Working Paper Series
WP-10-15

October 2010

Multiple-Father Fertility, Prevalence and Connection to the Criminal Justice System

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This research was supported by the National Center for Family & Marriage Research, which is funded by a cooperative agreement, grant number 5 UOI AEOOOOOI-04, between the Assistant Secretary for Planning and Evaluation (ASPE) in the U.S. Department of Health and Human Services (HHS) and Bowling Green State University.
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Last modified: October 5, 2010

ABSTRACT

Across the United States, two phenomena have emerged: high rates of multi-partnered fertility (having children by more than one partner) and high rates of male involvement with the criminal justice system. This paper is a first step in an exploration of the possible connection between these two phenomena. The first part of the paper provides measures of the prevalence of multi-partnered fertility among mothers during the period 1985-2008, for the overall population and for select subgroups, based on a nationally representative survey, the Survey of Income and Program Participation. This constitutes a useful addition to the literature, which contains few estimates of women's multi-partnered fertility or its evolution over time. In the second part of the paper, we explore the association between multiple-father fertility and local arrest rates between 1985 and 2001. We find a positive correlation between the lagged arrest rate in a mother's city and the probability that she has children by more than one man.

Acknowledgement: This research has been funded, in part, by a grant from the National Center for Family & Marriage Research at Bowling Green State University, in consultation with the African American Healthy Marriage Initiative at the Administration for Children and Families within the U.S. Department of Health and Human Services.

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I. Background

Across the United States, two phenomena have emerged: high rates of multi-partnered fertility (having children by more than one partner) and high levels of male involvement with the criminal justice system. Both trends have been especially pronounced among African Americans, Native Americans, Hispanics, and the poor. This paper describes our initial exploration of the connection between these two phenomena. In addition, we document the incidence of multiple-father fertility and its evolution over time, for the overall population as well as for specific subgroups.

No nationally representative figures exist for the rate of multi-partnered fertility among mothers, except those we have derived from the Census Bureau's Survey of Income and Program Participation (SIPP). SIPP is the only survey that enables researchers to measure multiple-father fertility in nationally representative samples going back as far as 1985. The figures we present in this paper span more than two decades of SIPP surveys, from 1985 to 2008. Although there is year-to-year variability, the overall rate hovers around eight percent. Data limitations make this a lower bound. Within the sample, rates vary widely by education, ethnicity, and marital history. Contrary to our expectations, multiple-father fertility displays no real trend between 1985 and 2008 for the sample as a whole. Trends among subgroups, however, show some convergence.

These findings complement the existing literature. Rates of multi-partnered fertility may be higher among fathers. Guzzo and Furstenberg (2007) report that 17 percent of fathers aged 15 to 44 in 2002 had children by more than one woman, a higher rate than we found among women for any year. Surveys of certain subpopulations of women also show higher rates of multi-partnered

fertility. For example, Carlson and Furstenberg (2006) report that 23 percent of all mothers in the Fragile Families and Child Wellbeing Study have children by more than one man. Among unmarried couples in the same survey, the rates are even higher: in 22 percent of cases, the father has children from a prior relationship; in 17 percent of cases, the mother does; and in 20 percent, both father and mother do (Roberts 2008).

There is mounting evidence that the presence of children from prior relationships reduces the probability of marriage, for mothers as well as fathers. For example, in a sample of low-income women in inner-city Philadelphia who had just given birth, "men who had children with multiple partners were significantly less likely to cohabit with or to be married to the mother of the focal child, net of demographic and socioeconomic characteristics" (Margolis and Mykyta 2008). That finding is echoed in analyses of the Fragile Families survey (e.g., Mincy and Huang 2001, Carlson and Furstenberg 2006).

Multi-partnered fertility also appears to work against the interests of children. It has been shown to reduce father-child contact (e.g., Cooksey and Craig 1998; Manning and Smock 1999) as well as fathers' payment of child support (e.g., Huang, Mincy and Garfinkel 2005; Manning, Stewart, and Smock 2003). It also complicates policies intended to protect children – child support laws, welfare rules, and marriage initiatives – by raising thorny practical and ethical dilemmas.

Although multi-partnered fertility is observed at all socioeconomic levels, it is especially common among the very groups whose menfolk are most at risk of entanglement with the criminal justice system. High school dropouts, welfare recipients, African-Americans, and women who have their first births as teens all have higher rates of multi-partnered fertility. This may occur simply because economic deprivation and social exclusion manifest themselves in gender-specific ways: involvement with the criminal justice system for men and relationship instability and poverty for women. However, there are reasons to hypothesize that the high and growing rates of multiple-mother and multiple-father fertility may be, in part, a consequence of men's increased involvement

with the criminal justice system. Entanglement with the criminal justice system harms men's labor market prospects and, in the case of imprisonment, forces their withdrawal from their families. The mothers of their children may react by seeking support or companionship elsewhere. Mothers may form new couples, and births to those couples create multiple-father families. Men, too, may form new relationships and have children within them, with the result that their children are scattered among multiple households and their relationships with their children mediated by more than one mother. Former prisoners and their families appear to be more vulnerable to prison-induced breakups because their relationships were typically more tenuous. A Bureau of Justice Statistics study found that 48 percent of the parents in state prisons and 38 percent of parents in federal prison reported themselves as never-married (DHHS 2006).

