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## Marriage and Family Formation Among Low-Income Couples: What Do We Know From Research?

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Is There an Advantage to Being Born to Married versus Cohabiting parents?

Differences in Child Behavior

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Abstract

Despite the increase in children born to cohabiting parents, little is known about how these children fare relative to children born to married parents. In this analysis, we address two central questions: (1) is there an advantage to being born to married as opposed to cohabiting parents?, and (2) what factors help explain this advantage? We consider how differences in demographic and socioeconomic characteristics, mental and physical health, parents' relationship quality, mothering behaviors, and family instability explain differences in child behavioral problems at age three. The results show that children born to married mothers have fewer reported behavioral problems. Mother's demographic and human capital characteristics explain about half of the marriage advantage, indicating that a substantial part of the advantage is due to selection. However, we cannot fully account for the marriage advantage associated with withdrawn, anxious/depressive, and overall behavioral problems.

Keywords: cohabitation, marriage, child behavior

## Introduction

Cohabitation is a common living arrangement for adults, and increasingly, it is a common living arrangement for children (Bumpass & Lu, 2000). In 1999, 6 percent of all children lived in cohabiting parent families (Acs & Nelson, 2001), up from approximately 3.5 percent a decade earlier (Manning & Lichter, 1996). About 60 percent of these children live in cohabiting step-parent families, while the remainder live with both of their biological parents (Bumpass, 1995). Eighty percent of children living with both of their biological parents are under age six (Brown, 2001). Indeed, an increasing share of nonmarital births are to cohabiting parents. Today, about half of all nonmarital births are to mothers living with their baby's biological father (McLanahan & Garfinkel, 2002), up from about 40 percent in the early 1990s and 25 percent in the early 1980s (Bumpass & Lu, 2000).

Despite the increase in children living in cohabiting families, surprisingly little is known about their well-being. In particular, little is known about how children born to cohabiting parents fare in relation to children born to married parents. Cohabitation is similar to marriage in many respects: two adults share a household and have an intimate relationship. Indeed, from a child's perspective, cohabiting parents may seem no different than parents who are legally married. However, cohabitation differs significantly from marriage in that it does not have the legal, and perhaps more importantly, the social sanction of marriage. Moreover, couples who choose cohabitation over marriage, especially for childrearing, differ considerably from couples who marry before raising children. Younger mothers, African American mothers, and mothers with low education and poor employment are less likely to marry following a premarital conception (Manning, 1993, 2001a). In addition, couples with greater relationship happiness, less violence, and greater anticipated stability are more likely to transition to marriage (Brown,

2000a; DeMaris, 2000). This finding means that couples who remain cohabiting have lower reported relationship satisfaction (Nock, 1995). Given these differences in selection into cohabitation and marriage, there is reason to suspect that the well-being of their children may differ as well.

Prior research generally finds that children living in married households are advantaged relative to children living in cohabiting households (Acs & Nelson, 2002; Brown, 2001; Dunifon & Kowaleski-Jones, 2002; Hanson, McLanahan, & Thomson, 1997; Nelson, Clark, & Acs, 2001; Thomson, Hanson, & McLanahan, 1994). Moreover, the advantage is generally explained by differences in income and parenting practices between cohabiting and married parents (Hanson et al., 1997). However, the research that focuses specifically on children living with both of their biological parents finds that the advantage does not apply to all outcomes, all ages, or all race and ethnic groups (Acs & Nelson, 2002; Brown, 2001; Dunifon & Kowaleski-Jones, 2002; Hanson et al., 1997).

A limitation of the research on cohabitation and child well-being is that most of the studies combine children living in cohabiting step-parent families with those living with both of their biological cohabiting parents. Moreover, few studies look at children under the age of six (Brown, 2001; Manning, 2001b). Living with both biological parents in a cohabiting relationship is rare for older children, because most cohabiting relationships either transition to marriage or break-up within a few years (Bumpass & Lu, 2000; Graefe & Lichter, 1999). Moreover, cross-sectional analyses on older children do not take into consideration the child's entire life history. Therefore, these studies may not be able to fully account for the factors affecting the child's well-being.

We use data from the Fragile Families Study and the Longitudinal Study of Pre School-Aged Children supplement to extend previous research in this field in several ways. We focus

exclusively on very young children (three-year-olds), and have information on their entire family-life histories. Moreover, our study consists only of biological parent families, rather than a combination of cohabiting biological parent and step-parent families. These data also provide a very rich source of control measures to account for the differences between cohabiting and married parents that may affect child behavior.

We address two central questions: (1) Is there an advantage for children of being born to married parents as opposed to cohabiting parents?, and (2) if so, what factors help explain this advantage? We look specifically at differences in child emotional and behavioral problems at age three.

### Background

Children born to cohabiting parents may be disadvantaged relative to children born to married parents for many reasons, including differences in the mother's economic resources, mother's psychological well-being, parents' relationship quality, mother's parenting practices, and union stability. These differences may be based on the fact that cohabitation causes mothers to have fewer resources and more instability, or they may pre-date a mother's choice of relationship status. Also, these factors that affect child well-being are likely to be highly correlated, rather than mutually exclusive.

#### *Economic Resources*

Higher economic resources help promote healthy child development by reducing maternal stress. Lower maternal stress allows for better parenting (Elder, 1980; McLeod & Shanahan, 1993; McLloyd & Wilson, 1991; Ross & Van Willigen, 1996; Zill, Moore, Smith, Steif, & Cairo, 1995). More directly, greater economic resources buy more time for the mother to be with the child and perhaps help to minimize any behavior problems that do arise.

Research consistently finds that married parents have higher economic resources and educational attainment than cohabiting parents (Acs & Nelson, 2002; Manning & Lichter, 1996; Osborne, 2003a). Moreover, cohabitators with the highest human capital are the most likely to marry following a premarital conception (Manning, 1993, 2001a). Married parents are also more likely than cohabiting parents to share their economic resources (Kenney, 2003). Thus, household income may not reduce stress for cohabiting mothers in the same way it does for married mothers. However, a cross-sectional study that looks at teen behavioral problems in two-biological parent married and cohabiting families finds that economic resources do help explain the marriage advantage (Nelson, Clark, & Acs, 2001).

