Co-Parenting and Child Wellbeing after Unmarried Parents Part

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Abstract

Nonmarital childbearing has increased dramatically during the past several decades, and the majority of unmarried couples will break-up while their child is still young. As a result, the extent to which unmarried parents living apart are able to cooperate effectively in rearing their common child may have important implications for children's well-being and development. In this paper, we use data from the Fragile Families and Child Wellbeing Study (N = 1,099) to describe patterns of co-parenting over six years following the end of a nonmarital relationship, to identify individual and interpersonal characteristics associated with better co-parenting, and to examine whether co-parenting is associated with lower behavioral problems among children aged three through nine. Results from latent growth curve models indicate that co-parenting declines slightly as more time passes since the end of parents' romantic relationship. Interpersonal factors such as mothers' and fathers' relationships and childbearing with new partners are highly predictive of co-parenting quality. Results from random-effects models indicate that co-parenting is a key predictor of children's behavioral problems. Overall, these findings highlight the potential importance of co-parenting for children's well-being and suggest that public policy might usefully encourage unmarried men and women to work together as parents amidst high levels of family instability and complexity.

Nonmarital childbearing has increased dramatically during the past several decades, with the fraction of births occurring outside of marriage rising six-fold in the latter half of the 20th century (Ventura and Bachrach 2000). Today, fully 41 percent of all births in the U.S. are to unmarried parents, with even higher proportions among racial and ethnic minorities (Hamilton, Martin, and Ventura 2011). Although many unmarried parents are cohabiting when their child is born, about two-thirds of all unmarried parents will be living apart by the time their child turns five (Carlson, McLanahan and Brooks-Gunn 2008). Since children typically live with mothers after parental separation, the modal child born outside of marriage will be living apart from their father at a very young age and over a large number of years. Therefore, the extent to which unmarried parents living apart are able to cooperate effectively in rearing their common child—referred to as 'co-parenting'—may have an important influence on children's well-being and development, as has been shown to be the case after divorce (Maccoby and Mnookin 1992; Seltzer 1994).

In this paper, we have two primary aims. The first is to provide new evidence about the levels and trajectories of co-parenting among couples who break-up following an unmarried birth. To this end, we describe patterns of co-parenting over six years after unmarried parents end their relationship, and we identify some of the individual and interpersonal characteristics associated with better co-parenting. Our second aim is to examine whether the quality of unmarried parents' co-parental relationship is predictive of children's behavioral problems from ages three through nine. Early behavioral problems represent an important aspect of socio-emotional development and are shown to predict educational attainment and other later-life outcomes (Heckman 2006; McLeod and Kaiser 2004). While prior literature has shown that co-parenting matters for children's behavior following a divorce, there has been little research on

whether the same is true following the dissolution of a nonmarital relationship. To shed light on this issue, we estimate the association between co-parenting and children's behavioral problems for unmarried parents who break-up, and we also compare our results to those from a small sample of divorced parents.

Specifically, we use data from the Fragile Families and Child Wellbeing Study to examine the following four research questions: (1) what are the patterns of co-parenting when parents' relationship ends after a nonmarital birth?; (2) what are the antecedents of co-parenting following a nonmarital break-up?; (3) how is co-parenting related to children's behavioral problems?, and (4) does the association between co-parenting and children's behavior among unmarried parents differ from that among divorced parents?

Background and Previous Research

What is co-parenting and why is it important?

Family systems theory stresses the importance and dynamic nature of various family relationships (mother-father, parent-child, and sibling-sibling) that affect each other and influence individual outcomes (Bronfenbrenner, 1986; Minuchin, 1988). Among these dyadic relationships, one that is especially important is that of adults raising children together (Minuchin, 1974). Co-parenting has been identified as a unique construct in family life that is distinct from both couple relationship quality and parenting behavior, and its importance for family life is underscored by its description in a classic family text as "the family's executive subsystem" (Minuchin 1974). Co-parenting has been differentiated from 'parallel parenting,' where each parent maintains a relationship with their child separate and distinct from that of the other parent (Furstenberg and Cherlin 1991). For parents living apart, co-parenting may represent the primary—or only—regular interaction they have with each other, as (in the best case) they

endeavor to coordinate their parental investments across households with respect to their common child (Margolin, Gordis, and John 2001). Indeed, cooperative parenting may take on even greater import when families do not share the unifying context of household residence (Maccoby, Depner, and Mnookin 1990).

Trajectories of co-parenting after unmarried parents break-up

A nascent literature has begun to explore the nature, processes, and consequences of coparenting among unmarried parents with children or in related populations. Most of this work has used data from the Fragile Families and Child Wellbeing Study, the same dataset we use in this paper. The Fragile Families Study sampled a large number of parents who were unmarried at the time of their child's birth—many of whom ended their relationship in the years that followed (McLanahan 2009)—thus making it ideal for understanding relationships among this growing segment of the population. While there is much to be learned, these new studies have shed some light on the levels and antecedents of coparenting. For parents living apart, Carlson et al. (2008) found that the average level of coparenting reported by unmarried mothers about nonresident fathers was moderate (2.3 on the 1-to-3 scale) at one year, with only a slight decline to 2.1 at years three and five. Thus, a typical mother describing how she and the focal father worked together to rear their common child portrayed positive aspects of coparenting as, on average, "sometimes true." Using data reported by nonresident fathers themselves, Bronte-Tinkew and Horowitz (2010) reached a more optimistic conclusion. Aggregating scores for a sub-set of items, they found that fathers' reports of positive coparenting averaged 7.5 on a 0-9 scale (corresponding to 2.5 on the 3-point scale). The higher scores may be because unmarried (especially nonresident) fathers interviewed in the Fragile Families Study were more connected to mothers and more involved with their children than fathers not interviewed. Taken together,

these data suggest that positive coparenting among unmarried parents who live apart but stay connected remains moderate to high over the first five years after a nonmarital birth.

Antecedents of co-parenting

Given the importance of the co-parental relationship for family functioning, it is critical to identify the factors that promote or deter parents' ability to co-parent effectively. Studies of co-resident (especially married) parents emphasize how men's roles as a partner and a parent tend to be a "package deal," meaning that men's relationship with their child is often contingent upon their relationship with their child's mother (Furstenberg and Cherlin 1991; Townsend 2002). Thus, in two-parent families, co-parenting is enhanced by a better-quality relationship between the mother and father. Among cases in which the "package" comes apart as a result of union dissolution, the type and quality of the parents' relationship when they were still together may matter for co-parenting. For example, couples who were previously married may have cooperated more as parents prior to the end of their relationship than couples who were not, and they may continue to have a stronger co-parental relationship after their romantic relationship ends (Insabella, Williams, and Pruett 2003). Mothers' and fathers' relationships and childbearing with new partners are also likely to influence their investment in their co-parental relationship. Jealousy and distrust of new partners may pose formidable obstacles to parents' cooperation in raising their child (Edin and Kefalas 2005). In addition, nonresident fathers may choose to "swap" their investments in children from previous relationships for new co-residential children (Manning and Smock 1999; Manning and Smock 2000).

