women who had sex only. The results from the logit model of contraceptive use among white women who had sex support the findings regarding family planning services from the competing risk hazard models (results not shown). Women who had received services were more likely to use contraception. As the competing risk hazard models I also explored alternative measures of receipt of family planning services that incorporated different time lags between receipt of services and first sexual intercourse. Again, the substantive conclusions did not change with the different measures. No measures of family influence were significant in these models.

Blacks

First sexual intercourse, hazard models. Table 6 presents the estimates from the hazard models of the relationship between family influences and the rate of first intercourse for blacks. There are two important findings to note on this table. First, as with whites, respondent's whose mother's were under age 18 at the birth of their first child had faster rates of first intercourse. Second, the only other measure of family influence that was significantly related to the rate of first intercourse was living with a stepparent last month. This is in

contrast to Table 3 which showed that for whites most of these measures were significantly related to the rate of first intercourse.

Contraceptive use, competing risk hazard models.

Using contraception at first intercourse. In Table 7 I show the findings from the hazard models of the relationship between family influences, receipt of family planning services and contraceptive use at first intercourse for blacks. Model 1 shows the estimates of the effects of the measures of family influences. Women whose mother's were under age 18 at their first birth had faster rates of contraceptive use at first intercourse. Women who were living in stepparent households or single parent households had faster rates of intercourse with contraception than women living in two biological parent households.

Models 2 through 5 show the estimates of the effects of receipt of family planning services on the rate of using contraception at first intercourse. Also similar to the findings for whites, women who had received family planning services had significantly faster rates of contraceptive use at first intercourse. The effects estimated here are very large. A woman who received counseling about family planning over a year before first having intercourse had a rate of using contraceptives at first intercourse 205 percent faster than a woman who had not received counseling.

Not using contraception at first intercourse. Table 8 presents the estimates of the relationship between family influences, receipt of family planning services and the rate of not using contraceptives at first intercourse for blacks. Among the measures of family influence, mother's age at her first birth and the number of family transitions experienced corresponded with faster rates of not using contraceptives at first intercourse (Model 1). No other measures of family influence were significant.

In Models 2 through 5 I display the effects of receipt of family planning services on the rate of not using contraceptives at first intercourse. None of the measures of receipt of family planning services were significant. Considering these models with Models 2 through 5 from Table 7 we see that black women who received family planning services at least 12 months before first intercourse were significantly more likely to use contraception than black women who had not received services. As described above for white, I also explored measures of receipt of family planning services with different lags between receipt of services and first intercourse. The findings across specifications were substantively consistent with the statements made here about the measure incorporating a 12 month lag.

Interaction models. As was true for the models of whites, none of the interaction terms tested in these models were significantly related to the rate of sex with or without contraception.

Contraceptive use, women who had sex only. The logit models of the probability of using contraception at first sex among black women who had sex by the date of the interview support the findings from the competing risk hazard models (results not shown). Women who experienced more family transitions were less likely to have used contraception at first intercourse. Also, women who received family planning services at least a year before their first intercourse were significantly more likely to use contraception.

Discussion and Conclusion

The tables I include for each racial subsample represent the most complete analyses of family influence, receipt of family planning services and sexual behavior. For whites, we see that many features of family and receipt of family planning services play important roles in young women's sexual behavior. For blacks, some aspects of family do appear to be

pertinent, as do family planning services; however, not all of our predictions regarding family were supported by the analyses on the black subsample.

For whites, family background, number of family transitions, and last months living situation are important influences on the timing of young women's first intercourse. White women that came from married, stable, two-biological parent households had the slowest rates of first intercourse. While the analyses here were not able to detect effects of family influence on contraceptive use at first intercourse, other methodology may reveal significant effects. For blacks, most measures of family influences were not significantly related to the rate of first intercourse. However, it does appear that some family influences play an important role in influencing young black women's decisions regarding contraceptive use. For both blacks and whites, receipt of family planning services had a positive and significant relationship with contraceptive use.

The findings from these analyses are important in several ways. First, these results show that both family influences and family planning services do affect white women's sexual behavior. These findings help illuminate young white women's sexual behavior. Unprotected sex and unintended childbearing are not uncommon situations for young women. Policies and programs are designed on this belief. However, this link has not been examined empirically in the United States. Lessons from the international research on family planning programs are informing, but variations in social context make direct translations impossible. These analyses show that in this setting family planning services do affect contraceptive use. This is important for policy makers concerned with lowering unintended pregnancy and childbearing to consider when designing their interventions.