#### *Mental and Physical Health*

Lower maternal psychological well-being is associated with poorer reported child outcomes (Downey & Coyne, 1990). This is because poor mental health may negatively impact a mother's ability to parent, and it may increase her likelihood of perceiving her child as a behavior problem (Friedlander, Weiss, & Traylor, 1986). Previous research finds that although cohabitators without children report similar levels of depression (Horwitz & White, 1998), cohabiting *mothers* report significantly higher levels of depression than married mothers (Brown, 2000b). Whether this is a result of selection or something about the nature of the cohabiting union has not been tested. In addition to lower psychological well-being, cohabiting mothers are also less likely to seek early prenatal care, and are more likely to report using drugs and smoking during pregnancy (Osborne, 2003b). Each of these behaviors is linked with subsequent child behavioral problems (Leech, Richardson, Goldschmidt, & Day, 1999; Weitzman, Gortmaker, & Sobol, 1992).

### *Relationship Quality*

Mothers who receive strong emotional support from their child's father report lower levels of maternal stress and better parenting behaviors (Belsky, 1990; Brofenbrenner, 1979; Carlson & McLanahan, 2002; Kerig, Cowan, & Cowan, 1993). Mothers who are helped and supported in childrearing are also more effective parents (Chase-Lansdale, Brooks-Gunn, & Paikoff, 1992). Previous research using these same data indicates that married mothers report more emotional support from their baby's father than cohabiting mothers report (Osborne, 2003a, 2003b), yet it is not clear if this is the result of selection or something that occurs as the result of marriage.

Parental conflict (Peterson & Zill, 1986) and domestic violence (Edelson, 1999) are also strongly associated with more child behavioral problems. Conflict may harm the child directly, and it may also adversely impact the mother's ability to meet her child's needs (Seltzer, 1994).

### *Parenting Behaviors*

A home environment that provides warmth and responsive parenting, and fair and consistent discipline helps to foster healthy child behaviors (NRC, 2000). Prior research shows that harsh parenting and maternal neglect are strongly associated with subsequent child behavior problems (Baumrind, 1996; Greenberg, Speltz, & DeKlyen, 1993; Hill & Bush, 2001; Power & Chapieski, 1986; Simons, Johnson, & Conger, 1994). As stated previously, economic resources, psychological well-being, and relationship quality may have direct effects on child well-being, and also affect a mother's ability to parent. Research shows that mothers with lower socioeconomic status are generally more likely to spank their child often (Brody & Flor, 1998; Giles-Sims & Sugarman, 1995; Hill & Bush, 2001; Hoff-Ginsberg & Tardiff, 1995), and show less warmth to their children (Jarrett, 1997; Pinderhughes, Nix, Foster, & Jones, 2001; Simons, Johnson, Conger,

& Lorenz, 1997). In addition, mothers who receive strong emotional support from their child's father are more likely to engage in positive parenting behaviors (Carslon & McLanahan, 2002).

Previous research using these same data shows that stable married and cohabiting mothers are equally likely to spank their one-year-old child often and to show warmth and responsive behaviors, after accounting for differences in age, race, and education (Osborne, 2003b). Other research shows that parenting practices do little to mediate the differences in outcomes between children living with cohabiting versus married parents (Dunifon & Kowaleski-Jones, 2002; Thomson et al., 1994). This is because few differences in parenting exist after taking into consideration other characteristics of the mothers.

### *Instability*

Family instability causes stress by disrupting the normal family routines and interactions, and it is often associated with a loss of resources. This strain negatively impacts child behavior both directly (Wu, 1996; Wu & Martinson, 1993) and through the strain it has on the parents' behaviors with the child (McLanahan, 1985). Cohabiting families are significantly less stable than married families with children, even if the cohabiting parents marry (Manning, Smock, & Majumdar, 2002). This greater stability of married families may help explain the marriage advantage. On the other hand, it may be that the factors that cause the separation also cause the differences in child outcomes.

## Data and Methods

### *Data*

In this analysis, we use data from three waves of the Fragile Families and Child Well-being Survey, combined with the In-home Longitudinal Study of Pre School-Aged Children supplement. The Fragile Families Study is a longitudinal survey which interviewed

approximately 5000 mothers (4898) in the hospital at their child's birth, in twenty large cities throughout the United States, between 1998 and 2000. Almost 90 percent of the mothers were re-interviewed when the child was approximately one year old, and data collection is in the process of re-interviewing the mothers in the child's third year. The in-home supplement is also being collected on the three-year-old children, and an interim file is used in this analysis.

Data on 715 mothers who were either married or cohabiting with their child's father at the baby's birth are included in this analysis. These mothers were interviewed at all three waves and completed the in-home supplement. This is approximately 20 percent of the full baseline sample of married and cohabiting mothers, and therefore the results should be considered preliminary.

#### *Dependent Variables*

We examine four outcomes of child emotional and behavioral problems at age three: aggressive, withdrawn, anxious/depressive, and an overall child behavior problem scale. See table 1 for a list of the items and the *Cronbach's alpha* for each scale. The items and scales for the four outcomes are derived from the Child Behavior Checklist 2-3 (Achenbach, 1992), and the 2000 CBC 1.5-5 (Achenbach & Rescorla, 2000). Each item was read to the child's mother, and the mother indicated whether the statement was not true (0), sometimes or somewhat true (1), or very true or often true (2) of her child. The aggressive scale used in this analysis is a subset of the full 19 item aggressive scale. Our scale is comprised of the mean responses of 15 items, with a mean of .68 and a standard deviation of .38. The withdrawn scale consists of the mean responses of 8 items (mean = .25 and standard deviation = .26) and anxious/depressive scale (mean = .45 and standard deviation = .31) consists of the mean responses of 7 items. One item on the full anxious/depressive scale (nervous, high strung, tense) was not appropriately asked of the mothers in this sample and is, therefore, excluded in this analysis. We use a subset of 39

items out of the full 100 items for the Child Behavior Checklist (CBCL). The CBCL used in this analysis consists of the means of the items from the three previously mentioned scales, as well as nine other items deemed important in capturing overall child behavior. The mean for the CBCL is .49 out of 2 and the standard deviation is .26. This mean is just below the 80<sup>th</sup> percentile compared to the CBCL normative sample. This finding indicates that the mothers in this sample report more overall behavioral problems than the general population.