While the existing literature suggests that among parents who are no longer together, their interpersonal relationships (both with each other and with new partners) should play a large role in their ability to co-parent, it is less clear what role their individual and demographic

characteristics should play in this process. Parents who are older and who have higher levels of education may be more psychologically mature and have better interpersonal skills to negotiate the complexities of raising a child apart. Likewise, parents with more financial resources may find it less stressful to afford the costs associated with maintaining separate homes for their child (Booth and Amato 1991). There is also some evidence that co-parenting varies by parents' race/ethnicity, as higher levels of nonmarital childbearing among non-Hispanic Blacks has made childrearing across households more normative in this context (Mincy and Pouncy 2007).

Only a handful of studies have examined the antecedents of co-parenting among unmarried, non-resident parents. The results of these studies suggest that parents' human capital characteristics, relationship history, and relationships with new partners and children tend to be predictive of unmarried parents' co-parenting (Bronte-Tinkew and Horowitz 2010; Carlson and Högnäs 2011; Waller 2012). Our study aims to extend this literature by examining the dynamics of co-parenting over time using multiple analytic techniques. We also explicitly focus on parents who are no longer in a relationship as opposed to all nonresident parents, some of whom may still be dating. Finally, while most of these previous studies have investigated co-parenting among parents of very young children, we utilize new data from the most recent wave of the Fragile Families Study in order to investigate co-parenting among parents of children up to nine years old.

The importance of co-parenting for children's behavior

There are a number of reasons why co-parenting may matter for children's behavior. Social learning theory suggests that children model the behaviors of significant others, particularly their parents (Bandura 1978). It follows that parents' displays of cooperation or conflict may produce similar behavior styles in children. Given the importance of parental

socialization for children (Thomson, Hanson, and McLanahan 1994), parents' ability to work together may enhance social capital within the family and strengthen the family as an institution (Harris, Furstenberg, and Marmer 1998).

Also, research shows that a supportive relationship with their child's mother is an important factor in fathers' continued involvement with their children (Carlson, McLanahan, and Brooks-Gunn 2008; Sobolewski and King 2005). Mothers play an important role in reinforcing men's identity as a father and encouraging their involvement in their children's lives (Furstenberg and Cherlin 1991; Townsend 2002). Without this supportive influence, men may be more likely to disengage from their child. Moreover, the literature on 'maternal gatekeeping' suggests that mothers who experience conflict or distrust in their relationship with the father—or have concerns about the fathers' characteristics—may take active steps to prevent these men from interacting with their children (Allen and Hawkins 1999; Waller and Swisher 2006). These processes are important, given the large body of evidence suggesting that a high-quality relationship with their father matters for children's behavior and overall wellbeing (Amato and Gilbreth 1999; Carlson 2006; Harris, Furstenberg, and Marmer 1998). Furthermore, these processes are likely to be amplified when parents no longer share a household residence and fathers face numerous additional barriers to maintaining a relationship with their child.

Spurred by the rising divorce rates in the 1970s, the initial research on co-parenting across households focused on parental relationships following divorce, emphasizing the deleterious effect of post-divorce conflict for children and the importance of parents' working together (Ahrons 1981; Wallerstein and Kelly 1980). In a major study using a representative sample of more than 1,000 post-divorce families in California, Maccoby and Mnookin (1992) identified both conflict and cooperation as two key aspects of co-parenting (with some parents

disengaging altogether) and concluded that children benefit from cooperative co-parental relationships and are adversely affected by conflicted co-parental relationships; indeed, co-parenting has been shown to have both a positive and a negative dimension (Sobolewski and King 2005). Establishing a co-parental relationship appears to be particularly important in the period immediately following divorce, setting the trajectory for whether the father stays involved (Ahrons and Miller 1993). Other research indicates that parents may avoid contact with one another in order to minimize conflict (Seltzer, McLanahan, and Hanson 1998).

Differences between unmarried and divorced parents

While the extant literature suggests that positive co-parenting after parents' divorce is beneficial for children, less well understood is whether the degree of co-parenting after parents break-up following a nonmarital birth is also linked to children's wellbeing. Post-dissolution circumstances after divorce from a legal marriage may be quite different from dissolving a cohabiting or dating relationship. Marriage provides an important social contract that reinforces parental rights (Cherlin 2004); as a result, parenting responsibilities may be clearer for divorced fathers than for fathers who never married the child's mother. Since positive co-parenting may reflect a stronger indicator of cooperation and communication among couples whose relationship was not "institutionalized" by marriage, we might expect co-parenting to matter more for children's well-being among parents who never married.

In this paper, we provide new evidence about the patterns, correlates and consequences of co-parenting among parents who broke up after a nonmarital birth. Given the sizeable fraction of births that occur outside of marriage—and the high likelihood of union dissolution when children are young, it is important to understand more about unmarried parents' ability to work together

in rearing their common child and the extent to which it may be beneficial to children's social-emotional development.

Method

Data

Our data come from the Fragile Families and Child Wellbeing Study, a longitudinal study of 4,897 births that occurred between 1998 and 2000 in 20 large U.S. cities: 3,710 of the births were to unmarried parents and 1,187 were to married parents. Mothers and fathers were interviewed in the hospital within 48 hours of the focal child's birth, and follow-up interviews were conducted when the child was approximately one, three, five, and nine years old. Among cases in which the mother had completed a baseline interview, completion rates for the four follow-up survey waves were 89%, 86%, 85%, and 72% for mothers and 69%, 65%, 64%, and 54% for fathers. Mothers also completed an in-home assessment at the three, five, and nine-year surveys in order to provide more detailed information about the focal child's development. It was in this portion of the survey that children's behavioral problems were reported. Of the mothers who completed each core survey, 78% completed the in-home survey at three years, 81% at five years, and 89% at nine years.