Second, these findings highlight the need for theoretical frameworks that consider racial differences. These findings show that family influences affect whites and blacks differently. We need to develop frameworks to guide our analysis so that the measures we create are relevant for the specific population at hand.

Third, these findings constitute support that family planning services play an important role in young women's sexual decision making, regardless of race. Furthermore, this is especially important with respect to the findings for white women, the effect of family planning services is independent of the effects of family structure and background. Previous empirical work in the United States has shown how important family is to individual outcomes. However, from a policy perspective that is not necessarily helpful—it is difficult to design policies that can influence people's family formation. A much more direct path of influence is through family planning programs. It is important to continue focusing on factors that are manipulatable if we want policies to make a difference.

At first, it may seem obvious that receiving family planning services will increase the rate of contraceptive use at first intercourse. However, it is important to remember that these measures refer to family planning services that were received at least one year prior to sexual intercourse. It is not as obvious that a woman who received condoms at a doctor's visit will have those same condoms at hand over a year later when she has sex for the first time. Receipt of services has a lasting effecting on an individual's behavior. As mentioned above, receiving a method a year ago does not mean that a woman still has that method. However, the services do provide that woman with the knowledge that she can control her behavior. Receiving family planning services increases women's perceptions on their ability to control behavioral outcomes.

Due to data limitations, the analyses presented in this paper do not allow for direct tests of the theoretical mechanisms posited here. Future research should focus on collecting data that allow for such specific efforts. Also, while the current analyses show that receipt of community services is important in young women's behavior outcomes, incorporating additional community level factors is necessary to understand more completely how communities affect individuals. The results here are important, but they are only a first step.

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Table 1. Descriptive Statistics

	Whites				Blacks			
	Mean	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**
Sexual activity								
Did not have intercourse	0.31		0	1	0.22		0	1
Had sexual intercourse, used contraceptives	0.50		0	1	0.47		0	1
Had sexual intercourse, no contraceptives	0.19		0	1	0.31		0	1
Family Influence								
Family background								
Mother was under age 18 at respondent's birth	0.12		0	1	0.28		0	1
Parents married at birth	0.93		0	1	0.59		0	1
Living situation last month-family type								
Two-biological parent household	0.51		0	1	0.34		0	1
Stepparent household	0.12		0	1	0.10		0	1
Single parent plus additional adult(s) household	0.03		0	1	0.07		0	1
Single parent household	0.18		0	1	0.38		0	1
Non-family household	0.15		0	1	0.11		0	1
Family transitions								
Parental marriage	0.01		0	1	0.03		0	1
Parental divorce	0.22		0	1	0.10		0	1
Parental remarriage	0.13		0	1	0.07		0	1
Number of transitions of family type	0.95	1.34	0	12	0.85	1.24	0	12
Family planning service received								
Check up	0.04		0	1	0.05		0	1
Counseling	0.04		0	1	0.06		0	1
Method/prescription	0.05		0	1	0.07		0	1
Any family planning service	0.06		0	1	0.08		0	1
Controls								
Father's education	12.88	3.40	0	19	12.37	2.89	0	19
Mother's education	12.45	3.24	0	19	12.15	2.89	0	19
No father figure during childhood	0.08		0	1	0.22		0	1
No mother figure during childhood	0.03		0	1	0.05		0	1
Age at menarche	12.43	1.41	7	18	12.24	1.58	8	17
Hispanic	0.17		0	1	0.04		0	1
Religion								
Protestant	0.25		0	1	0.11		0	1
Catholic	0.36		0	1	0.12		0	1
Baptist	0.16		0	1	0.60		0	1
Fundamentalist Protestant/ Mormon	0.09		0	1	0.09		0	1
Other religion	0.03		0	1	0.02		0	1
No religion	0.10		0	1	0.06		0	1
Age	17.04	2.22	0	24	16.35	2.08	0	24
Age squared	295.40	79.72	127	608	271.79	71.65	134	576
N	1913				604			

NOTE: Summary statistics for N-2,694 women. Time-varying information is taken from the last year of data in the analysis.