Over three-quarters (77 percent) of the mothers in this sample responded to in-home interviews, while the remainder were interviewed over the telephone. There are no significant differences in the responses based on mode of interview.

Insert Table 1 Here

### *Independent Variables*

The mother's self-reported relationship status (married or cohabiting) at the time of her child's birth is the main independent variable in this analysis. The other independent variables include the mother's demographic and socioeconomic characteristics, mental health and health behaviors, relationship quality, parenting behaviors, family instability, and child characteristics.

Demographic and socioeconomic characteristics of the mother include age, race, immigrant status, family background, parity, education, household income, and employment. These are all measured at baseline, except household income and employment, which are measured at one-year. Mother's age is a continuous variable. We use four dichotomous measures for the mother's race (White, Black, Hispanic, other), as well as dichotomous measures for whether the mother is foreign born, and whether her parents were married when she was 15 years old. Mother's education is based on four categories: less than high school, high school, some college or technical training, and college or more. Parity includes two measures: one continuous measure of the total

number of children the mother has at the child's birth, and a dichotomous measure for whether the mother has a child from a previous relationship. The mother's total number of children reflects both her experience as a mother, as well as limitations on her time, whereas children from another partner reflect her history of past relationships. Household income is measured at one-year by a continuous measure of the household income to the poverty threshold for the family size. The poverty threshold is assessed based on the household roster, regardless of the relationship of the adult or child to the mother. Mother's employment is a dichotomous measure asked at one-year.

Mother's mental health is measured by two scales: major depression and general anxiety disorder. Depression and anxiety are measured at one-year and are assessed using items from the Depressive Episode and Generalized Anxiety Disorder sections of the Composite International Diagnostic Interview – Short Form (CIDI-SF; Version 1.0 November 1998; Nelson, Kessler, & Mroczek, 1998). The CIDI-SF is a widely used screening instrument based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV, American Psychiatric Association, 1994) and is designed for epidemiological research. Mother's physical health is a self-assessment, asked of the mother at the child's birth. Responses range from poor to excellent, and a dichotomous measure is created for poor or fair health versus good or excellent. Health behaviors include dichotomous measures of the mother's report of prenatal smoking and drug use, asked at the child's birth.

We look at five measures of the parent's relationship quality. These include the emotional support the mother feels from the child's father, the degree of conflict in the relationship, whether the father hits or slaps the mother, the support the father provides the mother with regard to her parenting, and instrumental help he provides with childrearing. The first three are asked at the child's birth. The latter two are asked at one-year. The emotional support the mother feels from the father is based on the mean of three questions including, the baby's father is fair and willing to

compromise, expresses love and affection to the mother, and encourages the mother to do things important to her ( $\alpha = .6920$ ). The responses are recoded such that 3 is equal to often and 1 is equal to never. Conflict within the relationship is based on the mean of the mother's report of frequency of disagreement with the father about money, spending time together, sex, the pregnancy, drugs/alcohol, and being faithful within the month prior to their child's birth ( $\alpha = .6397$ ). The responses range from 1 (often) to 3 (never), and are recoded such that a high value indicates a high level of disagreement. Physical abuse is measured as a dichotomous variable based on the mother's report at baseline that the father ever hits or slaps her. Father's support of the mother's parenting is the mean of the responses to six questions (each ranging from 1 to 4) asked at one-year. These include how often the baby's father acts like the dad the mother wants for the child, the mother can trust the father to take good care of the child, the father respects the schedules and rules the mother makes for the child, the father supports the mother in the way the mother wants to raise the child, the mother and father talk about problems in raising the child, and the mother can count on the father to watch the child for a few hours ( $\alpha = .8886$ ). The responses are recoded such that a high value indicates high levels of support. Instrumental help is the mean of the responses to four questions asked at one-year ( $\alpha = .8888$ ), including how often the father watches the child when the mother needs to do things, runs errands for the mother, helps around the house doing maintenance and chores, and drives the child places like to daycare or the doctor. The 1 (often) to 4 (never) responses are recoded such that a high value indicates high levels of help.

Two measures of mothering behaviors are included: harsh parenting and warmth and responsive behaviors. Harsh parenting is based on the mother's response at one-year as to whether and how often she spans her child. We create a dichotomous variable indicating the mother uses harsh parenting if she reports she spans her one-year-old daily or weekly. The

mother's warmth and responsive behaviors are also measured at one-year and are based on the mean of five questions including how many days per week the mother reports she sings songs, plays with toys, plays games such as peek-a-boo, gives hugs and shows physical affection, and puts to bed her one-year-old ( $\alpha = .5154$ ).

We include three measures of the child's characteristics: low birth weight, gender, and the mother's report of the child's temperament at age one. We create a scale comprised of the mean responses (1 to 5) to four questions including the tendency for the child to be unusually shy, cry a lot, get upset easily, and over react ( $\alpha = .5423$ ).

Family instability is a dichotomous measure indicating that the mother and father physically separate by the time the child is three-years-old. This variable is based on the mother's report at each interview wave. A small number of mothers report multiple transitions over the time frame. Five married mothers and 19 cohabiting mothers report they separated at year-one and were back together again by year-three. In addition, 4 cohabiting mothers report they married their child's biological father at year-one, and were cohabiting at year-three. All of these mothers are included in the separated group. Fifty-two cohabiting mothers married their child's biological father subsequent to the birth and were still married at year-three. The emphasis of this analysis is determining how children born to cohabiting mothers fare in relation to children born to married mothers. Thus, cohabitators who subsequently marry are included in the cohabiting group.