Another channel through which high involvement with the criminal justice system may foster multiple-partner fertility is via changes in the sex ratio. For example, while an overall incarceration rate of just over one percent (Pew Center on the States 2008) may have little impact on the sex ratio in the general population, the situation may be quite different for some subgroups. That one in nine black men between the ages of 20 and 34 is in prison (Sabol *et al*. 2007) is likely to hurt the ability of heterosexual black women (a group with a low propensity for interracial pairing) to find and keep monogamous partners during their childbearing years. Moreover, incarceration rates understate the problem. Many more men are involved with the criminal justice system (as parolees, probationers, or former prisoners) than are imprisoned at any one time, and this involvement hampers their ability to maintain stable relationships with women.

After many decades of relative stability, the U.S. incarceration rate started rising in the early 1970s. The prison population nearly tripled from 1987 to 2007 (Pew Center on the States 2008). Researchers became increasingly interested in the many kinds of collateral damage wrought by high incarceration rates, such as the consequences for public health (e.g., Thomas and Sampson 2005, Freudenberg 2001). The impact on families and children was readily acknowledged and deplored,

but until a decade ago, nobody, to the best of our knowledge, had assembled systematic evidence concerning the effects of incarceration on family formation or child wellbeing (Hagan and Dinovitzer 1999). Of the empirical studies of this issue published since then, the majority are based on a single survey, the longitudinal Fragile Families and Child Wellbeing Study; examples include Western and McLanahan (2000), Western, Lopoo, and McLanahan (2004), Waller and Swisher (2006), and Geller, Garfinkel, Cooper, and Mincy (2008). Whether the outcome measure is father-child contact, payment of child support, or the strength of parents' relationships, every study concludes that incarceration has adverse consequences for children.

Few studies have looked explicitly at the connection between the criminal justice system and multi-partnered fertility. However, two relatively recent data sets have allowed this. In 2002, the National Survey of Family Growth surveyed men for the first time and included questions about their fertility; cross-tabulations by Guzzo and Furstenberg (2007) and Logan, Manlove, Ikramullah, and Cottingham (2006) show that men who have been incarcerated are more likely to have had children with multiple women. The same holds for fathers in the Fragile Families survey (Mincy 2002 and Carlson and Furstenberg 2006).

In this study, we focus specifically on the multiple-partner fertility of women (which we call multiple-father fertility or MFF). The data favor this approach. Few large-scale surveys contain the information needed to measure multiple-partner fertility, and those that do are typically address-based and gather data only on household members living at that address. Because men are more likely than women to live apart from their children from prior relationships, address-based surveys are likely to miss those children, making it impossible for researchers to determine whether all of a man's children have the same mother. Finally, women's reports of how many children they have borne are generally considered more accurate than men's reports of the number of children they have fathered (Rendall et al., 1999).

Although we are interested ultimately in the link between incarceration and multi-partnered fertility, in this exploratory study, we use metropolitan-level arrest rates as our measure of men's entanglement with the criminal justice system. Partner markets are highly local, and the advantage of arrest rates is that, unlike incarceration rates, they can be calculated at the MSA (Metropolitan Statistical Area) level.[1] The drawback of arrest rates is that they do not necessarily track the incarceration rate very closely. Between 1988 and 1993, for example, the U.S. incarceration rate rose 44 percent (Arvanites and Asher 1998); by our calculations, the overall arrest rate during that same period rose 26 percent.

In the next section, we explain our data and methodology. In Section 3 we present estimates of women's multipartnered fertility that span the period 1985-2008, for the sample as a whole and for a variety of subpopulations. In Section 4, we summarize our empirical findings on the correlation between local arrest rates and multiple-father fertility, for the 1985-2001 period. Section 5 concludes.

2. Data and Methodology

Household data

The data on individuals are from the U.S. Census Bureau's Survey of Income and Program Participation (SIPP), a series of large-scale longitudinal household surveys designed to be nationally representative. The unit of analysis is a mother with resident children. Taking one observation per family per panel and pooling 12 panels (1985-1988, 1990-1993, 1996, 2001, 2004 and 2008) yields observations on 76,136 mothers. This sample, weighted to be nationally representative, is the basis for our descriptive statistics.[2]

[1] Incarceration data, by contrast, are generally analyzed only at the state level. Many prisoners are incarcerated in their home state, but not in their home county. The Bureau of Justice Statistics data on prison populations do not include information about a prisoner's home county.

[2] SIPP includes numerous weights. The weights used in this analysis were the monthly person weights, which permit the analyst to use all available data for a given month. The person weight corresponds to the inverse probability of

Our regression analysis, focused on the correlation between MSA arrest rates and family structure, is based on a much smaller sample of 28,612 individuals, representative of the U.S. metropolitan population. This sample is smaller for three reasons. First, the most recent usable data are from 2001, the last year in which SIPP includes the respondent's MSA in the public-use files. Second, in every survey, SIPP masks the MSA for a large fraction of metropolitan respondents, by recoding them as non-metropolitan in the public-use files.[3] Finally, SIPP includes many genuine non-metropolitan respondents.

