THE CONSEQUENCES OF MULTI-PARTNERED FERTILITY
FOR PARENTAL INVOLVEMENT AND RELATIONSHIPS

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March 2007

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ABSTRACT

At the nexus of major changes in marital and fertility behavior in recent decades is a new reality of contemporary family life—the fact that a significant fraction of adults today (will) have biological children by more than one partner, sometimes referred to as 'multi-partnered fertility,' This increasing family complexity creates challenges for managing parental roles and responsibilities important to the effective care and socialization of children. In this paper, we use new data from the Fragile Families and Child Wellbeing Study with OLS and fixed effects regression techniques to explore the consequences of multi-partnered fertility for family relationships about three years after a baby's birth in large U.S. cities. We examine couple relationship quality, co-parenting, and parental engagement for couples, and we explore whether marital status moderates the association between multi-partnered fertility and these outcomes. A sizeable fraction of urban couples have one or more previous children, and we find that these earlier parental obligations are strongly linked to the focal couple's relationship and ability to effectively co-parent. Fathers' having previous children is particularly deleterious—at least from mothers' perspectives. We discuss the implications of our results for family roles in childrearing, the organization of kin networks, and current public policies.

INTRODUCTION

Major changes in family demography in the past half century in the U.S. have undermined the longstanding link between marriage and childbearing that has prevailed throughout the Western World. Compared to their counterparts in previous cohorts, couples today often live in cohabiting unions prior to marriage and have a high likelihood of divorce and of subsequently living with or marrying a new partner (Bumpass, Raley and Sweet 1995). Concurrent with these changes in marriage practices has been a sharp increase in childbearing outside of marriage—either before and/or after first marriage, or in the absence of marriage altogether. In 2005, the latest year for which data are available, fully 37 percent of all births occurred outside of marriage, with higher proportions among racial and ethnic minorities (Hamilton, Martin and Ventura 2006).

While the marriage and fertility trends noted above are by now well-known, at their intersection is the little-known fact that a non-trivial and rising fraction of adults have (or will have) biological children by more than one partner, a pattern which we refer to as 'multi-partnered fertility' (and abbreviate as MPF). Estimates from a recent birth cohort study of urban parents suggest that for close to 40 percent of all couples who had a child together in the late 1990s (60 percent of unmarried couples, and 24 percent of married couples), either the mother or father (or both) already had a previous child by another partner at the time of their common child's birth (Carlson and Furstenberg 2006); this proportion will only increase over time as parents proceed through the remainder of their childbearing years. In a representative sample of American men, 16 percent of men ages 35-44 had children by two or more partners, and successive cohorts appear to be transitioning to multi-partnered fertility at higher rates, suggesting that the overall prevalence is rising (Guzzo and Furstenberg 2006).

Multi-partnered fertility has important implications for children's wellbeing because it likely affects the organization of family life and kinship networks, particularly as concerns the rearing and socialization of children. A vast literature has shown that, on average, children fare best when they grow up living with both of their biological parents, assuming that the parental relationship is characterized by reasonable harmony and stability (McLanahan and Sandefur 1994; Sigle-Rushton and McLanahan 2004). Marital disruption leads to reduced parent-child interaction for non-custodial parents, typically fathers, (Furstenberg, Morgan and Allison 1987) that persists until later life when children are adults (Cooney and Uhlenberg 1990). Studies of elderly adults—where the consequences of union formation and fertility behavior across the early/mid life course can be observed—suggest that high divorce rates reduce the biological kin ties that are not fully replaced (in either number or content) by step-relationships (Wachter 1995; Wachter 1997 and updated mimeo 1998).

Beyond the reality of parental absence resulting from union dissolution—or the failure of unions to form—multi-partnered fertility introduces additional complexities to family life. When parents are called upon to provide resources to children across more than one household or to children of different biological relatedness within the same household, the resulting complexities of family relationships may compromise the quantity or quality of parental investment that children will receive. Furthermore, given that multi-partnered fertility disproportionately occurs to low-income and minority subgroups, this phenomenon may contribute to social and economic inequality over time or, exacerbate the negative effects of growing up in economically disadvantaged families (Duncan and Brooks-Gunn 1997).

In this paper, we use new data from the Fragile Families and Child Wellbeing Study to explore the consequences of multi-partnered fertility for biological parents' family relationships

about three years after a child's birth. First, we examine how multi-partnered fertility—by mothers, fathers, or both parents—is associated with couple relationship quality, co-parenting, and parental involvement (as compared to couples who have more than one child together but no children by other partners). Second, we test whether the association between multi-partnered fertility and family relationships is moderated by the couple's marital status. Third, we evaluate the robustness of our main findings by using prospective data on multi-partnered fertility among couples living apart with a method that adjusts for selection on unobserved time-invariant characteristics.

THEORETICAL PERSPECTIVES AND PREVIOUS RESEARCH

We draw on a variety of sociological, economic and evolutionary theories to develop our arguments about how multi-partnered fertility may affect parental involvement and relationships. Each of these theories point to a similar expectation—that children will lose parental resources in the context of multi-partnered fertility. We describe these perspectives below, but we also cannot ignore the role of social selection.

Sociological perspective. The family is a foundational unit in the social order of any society. Family sociologists have pointed to the importance of the family as an institution that regulates childbearing and childrearing in a context that promotes investment in children and fosters the transmission of societal norms and rules. Despite the dramatic changes in family demography in the last half century and the concomitant shifts in other social institutions, a host of functions continue to be organized primarily within families. Parents retain responsibility for caring for children's material needs as well as socializing them to be positive and productive citizens. From the earliest scholarship in family sociology, reproduction has been viewed as central to kinship structures, anchoring both the biological and social ties among kin relations

(Davis and Warner 1937). In the recent past, children were typically reared in the family unit referred to as the "isolated nuclear family" where married mothers and fathers shared a residence with their biological offspring generally living apart from extended kin (Davis 1949; Parsons 1955; Popenoe 1988). The confluence of biological relatedness, co-residence and legal ties increased the ability of parents to spend time and money on their children and clarified their rights, obligations and responsibilities.

Childbearing across serial partnerships ultimately creates the possibility that parents have divergent interests among their children in common and those that they have had with other partners. The implications of this divergence have long been recognized, even in legendary tales, e.g., the notion of the 'wicked stepmother' who favors her own offspring over the children of her spouse. Social scientists, beginning in the middle of the last century, began to pay more attention to the impact of remarriage on family relationships, and there has been a steady stream of literature on the normative ambiguities in family relationships created by divorce and remarriage. While the term 'multi-partnered fertility' was not used, the complexities that remarriage brought to family life were precisely attributable to the presence of children from previous marriages that were brought into a new marriage (Furstenberg and Cherlin 1991; Ihinger-Tallman 1988).

The lack of clear norms, authority, legal relationships and habits in stepfamilies with children compared to first families led to the characterization of remarriage as an "incomplete institution" (Cherlin 1978). Members of a remarried household often have competing or conflicting interests (Bernard 1956), and family boundaries, privacy and autonomy are compromised as the parent and kin of previous children exercise their perceived rights to remain connected to the child (Ihinger-Tallman 1988). Thus, children provide the link across families that would otherwise not be connected (Cherlin and Furstenberg 1994), and one's kin network

becomes larger and more complex as new ties typically add to—but do not replace—existing ties (Cherlin 1978). While there is some debate about the extent to which the effects of remarriage are causal or due to the selectivity of individuals who enter this status (Castro-Martin and Bumpass 1989; Furstenberg and Spanier 1984), it is clear that changing marital partners when children are involved has profound implications for the character and conception of intra-familial relationships and broader kinship networks (Furstenberg 1990).