We used several methods to account for missing data. If the mother's relationship status is missing in any year, the mother is excluded from the analysis. For most measures we impute missing data at the mean of the subgroup (cohabiting or married). For scales, we take the average of the available data.

### *Methodology*

The primary aim of this analysis is determine whether any advantage children born to married parents have is the result of selection or family structure. To truly know the answer we would need to randomly assign children to married or cohabiting parents. The second best option would be to have information on the parents before they formed their unions. Therefore, we could control for pre-existing characteristics that are not determined by family structure. These data provide information on the mothers at their child's birth, which is subsequent to their union formation. Some of the mothers' characteristics are clearly not determined by family structure (e.g. age, race, and education). To the extent that these characteristics explain any marriage advantage, then we can be assured that the advantage is due to selection. The other characteristics may be either endogenous or exogenous to family structure. If they explain the difference in child well-being between married and cohabiting families, we cannot determine if their mediating effect is due to selection or the result of living in a particular family structure. However, we can exclude possible mechanisms if we find that they do not help attenuate the difference between the groups.

We estimate nine ordinary least squares regression models for each of the four outcomes to determine whether differences in child behavior exist between children born to married and cohabiting mothers, and what factors help explain these differences. The main independent variable in each model is the relationship status of the parents at the child's birth. The first model is the bivariate relationship between the parent's relationship status at the child's birth (married is the reference category for each model) and the mother's reports of child behavioral problems at age 3. This model answers the first research question of whether there is an advantage to a child to being born to married versus cohabiting parents. Each subsequent model is cumulative.

The second model controls for demographic and socioeconomic characteristics of the mother including age, race, immigrant status, family background, parity, education, household income, and employment. This model includes factors that are largely exogenous to family structure.

In models 3 through 6, we add in mother's health and health behaviors, child's gender and low birthweight, relationship quality, and mothering behaviors, respectively.

Model 7 controls for the mother's report of her child's temperament at age one. Including this measure in the models makes the test of differences between the groups more conservative. The mother's report of her child's temperament at age one may be highly correlated with mother's mental health and mothering behaviors. Therefore, by including this measure, we hope to control for differences in reporting of child behavior at age three. This measure may also reflect a host of unobservable characteristics about the mothers and their children.

Models 8 and 9 control for differences in stability between cohabiting and married relationships. We include separation in model 8 rather than in an earlier model in an attempt to control for the factors that may cause the separation. Model 9 controls for an interaction between separation and cohabiting at the baby's birth. This helps to account for the fact that separation from cohabitation may be different than separation from marriage, given the initial higher level of commitment of marriage.

The mother's family background, self-reported physical health, general anxiety disorder, father's support of parenting, father's instrumental support, and physical abuse are included in the respective models, but they are not shown in the tables for the multivariate analysis. These variables were not significant in any of the models, but they added to the overall fit of the models.

## Results

Table 2 shows the means of the independent variables used in the analysis by the mother's relationship status at her child's birth. Comparing the characteristics of married and cohabiting mothers sheds light on what factors may explain differences in child behavior problems. Significant differences between the groups are noted in the table.

Insert Table 2 Here

The results in table 2 show that married mothers are about 4 years older than cohabiting mothers (28.5 versus 24.3 years), and are much more likely than cohabiting mothers in this sample to be White, foreign born, and from an intact family. Married and cohabiting mothers have a similar number of children. However, cohabiting mothers are over twice as likely to have a child from another partner (43.2 percent versus 20.6 percent). Cohabiting mothers also have much lower levels of education than do married mothers. The differences in higher education are especially stark; over a third of the married mothers in this sample have a college education, as compared to just over 3 percent of cohabiting mothers. Married mothers also have over twice the household income to needs as cohabiting mothers (3.2 versus 1.3), which is consistent with previous research (Manning & Lichter, 1996). However, married and cohabiting mothers report similar levels of employment in the year following their child's birth (56.8 percent versus 53.1 percent).

Married and cohabiting mothers report similar physical health at their child's birth, with few mothers reporting poor health. Mothers' reports of mental health are also similar. About 13 percent of married mothers report symptoms consistent with major depression, compared to about 16 percent of cohabiting mothers. The similarity between the groups is inconsistent with previous research that finds significantly higher levels of depression among cohabiting mothers (Brown, 2000b). This inconsistency might be due to the small sample size used in this analysis. Cohabiting and married mothers do differ significantly, however, in their health behaviors.

Almost a quarter of cohabiting mothers report that they smoked during their pregnancy, compared to less than 10 percent of married mothers. The difference in reported drug use is also large: almost 9 percent of cohabiting mothers report using drugs during their pregnancy, compared to less than 1 percent of married mothers.

The parent's relationship quality also differs considerably between the groups. Married mothers report significantly higher levels of emotional support from their partner, and lower levels of conflict. At one-year, married mothers continue to report more support from their baby's father, both in terms of support of parenting and instrumental help. These differences may reflect the higher level of stability in married relationships.

Cohabiting mothers report more spanking of their one-year-old and fewer warmth behaviors. They are also more likely to report that their one-year-old child cries often, is unusually shy, gets upset easily, and over reacts. This difference may reflect real differences in child temperament, or it may reflect differences in mothers' perceptions of their child.

Cohabiting mothers are three times as likely as married mothers to have separated from their baby's father by the time the child is three-years-old. Almost half of cohabiting relationships have ended within three years, compared to approximately 15 percent of marriages. Approximately 20 percent of cohabiting couples married over the three year time period, while about 30 percent remained cohabiting (authors' tabulations).

Insert Table 3 Here

### *Aggressive Behavior*

Table 3 shows the differences in reported aggressive behavior between children born to cohabiting and married mothers. Model 1 shows that children born to cohabiting mothers are reportedly more aggressive at age three than children born to married mothers. The difference

at the bivariate level is about 30 percent of a standard deviation ( $b = .11 / s.d. = .38$ ).