The advantage of SIPP for research on multiple-partner fertility is that, except in the 1989 survey, the precise relationship of each person in a household to every other person in that household is recorded. This matrix of household relationships is the basis of our measure of multiple-father fertility.[4] For each woman, we identify every household member who is listed as her biological child. Restricting our attention to the interrelationships among her resident children, we infer the number of men who fathered those children from the number of occurrences of "Full sibling" and of "Half-sibling."

The omission of non-resident children from SIPP's household relationship matrix will, we suspect, cause us to understate the incidence of MFF. A SIPP mother may have children who have grown up and moved out, or who live elsewhere, perhaps with other kind. Each absent child represents another possible case of MFF. Moreover, many of the mothers in our sample have not yet finished having children, and some will go on to have children by new men. Abstracting from any cohort effects, mothers whose children have grown up and left home are likely to display more

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selection, with adjustments for subsampling within clusters, for non-response, and for movers. For more detail, see http://www.census.gov/sipp/weights.html (last accessed September 13, 2010).

[3] In states with small nonmetropolitan populations, the Census Bureau randomly recodes a substantial share of SIPP's metropolitan respondents as nonmetropolitan; see any SIPP User Guide for the 1985 to 2001 surveys for more information.

[4] These household relationship codes appear to be highly reliable. While a small fraction of them – between 0.6 and 1.2 percent, depending on the survey year – are imputed, they should not be considered missing data and hence a potential source of bias. Analysis of the 1996-2008 surveys (1996 was the first year in which SIPP recorded the type of imputation) reveals that 100 percent of the instances of an imputed relationship code were logical imputations rather than statistical imputations, that is, they were based on good data for the household contained elsewhere in the survey instrument.

MFF because they have had more years of exposure to the possibility. Meanwhile, we are forced to exclude those mothers from our sample.

There is also the possibility of a small degree of attrition bias in our sample, as the detailed household relationship data are not collected until the second wave of each panel.[5] We expect any resulting bias to be minimal, as only four months elapse between SIPP's first and second waves.[6]

Arrest data

We compute annual MSA-level arrest rates by combining arrest data from the FBI's Uniform Crime Reporting (UCR) Program with county-level population estimates. The UCR data are extremely detailed, listing the number of arrests (and their breakdown by race and adult/juvenile status) for a standardized set of offense categories for every law enforcement agency in the country that year. We must, however, omit data on arrests that cannot be tied to a particular MSA. Similarly, the Census Bureau produces annual (intercensal) estimates of the population in every county, broken out by age, race, and sex. Because roughly 90 percent of crimes are committed by individuals under age 45 (FBI 2003), and because nearly all childbearing occurs between the ages of 15 and 44, we define a county's population, for our purposes, as the population aged 15 to 44.

Aggregating agency arrest counts and county populations to the MSA level[7], we compute an MSA's arrest rate by dividing its total arrests that year by its population. More specifically, we use the race categories in both the arrest and population data in order to compute race-specific arrest rates for each MSA. Each MSA's time series of black and nonblack arrest rates go back to 1980 (the first year for which the UCR arrest data are publicly available through the National Archive of Criminal Justice Data).

[5] The exception is the 1985 panel, in which household relationship detail was collected in the fourth wave.
[6] In the 1996 SIPP, for instance, attrition after 36 months was 26 percent (CEPR 2009).
[7] In most cases, MSAs consist of several entire counties, making it relatively easy to convert data from county to MSA level.

From the county population data, we also compute, for each MSA, a time-series of the sex ratio between men and women aged 15-44. We assume a racially segmented partner market and so compute the sex ratio separately for the black and non-black populations.

Methodology

Like most researchers who study couples' behaviors – cohabitation, marriage, divorce, fertility, and child support – we use a reduced-form approach instead of structural model. There is a large theoretical literature on the behavior of couples, but the models are not generally very amenable to testing because so few of the theorized constructs are observable. A mother's decision to have children with more than one man depends, for example, on the men's qualities as companions or (step)fathers and on the mother's own qualities as a companion, but such qualities can be hard to measure. To take another example, in bargaining models of couple behavior, each partner has an implicit threat point. Identifying that threat point is difficult for the other partner, let alone the researcher. The fact that each partner's behavior is strategic, that is, determined partly by the other's actions, poses additional difficulty. Moreover, individuals are both adaptive and forward-looking, meaning conditions in the past and those expected in the future can influence current decisions.

Even for observable factors, the many theoretically plausible interactions among them make it hard to predict their net influence on the likelihood of multiple-father fertility. Furthermore, factors such as the expected value of child support, the expected value of welfare benefits, the probability of finding a male companion in the future, the expected income of that future partner, a mother's own expected income, and the cost of housing do not necessarily have the same implications for women's behavior as for men's. In short, the requisite model would likely be highly complex and equally debatable.

Existing research on multipartnered fertility is more descriptive than theoretical. Researchers have documented some broad associations. As mentioned above, men who have been incarcerated are more likely to have children by multiple women. Welfare recipients have higher rates of multipartnered fertility (Meyer, Cancian, and Cook 2005), as do men and women with less education, African-Americans, women who have their first births as teens, and women with nonmarital first births (Carlson and Furstenberg 2006).