Table 2. Interaction Terms

	Whites				Blacks			
	Mean	**SD**	**Min**	**Max**	**Mean**	**SD**	**Min**	**Max**
Check up								
Single parent household	0.007		0	1	0.025		0	1
Stepparent household	0.004		0	1	0.008		0	1
Parental divorce	0.013		0	1	0.005		0	1
Parental remarriage	0.006		0	1	0.002		0	1
Number of transitions	0.048	0.37	0	5	0.055	0.34	0	5
Counseling								
Single parent household	0.008		0	1	0.028		0	1
Stepparent household	0.003		0	1	0.010		0	1
Parental divorce	0.011		0	1	0.007		0	1
Parental remarriage	0.005		0	1	0.003		0	1
Number of transitions	0.041	0.33	0	5	0.063	0.34	0	5
Method/prescription								
Single parent household	0.009		0	1	0.032		0	1
Stepparent household	0.006		0	1	0.010		0	1
Parental divorce	0.016		0	1	0.007		0	1
Parental remarriage	0.007		0	1	0.003		0	1
Number of transitions	0.053	0.38	0	5	0.065	0.35	0	5
Any family planning service								
Single parent household	0.012		0	1	0.038		0	1
Stepparent household	0.008		0	1	0.012		0	1
Parental divorce	0.020		0	1	0.007		0	1
Parental remarriage	0.010		0	1	0.003		0	1
Number of transitions	0.069	0.43	0	5	0.081	0.39	0	5

NOTE: Summary statistics for N-2,694 women. Time-varying information is taken from the last year of data in the analysis.

Table 3. Hazard Model Estimates: Relationship Between Family Influences and Rate of First Intercourse, Whites Only[a]

	1	2	3	4	5	6
Parental background						
Mother was under age 18 at her first birth	1.65***	1.63***	1.63***	1.63***	1.62***	1.63***
	(5.80)	(5.68)	(5.64)	(5.66)	(5.62)	(5.65)
Parents married at birth	0.69***	0.66***	0.76*	0.72***	0.78*	0.76*
	(3.37)	(3.63)	(2.25)	(3.04)	(2.29)	(2.31)
Living situation last month						
Stepparent household			1.50***		1.37***	1.43***
			(3.12)		(3.03)	(2.77)
Cohabiting parent household			1.69***		1.57***	1.53**
			(3.20)		(2.73)	(2.54)
Single-parent household			1.53***		1.45***	1.43***
			(4.54)		(4.26)	(3.72)
Non-family household			1.29**		1.19	1.18
			(2.45)		(1.56)	(1.51)
Transitions						
Number of transitions				1.14***	1.07*	1.08*
				(6.84)	(2.55)	(2.56)
First marriage of single parent		0.86	0.88			0.81
		(0.48)	(0.41)			(0.66)
Divorce		1.43***	1.08			1.02
		(4.36)	(0.83)			(0.25)
Remarriage/marriage		1.08	1.01			0.91
		(0.79)	(0.05)			(0.74)
-2 Log likelihood	13259	13228	13202	13219	13197	13196

[a]Controls included in all models: age at menarche, ethnicity, religion, father's education, mother's education, months since age 10 and months since age 10 squared.

Table 4. Hazard Model Estimates: Relationship Between Family Influences, Receipt of Family Planning Services and Rate of Using Contracaptives at First Intercourse, Whites Only[a]

	1	2	3	4	5
Received family planning services 12 months prior					
Check up related to family planning		1.60*** (2.91)			
Counseling			1.38* (1.99)		
Received method or prescription for method				1.49*** (2.70)	
Any family planning services					1.33* (2.12)
Parental background					
Mother was under age 18 at her first birth	1.45*** (3.38)	1.45*** (3.35)	1.45*** (3.37)	1.45*** (3.38)	1.45*** (3.39)
Parents married at birth	0.79 (1.52)	0.79 (1.49)	0.80 (1.46)	0.79 (1.51)	0.79 (1.49)
Living situation last month					
Stepparent household	1.27 (1.53)	1.27 (1.57)	1.28 (1.57)	1.26 (1.49)	1.27 (1.53)
Cohabiting parent household	1.43* (1.77)	1.46* (1.87)	1.44* (1.79)	1.45* (1.83)	1.44* (1.80)
Single-parent household	1.31* (2.29)	1.32** (2.39)	1.31* (2.30)	1.32** (2.39)	1.31** (2.33)
Non-family household	1.08 (0.63)	1.09 (0.68)	1.10 (0.70)	1.09 (0.67)	1.10 (0.71)
Transitions					
Number of transitions	1.10*** (2.91)	1.10*** (2.76)	1.10*** (2.89)	1.10*** (2.87)	1.10*** (2.90)
First marriage of single parent	0.55 (1.31)	0.57 (1.26)	0.56 (1.28)	0.56 (1.30)	0.56 (1.3)
Divorce	1.10 (0.82)	1.07 (0.56)	1.08 (0.67)	1.07 (0.55)	1.07 (0.6)
Remarriage/marriage	0.93 (0.47)	0.95 (0.34)	0.94 (0.43)	0.95 (0.37)	0.94 (0.44)
-2 Log likelihood	10086	10078	10082	10079	10082