Differences in mother's characteristics that are largely exogenous to family structure, namely age, being foreign born, having a child with another man, and education, explain about 45 percent of the marriage advantage.

When differences in mothers' mental and physical health are considered (model 3), no significant differences in aggressive behavior between children born to cohabiting and married mothers remain. Mothers who suffer from major depression and who smoke or use drugs during pregnancy are much more likely to report aggressive behavior in their three-year-old. It is not clear whether these behaviors are exogenous or endogenous to family structure. However, the results indicate that mental health may be a possible mechanism for explaining the differences in aggressive behaviors. Mothers of boys, mothers who report high conflict in their relationship, and mothers who report negative parenting behaviors are also significantly more likely to report aggressive behaviors in their three-year olds. These findings are consistent with prior research (Baumrind, 1996; Greenberg et al., 1993; Hill & Bush, 2001; Power & Chapieski, 1986; Simons et al., 1994). Interestingly, separation does not have an independent effect on aggressive behavior. In preliminary analyses, we found that at the bivariate level, children in families that separate are significantly more likely to exhibit aggressive behaviors than children in families that remain together. However, the characteristics of the mothers that separate explain this difference.

In preliminary analyses, we introduced each of the possible mechanisms, one at a time, to determine if any variable could be excluded (not shown). The results showed that only mental health and health behaviors, relationship quality, and separation attenuate the difference between the groups. However, mother's mental health and health behaviors have the largest effect. When the health variables are introduced, the coefficient on cohabiting declines from .06 to .03 and is no

longer significant. When relationship quality and separation are each introduced, the coefficient on cohabiting only declines to .05. Mothering behaviors do not mediate the effect of cohabitation at all. As we predicted, the mechanisms are interrelated. Parents' relationship quality is correlated with mother's health, particularly prenatal drug use. When relationship quality is introduced in model 5, prenatal drug use is no longer significantly related to aggressive behaviors. Moreover, although mothering behaviors do not attenuate the difference in aggressive behaviors between the groups, they are correlated with emotional support from the father.

Insert Table 4 Here

#### *Withdrawn Behaviors*

The results in table 4 show differences in reported withdrawn behaviors. The results are similar to the results on aggressive behaviors, although differences between the two groups persist until family instability is considered. Children born to cohabiting mothers as compared to married mothers score approximately .08 points higher on the withdrawn behavior scale, which is about 30 percent of a standard deviation ( $b = .08 / s.d. = .26$ ). However, as with aggressive behavior, differences in mothers' characteristics, namely education and employment, explain about half of the marriage advantage (see model 2). None of the other factors attenuates the difference in withdrawn behaviors. Therefore, we have either not entirely controlled for selection, or there is another mechanism related to family structure that is driving the difference.

Model 8 shows that separation does not have an effect on withdrawn behaviors, after controlling for the other factors in models 2 through 7. The difference in reported behavior is no longer significant when family instability is added to the model, but the size of the coefficient does not change (.04) between models 7 and 8. Model 9 adds in the interaction term for separation and cohabiting at birth, and shows that there is no effect of separation for either group.

However, when the interaction term is included in the model, the coefficient on cohabiting at birth is reduced by half.

Insert Table 5 Here

*Anxious/Depressive*

Table 5 shows the results for differences in anxious/depressive behavior. Similar to the other two outcomes, children born to cohabiting mothers are significantly more likely to have reported anxious/depressive behaviors at age three ( $b = .15$ ). Model 2 shows that differences in mothers' characteristics, namely education and household income, explain over half of the marriage advantage. Income may be both endogenous and exogenous to family structure. As with the previous two outcomes, the factors considered in the other models do little more to attenuate the difference in behavior. This finding implies that we can rule out these factors as possible mechanisms. Conflict in the parents' relationship prior to the child's birth is strongly and positively related to more anxious/depressive behaviors in children at age three, although couple conflict does not mediate the effect of family structure. Significant differences persist between married and cohabiting parents, even after taking into consideration all of the factors in our analysis ( $b = .07$  in model 8). This result indicates that we have either not controlled for all of the factors related to selection, or that there is another mechanism related to living in a cohabiting household that affects anxious/depressive behaviors.

Insert Table 6 Here

*Child Behavior Checklist*

The final outcome, shown in table 6, shows that children born to cohabiting mothers have higher reported emotional and behavioral problems overall than children born to married mothers ( $b = .11$ ). Again, as in the three previously discussed outcomes, about 45 percent of the marriage

advantage can be explained by mothers' characteristics. Specifically, having a child with another partner, education, and employment help explain the marriage advantage. Mother's mental health and health behaviors explain an additional 18 percent of the marriage advantage  $((.06 - .04) / .11)$ . Mothers who suffer from major depression and who smoke or use drugs during pregnancy are much more likely to report child behavior problems. The other factors in columns 4 through 9 do little more to explain the marriage advantage, although relationship conflict and warm maternal behaviors are significantly related to child behavioral problems. The difference in reported behavioral problems between children born to cohabiting mothers versus children born to married mothers is about 15 percent of a standard deviation ( $b = .04 / s.d. = .26$ ).

As we did with aggressive behaviors, we introduced each of the possible mechanisms individually to determine if we could rule out any possible mechanisms (not shown). Relationship quality and separation (which are correlated) each attenuated the difference in behavioral problems slightly. The coefficient declines from .06 in model 2 to .05 when each is introduced. However, when mother's health and health behaviors is introduced, the coefficient declines from .06 to .04. The health variables and relationship quality are highly correlated.

### Conclusion

This paper addresses two central questions: (1) is there an advantage to being born to parents who are married as opposed to cohabiting, and (2) what factors help explain this advantage? We consider how differences in the mothers' demographic and human capital characteristics, mental and physical health, parent's relationship quality, mothering behaviors, and family instability help explain differences in child behavior at age three.