The only theoretical treatment of multiple-father fertility we know of is Willis' (1999) model of marriage and fertility, which holds that if "females are in excess supply and have sufficiently high incomes, a marriage market equilibrium may exist in which children are born within marriage to high-income parents, whereas in low-income groups, men father children by multiple partners outside of marriage." Our study can be seen as a crude test of the implications of Willis' model, if one views the arrest rate as a proxy for low incomes.

We estimate two variants of a reduced-form model of multiple-father fertility:

$$(1) \qquad MFF_{imt} = \beta_0 + \beta_1 A_{im} + \beta_2 Z_i + \beta_3 MSA_{mt} + u_{imt}$$

in which the subscripts *i, m,* and *t* refer to mother *i* living in MSA *m* in year *t,* and *MFF* is an indicator of multiple-father fertility. One variant is a binary logit model of whether the mother has children by one man or by multiple men. The other is a multinomial logit model with six possible outcomes, each corresponding to a specific combination of marital history and fertility status. The parameter in which we are particularly interested is β_1, the coefficient on A_{im}, the race-specific arrest rate in a woman's MSA. Z_i and MSA_{mt} are vectors of maternal characteristics and other MSA characteristics, respectively.

The MSA arrest rate is not only race-specific, but lagged as a function of each woman's fertility history. Our intent is to capture conditions around the time that the second child was conceived, a likely time for MFF to emerge. As the average gap between first and second births is nearly three years, we use the arrest rate two years after the birth of her oldest resident child.

The maternal characteristics we include as controls are a mother's age, her age at the time her oldest resident child was born (a proxy for her age at first birth), ethnicity, education, marital history, and the number of resident children. The gap between the mother's current age and her age at the birth of her oldest resident child gives us a rough idea of how long she has been exposed to the possibility of MFF. Her current age, together with a set of year dummies, controls for countrywide trends in norms or expectations that could affect women's fertility behavior. The education variables indicate whether the parent has less or more than a high school education. Our two controls for marital history are dummy variables for "Never married" and "Ever divorced."

MSA-level controls are the sex ratio, male employment, the severity of high school dropout among men, economic hardship, and the cost of housing. Like the MSA arrest rate, the sex ratio is a race-specific measure calculated specifically for the population aged 15 to 44 and is lagged to the same year as the arrest rate. Our index of housing costs is the MSA's Fair Market Rent, lagged in the same manner as the arrest rate.[8] The other MSA controls are not race-specific and are derived from that year's SIPP sample, i.e., are not lagged. The severity of the dropout problem is measured as the fraction of men who did not go beyond 10th grade, economic hardship is the fraction of families with incomes below 150 percent of the poverty threshold, and male employment is the fraction of men employed for the entire month preceding the survey.

State-level variables are per capita personal income, the intensity of child support enforcement, and the level of welfare benefits, all lagged like the arrest rate. We control for a state's per capita income because arrest rates and fertility behaviors may both be determined, in part, by income levels. Other things equal, richer states may spend more on law enforcement or may produce lower crime rates. Higher incomes may also be associated – positively or negatively – with higher levels of multiple-partner fertility. In the Willis model, for instance, it is the conjunction of high enough incomes for women with a low sex ratio that results in multiple-partner

[8] Fair Market Rent (FMR) is defined as the 40th percentile of local rents and is published annually for each MSA by the U.S. Department of Housing and Urban Development. Some SIPP respondents live in CMSAs (grouped MSAs); the FMR for a CMSA was obtained by averaging the FMRs of its constituent MSAs.

fertility.

We control for the strictness of child support for two reasons. First, child-support rules treat multiple-father families more generously than one-father families (Meyer *et al.* 2005). Second, the intensity of enforcement may affect whether parents stay together. During the period being studied, nearly all states stepped up their enforcement efforts, due in large part to provisions in the 1988 Family Support Act (FSA) that enhanced states' ability and motivation to collect child support, particularly on behalf of children on AFDC. The level of enforcement effort has nevertheless varied considerably by state and year (see, for example, Nixon 1997; Bitler 2001; Plotnick, Ku, Garfinkel, and McLanahan 2004; Huang *et al.* 2005). As a proxy for the strictness of enforcement, we (like others) use the annual ratio of the number of paternities established by a state's child support enforcement agency to the number of non-marital births in that state.[9]

Our control for a state's level of welfare benefits is the maximum benefit for a four-person household. Welfare's eligibility rules create large financial incentives in favor of multipartnered fertility. Evenhouse and Reilly (forthcoming) examine the 1985-1996 period and find a small, positive correlation between benefit levels and the incidence of MFF. As mentioned above, the incidence of multipartnered fertility is high among welfare recipients. Analyzing Wisconsin welfare data from 1997-1998, Meyer, Cancian, and Cook (2005) find that, among recipient mothers with two or more children, 39 percent had children by more than one man. That figure is a lower bound, as another 44 percent of the mothers in their sample had at least one child whose paternity had not been legally established.