As marriage and childbearing have become even further disconnected in recent decades, stepfamilies reflect only one part of the broader phenomenon of multi-partnered fertility. Individuals today may have children in nonmarital unions or in a combination of marital and nonmarital unions. Since marriage circumscribes parents' legal rights and obligations to children, multi-partnered fertility outside of marriage is likely to create family dynamics that are even less demarcated than those found in stepfamilies. Hence, children born outside of marriage whose parents have previous children by other partners might be expected to receive even fewer parental resources than their counterparts born to married parents. This is both because unmarried parents are, on average, more economically disadvantaged than married parents (selection) and because of the absence of social legitimacy and clear paternal obligations established through marriage.

Economic perspective. Economic theory emphasizes the role of rational choice and incentives in shaping human behavior. Living away from one's child (more typical among fathers than mothers) decreases the incentives to contribute to the child because it is more difficult to monitor how resources are allocated by the custodial parent (Weiss and Willis 1985). Further, having children who live in two separate places increases the costs of childrearing because parents cannot benefit from the economies of scale of sharing household goods among

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all their offspring. Finally, living away from children increases the transaction costs of spending time together, given the time and money expended for transportation and for coordinating the interactions; these costs likely accrue to both the non-custodial parent who endeavors to see the child and the custodial parent who often controls the non-residential parent's access the child (so-called 'gatekeeping'). For these reasons, economic theory predicts that children's total resources (both time and money) from parents will be reduced in the context of multi-partnered fertility.

Evolutionary perspective. Evolutionary theory draws our attention to the intrinsic genetic interest in childbearing and the different roles and motives of males versus females in the mating, reproductive and parenting processes. Females bear a greater biological burden in reproduction so have incentive to choose high-quality partners, while males intend to ensure their genetic survival so have incentive to mate with a high number of partners (Daly and Wilson 2000). With respect to parenting, evolutionary psychology points to the importance of biological ties for fostering parental investment (although social parents may invest 'mating effort' in the hopes of future childbearing with their current partner). Biological parents of children will invest more than social parents (those who live with a child to whom they are not biologically related) because they have an evolutionary interest in assuring the success of these children (Emlen 1997). In the context of multi-partnered fertility, biological parents must spread their investments across households, diminishing the quantity that any given child receives, and social parents are unlikely to compensate completely for this loss.

The Role of Selection. It is possible, of course, that multi-partnered fertility has few direct causal effects on parental resources and relationships but that any observed consequences largely operate through the characteristics of parents who end up having children by multiple partners.

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Some research suggests that the characteristics of stepparents (low education and young age at first marriage) largely account for the higher risk of marital dissolution in second marriages compared to first marriages (Castro-Martin and Bumpass 1989). Also, research based on sibling comparisons finds that some (Ginther and Pollak 2004)—but not all (Evenhouse and Reilly 2004)—of the effects of living in a stepfamily on children's outcomes are attributable to selection.

In a previous paper (Carlson and Furstenberg 2006), we discovered that urban parents who have had children by more than one partner are less likely to have grown up with both biological parents, more likely to be black non-Hispanic, and less likely to have been married at the focal child's birth; also, mothers are more likely to have had their first child as a teenager, and fathers are more likely to have some history of incarceration. Some of these socio-demographic characteristics may help account for differences in parental resources and relationships between those who have had children by multiple partners and those who have not. Therefore, in our multivariate models, it is necessary to control for a wide range of demographic, economic and social-psychological characteristics in order to take account of selection before drawing any possible causal inferences; also, we conduct additional analyses of prospective MPF that adjust for individual characteristics that are invariant across time.

Taken together, all three theoretical perspectives suggest that couples with children by previous partners will have greater difficulty maintaining their current family relationships and meeting their parental obligations. Amidst the challenges of rearing their children in common, parents with children from former relationships face additional stresses associated with coordinating the parenting of such children across more than one household (assuming the other parent is involved) or of being the sole biological parent in the child's life (if the other parent is

not involved). Since resources are finite, time and money investments in previous children necessarily yield diminished investment in the current family, likely decreasing the quality of mother-father and parent-child relations. Assuming this hypothesis is correct, we predict that couple relationship quality and parental engagement, especially by fathers, will be lower in families where one or both partners have children from a prior relationship.

Differences by marital status. There are theoretical reasons to expect the link between MPF and family relationships to be either stronger or weaker among married couples compared to unmarried couples. On the one hand, we might expect the association to be weaker among married couples because marriage represents a stronger legal and social commitment and is more 'institutionalized' as a context for childrearing (Cherlin 2005; Cherlin 2004); therefore, the tighter marital bond may be more impervious to disruption from allegiances to previous children (and the asymmetry of the biological tie) than for unmarried couples with a looser commitment. On the other hand, we might expect the association between MPF and couple/co-parenting relationships to be weaker among unmarried couples, since multi-partnered fertility is more common among unwed parents and hence may be perceived as less salient to the family relationships.

Empirical findings

As noted above, the consequences of multi-partnered fertility were first considered with respect to stepfamilies, where—in the context of divorce and remarriage—children linked families across households that would otherwise not have been connected, with the ensuing ambiguity of family roles and responsibilities (Cherlin 1978; Cherlin 1992). An extensive literature has explored the consequences of stepfamilies for children's wellbeing and finds that,

on average, children in stepfamilies fare worse on a range of outcomes compared to children reared by two married biological parents (Astone and McLanahan 1991; Cherlin and Furstenberg 1994; Coleman, Ganong and Fine 2000; Furstenberg and Cherlin 1991; McLanahan and Sandefur 1994). This is despite the fact that average economic resources do not differ between biological- and step-parent families (McLanahan and Sandefur 1994) and that levels of parental conflict—though higher overall for children in stepfamilies—do not account for differences in wellbeing across these family types (Hanson, McLanahan and Thomson 1996). Therefore, the deleterious consequences of stepfamily arrangements (relative to biological parents) must be due to other aspects of parenting or social capital (Hanson, McLanahan and Thomson 1996)—or to the preexisting characteristics of parents that are associated with becoming step-parents in the first place .

The stepfamily situation is an important aspect of multi-partnered fertility but differs from the broader phenomenon in two ways. First, stepfamily research considers MPF primarily at the family level, drawing on household-based national surveys that can only identify stepfamilies once formed. Without directly asking respondents if they have children by multiple partners (which, especially for men, may live elsewhere), it is difficult to determine the overall scope and hence the overall consequences of MPF. Second, at least as historically defined, stepfamilies referred to legally (re)married families after divorce, so this category does not include the circumstances of the growing fraction of children born outside of marriage and the growing fraction of cohabiting unions (Bumpass, Raley and Sweet 1995). MPF, as we conceptualize it, encompasses the broad array of contexts in which adults have children by more than one partner and could be viewed (depending on available data) from the perspective of mothers, fathers, or children.

A nascent but growing literature has begun to explore the prevalence and implications of multi-partnered fertility for families and society. Recent work has identified that a sizeable fraction of individuals across various demographic groups have children by more than one partner, including low-income teenage mothers in Baltimore (Furstenberg and King 1999), adolescent and early adult women (Guzzo and Furstenberg 2005), a national sample of adult men (Guzzo and Furstenberg 2006), mothers receiving welfare in Wisconsin (Meyer, Cancian and Cook 2005), and unwed parents in large cities (Carlson and Furstenberg 2006; Mincy 2002).

With respect to consequences, related empirical evidence suggests that children do indeed lose parental resources in the context of multi-partnered fertility. When fathers have children by a new partner, they are less likely to visit (Manning and Smock 1999), and they provide less economic support (Manning and Smock 2000) to non-resident children from a previous union; a recent study shows that the effective collection of child support by fathers is hindered when they have children by more than one partner (Meyer, Cancian and Cook 2005). Recent qualitative evidence suggests that multi-partnered fertility is often a source of tension in couple relationships following a new child's birth (Edin, England and Linnenberg 2003; Hill 2006). Furthermore, couples who have a child outside of marriage are less likely to cohabit or marry following the baby's birth if the father (but not the mother) already has children by a previous partner (Carlson, McLanahan and England 2004), and holding relationship status constant, unmarried fathers with previous children are less likely to have contact with the focal child about three years after the birth (Carlson, McLanahan and Brooks-Gunn 2005). Therefore, multi-partnered fertility (at least by fathers) appears to affect children's access to their parents' resources and union stability beyond the effects due to family structure alone. Further, recent evidence suggests that multi-

partnered fertility also diminishes social support within extended kin networks (Harknett and Knab 2007).