We restricted our sample to 1,718 couples who were unmarried at the focal child's birth and had ended their relationship by the three-year survey (and did not resume their romantic relationship at a later survey wave).[1] From this sample, we excluded an additional 619 families (36.0%) that did not have measures of co-parenting and children's behavior problems for at least one survey wave. This resulted in an analytic sample of 1,099 couples with children; 1,065 of

[1] We decided to focus on couples who were unmarried at the time of their child's birth given evidence of large differences in the characteristics and experiences of parents based on their marital status at their child's birth (McLanahan 2011). A small number of cases in our sample (n = 22) got married after their child's birth and broke-up by the three-year survey. We chose to retain these cases in our sample of unmarried parents rather than classifying them as divorced.

these families had measures of externalizing behavioral problems at one or more survey waves and 1,082 had measures of internalizing behavioral problems at one or more survey waves. Of the 1,099 cases in our sample, 215 (19.6%) were missing information on one or more of the covariates included in the multivariate models. We used multiple imputation (Royston 2004) to retain these cases in our descriptive and regression analyses and full information maximum likelihood (FIML) to retain these cases in our structural equation models.[2]

For our moderation analyses, we also examined the small sample of parents in the Fragile Families Study who were married at the birth but had divorced by their children's early/middle years. Because so few married parents had divorced by the three-year survey, we focused on parents that split-up by the five-year survey. This resulted in a sample of 1,553 parents, 1,424 of whom were unmarried and 129 of whom were married at the time of the focal child's birth.

Measures

Co-parenting. Our measure of co-parenting was constructed from mothers' responses to five items at the three, five, and nine year surveys. The items were as follows: 1) "When (father) is with (child) he acts like the father you want for your child," 2) "You can trust (father) to take good care of (child)," 3) "(Father) respects the schedules and rules you make for (child)," 4) (Father) supports the way you want to raise (child)," and 5) "You and (father) talk about problems that come up with raising (child)." Responses were measured on a 4-point scale (*1 = always true, 2 = sometimes true, 3 = rarely true,* and *4 = never true*). We combined the third and fourth response categories in order to deal with positive skew in mothers' responses (reflecting higher levels of relationship quality). We then reverse-coded and took the average of the 5 items to create a single measure of co-parental relationship quality ranging from *1 = low quality* to *3 =*

[2] In the next version of this paper, we will estimate our structural equation models using multiple imputation in order to be consistent in the treatment of missing data across methods.

high quality (α = 0.85 at three years, α = 0.85 at five years, and α = 0.87 at nine years). Mothers who indicated that the father had not seen the focal child since the previous survey (at the three and five-year surveys) or in the previous year (at the nine-year survey) were not asked about the quality of their co-parental relationship and were consequently coded as missing.[3]

Children's behavioral problems. We examined two types of children's behavioral problems: externalizing and internalizing problems. Both of these outcomes were measured from mothers' responses to the Child Behavior Checklist (CBCL) (Achenbach 1992; Achenbach and Rescorla 2000), a scale with well-validated psychometric properties for identifying youth with emotional and behavioral disorders (Ebesutani, Bernstein, Nakamura, Chorpita, Higa-McMillan, and Weisz 2010). Externalizing behavioral problems were measured as the average of mothers' responses to the aggressive and delinquent subscales. The aggressive subscale contained items such as "[child] argues a lot," whereas the delinquent subscale contained items such as "[child] lies or cheats." Internalizing behavioral problems were measured as the average of mothers' responses to the anxious/depressed and withdrawn subscales. The anxious/depressed subscale contained items such as "[child] feels he/she has to be perfect," whereas the withdrawn subscale contained items such as "[child] would rather be alone than with others." Mothers' responses to each item were measured on a scale of *0 = not true* to *2 = very true/often true*. The number of items included in the externalizing scale equaled 22 items at three years (α = 0.88), 30 items at five years (α = 0.87) and 35 items at nine years (α = 0.91). The number of items in the internalizing scale equaled 25 items at three years (α = 0.83), 22 items at five years (α = 0.75), and 21 items at nine years (α = 0.84).

Controls. We included a large number of control variables in our models in order to

[3] We also estimated models that include cases with no report on co-parenting and discuss these results among our sensitivity analyses in our Results section.

account for factors that could be driving the association between co-parenting and children's behavioral outcomes. All of our time-constant covariates were measured at the baseline survey unless otherwise noted. With regard to parents' characteristics, mothers' and fathers' age at their child's birth was measured in years. Mothers' race/ethnicity was represented with dummy variables indicating whether the mother was non-Hispanic White, non-Hispanic Black, Hispanic, or another race; a separate dummy variable indicated whether the father was of a different race/ethnic background. Parents' education was represented with dummy variables indicating whether the mother had less than a high school education, a high school degree or some college, or a bachelor's degree or higher; a separate variable indicated whether the father had more education than the mother. A dummy variable was used to indicate whether the mother's income placed her below the federal poverty line for her family size. Mothers' and fathers' physical health was self-reported on a scale ranging from *1 = poor* to *5 = excellent*. Each parent's mental health was measured at the one-year survey as a dichotomous variable indicating whether they were a probable case for major depressive disorder, as measured by the short form of the Composite International Diagnostic Interview (CIDI-SF). A dummy variable was used to indicate whether the parents were living together at the time of the focal child's birth. Their relationship quality at the time of the child's birth was measured from the average of mothers' responses to five items assessing their perception of both supportiveness and conflict in the relationship on a scale ranging from *1 = low relationship quality* to *3 = high relationship quality* ($\alpha = 0.64$). We also included a measure from the three-year survey of the number of months that had passed since the parents' relationship ended.

Turning to characteristics of the focal child, a dummy variable was used to indicate whether the child was a boy. In addition, the child's temperament at the one-year survey was

represented as the average of mothers' responses to three items from the Emotionality, Activity, and Sociability (EAS) Temperament scale (Mathieson and Tambs 1999). Each item was measured on a scale ranging from *1 = not at all like my child* to *5 = very much like my child*, with higher scores indicating more 'difficult' temperaments ($\alpha = 0.60$).

Finally, we included four time-varying variables in our analyses. These were whether the mother and father were in a relationship with a new partner and whether they had a child with a new partner at the three, five, and nine-year surveys. Responses were based on parents' self-reports, except when fathers failed to complete the survey, in which case mothers' reports about the father were used.

Analytic Strategy

Descriptive Statistics. We first present descriptive information for each of the time-constant and time-varying variables for all families in our sample. As mentioned previously, we used multiple imputation to impute missing values for the covariates but not for our key variables of interest (co-parenting and children's behavior problems). We used city sampling weights for the descriptive statistics but not for the multivariate analyses because the models included all of the variables for which the weights adjust (primarily marital status at birth, age, race, and education).