[a]Controls included in all models: age at menarche, ethnicity, religion, father's education, mother's education, months since age 10 and months since age 10 squared.

Table 5. Hazard Model Estimates: Relationship Between Family Influences, Receipt of Family Planning Services and Rate of NOT Using Contracaptives at First Intercourse, Whites Only[a]

	1	2	3	4	5
Received family planning services 12 months prior					
Check up related to family planning		0.76			
		(0.73)			
Counseling			0.37**		
			(2.17)		
Received method or prescription for method				0.87	
				(0.41)	
Any family planning services					0.58*
					(1.72)
Parental background					
Mother was under age 18 at her first birth	1.94***	1.94***	1.96***	1.94***	1.95***
	(4.71)	(4.74)	(4.79)	(4.72)	(4.75)
Parents married at birth	0.73**	0.73*	0.71*	0.73*	0.72*
	(1.67)	(1.68)	(1.83)	(1.67)	(1.74)
Living situation last month					
Stepparent household	1.87**	1.87**	1.85**	1.87**	1.86**
	(2.61)	(2.61)	(2.57)	(2.61)	(2.60)
Cohabiting parent household	1.75*	1.74*	1.70*	1.75*	1.73*
	(1.84)	(1.83)	(1.76)	(1.84)	(1.80)
Single-parent household	1.67***	1.67***	1.66***	1.67***	1.67***
	(3.00)	(3.01)	(3.00)	(3.00)	(3.00)
Non-family household	1.36	1.36	1.32	1.36	1.34
	(1.45)	(1.44)	(1.30)	(1.45)	(1.35)
Transitions					
Number of transitions	1.04	1.04	1.04	1.04	1.04
	(0.70)	(0.72)	(0.67)	(0.70)	(0.67)
First marriage of single parent	1.36	1.35	1.32	1.36	1.35
	(0.68)	(0.66)	(0.62)	(0.68)	(0.67)
Divorce	0.89	0.89	0.90	0.89	0.91
	(0.64)	(0.61)	(0.54)	(0.61)	(0.52)
Remarriage/marriage	0.85	0.85	0.84	0.85	0.85
	(0.65)	(0.67)	(0.70)	(0.66)	(0.65)
-2 Log likelihood	4500	4499	4493	4500	4496

[a]Controls included in all models: age at menarche, ethnicity, religion, father's education, mother's education, months since age 10 and months since age 10 squared.

Table 6. Hazard Model Estimates: Relationship Between Family Influences and Rate of First Intercourse, Blacks Only[a]

	1	2	3	4	5	6
Parental background						
Mother was under age 18 at her first birth	1.66***	1.65***	1.60***	1.65***	1.62***	1.59***
	(4.76)	(4.62)	(4.34)	(4.66)	(4.4)	(4.27)
Parents married at birth	0.90	0.86	0.92	0.90	0.95	0.91
	(0.98)	(1.35)	(0.76)	(0.98)	(0.50)	(0.79)
Living situation last month						
Stepparent household			1.59*		1.41*	1.58*
			(2.21)		(1.94)	(2.21)
Cohabiting parent household			1.30		1.31	1.27
			(1.23)		(1.29)	(1.11)
Single-parent household			1.15		1.14	1.13
			(1.07)		(0.96)	(0.91)
Non-family household			1.26		1.25	1.20
			(1.20)		(1.09)	(0.87)
Transitions						
Number of transitions				1.02	0.98	1.03
				(0.44)	(0.43)	(0.57)
First marriage of single parent		0.65	0.60			0.57
		(1.53)	(1.81)			(1.90)
Divorce		0.98	0.93			0.90
		(0.11)	(0.42)			(0.57)
Remarriage/marriage		1.16	0.92			0.88
		(0.78)	(0.37)			(0.54)
-2 Log likelihood	4589	4586	4580	4589	4584	4579