Gender differences. Although the likelihood of fathers' being awarded custody of their children following divorce has increased in recent years, still today, the majority of divorce decisions result in the mother gaining primary custody of her children (Cancian and Meyer 1998). Therefore, considering the circumstance of multi-partnered fertility, mothers will more likely be rearing children by multiple partners within the same household, while fathers will more likely live with children by a current partner but be a non-custodial parent vis-à-vis children by any previous partners. For men, marriage and childrearing are typically more of a "package deal" than for women (Furstenberg and Cherlin 1991; Townsend 2002), so the end of the marriage brings a precipitous decline in fathers' involvement with their children (Furstenberg and Nord 1985; Seltzer and Bianchi 1988); the same would be expected, perhaps even more so, of men in unmarried partner relationships. Even within marriage, there is some evidence that the quality of the marital relationship has a greater effect on fathers' parenting than on mothers' parenting (Erel and Burman 1995). Given the frequent gender difference in parenting following union dissolution, we expect that fathers' multi-partnered fertility will have a more deleterious effect on resources to children than mother's multi-partnered fertility. To the extent that we do find gender differences, this provides some reassurance that the effects are not entirely due to selection (unless there are different selective processes for men versus women of having children by multiple partners).

Differences by marital status. While no study of which we are aware has broadly examined how marital status moderates the role of multi-partnered fertility on couple relationships and parenting, sociologists have highlighted the lack of institutionalization within

cohabiting relationships (Nock 1995) and the ambiguity in parental roles that may lack any formal or legal status. Manning and Smock find that being in a new union does not appear to diminish fathers' ties to previous children (whereas new fertility does), but they do not evaluate differences between married and cohabiting unions (Manning and Smock 1999).

DATA AND METHODS

We use data from the Fragile Families and Child Wellbeing Study, a national longitudinal study designed to examine the characteristics of unmarried parents, the relationships between them, and the consequences for children (Reichman et al. 2001). The study follows a birth cohort of 3,712 children born to unmarried parents and—less well known, also includes a comparison group of 1,186 children born to married parents—in twenty large U.S. cities in 1998-2000 for a total number of 4,898 couples. The sample, when weighted, is representative of all nonmarital births to parents residing in cities with populations over 200,000 and nearly representative of births to married parents in large cities (because the sampling frame was designed to provide a representation of unmarried births).

Baseline interviews with mothers and fathers were conducted shortly after their child's birth. Mothers were interviewed in person in the hospital within 48 hours of the birth, and fathers were interviewed in person as soon as possible thereafter, either in the hospital or wherever they could be located. Follow-up interviews with both mothers and fathers occur when the child is about one, three and five years old. Response rates for the baseline survey are 87 percent for unmarried mothers and 82 percent of married mothers. Fathers were also interviewed in 88 percent of cases for married fathers and 75 percent for unmarried fathers.[1] At the one-year (three-

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[1] It is important to note that the Fragile Families data are most representative of cohabiting and married fathers (89-90 percent response rate) and least representative of fathers who are not romantically involved with the child's

year) follow-up, 90 percent (87 percent) of unmarried mothers, 91 percent (89 percent) of married mothers, 70 percent (67 percent) of unmarried fathers, and 82 percent (82 percent) of married fathers who were eligible (i.e., had a completed baseline mother interview) were interviewed again.

In this paper, we use data from the baseline, one-year and three-year follow-up surveys with mothers and fathers. Our sample includes 3,831 couples about which data is available on their previous fertility from the 1-year survey and where the mother (3,831) or father (2,967) was interviewed at the 3-year survey. Unlike many studies using the Fragile Families data, we combine the unmarried and married samples (and apply weights for the descriptive statistics in order to adjust for the over-sampling of nonmarital births) to yield a large national sample of urban births. From the full sample of 4,898 births, 533 are excluded because the mother is not interviewed in the 1-year survey (when the questions about previous fertility were first asked), and 205 who are interviewed but have missing data on mothers' reports of her own or the father's previous children. Of these 4,160 cases, 329 mothers are not interviewed at the 3-year survey, yielding a final sample of 3,831 mothers; of this group, 2,967 fathers are interviewed. Because the cases lost to attrition are more likely to have had a history of childbearing by previous partners—especially for fathers, our results likely understate both the level and consequences of multi-partnered fertility; we discuss how we address missing data below.

Missing Data

As with any survey, the Fragile Families Study has a number of missing values. Also, as noted above, a lower fraction of fathers than mothers was interviewed at all survey waves.

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mother at the time of birth (38 percent response rate). Moreover, among the latter group, the men who participated in the study are likely to be a highly select group of men, namely men who are unusually committed to the child and/or the mother.

Fortunately, mothers were asked a number of questions about fathers, so we have no cases for which zero information is available. We use mothers' reports of multi-partnered fertility and outcome variables reported by both mothers and fathers (described below). To fill in missing data on the covariates, we use multiple imputation techniques (Allison 2002).[2] Of the full sample (n=3,831), the proportion of cases missing on mother-reported variable is always less than 4 percent; the proportion of cases missing on father-reported variables ranges from 16-18 percent (primarily due to non-interviewed fathers).

As required for multiple imputation, we assumed that our data were 'missing at random,' in other words that the probability of a variable being missing is unrelated to the value of that variable after controlling for other variables in the analysis. In the imputation model, we include variables reported by mothers and fathers that are a) related to the substantive question within this research (how multi-partnered fertility affects couple relationships and parenting) and/or b) related to the likelihood of being missing. Therefore, we include the variables for multi-partnered fertility, our outcome variables, control variables associated with both, as well as variables associated with non-response (e.g., we know that couple relationship status at baseline is associated with the father's not being interviewed). We use Stata 9.2 SE with the *ice* (imputation by chained equations) command developed by Patrick Royston (Royston 2004).

Measures

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[2] First introduced by Donald Rubin (1976; 1987), multiple imputation (MI) has emerged as a promising strategy for dealing with missing data that eliminates the biases inherent in more conventional methods such as mean substitution or dummy variable adjustment (Allison 2002). MI uses observed data for an individual to impute missing values over multiple data sets; analyses are then conducted across each data set and the estimates averaged to reflect the intrinsic uncertainty in the missing-data imputation (and hence yield appropriate standard errors). Both dependent and independent variables are used to impute missing independent values, but dependent variables are not imputed, as such values do not contribute information to parameter estimates (Allison 2002; Downey, von Hippel and Broh 2004; Little 1992).

Dependent variables. We examine 11 measures of parental relationships and involvement in three areas—couple relationship quality, co-parenting, and parental engagement—all reported at the three-year survey. We use reports by both mothers and fathers where available (for the three relationship quality measures and father engagement). We include three measures of couple relationship quality – supportiveness, frequency of arguing, and a global quality assessment. *Supportiveness* in the parents' relationship (for those who are/were in some type of romantic relationship) is measured by each parent's reports about the frequency that their partner exhibits six types of behavior: 1) "is fair and willing to compromise when you have a disagreement," 2) "expresses affection or love toward you," 3) "insults or criticizes you or your ideas" (coding reversed), and 4) "encourages or helps you to do things that are important to you," 5) "Listens when you need someone to talk to," and 6) "Really understands your hurts and joys." Response options are "never" (1), "sometimes" (2), and "often" (3). The six items were averaged to obtain an overall supportiveness score (alpha = .863 for mothers and .796 for fathers), with higher scores indicating a greater level of supportiveness. *Frequency of arguing* is measured by a single question about how often the parents argue about things that are important to them, with response choices of "never" (1) to "always" (5). *Global relationship quality* is assessed by a single question asking parents whether in general they would say their relationship is "poor" (1), "fair" (2), "good" (3), "very good" (4), or "excellent" (5).