Latent Growth Curve Models. Our next step was to examine trajectories of parents' co-parental relationship following a nonmarital break-up and to identify some of the key determinants of these trajectories. For this purpose, we employed latent growth curve (LGC) models. This technique accounts for repeated observations of an outcome variable in a single model, thus making it ideal for studying change over time. This SEM-approach to growth curve

models is also advantageous because it offers a variety of ways of dealing with measurement error and provides the ability to calculate indices of model fit.

The level-one equation for the growth model characterizes each couple's co-parenting trajectory (y_{it}) as:

$$y_{it} = \alpha_i + \beta_i t + \gamma_t w_{it} + \varepsilon_{it} \quad (1)$$

where α_i represents each couple's initial level of co-parenting (at the three-year survey), β_i represents each couple's slope or change in co-parenting over time (t), γ_t represents the effect of a vector of time-varying covariates (w) on each ith family at each point in time (t), and ε represents measurement error. In other words, γ represents a deviation from the underlying trajectory at a particular point in time caused by parents' repartnering and multi-partnered fertility.

The level-two equations for the growth model allow each couple's initial level (α_i) and change (β_i) in co-parenting over time to vary as a function of certain covariates that change across individuals but remain constant over time. These equations can be written as:

$$\alpha_i = \mu_\alpha + \gamma_{\alpha 1} x_{i1} \ldots \gamma_{\alpha k} x_{ik} + u_i \quad (2)$$

$$\beta_i = \mu_\beta + \gamma_{\beta 1} x_{i1} \ldots \gamma_{\beta k} x_{ik} + v_i \quad (3)$$

where $xi_1 \ldots xi_k$ represent the time-constant control variables and u_i and v_i represent measurement error. In other words, the intercept and slope are regressed on the time-constant control variables in order to assess whether these factors influence parents' trajectories of co-parenting over time.

In order to examine patterns of co-parenting following a nonmarital break-up, we first fit an unconditional latent growth curve model—i.e., a model that contained no covariates. We examined estimates of both the mean co-parenting trajectory of our entire sample as well as trajectories for individual couples. Our next aim was to identify time-constant and time-varying

covariates that could account for differences across families in their co-parental relationship. For this purpose, we focused on estimates of the γs in both the level-one and level-two equations.

To assess the fit of our models, we considered three indices: the chi-square ratio test statistic (χ^2), the root mean square error of approximation (RMSEA), and the comparative fit index (CFI). A statistically significant χ^2 indicates poor fit; however, models with sample sizes above 200 are often significant. A value of RMSEA below 0.05 and a value of CFI near 1.0 indicate good fit (Bollen and Curran 2006).

Random- and Fixed-Effects Models. Following our examination of the predictors of the quality of parents' co-parental relationship over time, we shifted our focus to the association between co-parenting and children's behavioral problems. To this end, we employed random-effects and fixed-effects models. Both of these techniques allowed us to take advantage of the longitudinal nature of our data by using repeated observations pooled over time. Random-effects models use both between- and within-family variation to estimate the magnitude of the association between co-parenting and these outcomes. In contrast, fixed-effects models employ only within-family variation, and therefore describe how changes in co-parenting are related to changes in children's behavior within the same families over time. In this way, fixed-effects models control for observed and unobserved, time-invariant factors that could be driving the association between co-parenting and children's behavior, although the estimates could still be biased by unobserved, time-varying factors. By accounting for unobserved heterogeneity between families, fixed-effects models provide a more conservative test of causal association than random effects models. We ran both types of models for each behavioral outcome.

Moderation Analyses. Finally, to compare the association between co-parenting and children's behavioral problems for parents who were married versus unmarried at the child's

birth (but had split-up by five years later), we re-ran our random- and fixed-effects models for externalizing and internalizing behavioral problems separately for these two groups. We also ran models for the full sample and used an interaction term to test for statistically significant differences by marital status at birth in these associations.

Results

Descriptive Statistics

Tables 1 and 2 provide descriptive information about parents and children in our sample. As shown in Table 1, unmarried parents who break up by their child's third birthday are a very disadvantaged group. The vast majority of parents were non-Hispanic Black and had a high school education or less. Approximately half of mothers were living below the poverty line, and less than a third of parents were living together at the time of the child's birth. On average, parents had been broken-up for almost two years by the three-year survey.

Table 2 shows means on co-parenting and children's behavioral problems over time, as well as the proportion of mothers and fathers who have repartnered or had a child with a new partner. Mothers generally reported that their co-parental relationship with the father was of moderate quality, with an average of just over 2.0 on a scale ranging from 1.0 to 3.0. Children's mean levels of externalizing and internalizing behavioral problems were quite low and declined as they got older, as is to be expected in a non-clinical population. Finally, a large percentage of parents were in a romantic relationship and had had children with another partner over the course of the survey. Approximately half of mothers and two-thirds of fathers were in a relationship with someone else at the nine-year survey, while over 80% of both mothers and fathers had had a child with someone else by this time.

Latent Growth Curve Models

Next we turn to results from our latent growth curve models, used to examine patterns of parents' co-parenting from the time their child was three to the time he or she was nine years old. On average, unmarried parents who had broken-up experienced a very slight decline in the quality of their co-parental relationship over time. Results from our unconditional model (not shown) suggested that the average intercept in our sample equaled 2.150 ($p \leq 0.001$) and the average slope equaled -0.009 ($p = 0.058$). However, our results also suggested that there was a significant amount of variation around these estimates. Figure 1 displays the estimated co-parenting trajectories for a random draw of 50 cases from our sample. Parents differed quite a bit in both their initial level of co-parenting and in changes in their co-parental relationship over time, with some parents experiencing approximately the same levels of co-parenting at each survey wave, some experiencing improvements, and some experiencing sizeable declines.

To explain this variation in the quality of parents' co-parental relationship, we constructed a conditional latent growth curve model that included all of our time-constant and time-varying covariates. The results from this model are displayed in Table 3. As mentioned previously, the level-two results show estimates of the effects of the time-constant covariates on the intercept and slope, while the level-one results show estimates of the effects of the time-varying covariates on the measures of co-parenting at each survey wave. In all of our multivariate models, the dependent variables (but not the independent variables) are presented in standard deviation units.