IV. Empirical results

Descriptive statistics: 1985-2008

Tables 1 to 4 and Figures 1 to 3 present our SIPP-based estimates of women's

[9] This choice reflects the 1988 Family Support Act's emphasis on paternity establishment, particularly for children on welfare. States were penalized if they failed to establish paternity in a given proportion of the children born to mothers on welfare, and the federal government bore 90 percent of the states' associated laboratory costs.

multipartnered fertility during the 1985-2008 period, including a variety of subpopulations. In contrast with existing estimates, these estimates are the first time-series estimates for women to be derived from a large, nationally representative sample. Most existing estimates draw on the Fragile Families survey, which is smaller, urban, and focused on nonmarital births. The estimates of Guzzo and Furstenberg (2007b) are based on the National Longitudinal Survey of Adolescent Health, a large sample in which the women are still young (aged 19 to 25 in 2001) and one in which high school dropouts are underrepresented. The estimates of Meyer *et al.* (2005) are based on administrative data from one state's welfare program. All other estimates we know of concern the multipartnered fertility of fathers rather than mothers (e.g., Manning *et al.* 2003; Guzzo and Furstenberg 2007a).

In our SIPP sample, 8.08 percent of mothers have children by more than one man (see Table 1). Breaking down that 8.08 percent, we see that 7.44 percent of mothers have children by two men, 0.57 percent have children by three men, and 0.07 percent by 4 or more men. A rough rule of thumb is that, as one moves across a row, each number is ten times the one to the right of it. In other words, mothers with children by one man outnumber those with children by two men more than tenfold, who in turn outnumber mothers with children by three men more than tenfold, the latter themselves outnumbering mothers with children by four men or more nearly tenfold.

Another contrast is between families that report receiving public assistance and families that do not (see Table 2). The frequency of multiple-father families is markedly higher among mothers receiving welfare (17.2 percent) than among other mothers (7.4 percent), echoing the findings of Meyer *et al.* (2005) and Guzzo and Furstenberg (2007b).

The likelihood of multiple-father fertility varies greatly by ethnicity (see Table 3). The incidence of MFF is highest among black[10] mothers (12.3 percent) and Native American mothers (12.1 percent). Hispanic mothers have a higher rate (9.4 percent) than non-Hispanic white mothers

[10] In discussing SIPP data, we use "black" rather than "African-American," in keeping with SIPP's own descriptors.

(7.1 percent), and Asian mothers have the lowest rate (3.1 percent).

The likelihood of multiple-father fertility also depends a great deal on the age at which a woman has her first child (see Table 4). For example, mothers who had their first child at an extremely young age (fifteen or younger) have an overall MFF rate of 23.5 percent, more than five times the rate among mothers who were 25 or older.

Looking at the data year-by-year (Figures 1 to 3), we see relatively little change in the overall incidence of multiple-father fertility since 1985. When that overall rate is decomposed, however, whether by ethnicity (Figure 1), by education (Figure 2), or by marital history (Figure 3), it appears that the gap in MFF rates between the high- and low-propensity groups has shrunk with time. That is, there seems to have been a gradual increase in the MFF rate among non-Hispanic white mothers (Figure 1), among more educated mothers (Figure 2), and mothers who are still in their first marriage (Figure 3). At the same time, the MFF rate appears to have declined slightly among black mothers, among mothers who never finished high school, and among mothers who have been divorced.[11]

For reasons outlined earlier in the methodology discussion, we expect our estimates to understate the true level of MFF. We therefore attempt a comparison to the figures reported by Guzzo and Furstenberg (2007b) for the young women in the National Longitudinal Survey of Adolescent Health (Add Health). To obtain a SIPP sample comparable to the Add Health sample, we restrict our sample to women aged 18-25 in 2001 or 2002, and then compare MFF rates. The comparison is inconclusive. The overall MFF rate in SIPP is 2.6 percent, slightly lower than the 3.2 percent rate among Add Health women. The discrepancy is bigger for black women: 3.4 percent in SIPP versus 6.6 percent in Add Health. For non-Hispanic white women, however, the two rates are virtually identical: 2.6 percent in SIPP and 2.7 percent in Add Health. For Hispanic women, Add

[11] Perhaps more striking than subgroup time trends are the large changes in MFF rate from one year to the next in each subgroup's time-series. This volatility is most pronounced in the 1985-1993 surveys (which had smaller samples than later surveys) and raises the question of SIPP's representativeness for relatively small subpopulations, a question beyond the scope of this study.

Health's 2.7 percent rate is lower than the SIPP rate of 3.0 percent; this may reflect the fact that the high school dropouts are underrepresented in the Add Health sample.

Regression results

To explore the relationship between multiple-father fertility and the activity of the criminal justice system, we turn to regression analysis to control for interrelated factors such as education, ethnicity, age at first birth, and marital history. We employ two models: a binary logit model of whether a mother does or does not have children by more than one man (Table 5) and a multinomial logit model in which the outcomes correspond to specific combinations of multiple-father fertility and marital history (Tables 6 and 7). For ease of interpretation, we report not logit coefficients or odds ratios, but rather marginal effects on the probability that an observation is in a particular category, computed at the mean of that variable (see Appendix Table 1 for the variables' means and standard deviations).