Co-parenting patterns are tapped by two measures, each reported by mothers. The first indicates *cooperation in parenting*. Mothers are asked about how true are six statements: 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) "he respects the schedules and rules you make for (child)," 4) "he supports you in the way <u>you</u> want to raise (child)," 5) "you and (father) talk

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about problems that come up with raising (child)," and 6) "you can count on (father) for help when you need someone to look after (child) for a few hours." Response options range from "never/rarely true" (1) to "always true" (3), and responses are averaged across the six items (alpha = .884). The second measure of co-parenting represents the extent to which the father *shares responsibility for child tasks*. Mothers are asked how often the father 1) "looks after [child] when you need to do things," 2) "runs errands like picking things up from the store," and 3) "take [child] places (he/she) needs to go, such as to daycare or the doctor." Response choices range from "never" (1) to "often" (4), with higher scores indicating greater shared responsibility (alpha = .892).

We examine parental engagement by both mothers and fathers. *Father engagement* reflects the mean number of days in the past week (ranging from 0-7) that the father engaged in seven activities with the child—singing, playing imaginary games, reading stories, telling stories, playing with toys, letting child help with simple household chores, and telling child they appreciated something they did; we have reports from mothers about fathers (alpha = .892) and fathers' reports about themselves (alpha = .841). The identical series of seven items is reported by mothers about their own engagement with the child (alpha = .757).

Independent variables. For our OLS analysis, we use items about parents' previous childbearing from the one-year mother survey to determine multi-partnered fertility (the requisite questions were not asked at the baseline survey). We use mothers' reports about both parents' fertility in order to preserve a larger sample, as a smaller fraction of fathers was interviewed. With respect to their own fertility, each mother reports whether she has any children by other men and if so, by how many fathers. With respect to the father's fertility, the mother reports

whether he has any children by another woman (assuming she has knowledge of such births).[3]

We also have information on whether couples have other biological children together. We

construct five mutually exclusive and exhaustive categories for parents' fertility history: couple

first birth, parents have two or more children together but no MPF (reference category), father

only has a child by a previous partner, mother only has a child by a previous partner, and both

parents have a child by a previous partner. For our fixed effects analysis, in addition to the one-

year reports, we examine MPF prospectively by using mothers' reports from the three-year

survey about whether fathers have children by more than one partner; for cases where both

parents are interviewed, mothers and fathers agree about fathers' multi-partnered fertility at 3

years in 94 percent of cases.

We include a wide range of covariates in order to rule out selection along a number of

individual characteristics of mothers and fathers and of their initial relationship; the independent

variables are all reported at the baseline survey unless otherwise indicated. We use mothers'

reports about fathers for several variables where available (age, race/ethnicity, education, and

incarceration history) in order to have information about the full sample of fathers. These

second-hand reports could be less reliable than self-reported measures, but we find that

agreement is high in the father-interviewed sample where we can compare mother and father

reports.[4]

Mothers' age at first birth is calculated from her report about the ages of children living

with her at the time of the one-year survey from the household roster (because we do not have a

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[3] For cases where both the mother and father were interviewed at 1 year, 90 percent of couples agree about whether the father has a child by someone else (the fathers are asked a related but different question – whether they have biological children living elsewhere). Of the 10 percent of cases with discrepant reports, two-thirds are where the mother reports the father has another child and the father reports none, and one-third is where the father reports children living elsewhere but the mother says the father has no children by another partner.

[4] Reported age is correlated at $r = 0.98$, and parents provide identical responses in the majority of cases for the other variables: 95 percent for race/ethnicity, 76 percent for education, and 83 percent for incarceration.

direct report of her age at first birth). By this measure we could be over-estimating the age at first

birth for mothers who have previous children who do not live with them, but because children

typically live with mothers, we suspect this is not a significant problem.[5] We include fathers' age

at the time of the focal child's birth.

Family structure history is represented by a dichotomy for whether each parent reported

that they lived with both of their parents at age 15. Mothers' race/ethnicity is specified as series

of dummy variables: Black non-Hispanic (reference), White non-Hispanic, Hispanic, and other

non-Hispanic race. A separate dummy variable reflects whether the father differs on

race/ethnicity. Parents' education is specified as less than high school (reference), high school

degree/GED, some college, or bachelor's degree or higher. We represent each parent's health

status by a dummy variable from their self-report that their health was "poor" or "fair."

We include several measures of parents' attitudes and behaviors. Each parent's religious

attendance is specified as a continuous variable, ranging from 1 = *not at all* to 5 = *once a week or*

more. Parents' distrust of the opposite gender is represented by their responses to two statements:

(a) "Men (women) cannot be trusted to be faithful," and (b) "In a dating relationship, a man

(woman) is largely out to take advantage of a woman (man)." Response choices range from 1 =

strongly disagree to 4 = *strongly agree*, and the two items are averaged into a single measure.

Mothers and fathers report about their own substance problems by responding (*yes/no*) to the

question "In the past year, has drinking or using drugs ever interfered with your work on a job or

with your personal relationships?" For fathers, we add a variable indicating that the mother

reports that he has ever been in jail or prison.

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[5] Separate analyses of data from the National Longitudinal Survey of Youth 1988 wave [N = 4,840], when the mothers were in their 20s as are the majority of Fragile Families mothers, indicated that this approach is reasonable. The mean estimated age at first birth is only .74 years different from the mean actual age at first birth, and the estimated is within one year of the actual for 92.5 percent of cases.

Finally, we include variables to represent parents' marital status at 1 year (simultaneous with our MPF measure) and two aspects of the relationship at the time of the focal child's birth. Marital status is a single dummy variable coded as 1 if married. Frequency of conflict is represented by the mean of parents' reports about whether they "never" (1), "sometimes" (2), or "often" (3) had conflict over six items in the last month—money, spending time together, sex, the pregnancy, drinking or drug use, and being faithful. Mothers report whether they considered getting an abortion or whether the father suggested such during the pregnancy with the focal child.

Table 1 shows descriptive statistics for our sample, weighted by national sampling weights. For 31 percent of couples, the focal child represents their first birth; 34 percent have at least one previous child before the focal birth (2+ births total); for 13 percent, the father only has a child by a previous partner; for 11 percent the mother only has a child by a previous partner; and for 10 percent, both parents have a child by a previous partner. Between the 1- and 3-year surveys, 2 percent of fathers and 5 percent of mothers went on to have a new child by another partner (so by 3 years, 24 percent each of mothers and fathers have a child by a previous partner—not shown in table).

The sample is racially diverse: 22 percent of mothers are black non-Hispanic, 30 percent Hispanic, 8 percent other non-Hispanic, and 40 percent white non-Hispanic; 14 percent of couples differ in their racial/ethnic background. Thirty percent of mothers were under age 20 when they had their first birth, 52 percent were in their 20s, and 19 percent were age 30 or older. At the time of the focal birth, most fathers were in their 20s or 30s. Fifty-four percent of mothers and 61 percent of fathers lived with both of their parents at age 15. Seven percent of mothers and fathers report their health status as fair or poor. With respect to education, about one fourth of

mothers and fathers have less than a high school degree, another quarter has a bachelor's degree, and the remainder has at least a high school degree. Fifty-eight percent of the focal children are boys.

With respect to the couple relationship and social-psychological attitudes and behaviors, 63 percent of couples were married as of the 1-year survey. The mean level of conflict around the time of the birth was low (1.36 on a 1-to-3 scale). Fifteen percent of mothers considered aborting the focal child, and 5 percent reported that the father suggested the same. Attitudes toward distrust of the other gender are modestly high, and frequency of church attendance falls in the middle of the scale (close to "several times a year"). Nearly one-fifth of fathers have previously been in jail or prison. Only 1-to-3 percent of mothers have a self-reported substance problem.