Looking first at the level-two results, a handful of factors were associated with differences in the level of co-parenting experienced by parents who split-up following a nonmarital birth. Non-Hispanic White and Hispanic parents generally experienced lower levels of co-parenting than non-Hispanic Black parents. Interestingly, co-parenting did not vary by

parents' level of education. Having a child with a difficult temperament and the amount of time that had passed since the parents ended their relationship were also negatively associated with co-parenting. One factor that was positively associated with co-parenting was the quality of parents' relationship at the time their child was born. Turning to the slope estimates, the lack of statistical significance suggests that almost none of these predictors were associated with changes in parents' co-parental relationship over time. In other words, most of the observed differences in co-parenting that existed at three years persisted throughout the five- and nine-year surveys. The one exception was for the gender of the focal child; although parents did not initially differ in their level of co-parenting between boys and girls, over time, parents whose child was a boy experienced larger declines in co-parenting than parents whose child was a girl.

The level-one results suggest that parents' repartnering and multi-partnered fertility were highly predictive of changes in the quality of their co-parental relationship over time. At the three-year and five-year surveys, for both mothers and fathers, being in a relationship with another partner was associated with lower-quality co-parenting. Fathers who had a child with another partner also had worse co-parental relationships, but mothers who had a child with another partner actually had better co-parental relationships. At the nine-year survey, the negative associations between co-parenting and fathers' repartnering and multi-partnered fertility persisted; in fact, the association with repartnering appeared to be even stronger than at the earlier survey waves. In contrast, by the nine-year survey there was no longer an association between co-parenting and mothers' participation in these behaviors.

Random and Fixed-Effects Models

Our next objective was to determine if unmarried parents' ability to maintain a positive co-parental relationship after the end of their romantic relationship mattered for children's

behavioral problems. The results from these analyses are displayed in Tables 4 and 5. Looking first at the outcome of externalizing behaviors, the results from the random-effects model suggest that a one-unit increase in co-parenting was associated with a 0.15 standard-deviation decrease in children's behavioral problems, net of a large number of time-constant and time-varying covariates. However, the fixed-effects model showed no significant relationship. In other words, changes in co-parenting were not significantly related to changes in children's externalizing behaviors within the same families over time. This finding suggests that much of the association between co-parenting and children's behavior that was apparent in the random-effects model may have been driven by unobserved heterogeneity between families.

In terms of our covariates, in the random-effects model, parents' educational attainment, mental health, and physical health (for mothers only) were also negatively related to children's externalizing behaviors. Two characteristics of children themselves that were positively associated with their subsequent behavioral problems were their temperament when they were one-year old and their gender, with boys displaying more externalizing problems than girls. Interestingly, parents' repartnering and multi-partnered fertility were not associated with children's behavior net of the other variables in the model; these variables were also not significant in the fixed-effects model.

Table 5 displays the results for the outcome of children's internalizing behavioral problems. Parents' co-parental relationship was negatively related to this outcome in the random-effects model, although the size of the effect was about half what it was for externalizing problems. A one-unit increase in co-parenting was associated with a 0.08 standard deviation decrease in children's internalizing behaviors. In the fixed-effects model, the association between co-parenting and children's internalizing problems was small and statistically

insignificant. As with the outcome of externalizing behaviors, this suggests that unobserved characteristics of families may be driving the association between co-parenting and internalizing behaviors that was present in the random-effects model.

In terms of the covariates, the results were very similar to those for externalizing behaviors. Parents' educational attainment and mothers' physical health were negatively associated with internalizing behavioral problems, while children's difficult temperament at age one and maternal depression were positively associated with these behavioral problems.

Moderation Analyses

Our final research objective was to compare the association between co-parenting and children's behavioral problems for parents who broke-up following a nonmarital birth to parents who divorced following a marital birth. We therefore ran separate random and fixed-effects models for each of these two groups of parents. As mentioned previously, the sample for these models differed slightly from our earlier analyses in that we included couples who had dissolved their relationship by the five-year survey in order to have a more sufficient number of divorced cases. The results from the random-effects models (not shown) suggest that while there was a significant association between co-parenting and children's externalizing and internalizing behaviors for couples who were unmarried at the time of their child's birth, there was no such association for couples who were married when their child was born. For unmarried parents who broke-up, a one-unit increase in co-parenting was associated with a 0.14 standard deviation decrease in externalizing problems ($p \leq 0.001$) and a 0.08 standard deviation decrease in internalizing problems ($p = 0.014$), whereas for divorced parents, a one-unit increase in co-parenting was associated with a 0.01 standard deviation decrease in externalizing behaviors ($p = 0.969$) and a 0.02 standard deviation decrease in internalizing behaviors ($p = 0.986$).

Nevertheless, when both of these groups were included in the same model and these differences were tested with an interaction term, the differences between groups were not statistically significant. Given the large differences in the point estimates of unmarried and married parents, the lack of a statistically significant interaction may stem from the small sample size of married parents (n = 129) rather than indicating no real difference between these groups. In the fixed-effects models, the associations between co-parenting and children's behavioral problems were not significant for either group of parents.

Sensitivity Analyses

One concern of these analyses was that they relied solely on mothers' reports of the quality of parents' co-parental relationship. While the use of mothers' reports allowed us to maximize the size and representativeness of our sample, it is possible that the antecedents of co-parenting and/or the association between co-parenting and children's behavior problems were sensitive to our choice of reporter. To test this possibility, we re-ran our analyses using fathers' reports of the quality of the co-parental relationship. We found that fathers' repartnering and multi-partnered fertility were even stronger negative predictors of fathers' reports of co-parenting than mothers' reports of co-parenting. Furthermore, mothers' multi-partnered fertility, which was positively related to mothers' reports of co-parenting, was negatively related to fathers' reports of co-parenting. Finally, as when mothers' reports were used, fathers' reports of the quality of their co-parental relationship were negatively related to children's externalizing and internalizing behavior problems in the random-effects models, although the association with externalizing behaviors was no longer statistically significant once covariates were added to the model.