The binary logit regressions show that the MSA arrest rate around the time of a mother's childbearing is significantly and positively correlated with her probability of multiple-father fertility, but that the effect is small. Other things equal, an increase of one standard deviation in the lagged arrest rate is associated with an increase in the probability of MFF of 0.3 percentage points, modest both in absolute terms and relative to the baseline probability of MFF of eight percent. The multinomial logit results give a more nuanced picture, revealing differences between black and nonblack and between more and less educated.

Consider, first, the three binary logit models summarized in Table 5. The first model includes maternal, MSA, and state characteristics, and a set of year dummies. The second model adds state fixed effects, and the third adds MSA fixed effects instead of state effects. The correlation between the lagged arrest rate and MFF is highly significant in all three models and of similar magnitude.

The marginal effects reported in Table 5 for mothers' personal characteristics are consistent in sign with the differences already seen in Tables 1 to 4 and Figures 1 to 3 but are considerably smaller, or even statistically insignificant. For instance, more education remains associated with a lower likelihood of multiple-father fertility, but the approximately 5 percentage point difference between mothers with a high school education and those with post-secondary education (Figure 2) falls to a difference of a mere one percentage point once we control for other factors. The unadjusted differences in MFF rates among black mothers, Hispanic mothers, and non-Hispanic white mothers (Figure 1) fall to zero when one controls for other factors.

Stratifying the sample by ethnicity (results not shown), we find that the estimated marginal effect of higher arrest rates is roughly four times larger for black mothers (0.020) than for Hispanic mothers (0.005), and is insignificant for non-Hispanic white mothers. When one stratifies instead by education (results not shown), the relationship between MFF and arrest rates turns out to be significant and small (marginal effect of 0.005) for mothers with a high school education, but insignificant for mothers with more education as well as for mothers with less.

The regression results also highlight the relative importance of different pathways to multiple-father fertility. In the binary logit models of Table 5, the three factors most predictive of MFF are, in descending order, having been divorced, having had a child before the age of 16, and never having married. Having been divorced raises the regression-adjusted probability of MFF by about 13 percentage points, having had a first birth at fifteen or younger raises it by 12 percentage points, and never having married by 8 percentage points.

Early childbearing and having been divorced are not mutually exclusive behaviors, to be sure, but they overlap little enough that they can usefully be viewed as distinct pathways. The same can be said of early childbearing and never marrying.[12] We might, therefore, sharpen our analysis

[12] Among mothers in the sample who have been divorced and have children by more than one man, only one in thirteen had a child before age 18. Similarly, the majority of women who had a teen birth do eventually marry; looking at those over 30 at the time of the survey, only one in seven had never married. Even the youngest teen mothers (those with a birth at 15 or younger) tend to marry eventually, with only one in five of those over 30 not yet having married.

by differentiating among three varieties of multiple-father fertility: that occurring in the context of divorce and remarriage, that occurring in the context of nonmarital births followed by eventual marriage, and that occurring entirely outside marriage.

The six outcomes in the multinomial logit model of Table 6 correspond to six combinations of fertility and marital history. We categorize a mother (a) as having had children either by just one man or by more, and (b) as having been divorced (once or more), being in her first marriage still, or never having married. (The base category for estimation purposes is mothers who are still in their first marriage and have had children by only one man; three-fifths of mothers are in this category). Overall, 7.8 percent of mothers have children by multiple men. Three-fifths of those mothers have been divorced (4.8 percent of the sample) and the other two-fifths have either never married (1.2 percent) or are in their first marriage (1.8 percent).

The multinomial logit estimates in Table 6 suggest that higher MSA arrest rates are associated with higher rates of MFF, principally among divorced mothers (column 5) and also among never-married mothers (column 3). An increase of one standard deviation in the lagged arrest rate corresponds to a 0.63 percentage point increase in the number of divorced mothers with children by multiple men (a substantial increase relative to the category's baseline of 4.8 percent). The associated increase in the number of never-married mothers with children by multiple men is far smaller, in both absolute and relative terms (a 0.04 percentage point increase in a category that represents a mere 1.2 percent of all mothers).

As we might expect, when we re-estimate the model using the current arrest rate instead of the lagged rate, we find that the current rate is not significantly correlated with any of the three multiple-father fertility outcomes (results not shown).

Table 7 reports the results of re-estimating the multinomial model, dropping the fixed effects to allow it to be run within the (much smaller) subsamples. Dropping the fixed effects leaves our findings for the overall sample virtually unchanged: a 0.58 percentage point increase in

divorced mothers with MFF and a .05 percentage point increase in never-married mothers with MFF (top row of Table 7). For ease of comparison, Table 7 reports only the marginal change associated with an increase in the arrest rate, for each of the six subsamples defined by a mother's ethnicity or her level of education.

Among the six subsamples, results vary greatly. Except among mothers who did not finish high school, the lagged arrest rate is correlated with one or more of the outcome categories, but not necessarily with MFF. It is striking that each of three subsamples defined by ethnicity – black mothers, Hispanic mothers, and non-Hispanic white mothers – shows a different pattern of correlations, and that none shows precisely the same pattern we observe for the sample as a whole. Among Hispanic mothers, for example, the arrest rate is significantly correlated with only one outcome: being in one's first marriage but with MFF (column 4). In contrast, among black mothers, the arrest rate is significantly correlated with three outcomes: being never-married, with and without MFF (columns 3 and 1), as well as with being divorced with MFF (column 5).