Methods

After presenting means (weighted by national sampling weights) on the eleven outcome variables (Table 2), we then conduct three multivariate analyses. First, to evaluate the overall association between MPF and our outcome variables, we estimate ordinary least squares regression models (with unweighted data) for each outcome as a function of the MPF variables and other covariates. For each outcome, we estimate two models: Model 1 includes the dummy variable for parents' fertility history along with demographic controls (mother's age at first birth, father's age at focal birth, mother's race/ethnicity, father's race differs, whether the focal child is a boy and variables for each parent's nativity, family structure at age 15, self-reported health and education). Model 2 adds the variables from the baseline survey on individual attitudes and behavior (both parents' reports of distrust of other gender, frequency of religious attendance,

mother's report of frequency of conflict in the relationship, substance problem, whether

considered aborting the focal child) as well as couple marital status at the 1-year survey and

whether the father has ever been in jail; these factors are added after basic demographics because

they could have been affected by previous MPF, and hence controlling for them may

underestimate the effect of MPF.

Second, in order to evaluate whether the association between MPF and family

relationships varies by marital status, we then re-estimate our OLS models and add variables that

interact each of the fertility history categories with marital status at 1 year. These coefficients

enable us to determine whether MPF (by fathers or mothers) has greater consequences for couple

relationship quality, co-parenting and parenting if the parents are married versus unmarried.

Third, since concerns about selection loom large in this investigation (even with the rich

set of controls), we conduct an additional set of analyses using fixed effects regression. Fixed

effects models utilize only within-subject variation, eliminating between-subject variation that

may be affected by omitted variables associated with both the independent and dependent

variables. Thus, this more conservative technique reduces bias in the estimates by controlling for

characteristics that remain constant over time and estimating the outcome as a function of

characteristics that vary within subjects over time (Greene 2003; Snijders 2005). Fixed-effects

models effectively allow the regression estimate to be raised or lowered by a fixed amount for

each individual within the sample, represented by:

$$y_{it} = \alpha + \delta_i + \beta \mathbf{x_{it}} + \varepsilon_{it} \qquad [1]$$

where y_{it} is the dependent variable observed for individual i at time t, β is a vector of parameters

on covariates $\mathbf{x_{it}}$, δ_i is the individual effect, and ε_{it} is the error term. We estimate one set of

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models each for mothers and fathers, where becoming a MPF parent between the 1- and 3-year

surveys is associated with change in each outcome variable between years 1 and 3.[6]

BIVARIATE RESULTS

Table 2 shows mean scores and standard deviations for the 11 outcome variables (seven

reported by mothers and four by fathers). For each outcome, we indicate the range of possible

values and then present weighted means for the sample overall, and by fertility history category.

We test significant differences across categories using oneway analysis of variance with Scheffé

multiple comparison tests.

In general, we find that couple relationship quality is lower when the father only—or

both parents—have a child by another partner as compared to the other categories. Across nearly

all outcomes, the relationship scores are significantly 'worse' for these two groups, and there are

few significant differences between them. The means on the two co-parenting measures show an

even stronger pattern—when the father only or both parents have MPF, mothers report

significantly less cooperative parenting and less shared responsibility in childrearing compared

to couples having their first birth, couples with two or more births together, or couples where

only the mother has a child by another partner. The pattern is somewhat less consistent with

respect to parental engagement. Here, both mothers and fathers having their first birth appear to

be significantly more engaged with the focal child. Yet, the lowest level of father involvement

(according to mothers' report) and mother involvement are observed among couples where both

parents have a child by a previous partner. Overall, our descriptive results suggest that when

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[6] Since once parents have children by multiple partners, they cannot eliminate their MPF status, the variable for change in MPF status intrinsically reflects parents *becoming* parents by multiple partners.

differences are observed, it is fathers'—and not mothers'—children by previous partners that seem to complicate couple relationships and co-parenting.

MULTIVARIATE RESULTS

Effects of Multi-partnered Fertility on Couple and Parental Relationships

Having observed the bivariate associations between MPF and many of our outcome measures, we then proceed to our OLS regression results for the effects of multi-partnered fertility on the outcome variables that adjust for the observed covariates; these models allow us to evaluate the extent to which the effects of multi-partnered fertility are attributable to selection factors correlated with entering the circumstance of having children by more than one partner. Table 3 shows results for our six relationship quality outcomes (three measures each reported by mothers and fathers). As shown in Model 1, when couples are experiencing their first birth, when the father only has a child by a previous partner, or when both parents have a child by another partner, mothers perceive the relationship as significantly less supportive three years after their common child's birth, controlling for demographic characteristics. Controlling for social-behavioral variables and marital status in Model 2, we find that only the effect of father MPF on reported supportiveness remains highly significant: Mothers report an average .11 points lower on the supportiveness measure (about one-fifth of a standard deviation) when the father has a previous child.

The next panel presents results on how MPF affects the frequency of arguing. Model 1 shows that compared to couples who have had two or more births together, those having their first birth, where only the father has a previous child, or where both parents have a child by a previous partner argue more frequently. Only the coefficient on both parents' MPF remains

significant once the additional covariates are included: When both parents have a previous child, the frequency of arguing is reported to be .11 higher, a small effect, since that is only one-eighth of a standard deviation.

With respect to the overall relationship quality score, controlling for the richer set of covariates, mothers perceive the overall relationship quality to be lower if the couple just had their first birth, if the father only has a child by another partner, or if both parents have a child by another partner (as compared to couples who have had at least two children together and no children by other partners). Where only fathers have had a previous child, the average reported relationship quality is .39 lower, and when both parents have a previous child, it is .32 lower; these represent moderate effect sizes of about one-third of a standard deviation.

Turning to fathers' reports about relationship quality, we find somewhat weaker effects of MPF on couple relationship quality. When either the father only or the mother only has a child by a previous partner, fathers report a slightly lower level of supportiveness in the couple relationship compared to couples that have two or more births together, controlling for all covariates. There are no significant associations between any MPF category and the father's report of the frequency of arguing in the relationship. With respect to overall relationship quality, the association with MPF is mostly attenuated by the inclusion of the social-behavioral covariates in Model 2; the father only having MPF has a marginally significant negative association with fathers' perception of the overall quality of the relationship.

Table 4 shows results for the co-parenting and parental engagement outcomes. When couples are experiencing their first birth, or when fathers or both parents have a child by another partner, mothers report a lower level of cooperative co-parenting. The coefficients for first birth and both MPF are quite small, but the coefficient for father only having a previous child is -.17,

or about one-third of a standard deviation. Mothers also report a lower degree of fathers sharing childrearing responsibilities when either the father only or both parents have a child by a previous partner—about one-third of a standard deviation for either category. Therefore, parents' ability to work together in rearing their common child appears to be particularly diminished with the father has a child by a previous partner.

Turning to parental engagement, the results are quite different from the previous outcomes: There is no difference in fathers' engagement based on the father only or both parents having MPF as compared to couples that have had two or more children together. Instead, fathers in couples having a first birth—or where only the mother has a child by a previous partner—are significantly *more* engaged with the focal child than the reference category. This is true regardless of whether mothers' report or fathers' report of paternal engagement is used—the effect size is just under one-fifth of a standard deviation. We suspect that mothers with one or more previous children may perceive the focal father as more engaged for two possible reasons: First, a mother in this situation is implicitly evaluating her parenting experience with her current partner in reference to her experience with the previous man with whom she broke up; the dissolution could have occurred precisely because he was not an involved father. Second, it could be that men who partner with women who already have a child have a greater 'taste' for fathering and are in fact more engaged in the fathering role. With respect to maternal engagement, mothers report that they are more engaged with first children than when they've had one or more previous children with the biological father. There appears to be no negative effect of MPF—either their own or fathers'—on mothering, and in fact, mothers appear to be *more* engaged with the focal child when the father only has a child by a previous partner.