A second issue with our analyses was that mothers were not asked about the quality of their co-parental relationship with the father if he had not seen the focal child since the previous survey (or in the previous year, at the nine-year survey). By excluding cases in which the father had limited contact with the focal child, our sample likely over-represented unmarried parents with high-quality co-parental relationships. To examine whether co-parenting was related to children's behavioral problems among a broader sample of unmarried parents, we re-ran these models using a categorical measure of co-parenting. At each survey wave, parents were coded as having a '*high-quality co-parental relationship*' if mothers' reports placed them at or above the mean on the original co-parenting measure, a '*low-quality co-parental relationship*' if they were below mean on the original co-parenting measure, and '*no-coparental relationship*' if the mother did not respond to the original co-parenting measure because the father had not seen the child. In the random-effects models, we found that children displayed fewer externalizing problems if their parents had a high-quality co-parental relationship or no co-parental relationship, compared to parents with a low-quality co-parental relationship. The difference between the 'no co-parental relationship' and 'low-quality co-parental relationship' categories was also significant (and negative) in the fixed-effects model, suggesting that within families, ending a co-parental relationship was associated with a decrease in children's externalizing problems relative to moving to a troubled co-parental relationship. Further examination revealed that the majority of parents who ended their co-parental relationship had been in a low-quality relationship at the previous survey wave. Likewise, in the models for internalizing behaviors, children displayed fewer problems if their parents were in a high-quality co-parental relationship or no co-parental relationship (relative to a low-quality co-parental relationship), although these associations were no longer statistically significant once covariates were added to the models.

Discussion

This paper provides new evidence about the patterns, predictors, and consequences of co-parenting among couples who break-up within three years of a nonmarital birth. Given the large fraction of births that now occur outside of marriage—and the fact that the vast majority of such couples will break-up by the time their child enters grade school—this is an important topic with ramifications for a large number of U.S. children.

Contrary to the literature suggesting that nonresident father involvement declines markedly after divorce or separation, we were struck by the rather steady levels of co-parenting among parents living apart after a nonmarital birth. On average, levels of co-parenting in our sample declined only slightly over a six-year period, although these averages belied quite diverse patterns across individual couples (with some improving, some declining, and some staying the same). It is also important to note that we only had co-parenting measures when the father had seen the child since the previous survey (or in previous year at the nine-year survey), so we were capturing patterns among the 'best' couples where both parents had remained involved.

It was notable that interpersonal factors seem to play a much larger role in predicting the quality of parents' co-parental relationship after a break-up, compared with more individual and demographic characteristics (although statistically significant associations were found for parents' race/ethnicity and mental health). This is consistent with findings from a recent study by Carlson and Högnäs (2011), which used Fragile Families data to examine the antecedents of co-parenting among unmarried parents at the three and five-year surveys. We found that the quality of parents' romantic relationship when they were still together was one of the strongest predictors of their subsequent co-parenting trajectory, which suggests that couples who are able to support each other as partners are better able to do so as parents, even after their romantic

relationship comes to an end. Two other factors that were highly predictive of co-parenting were parents' repartnering and multi-partnered fertility. Both mothers' and fathers' relationships with new partners were associated with lower-quality co-parenting. This could reflect mothers turning to their new partner instead of the father for parenting assistance, while fathers might be reducing their interactions with the mother to focus more on their new relationship. Also consistent with Carlson and Högnäs (2011), only fathers' multi-partnered fertility was negatively associated with co-parenting, whereas mothers' multi-partnered fertility was positively associated with co-parenting. Because children tend to reside with their mother, this finding suggests that having a new child who lives elsewhere has a stronger, negative effect on co-parenting than having a new child who resides with the focal child. Fathers may disengage from their nonresidential child to invest more time in new,co-residential children (Manning and Smock 1999; Manning and Smock 2000), whereas the presence of other children in the same household may increase mothers' investments in any one particular biological child.

Another key finding from our study is that the quality of parents' co-parental relationship matters for children's wellbeing. Even after controlling for a number of individual and interpersonal characteristics, in our random-effects models co-parenting was negatively associated with children's externalizing and internalizing behavioral problems—an important aspect of children's socio-emotional well-being that is associated with later-life success. Nevertheless, it is important to note that these models say nothing about the direction of this association. While it might be the case that co-parenting has an effect on children's behavior, it might also be true that children's behavior has an effect on co-parenting. In fact, the significant association in the latent growth curve models between children's temperament and parents' co-

parenting trajectory suggests that children's behavior does have implications for the subsequent quality of their parents' relationship.

The fact that the association between co-parenting and children's behavioral problems disappeared in the fixed-effects models suggests that at least some of the association in the random-effects models was driven by unobserved heterogeneity across families. However, the lack of a significant association does not necessarily mean that co-parenting has no effect on children's behavior, as these models are limited to analyzing the effects of changes in co-parenting over time among the same families, and we might expect that a consistently *high* level of co-parenting is what is truly best for children. In fact, change in co-parenting (in either direction) may reflect circumstances among parents that are disadvantageous for children.

Finally, while our results suggest that co-parenting is associated with children's behavior following a nonmarital break-up, our limited evidence with a small sample suggests that it does not matter following a divorce. This finding contrasts with a number of studies in the divorce literature showing a positive association between co-parenting and children's wellbeing (Maccoby and Mnookin 1992; Wallerstein and Kelly 1980). These divergent results could stem from the fact that many of these earlier studies were based on small, clinical samples of divorced parents rather than national data. At the same time, our sample is also a small and rather select group of divorced parents who had ended their relationship by the time their child was five years old, making it difficult to compare our results to those from other studies.

Our study highlights some fruitful avenues for future research. Subsequent studies should examine the association between co-parenting and other measures of child wellbeing (cognitive ability, educational attainment, etc.). Also, using other data (since the Fragile Families Study has limited measures of conflict), researchers could use measures that take into account both

cooperation and conflict between parents to see how different dimensions of the co-parental relationship affect children's wellbeing.

We also acknowledge several limitations with our paper. First, our exclusive use of maternal reports for both co-parenting and children's behavioral problems in our main results may have inflated the correlations between these factors, an issue known as 'shared method variance' (Marsiglio, Amato, Day, and Lamb 2000). However, as noted earlier, our results persisted when we used fathers' reports. Second, as with any longitudinal survey, attrition was not random. For instance, couples who dropped out were more likely to be racial/ethnic minorities and to have lower socioeconomic status than those who remained. Moreover, for families to be included in our sample, the nonresident father must have had some contact with the focal child. For both of these reasons, our estimates of co-parenting might be skewed because parents in our sample likely displayed better co-parenting than those who were excluded. Third, while our use of longitudinal data with multiple measures of both co-parenting and behavioral problems allowed us to use methods that accounted for some unobserved heterogeneity across individuals, our results could still have been biased by unobserved differences that varied over the study period.