Similarly, we see a different pattern in each of the three subsamples defined by a mother's level of education. Among mothers who never finished high school, arrest rates are not correlated with any of the outcomes. Among those who did finish high school, arrest rates are positively correlated with being never married with MFF (column 3) and being divorced with MFF (column 5). For mothers with more than a high school education, arrest rates are correlated only with being divorced with MFF (column 5).

As we see from the disparate results in Table 7, moving from a binomial model to a multinomial model does not yield a simple picture of the relationship between arrest rates and multiple-father fertility. Perhaps, however, there is not a single, simple story to be told about the connection between women's fertility and marital decisions and the arrest rates in their communities. Childbearing and marriage patterns differ quite radically across racial and ethnic groups, for example. For white women, marriage and motherhood usually go hand in hand, and

divorce is the dominant path to multiple-father fertility. For black women, childbearing tends to be earlier and most of it is outside of marriage, with the result that black mothers who have had children by more than one man are as almost as likely to be never-married as to be divorced. Perhaps arrest rates, insofar as they reflect the local supply of partner-worthy men, are drivers primarily of women's marital choices, and only tangentially related to their multiple-father fertility status.

The local arrest rate may also be an unreliable proxy for the local supply of desirable male partners. For example, it may be perfectly irrelevant for highly educated women. More generally, there is no reason to suppose that all groups of women share a common response to the arrest rate. For example, black and nonblack arrest rates lie in extremely different ranges and are barely correlated ($r = 0.14$).

Finally, we note that, even with a fairly large sample of mothers, the total number of cases of multiple-father fertility is relatively small, particularly when one stratifies the sample or defines distinct subcategories of multiple-father fertility. This, too, could cause the observed correlations to differ markedly from one subsample to another.

VI. Conclusion

In this two-part study, we offer estimates of the prevalence of multiple-father fertility (MFF) for the period 1985-2008, and examine the connection between the arrest rate in a mother's metropolitan area and the likelihood that she has children by more than one man.

Our estimates of the rate of MFF are derived from the Census Bureau's Survey of Income and Program Participation (SIPP). Our estimates suggest that the overall incidence of MFF has not been increasing rapidly. On the contrary, it seems to have remained fairly constant, at about eight percent of mothers with resident children.

The regression analyses presented here provide evidence that arrest rates are correlated with mother's marital choices and fertility choices. In a simple binary model, arrest rates are correlated with multiple-father fertility, with an increase of one standard deviation in the lagged arrest rate corresponding to an increase of 0.3 percentage points in the incidence of multiple-fertility for the sample as a whole, a modest increase given a baseline level of approximately 8 percent.

Differentiating among the different combinations of marital status and multiple-father fertility, and stratifying the sample by race or by education, we continue to find significant correlations between arrest rates and mother's fertility and marital choices. However, exactly which marital and fertility outcomes are correlated with higher arrest rates varies from one subsample to another.

Our immediate next step is to update this study by incorporating the 2004 and 2008 SIPP surveys into the statistical analysis. For this, we will use the Census Bureau's internal SIPP files. Access to the internal files is needed because the Census Bureau decided, with the 2004 survey, to stop including MSA data in the public-use SIPP files. Having access to the internal SIPP data will not only enlarge the sample by adding data from 2004 and 2008, but will also mean larger samples for all prior surveys as well (because the internal SIPP files do not mask the MSA of any respondents).

Exploring the connection between arrest rates and the prevalence of multi-partnered fertility is only a first step toward a better understanding of the relationship between American family structure and the operation of the criminal justice system. In the next stage of this project, we will use a data set – the National Corrections Reporting Program – that documents the annual flow of individuals entering and exiting prison. Those data, which include a county identifier and time served for each individual, enable the researcher to approximate the number of men missing from a

given MSA each year due to their incarceration.[13] The third part of the project will be to move beyond incarceration rates and arrest rates, which may be consequences of the same social forces that generate multi-partnered fertility, rather than causes of multi-partnered fertility, to policy variables that are more exogenous drivers of incarceration rates. Incorporating the policy changes that have driven incarceration rates should allow us to shed more light on causality.

[13] The county identifier does not indicate where a prisoner resided before going to prison, but merely the county in which the prisoner's offense was committed.

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Table 1
Number of fathers represented among a mother's children, by number of children

Number of children living with mother	One father	Two fathers	Three fathers	Four or more fathers	Total
1	25,430				*25,111*
2	28,253	2,958			*31,211*
3	11,428	1,959	291		*13,678*
4	3,302	660	119	40	*4,121*
5	833	153	46	21	*1,053*
6 or more	542	119*			*643*
Percentage of all mothers	***91.92***	***7.44***	***0.57***	***0.07***	***100.0***
Totals	*69,770*	*5,849*	*456*	*61*	*76,136*

*Notes: Unit of analysis is a mother with resident children. Data from the 1985-1988, 1990-1993, 1996, 2001, 2004, and 2008 SIPP panels. Percentages are weighted. *Two or more fathers.*

Table 2
Number of fathers represented among a mother's children, by receipt of AFDC/TANF

Number of fathers	Family not receiving aid	Family receiving aid
1	65,242	4,528
2	5,083	766
3	299	157
4+	35	26
MFF rate (%)	***7.4***	***17.2***
Totals	*70,659*	*5,477*

Notes: Unit of analysis is a mother with resident children. Data from the 1985-1988, 1990-1993, 1996, 2001, 2004, and 2008 SIPP panels. MFF rates are weighted.