The results suggest that there is an advantage to being born to married parents as compared to cohabiting parents. Children born to cohabiting mothers are reportedly more

aggressive, more withdrawn, more anxious/depressive, and have more overall behavior problems at age three than children born to married mothers. However, differences in mothers' demographic and human capital characteristics explain about half of the marriage advantage. Differences in mother's mental health and health behaviors explain the remainder of the significant difference in aggressive behavior, and an additional 18 percent of the difference in overall behavioral problems. It is not clear whether mothers with poor health choose cohabitation versus marriage, or whether family structure causes health problems. Our analysis did not identify any possible mechanisms for explaining the marriage advantage in withdrawn and anxious/depressive behaviors, and did not fully account for the difference in children's overall behavioral problems. Interestingly, for each behavior outcome, family instability has no independent effect.

These results have important implications for policies aimed at promoting marriage for unmarried mothers. The results suggest that there is an advantage to children born to married parents. However, they also show that the advantage is largely due to differences in mothers' characteristics that pre-date family structure. Therefore, policies designed to increase marriage following a child's birth may have little effect on child well-being. Preliminary analyses show that cohabiting mothers who marry following their child's birth report behaviors that are similar to those of stable cohabiting mothers.

Moreover, mother's education, employment, mental health, health behaviors, relationship quality, and parenting are all directly related to child behavior. Programs designed to address these factors may have a significant impact on child well-being, independent of programs designed to promote healthy marriages.

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Table 1: Outcome Measures: Questions in Child Emotional and Behavioral Problem Scales

Aggressive <i>a</i> = .8501	Withdrawn <i>a</i> = .6485	Anxious/Depressive <i>a</i> = .5648	Modified Child Behavior Checklist <i>a</i> = .8877
Defiant	Acts too young for age	Clings to adults, too dependent	Easily jealous
Demanding	Avoids looking others in eye	Feelings easily hurt	Overtired
Disobedient	Refuses to play games	Looks unhappy without good reason	Doesn't get along with other children
Selfish or won't share	Seems unresponsive to affection	Self-conscious or easily embarrassed	Too shy timid
Easily frustrated	Shows little affection toward people	Too fearful or anxious	Unusually loud
Gets in many fights	Shows little interest in things	Unhappy, sad, depressed	Whiny
Punishment doesn't change behavior	Doesn't answer when other people talk to him/her	Too upset when separated from parents	Underactive, slow moving, lacks energy
Doesn't feel guilty after misbehaving	Withdrawn, doesn't get involved with others		Has sudden changes in mood or feelings
Hits others			Doesn't know how to have fun, acts like a little adult
Screams a lot			Plus questions in 3 other scales
Has angry moods			
Stubborn, sullen, irritable			
Temper tantrums			
Uncooperative			
Wants a lot of attention			

Mother's responses range from 0 (not true) to 2 (very/often true).

Table 2  
Means of Independent and Dependent Variables by Mother's Relationship Status at Child's Birth

	Married N = 301	Cohabiting N = 414
Independent variables		
Age	28.53	24.33*
White	38.54	10.39*
Black	32.23	61.59*
Hispanic	23.59	24.88
Other	5.65	3.14*
Foreign born	23.59	12.80*
Parents married at 15	60.47	35.75*
Parity	2.18	2.32
Child from other man	20.59	43.24*
Less than high school	21.26	40.58*
High school	18.94	33.57*
Some college	26.25	22.46
College	33.55	3.38*
Poverty ratio (1)	3.23	1.32*
Employed (1)	56.81	53.14
Poor/fair health	4.98	7.49
Major depression (1)	12.62	16.18
Anxiety disorder (1)	2.35	3.42
Prenatal smoking	8.31	23.67*
Prenatal drug use	0.33	8.69*
Child low birthweight	7.97	10.63
Child is male	48.17	54.11
Father emotional support (1 – 3)	2.76	2.68*
Couple conflict (1 – 4)	1.32	1.43*
Father hits/slaps	1.33	2.89
Father parenting support (1) (1 – 4)	3.73	3.64*
Father instrumental support (1) (1 – 4)	3.29	3.07*

\* Significantly different from married at the  $p = .10$  level.

Measured at baseline survey unless noted; (1) measured at one-year survey.

Table 2 (Continued)

Spanks daily/weekly (1)	6.31	9.95*
Warmth/responsive behaviors (1) (1 – 7)	6.07	5.84*
Child temperament (1) (1 – 5)	2.66	2.79*
Separation at year three	15.95	49.52*
Dependent variables		
Aggressive (0 - 2)	.61	.72*
Withdrawn (0 - 2)	.20	.28*
Anxious/depressive (0 - 2)	.36	.51*
Child behavior checklist (0 - 2)	.43	.54*

\* Significantly different from married at the  $p = .10$  level.

Measured at baseline survey unless noted; (1) measured at one-year survey.

Table 3: Results from Ordinary Least Squares Regression Analysis: Aggressive Behavior

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cohabiting at child's birth (married) <sup>a</sup>	.11***	.06*	.03	.03	.03	.03	.03	.03	.02
Mother's characteristics									
Age <sup>b</sup>		-.01*	-.01**	-.01**	-.01**	-.00*	-.00	-.00	-.00
Black (White)		-.05	-.03	-.03	-.05	-.05	-.06	-.07	-.06
Hispanic		-.02	.02	.02	-.00	-.00	-.00	-.00	.00
Foreign born		-.08*	-.06	-.06	-.05	-.05	-.05	-.05	-.05
Parity		-.00	-.00	-.00	-.01	-.01	-.01	-.01	-.01
Child with other man		.08**	.08**	.09***	.08**	.09***	.09***	.09***	.09***
High school (< H. S.)		-.06*	-.04	-.05	-.06*	-.05	-.03	-.03	-.03
Some college		-.07	-.05	-.04	-.05	-.04	-.02	-.01	-.01
College		-.05	-.01	-.01	-.00	.02	.05	.05	.05
Poverty ratio (1) <sup>b</sup>		-.00	-.00	-.00	-.00	-.00	-.00	-.00	-.00
Employed (1)		-.04	-.04	-.04	-.04	-.05	-.04	-.04	-.04
Mother's health/health behaviors									
Major depression (1)			.12***	.12***	.10***	.09***	.08**	.08**	.08**
Prenatal smoking			.14***	.14***	.12***	.13***	.13***	.13***	.13***
Prenatal drug use			.11*	.12*	.08	.06	.06	.06	.05

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

a. Reference category in parentheses. b. Measured at baseline survey unless noted; (1) measured at one-year survey.