The Moderating Role of Marital Status

Having estimated the overall associations between MPF and couple relationship quality and parenting outcomes, we were interested in whether differences were observed between married and unmarried couples. In other words, does MPF have stronger (or weaker) effects among (legally-married) stepfamilies versus unmarried families? Table 5 shows those results.

Taken together, we find that the moderating effects of marital status—when they are significant at all—differ between mothers' and fathers' perceptions of the couple relationship and co-parenting. For mothers, MPF (by fathers or both parents) appears to be less salient for cooperative parenting and shared responsibilities when the couple is married. For fathers, they do not provide reports of co-parenting, but MPF (by fathers or both parents) appears to have a greater negative effect on supportiveness and overall relationship quality when the couple is married versus unmarried. The exception to the pattern for fathers is with respect to his engagement with the child – fathers' MPF appears to promote his greater engagement but only within marriage.

Robustness Analyses

One concern with this research (and any research using observational data) is the extent to which the associations between multi-partnered fertility and couple/parenting outcomes are causal or are simply attributable to the characteristics of those who end up having children by more than one partner. In other words, are our results simply due to the selection factors on having MPF in the first place? In order to mitigate this concern, our regression results control for a host of observed characteristics of both mothers and fathers that may be exogenous—and some of which may in fact be endogenous—to multi-partnered fertility. Yet, the remaining significant

associations that we observe could be the result of unobserved characteristics that predict both MPF and the outcomes in question.

In order to address this concern, we estimate fixed effects models to examine how a change in multi-partnered fertility status between years 1 and 3 is linked to a change in each of the outcome variables. By utilizing only within-subject variation, this method effectively controls for all unobserved characteristics that are time-invariant and allows for stronger causal inference. As shown in Table 1, 2 percent of fathers, and 5 percent of mothers, become MPF by the 3-year follow-up (in other words, they were not MPF at 1-year but have a new child by a different partner by year 3). We limit our sample to non-resident parents at both waves (and where the child lives with the mother), since (presumably) only parents who are broken up from the focal parent will be having a child by a new partner, and we want to avoid biasing our estimates with the inevitable changes in couple relationship quality and co-parenting that occur during when couples break up.

Our fixed effects results for non-resident parents are mostly consistent (exceptions noted below) with the pattern of results from our OLS models. With respect to father's multi-partnered fertility, we find when the father has a child by another partner over the observation period, mothers experience a greater decline in supportiveness and overall quality in the couple relationship compared to couples where the non-resident father doesn't have a new child. Similarly, cooperative co-parenting and shared responsibilities are significantly diminished when the father has a new child. By contrast, mothers report that they themselves are more engaged in activities with their child when the father has a child by a previous partner; they may be compensating for his decreased involvement.

When mothers go on to have a new child by another partner over the observation period, mothers also experience a decline in the overall relationship quality with the focal father. At the same time, fathers report an improvement in quality, and a decrease in arguing. We suspect that this 'improvement' in relationship from fathers' perspectives simply reflects less frequent contact (and hence conflict) with the mother once she has a new baby; the frequency of contact and of conflict are shown to be linked for non-resident parents for divorced parents (Hanson, McLanahan and Thomson 1996), and presumably the same is true for never-married non-resident parents as well. Mothers also experience a decline in cooperative co-parenting and shared responsibilities with the non-resident focal father when they have a baby by a new partner.

Overall, the fixed effects results on prospective MPF suggest that our main OLS results are not primarily being driven by selection factors. The quality of the couple relationship declines—from the mother's point of view—when especially fathers go on to have a baby by a new partner. Even more striking (and salient for children's wellbeing) is that parents' ability to effectively co-parent their common child is diminished when either of them has a child by a new partner.

DISCUSSION

In this paper, we have examined how multi-partnered fertility affects couple relationships and parenting three years after a child's birth. This research sheds new light on the consequences of the divergence of fertility and union formation that has been occurring over recent decades for how families accomplish the fundamental task of rearing and socializing children. Overall, we find that a non-trivial fraction of urban couples have one or more previous children at the time of

a new baby's birth and that these earlier parental obligations are strongly linked to the focal

couple's quality of relationship and ability to co-parent effectively.

Fathers' having previous children is particularly deleterious—at least from mothers'

perspectives. It appears that fathers' responsibility to previous children outside the household

(since children typically live with mothers) undermines the investment in his current roles as

partner and parent. This finding is consistent with qualitative research documenting high levels

of distrust and jealousy among unwed mothers related to fathers' ongoing involvement with the

mothers of their previous children (Edin, England and Linnenberg 2003; Edin and Kefalas 2005;

Hill 2006). These dynamics appear to put an additional strain on already-tenuous relationships.

Previous research points to the importance of couple relationship quality and effective co-

parenting for father involvement, even when parents are no longer romantically involved

(Sobolewski and King 2005). Our results suggest that fathers' having children by a previous

partner puts a strain on couples' ability to cooperate effectively. Our findings also add a new

perspective to the existing literature showing that fathers' contributions (both time and money) to

previous children are diminished when they go on to form new families (Manning and Smock

1999; Manning and Smock 2000). It appears that the disadvantage accrues not only to children

from previous partnerships—who get less from their father when he goes on to form a new

family—but that children from *current* partnerships also lose resources when fathers are in the

circumstance of rearing children across households.

In contrast to the results for fathers' MPF, we find fewer effects of mothers' MPF on

couple relationship quality and parenting, and where there are effects, they are sometimes in a

positive direction. Fathers are more engaged when the mother only has a child by a previous

partner. We suspect this could reflect mothers' past experiences with a less competent or

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committed father, and/or there could be some selectivity in the men who partner with women that already have children—they are likely men who value and enjoy children and hence do, in fact, display a higher level of paternal investment in the focal child than men who partnered with childless women; also, mothers may encourage and reinforce such involvement. This finding is consonant with new research from the Fragile Families data showing that when unmarried women re-partner with men shortly after their child's birth, these 'social fathers' have significantly better social and economic capacities than the biological father with whom they had the focal child (Bzostek, Carlson and McLanahan 2006).

Our research underscores the importance of conceptualizing and measuring families in broader ways than is typically done in many national studies. As marriage and fertility have become increasingly disconnected, families often span across households, and/or family members within households do not share the same filial ties. This increasing complexity creates challenges for maintaining parental roles and responsibilities that promote healthy child socialization and development. Further, multi-partnered fertility may have important implications for social and economic stratification over time, since socioeconomic status is highly related to family composition. Hence, the children in families with the fewest resources are the ones most likely to experience the diminished investment that may occur when their parents have children by more than one partner.

Even with our efforts to address selection bias, we recognize that survey data are inferior to experimental design for discerning a causal effect. Thus, we must be careful in interpreting our findings, as unobserved variables could be causing both multi-partnered fertility and our family relationship outcomes. Our fixed effects models offer the most rigorous test of causality, since they control for time-invariant individual differences by focusing on within-subject change.

Yet, these models do not account for unmeasured time-varying characteristics, so our results could still be biased by variables correlated with both MPF and our outcome variables that are changing over the observation period.

It is important to note that the fixed effects analysis examines prospective MPF which is a relatively rare event within a few years of a previous birth by a different partner. This small group of parents may differ from those who will later go on to have a child by a new partner in subsequent years. Therefore, we may be finding larger short-term consequences of MPF than would otherwise be observed if such MPF occurred at a greater distance from the focal child's birth (with less disruption to a nascent co-parenting arrangement). On the other hand, since these new relationships may still be in flux, the long-term consequences of this early MPF may be even greater and compounding as parents grow further apart.