Despite these issues, our study provides important new evidence on the antecedents and implications of unmarried parents' co-parenting. Even after their romantic relationship ends, mothers' and fathers' ability to work together as parents is important for their children's wellbeing. Parents' relationships and childbearing with new partners (particularly on the part of fathers) appear to present obstacles for high-quality co-parenting. These findings suggest that after their relationship dissolves, men and women may find it difficult to successfully navigate their roles as parents amidst increasing family complexity. Given that most unmarried parents are

young and have many more years of potential repartnering and childbearing ahead of them, it is likely that the quality of their co-parental relationship could decline even further. Evidence about the effectiveness of programs funded by George W. Bush's Healthy Marriage Initiative to increase couples' relationship stability has shown that these programs had essentially no effect on keeping unmarried couples together (Wood, McConnell, Moore, Clarkwest, and Hsueh 2012). Thus, recognizing that only the minority of unmarried parents will stay together, the burden is on researchers and policy-makers to design new programs aimed at helping couples live apart while still effectively co-parenting their common child.

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Table 1. Time-Constant Characteristics of Parents Living Apart after a Nonmarital Birth (N = 1,099)

	M or %	(SD)
Age at baby's birth (M, years)		
Mother	23.18	(6.48)
Father	27.50	(9.00)
Mother's race/ethnicity		
White non-Hispanic	12.3	
Black non-Hispanic	68.1	
Hispanic	18.4	
Other non-Hispanic	1.2	
Parents different race/ethnicity	18.1	
Mother's education		
Less than high school	39.5	
High school degree or some college	58.8	
Bachelor's degree or higher	1.7	
Father has more education than mother	30.3	
Mother below poverty line	48.4	
Physical health (M, range = 1 - 5)		
Mother	3.88	(.95)
Father	4.08	(.97)
Depression		
Mother[1]	12.8	
Father[1]	17.3	
Child is a boy	47.4	
Child 'difficult' temperament[1] (M, range = 1 - 5)	2.83	(1.10)
Parents coresident at focal child's birth	32.8	
Relationship quality (M, range = 1 - 3)	2.57	(.37)
Time since relationship ended[2] (M, months)	23.09	(10.95)

Note: All variables are measured at baseline survey (unless otherwise indicated) and weighted by city sampling weights. Number of cases (N) is unweighted. M = mean; SD = standard deviation.

[1] Measured at one-year survey

[2] Measured at three-year survey

Table 2: Time-Varying Characteristics of Parents Living Apart after a Nonmarital Birth (N = 1,099)

	Three Years		Five Years		Nine Years	
	M or %	(SD)	M	(SD)	M	(SD)
Co-parenting (M, range = 1 - 3)	2.16	(.69)	2.17	(.68)	2.14	(.68)
Externalizing Behavioral Problems[1] (M, range = 0 - 2)	.67	(.39)	.47	(.28)	.20	(.21)
Internalizing Behavioral Problems[1] (M, range = 0 - 2)	.44	(.25)	.27	(.20)	.18	(.20)
In a relationship with other partner						
Mother	39.0		52.7		48.9	
Father	58.3		67.1		67.6	
Has a child with other partner						
Mother	49.6		64.6		81.7	
Father	62.4		71.5		83.1	

Note: All figures weighted by city sampling weights. Number of cases is unweighted. M = mean; SD = standard deviation.

[1] N = 1,065 for externalizing behavioral problems and N = 1,082 for internalizing behavioral problems.

Table 3. Latent Growth Curve Model of Co-Parenting for Parents Living Apart after a Nonmarital Birth (N = 1,099)

Level 2 Results	Intercept (α)		Slope (β)	
Age at baby's birth				
Mother	-0.04		0.13	
Father	0.08		-0.05	
Mother's race/ethnicity [ref.=Black non-Hispanic]				
White non-Hispanic	-0.18	***	0.01	
Hispanic	-0.16	***	0.12	
Other non-Hispanic	-0.01		0.06	
Parents different race/ethnicity	0.00		0.01	
Mother's education [ref.=Less than high school]				
High school degree or some college	-0.05		0.11	
Bachelor's degree or higher	-0.06		0.08	
Father has more education than mother	0.04		0.04	
Mother below poverty line	-0.04		-0.01	
Physical health				
Mother	0.06		0.00	
Father	-0.01		0.05	
Depression				
Mother	-0.07	†	-0.06	
Father	-0.09	†	0.07	
Child is a boy	0.02		-0.17	*
Child 'difficult' temperament	-0.12	**	0.11	
Parents coresident at focal child's birth	0.01		-0.00	
Relationship quality	0.25	***	0.00	
Time since relationship ended	-0.11	**	0.09	

Level 1 Results	Co-parenting at Three Years		Co-parenting at Five Years		Co-parenting at Nine Years	
Mother in relationship with other partner[1]	-0.10	***	-0.12	***	-0.01	
Father in relationship with other partner[1]	-0.09	**	-0.12	***	-0.18	***
Mother has child with other partner[1]	0.05	†	0.10	***	0.05	
Father has child with other partner[1]	-0.09	**	-0.07	*	-0.08	*
	Chi-Square (df)		RMSEA		CFI	
Model fit	65.41* (44)		0.021		0.967	

Note. Outcome variable in standard deviation units.

[1] Measured at same wave as outcome variable.

† $p \leq .10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

Table 4. Random- and Fixed-Effects Models of Externalizing Behavioral Problems for Children of Parents Living Apart after a Nonmarital Birth (N = 1,065)

	Random-Effects			Fixed-Effects	
	β		(SE)	β	(SE)
Co-parenting	-0.15	***	0.04	-0.04	0.06
Age at baby's birth					
Mother	0.00		0.01	--	--
Father	-0.00		0.01	--	--
Mother's race/ethnicity [ref.=Black non-Hispanic]					
White non-Hispanic	0.01		0.09	--	--
Hispanic	-0.13		0.08	--	--
Other non-Hispanic	-0.05		0.22	--	--
Parents different race/ethnicity	-0.11		0.08	--	--
Mother's education [ref.=Less than high school]					
High school degree or some college	-0.13	*	0.07	--	--
Bachelor's degree or higher	-0.43	*	0.20	--	--
Father has more education than mother	-0.04		0.07	--	--
Mother below poverty line	0.09		0.06	--	--
Physical health					
Mother	-0.08	**	0.03	--	--
Father	0.04		0.04	--	--
Depression					
Mother	0.15	†	0.08	--	--
Father	0.27	**	0.10	--	--
Child is a boy	0.18	***	0.06	--	--
Child 'difficult' temperament	0.14	**	0.03	--	--
Parents coresident at focal child's birth	-0.07		0.06	--	--
Relationship quality	-0.12		0.08	--	--
Time since relationship ended	-0.00		0.00	--	--
Child's age	-0.00		0.00	0.00	0.00
Mother in a relationship with other partner	-0.02		0.04	0.04	0.06
Father in a relationship with other partner	-0.01		0.05	-0.05	0.07
Mother has kids with other partner	-0.02		0.06	-0.09	0.11
Father has kids with other partner	-0.03		0.06	-0.12	0.10

Note. Outcome variable in standard deviation units.