Table 3: Results from Ordinary Least Squares Regression Analysis: Aggressive Behavior (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child's characteristics									
Child low birthweight				-.01	-.02	-.02	-.02	-.02	-.02
Child is male				.05**	.05*	.05*	.05*	.05*	.05*
Relationship quality with child's father									
Father emotional support					-.08*	-.06	-.05	-.05	-.05
Couple conflict/disagreement					.18***	.17***	.15***	.15***	.15***
Mothering behaviors									
Mother spansks daily/weekly (1)						.12**	.09**	.09**	.09**
Warmth/responsive behaviors (1)						-.03***	-.03***	-.03***	-.03***
Child's temperament (1)							.08***	.08***	.08***
Family instability									
Separate								.03	-.00
Separate*cohabit at birth									.04
Constant	.61***	.87***	.81***	.79***	.78***	.88***	.62***	.58***	.59***
Adjusted $R^2$	.0189	.0311	.0615	.0638	.0947	.1095	.1415	.1410	.1401
$N$	715	715	715	715	715	715	715	715	715

\*\*\*  $p \leq .01$ . \*\*  $p \leq .05$ . \*  $p \leq .10$ .

a. Reference category in parentheses. b. Measured at baseline survey unless noted; (1) measured at one-year survey.

Aggressive behavior scale based on mean of 15 questions ( $\alpha = .8479$ ), range = (0 – 2), mean = .68, s. d. = .38.

Mother from intact home, self-reported health status, general anxiety disorder, father hits/slaps, support of parenting, and instrumental support included in models, but not shown in tables.

Table 4: Results from Ordinary Least Squares Regression Analysis: Withdrawn Behavior

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cohabiting at child's birth (married) <sup>a</sup>	.08***	.04**	.04*	.04*	.04*	.04*	.04*	.04	.02
Mother's characteristics									
Age <sup>b</sup>		-.00	-.00	-.00	-.00	-.00	-.00	-.00	-.00
Black (White)		.01	-.00	-.00	-.01	-.01	-.01	-.02	-.02
Hispanic		.05	.04	.04	.04	.03	.03	.04	.04
Foreign born		.01	.01	.01	.01	.01	.01	.01	.01
Parity		-.00	-.00	-.00	-.01	-.01	-.00	-.00	-.00
Child with other man		.03	.03	.03	.03	.03	.03	.03	.03
High school (< H. S.)		-.06***	-.06***	-.06***	-.07***	-.07***	-.06**	-.06***	-.06**
Some college		-.11***	-.11***	-.11***	-.11***	-.10***	-.09***	-.09***	-.09***
College		-.09***	-.09***	-.09***	-.09***	-.09**	-.08**	-.08**	-.08**
Poverty ratio (1) <sup>b</sup>		-.01	-.01	-.01	-.01	-.01	-.01	-.01	-.01
Employed (1)		-.05**	-.04**	-.04**	-.04**	-.04**	-.04**	-.04**	-.04**
Mother's health/health behaviors									
Major depression (1)			.01	.01	.01	.01	-.00	-.00	-.00
Prenatal smoking			-.03	-.03	-.04	-.04	-.04	-.04	-.04
Prenatal drug use			.09**	.09**	.08*	.09*	.09*	.08*	.08*

\*\*\*  $p \leq .01$ . \*\*  $p \leq .05$ . \*  $p \leq .10$ .

a. Reference category in parentheses. b. Measured at baseline survey unless noted; (1) measured at one-year survey.

Table 4: Results from Ordinary Least Squares Regression Analysis: Withdrawn Behavior (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child's characteristics									
Child low birthweight				.04	.03	.04	.04	.04	.04
Child is male				.02	.02	.02	.02	.02	.02
Relationship quality with child's father									
Father emotional support					-.00	-.00	.00	.00	.00
Couple conflict/disagreement					.06*	.05*	.04	.04	.04
Mothering behaviors									
Mother spans daily/weekly (1)						-.03	-.03	-.03	-.03
Warmth/responsive behaviors (1)						-.01	-.01	-.01	-.01
Child's temperament (1)							.03***	.03***	.03***
Family instability									
Separate								.03	-.01
Separate*cohabit at birth									.05
Constant	.20***	.29***	.29***	.29***	.26*	.32**	.24	.19	.21
Adjusted $R^2$	.0227	.0870	.0897	.0899	.0922	.0941	.1009	.1017	.1017
$N$	715	715	715	715	715	715	715	715	715

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

a. Reference category in parentheses. b. Measured at baseline survey unless noted; (1) measured at one-year survey.

Withdrawn behavior scale based on mean of 8 questions ( $\alpha = .6451$ ), range = (0 – 2), mean = .25, s. d. = .26.

Mother from intact home, self-reported health status, general anxiety disorder, father hits/slaps, support of parenting, and instrumental support included in models, but not shown in tables.