Our findings also have implications for public policy. The Bush Administration now endeavors to promote healthy marriage among low-income couples in order to foster family stability and improve child wellbeing (Dion 2005). The Deficit Reduction Act of 2005 (P.L. 109-362) allocated $150 million per year for research and demonstration programs related to healthy marriage promotion and responsible fatherhood. To the extent that many unwed couples already have children by previous partners, our research suggests that in such circumstances, the already-strained resources of low-income parents will by necessity spread across households, yielding diminished overall parental investment in children. This family complexity may mitigate the effectiveness of marriage promotion efforts (Jayakody and Seefeldt 2006), as compared to the family with two parents and only their joint biological children typically envisioned by marriage advocates. Research suggests that children in stepfamilies often do not fare any better than children in single-parent families, despite the fact that they often have higher economic resources

(McLanahan and Sandefur 1994); the same holds for children living with unmarried social fathers compared to those living with biological fathers (Brown 2004; Hofferth 2006). To the extent that biological parents play a critical role in healthy child development—and that parental investment is diminished in the context of multi-partnered fertility—the results of this analysis should provide a caution to policies aimed at promoting marriage amount unwed couples. At the very least, this issue merits further research investigation and consideration by policymakers.

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Table 1. Sample Characteristics

	M or %	(SD)
Multi-partnered fertility (MPF)		
Fertilty history (reported at 1 year)		
Couple first birth	30.9	
Couple 2+ births together (and no MPF)	34.4	
Father only has child by another partner	13.2	
Mother only has child by another partner	11.1	
Both parents have child(ren) by another partner	10.4	
New MPF by 3-year survey		
Father has new child by another partner	2.1	
Mother has new child by another partner	4.6	
Demographics		
Mother's race		
White non-Hispanic	40.3	
Black non-Hispanic	21.6	
Hispanic	29.9	
Other non-Hispanic	8.2	
Father is of different race/ethnic background	14.4	
Mother's age at first birth		
Under age 20	29.7	
Ages 20-29	51.8	
Age 30 and older	18.5	
Father's age at focal birth		
Under age 20	4.6	
Ages 20-29	45.6	
Age 30 and older	49.8	
Family background		
Mother in intact family age 15	53.9	
Father in intact family age 15	60.5	
Self-reported health status poor or fair		
Mother's health	7.0	
Father's health	6.8	
Mother's education		
Less than high school	26.0	
High school degree	31.1	
Some college	19.2	
Bachelor's degree+	23.7	
Father's education		
Less than high school	23.5	
High school degree	29.0	
Some college	25.3	
Bachelor's degree+	22.2	
Focal child is a boy	57.7	

(table continued next page)

	M or %	(SD)
Couple Relationship, Social-Psychological Attitudes and Behaviors		
Married at 1-year survey	63.1	
Frequency of conflict at birth (mother report, range=1-3)	1.36	(.33)
Considered abortion		
Mother	14.9	
Father suggested (mother report)	4.7	
Distrust of other gender (range=1-4)		
Mother	1.94	(.68)
Father	1.80	(.63)
Frequency of church attendance (range=1-5)		
Mother	3.27	(1.36)
Father	3.08	(1.41)
Father ever incarcerated (mother/father report)	16.8	
Substance problem		
Mother	1.2	
Father	3.0	
Unweighted number of cases (*N*)	3,831	

All figures are weighted by national sampling weights.

Table 2. Mean Scores on Dependent Variables (Reported at 3-Year Survey)

	Range	Overall M	Overall (SD)	Couple First Birth (a) M	Couple First Birth (a) (SD)	Couples 2+ Births (no MPF) (b) M	Couples 2+ Births (no MPF) (b) (SD)	Father MPF Only (c) M	Father MPF Only (c) (SD)	Mother MPF Only (d) M	Mother MPF Only (d) (SD)	Both Parents MPF (e) M	Both Parents MPF (e) (SD)	Significant Differences
Couple Relationship Quality														
Supportiveness (M report)	1-3	2.47	(.54)	2.55	(.49)	2.50	(.53)	2.26	(.60)	2.45	(.53)	2.41	(.58)	c<a,b,d,e; e<a
Supportiveness (F report)	1-3	2.59	(.40)	2.61	(.39)	2.61	(.41)	2.49	(.42)	2.54	(.45)	2.62	(.32)	c<a,b,e
Frequency of arguing (M report)	1-5	2.95	(.88)	2.87	(.88)	2.77	(.74)	3.22	(.91)	2.99	(.95)	3.37	(.98)	c>a,b,d; d>b; e>a,b,d
Frequency of arguing (F report)	1-5	2.67	(.86)	2.62	(.81)	2.69	(.89)	2.85	(.93)	2.74	(.91)	2.50	(.75)	c>a,e
Overall quality (M report)	1-5	3.61	(1.33)	3.81	(1.24)	3.85	(1.23)	3.05	(1.49)	3.48	(1.26)	3.07	(1.41)	c<a,b,d; c<a,b; e<d
Overall quality (F report)	1-5	4.12	(.98)	4.19	(1.00)	4.26	(.90)	3.73	(1.05)	4.02	(1.04)	3.91	(.88)	c<a,b,d; d<b; e<a,b
Co-Parenting (M report)														
Cooperative parenting	1-3	2.64	(.49)	2.71	(.44)	2.68	(.42)	2.45	(.66)	2.67	(.41)	2.49	(.60)	c<a,b,d; e<a,b,d
Shared responsibility	1-4	3.04	(1.01)	3.22	(.90)	3.13	(.84)	2.58	(1.25)	3.11	(.99)	2.71	(1.25)	c<a,b,d; e<a,b,d
Parental Engagement														
Father-child activities (M report)	0-7	3.88	(1.80)	4.41	(1.87)	3.65	(1.61)	3.64	(1.90)	3.81	(1.82)	3.25	(1.72)	b,c,d,e<a; e<d
Father-child activities (F report)	0-7	4.42	(1.55)	4.76	(1.58)	4.15	(1.46)	4.25	(1.57)	4.58	(1.56)	4.22	(1.52)	b,c,e<a; b<d
Mother-child activities (M report)	0-7	5.28	(1.38)	5.71	(1.27)	5.09	(1.30)	5.29	(1.28)	5.23	(1.53)	4.69	(1.56)	b,c,d,e<a; e<b,c,d

Note: MPF=Multi-partnered fertility; M=mother; F=father. Means are weighted by national sampling weights. Significant differences across means in the same row ($p < .05$) are tested using oneway analysis of variance with Scheffé multiple comparisons.

Table 3. OLS Regression Results: MPF on Couple Relationship Quality

	Supportiveness				Frequency of Arguing				Overall Relationship Quality			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)
Mother's Report												
Multi-partnered fertility (ref=Couple 2+ births together)												
Couple first birth	-.07 *	(.03)	-.04 +	(.03)	.08 *	(.04)	.07 +	(.04)	-.24 **	(.06)	-.16 *	(.06)
Father MPF only	-.21 **	(.03)	-.11 **	(.03)	.14 **	(.04)	.06	(.05)	-.68 **	(.07)	-.39 **	(.07)
Mother MPF only	-.06 +	(.03)	-.00	(.03)	.02	(.05)	-.03	(.05)	-.14 *	(.07)	.03	(.07)
Both MPF	-.18 **	(.03)	-.05 +	(.03)	.20 **	(.05)	.11 *	(.05)	-.67 **	(.07)	-.32 **	(.07)
Father's Report												
Multi-partnered fertility (ref=Couple 2+ births together)												
Couple first birth	-.04 +	(.02)	-.04 +	(.02)	-.04	(.05)	-.03	(.05)	-.07	(.06)	-.04	(.06)
Father MPF only	-.08 **	(.03)	-.06 *	(.03)	-.05	(.05)	-.05	(.05)	-.21 **	(.07)	-.11 +	(.07)
Mother MPF only	-.08 **	(.03)	-.06 *	(.03)	-.01	(.05)	-.02	(.05)	-.15 *	(.06)	-.08	(.06)
Both MPF	-.07 *	(.03)	-.04	(.03)	-.04	(.05)	-.06	(.06)	-.23 **	(.07)	-.10	(.07)

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

Note: Reference category is 2+ births together with no MPF. Model 1 includes variables for mother's age at first birth, father's age at focal birth, mother's race/ethnicity, father's race differs, child gender, and both parent's self-reported health, family structure at age 15, and education. Model 2 adds marital status at the 1-year survey and baseline variables for mothers and fathers about distrust toward other gender, religious attendance, substance problem, whether considered getting an abortion, conflict in relationship at time of birth, and whether the father has ever been in jail.