† $p \leq .10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

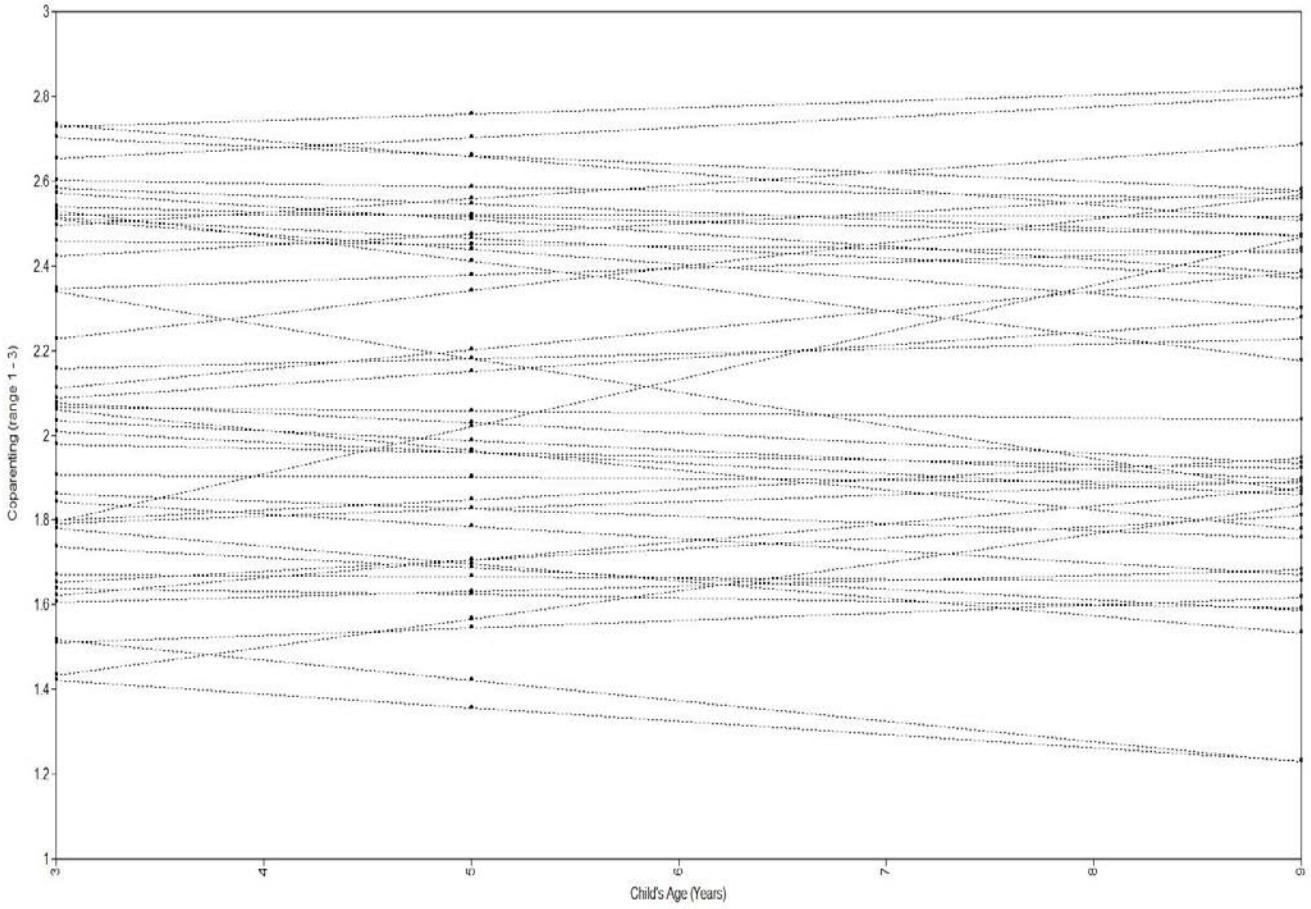
Table 5. Random- and Fixed-Effects Models of Internalizing Behavioral Problems for Children of Parents Living Apart after a Nonmarital Birth (N = 1,082)

	Random-Effects			Fixed-Effects		
	β		(SE)	β		(SE)
Co-parenting	-0.08	*	0.04	-0.02		0.06
Age at baby's birth						
Mother	0.00		0.01	--		--
Father	0.00		0.01	--		--
Mother's race/ethnicity [ref.=Black non-Hispanic]						
White non-Hispanic	-0.01		0.09	--		--
Hispanic	0.11		0.07	--		--
Other non-Hispanic	0.24		0.21	--		--
Parents different race/ethnicity	-0.12		0.08	--		--
Mother's education [ref.=Less than high school]						
High school degree or some college	-0.22	***	0.06	--		--
Bachelor's degree or higher	-0.56	**	0.19	--		--
Father has more education than mother	-0.04		0.07	--		--
Mother below poverty line	0.09		0.06	--		--
Physical health						
Mother	-0.08	**	0.03	--		--
Father	0.05		0.03	--		--
Depression						
Mother	0.25	***	0.08	--		--
Father	0.04		0.10	--		--
Child is a boy	0.04		0.05	--		--
Child 'difficult' temperament	0.12	***	0.02	--		--
Parents coresident at focal child's birth	-0.06		0.06	--		--
Relationship quality	-0.12		0.08	--		--
Time since relationship ended	-0.00		0.00	--		--
Child's age	-0.00	***	0.00	-0.00	*	0.00
Mother in a relationship with other partner	0.01		0.05	0.02		0.06
Father in a relationship with other partner	-0.01		0.05	-0.01		0.07
Mother has kids with other partner	-0.05		0.05	0.02		0.11
Father has kids with other partner	-0.01		0.06	0.01		0.11

Note. Outcome variable in standard deviation units.

† $p \leq .10$, * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

Figure 1. Fitted Individual Co-parenting Trajectories for Parents Living Apart after a Nonmarital Birth



Note: Figure depicts estimated co-parenting trajectories for a random draw of 50 cases from our sample.