Table 7. Hazard Model Estimates: Relationship Between Family Influences, Receipt of Family Planning Services and Rate of Using Contracaptives at First Intercourse, Blacks Only[a]

	1	2	3	4	5
Received family planning services 12 months prior					
Check up related to family planning		1.89***			
		(2.47)			
Counseling			3.05***		
			(4.41)		
Received method or prescription for method				2.73***	
				(4.78)	
Any family planning services					2.42***
					(4.33)
Parental background					
Mother was under age 18 at her first birth	1.50***	1.49***	1.42**	1.49***	1.46***
	(2.80)	(2.75)	(2.41)	(2.76)	(2.63)
Parents married at birth	0.81	0.83	0.80	0.83	0.83
	(1.38)	(1.25)	(1.46)	(1.26)	(1.24)
Living situation last month					
Stepparent household	1.77*	1.71*	1.62*	1.65*	1.65*
	(2.13)	(2.01)	(1.79)	(1.87)	(1.86)
Cohabiting parent household	1.39	1.44	1.40	1.41	1.42
	(1.17)	(1.30)	(1.20)	(1.23)	(1.24)
Single-parent household	1.34*	1.34*	1.26	1.32	1.31
	(1.70)	(1.70)	(1.31)	(1.61)	(1.56)
Non-family household	1.53*	1.53*	1.53*	1.52*	1.55*
	(1.67)	(1.67)	(1.66)	(1.65)	(1.72)
Transitions					
Number of transitions	0.95	0.94	0.94	0.94	0.93
	(0.74)	(0.89)	(0.82)	(0.88)	(0.94)
First marriage of single parent	0.63	0.68	0.64	0.71	0.68
	(1.27)	(1.05)	(1.20)	(0.93)	(1.04)
Divorce	1.07	1.07	1.10	1.09	1.11
	(0.29)	(0.3)	(0.39)	(0.36)	(0.44)
Remarriage/marriage	0.92	0.95	0.93	0.95	0.97
	(0.28)	(0.16)	(0.22)	(0.15)	(0.1)
-2 Log likelihood	2994	2989	2979	2976	2979

[a]Controls included in all models: age at menarche, ethnicity, religion, father's education, mother's education, months since age 10 and months since age 10 squared.

Table 8. Hazard Model Estimates: Relationship Between Family Influences, Receipt of Family Planning Services and Rate of NOT Using Contracaptives at First Intercourse, Blacks Only[a]

	1	2	3	4	5
Received family planning services 12 months prior					
Check up related to family planning		1.46			
		(1.05)			
Counseling			1.36		
			(0.76)		
Received method or prescription for method				1.25	
				(0.64)	
Any family planning services					1.13
					(0.37)
Parental background					
Mother was under age 18 at her first birth	1.71***	1.71***	1.7***	1.71***	1.71***
	(3.26)	(3.25)	(3.21)	(3.26)	(3.25)
Parents married at birth	1.08	1.08	1.07	1.07	1.08
	(0.40)	(0.41)	(0.39)	(0.40)	(0.41)
Living situation last month					
Stepparent household	1.33	1.29	1.30	1.30	1.31
	(0.87)	(0.77)	(0.81)	(0.81)	(0.84)
Cohabiting parent household	1.11	1.13	1.11	1.12	1.11
	(0.33)	(0.37)	(0.33)	(0.34)	(0.34)
Single-parent household	0.89	0.89	0.88	0.89	0.89
	(0.55)	(0.59)	(0.64)	(0.57)	(0.57)
Non-family household	0.76	0.77	0.76	0.76	0.76
	(0.74)	(0.71)	(0.74)	(0.73)	(0.73)
Transitions					
Number of transitions	1.14*	1.14*	1.14*	1.14*	1.14*
	(1.92)	(1.85)	(1.91)	(1.90)	(1.90)
First marriage of single parent	0.46	0.48	0.47	0.47	0.47
	(1.49)	(1.40)	(1.20)	(1.45)	(1.47)
Divorce	0.67	0.67	1.10	0.67	0.67
	(1.28)	(1.27)	(1.27)	(1.27)	(1.27)
Remarriage/marriage	0.86	0.88	0.87	0.87	0.87
	(0.39)	(0.32)	(0.37)	(0.36)	(0.37)
-2 Log likelihood	2190	2189	2189	2190	2190

[a]Controls included in all models: age at menarche, ethnicity, religion, father's education, mother's education, months since age 10 and months since age 10 squared.