Table 4. OLS Regression Results: MPF on Co-Parenting and Parental Engagement

	Cooperative Parenting				Shared Responsiblities				Paternal Engagement				Maternal Engagement			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)
Mother's Report																
Multi-partnered fertility (ref=Couple 2+ births together)																
Couple first birth	-.08 **	(.03)	-.06 *	(.03)	-.11 *	(.05)	-.04	(.05)	.23 *	(.10)	.29 **	(.10)	.25 **	(.07)	.23 **	(.07)
Father MPF only	-.26 **	(.03)	-.17 **	(.03)	-.58 **	(.06)	-.33 **	(.06)	-.21 +	(.12)	-.01	(.12)	.13 +	(.07)	.17 *	(.07)
Mother MPF only	-.02	(.03)	.03	(.03)	-.07	(.06)	.08	(.06)	.16	(.12)	.29 *	(.12)	.03	(.07)	.04	(.08)
Both MPF	-.20 **	(.03)	-.08 *	(.03)	-.63 **	(.06)	-.31 **	(.06)	-.38 **	(.12)	-.08	(.13)	-.01	(.07)	.08	(.08)
Father's Report																
Multi-partnered fertility (ref=Couple 2+ births together)																
Couple first birth	(Not available.)				(Not available.)				.24 **	(.09)	.29 **	(.09)	(Not available.)			
Father MPF only									-.02	(.11)	.09	(.11)				
Mother MPF only									.22 *	(.10)	.31 **	(.11)				
Both MPF									-.04	(.11)	.10	(.11)				

+*p*<.10 **p*<.05 ***p*<.01

Note: Reference category is 2+ births together with no MPF. Model 1 includes variables for mother's age at first birth, father's age at focal birth, mother's race/ethnicity, father's race differs, child gender, and both parent's self-reported health, family structure at age 15, and education. Model 2 adds marital status at the 1-year survey and baseline variables for mothers and fathers about distrust toward other gender, religious attendance, substance problem, whether considered getting an abortion, conflict in relationship at time of birth, and whether the father has ever been in jail.

Table 5. Interaction Results: Marital Status by MPF Categories

	Supp'ness		Arguing		Rel Quality		Coop. Par.		Shared Resp.		Fath Engag.		Moth. Engag.	
	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)	β	(SE)
Mother's Report														
Multi-partnered fertility (ref=Couple 2+ births together)														
Couple first birth	-.05	(.04)	.03	(.06)	-.23 **	(.08)	-.09 *	(.04)	-.16 *	(.07)	-.01	(.15)	.10	(.09)
Father MPF only	-.11 **	(.04)	.08	(.06)	-.47 **	(.08)	-.21 **	(.04)	-.46 **	(.07)	-.14	(.16)	.16 +	(.09)
Mother MPF only	.01	(.04)	-.03	(.06)	.03	(.09)	.03	(.04)	-.00	(.07)	.20	(.15)	.02	(.10)
Both MPF	-.05	(.04)	.12 *	(.06)	-.36 **	(.08)	-.10 *	(.04)	-.43 **	(.07)	-.30 +	(.16)	.06	(.09)
Interactions of MPF × marital status														
Marr × first birth	.02	(.05)	.09	(.08)	.14	(.12)	.06	(.05)	.22 *	(.10)	.57 **	(.20)	.30 *	(.13)
Marr × father MPF	-.01	(.06)	-.09	(.10)	.22	(.15)	.15 *	(.06)	.31 *	(.12)	.12	(.25)	-.09	(.16)
Marr × mother MPF	-.03	(.06)	-.02	(.10)	-.09	(.15)	-.03	(.07)	.11	(.13)	-.04	(.25)	-.05	(.17)
Marr × both MPF	-.02	(.07)	-.08	(.11)	.09	(.17)	.01	(.07)	.34 *	(.14)	.53 +	(.28)	-.12	(.18)
Father's Report														
Multi-partnered fertility (ref=Couple 2+ births together)														
Couple first birth	-.01	(.03)	-.07	(.07)	-.03	(.08)	(Not available)				-.08	(.14)	(Not avail.)	
Father MPF only	.03	(.04)	-.14 +	(.07)	.01	(.09)					-.21	(.15)		
Mother MPF only	-.00	(.04)	-.10	(.07)	-.02	(.09)					.06	(.14)		
Both MPF	.03	(.04)	-.13	(.07)	-.01	(.09)					-.13	(.15)		
Interactions of MPF × marital status														
Marr × first birth	-.03	(.05)	.04	(.09)	.02	(.11)					.67 **	(.18)		
Marr × father MPF	-.23 **	(.06)	.20 +	(.11)	-.36 *	(.14)					.56 *	(.23)		
Marr × mother MPF	-.10 +	(.06)	.20 +	(.12)	-.11	(.14)					.39 +	(.23)		
Marr × both MPF	-.17 **	(.06)	.18	(.12)	-.27 +	(.15)					.32	(.25)		

+*p*<.10 *p<.05 **p<.01

Note: Reference category is 2+ births together with no MPF. Measures of cooperative parenting, shared responsibilities, and mother engagement not available from fathers. All models include variables for mother's age at first birth, father's age at focal birth, mother's race/ethnicity, father's race differs, child gender, and both parent's self-reported health, family structure at age 15, education, marital status at the 1-year survey and baseline variables for mothers and fathers about distrust toward other gender, religious attendance, substance problem, whether considered getting an abortion, conflict in the relationship at time of birth, and whether the father has ever been in jail.

Table 6. Fixed Effects Estimates: New Multi-Partnered Fertility on Couple Relationship Quality, Co-Parenting and Parenting for Parents Living Apart

	Father MPF			Mother MPF		
	β	(SE)	*N*	β	(SE)	*N*
Couple Relationship Quality						
Supportiveness (M report)	-.20 **	(.07)	1,837	-.04	(.06)	1,943
Supportiveness (F report)	-.03	(.09)	1,151	.08	(.07)	1,197
Overall quality (M report)	-.72 **	(.14)	1,945	-.29 *	(.13)	2,056
Overall quality (F report)	-.11	(.21)	1,199	.45 *	(.18)	1,251
Frequency of arguing (M report)	.26	(.17)	1,901	.05	(.16)	2,018
Frequency of arguing (F report)	-.11	(.22)	1,095	-.37 *	(.18)	1,144
Co-Parenting (M report)						
Cooperative co-parenting	-.32 **	(.07)	1,769	-.24 **	(.07)	1,856
Shared responsibility	-.41 **	(.10)	2,050	-.26 **	(.08)	2,200
Parental engagement						
Father-child activities (M report)	-.23	(.27)	1,712	.24	(.30)	1,820
Father-child activities (F report)	-.05	(.31)	1,179	-.40	(.29)	1,223
Mother-child activities (M report)	.14	(.13)	2,098	.13	(.10)	2,240

†*p*<.10 *p*<.05 **p*<.01

Note: New multi-partnered fertility reflects change between 1 year and 3 years after the focal birth. Cases included are those where the parents lived apart, and the child lived with the mother, at both the 1- and 3-year surveys.

All models include variables for mother's age at first birth, father's age at focal birth, mother's race/ethnicity, father's race differs, child gender, and both parent's self-reported health, family structure at age 15, education, marital status at the 1-year survey and baseline variables for mothers and fathers about distrust toward other gender, religious attendance, substance problem, whether considered getting an abortion, conflict in the relationship at time of birth, and whether the father has ever been in jail.