Table 5: Results from Ordinary Least Squares Regression Analysis: Anxious/Depressive Behavior

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cohabiting at child's birth (married) <sup>a</sup>	.15***	.07***	.07***	.07***	.07***	.07***	.07***	.07***	.08***
Mother's characteristics									
Age <sup>b</sup>		.00	.00	.00	.00	.00	.00	.00	.00
Black (White)		.05	.04	.05	.03	.04	.03	.03	.03
Hispanic		.09***	.09***	.09***	.09**	.09**	.09**	.09**	.09**
Foreign born		.04	.04	.04	.05	.05	.04	.05	.05
Parity		-.02**	-.02**	-.02**	-.03***	-.03***	-.02**	-.02**	-.02**
Child with other man		.04	.03	.03	.03	.03	.03	.03	.03
High school (< H. S.)		-.06**	-.06**	-.06**	-.07***	-.07**	-.06**	-.05*	-.05*
Some college		-.17***	-.16***	-.16***	-.17***	-.16***	-.15***	-.14***	-.14***
College		-.16***	-.15***	-.15***	-.15***	-.14***	-.12***	-.12***	-.12***
Poverty ratio (1) <sup>b</sup>		-.01**	-.01**	-.01**	-.01**	-.01**	-.01*	-.01*	-.01*
Employed (1)		-.02	-.02	-.02	-.02	-.03	-.02	-.02	-.02
Mother's health/health behaviors									
Major depression (1)			.06**	.06**	.05*	.05	.03	.03	.03
Prenatal smoking			.01	.01	.00	.01	.01	.01	.01
Prenatal drug use			.02	.02	.00	-.00	-.00	-.00	-.00

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

a. Reference category in parentheses. b. Measured at baseline survey unless noted; (1) measured at one-year survey.

Table 5: Results from Ordinary Least Squares Regression Analysis: Anxious/Depressive Behavior (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child's characteristics									
Child low birthweight				-.02	-.03	-.02	-.03	-.03	-.03
Child is male				.01	.01	.01	.01	.01	.01
Relationship quality with child's father									
Father emotional support					-.04	-.04	-.03	-.03	-.03
Couple conflict/disagreement					.11***	.10***	.09***	.09***	.09***
Mothering behaviors									
Mother spans daily/weekly (1)						-.01	-.02	-.02	-.02
Warmth/responsive behaviors (1)						-.01	-.01	-.01	-.01
Child's temperament (1)							.06***	.06***	.06***
Family instability									
Separate								.02	.04
Separate*cohabit at birth									-.02
Constant	.36***	.48***	.47***	.46***	.40**	.46***	.26	.22	.22
Adjusted $R^2$	.0600	.1589	.1601	.1586	.1721	.1717	.2010	.2008	.1998
$N$	715	715	715	715	715	715	715	715	715

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

a. Reference category in parentheses. b. Measured at baseline survey unless noted; (1) measured at one-year survey.

Anxious/depressive scale based on mean of 7 questions ( $\alpha = .5648$ ), range = (0 – 2). mean = .45, s. d. = .31.

Mother from intact home, self-reported health status, general anxiety disorder, father hits/slaps, support of parenting, and instrumental support included in models, but not shown in tables.

Table 6: Results from Ordinary Least Squares Regression Analysis: Child Behavior Checklist

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cohabiting at child's birth (married) <sup>a</sup>	.11***	.06***	.04**	.04*	.04*	.04*	.05**	.04**	.04
Mother's characteristics									
Age <sup>b</sup>		-.00	-.00	-.00	-.00	-.00	-.00	-.00	-.00
Black (White)		-.01	.00	.00	-.01	-.01	-.02	-.02	.02
Hispanic		.03	.05	.05	.03	.04	.03	.04	.04
Foreign born		-.02	-.01	-.01	.00	.00	-.00	.00	.00
Parity		-.01	-.01	-.01	-.01*	-.01*	-.01	-.01	-.01
Child with other man		.05**	.05**	.05**	.05**	.06**	.05**	.05**	.05**
High school (< H. S.)		-.06**	-.05**	-.05**	-.06***	-.06**	-.04*	-.04*	-.04*
Some college		-.10***	-.09***	-.09***	-.09***	-.09***	-.07***	-.07***	-.07***
College		-.09***	-.07*	-.07*	-.07*	-.05	-.03	-.03	-.03
Poverty ratio (1) <sup>b</sup>		-.01	-.01	-.01	-.01	-.01	-.01	-.01	-.01
Employed (1)		-.04**	-.04*	-.04*	-.04**	-.04**	-.04**	-.04**	-.04**
Mother's health/health behaviors									
Major depression (1)			.07***	.07***	.06**	.06**	.04	.04	.04
Prenatal smoking			.06**	.07***	.05**	.06**	.06**	.06**	.06**
Prenatal drug use			.09**	.09**	.06	.05	.05	.05	.05

\*\*\*  $p \leq .01$ . \*\*  $p \leq .05$ . \*  $p \leq .10$ .

a. Reference category in parentheses. b. Measured at baseline survey unless noted; (1) measured at one-year survey.

Table 6: Results from Ordinary Least Squares Regression Analysis: Child Behavior Checklist (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child's characteristics									
Child low birthweight				-.00	-.01	-.01	-.01	-.01	-.01
Child is male				.03*	.03	.03	.03	.03	.03
Relationship quality with child's father									
Father emotional support					-.04	-.03	-.02	-.02	-.02
Couple conflict/disagreement					.12***	.12***	.10***	.09***	.09***
Mothering behaviors									
Mother spans daily/weekly (1)						.06*	.04	.05	.05
Warmth/responsive behaviors (1)						-.02***	-.02***	-.02***	-.02***
Child's temperament (1)							.06***	.06***	.06***
Family instability									
Separate								.02	.01
Separate*cohabit at birth									.01
Constant	.43***	.59***	.57***	.55***	.52***	.59***	.39***	.36**	.36**
Adjusted $R^2$	.0440	.0944	.1133	.1143	.1415	.1524	.1939	.1939	.1927
$N$	715	715	715	715	715	715	715	715	715

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

a. Reference category in parentheses. b. Measured at baseline survey unless noted; (1) measured at one-year survey.

Child behavior checklist scale based on mean of 39 questions ( $\alpha = .8848$ ), range = (0 – 2), mean = .49, s. d. = .26.

Mother from intact home, self-reported health status, general anxiety disorder, father hits/slaps, support of parenting, and instrumental support included in models, but not shown in table.