Table 3
Number of fathers represented among a mother's children, by race/ethnicity

Number of fathers	Non-Hispanic White	Black	Hispanic	Asian	Native American
1	48,101	9,667	8,474	2,570	1,780
2	3,617	1,203	843	85	225
3	224	149	68	5	20
4	12	28	9	0	5
5	1	4	1	0	2
MFF rate (%)	***7.1***	***12.3***	***9.4***	***3.1***	***12.1***
Totals	*51,955*	*10,760*	*9,395*	*2,660*	*2,032*

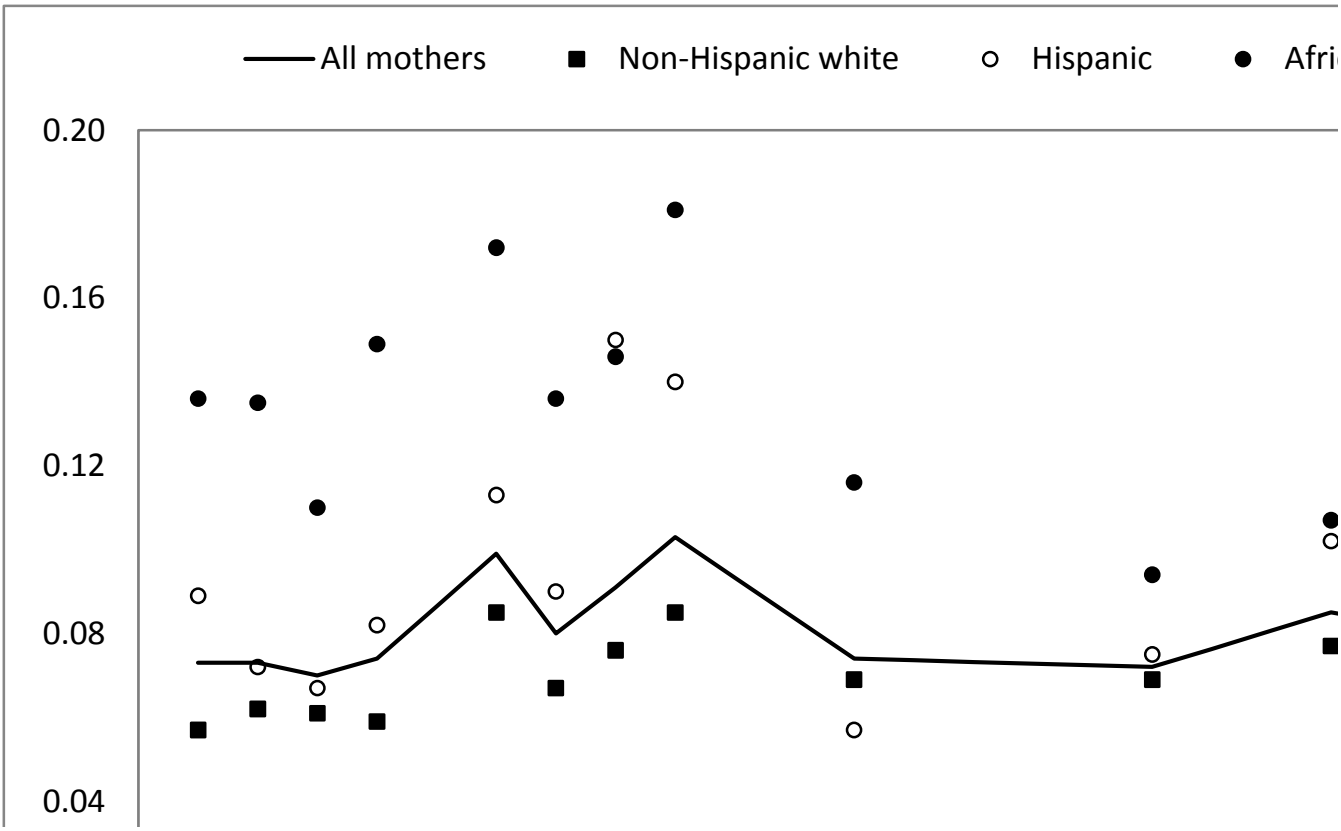
Notes: Unit of analysis is a mother with resident children. Data from the 1985-1988, 1990-1993, 1996, 2001, 2004, and 2008 SIPP panels. MFF rates are weighted.

Table 4
Number of fathers represented among a mother's children, by age at first birth

Number of fathers	Aged 15 or younger	Aged 16-17	Aged 18-19	Aged 20-24	Aged 25 or older
1	489	2,619	5,917	20,606	40,139
2	117	553	1,089	2,212	1,878
3	24	69	116	157	90
4	7	6	20	12	8
5	0	1	3	3	1
MFF rate (%)	***23.5***	***19.2***	***17.0***	***10.2***	***4.5***
Totals	*637*	*3,248*	*7,145*	*22,990*	*42,116*

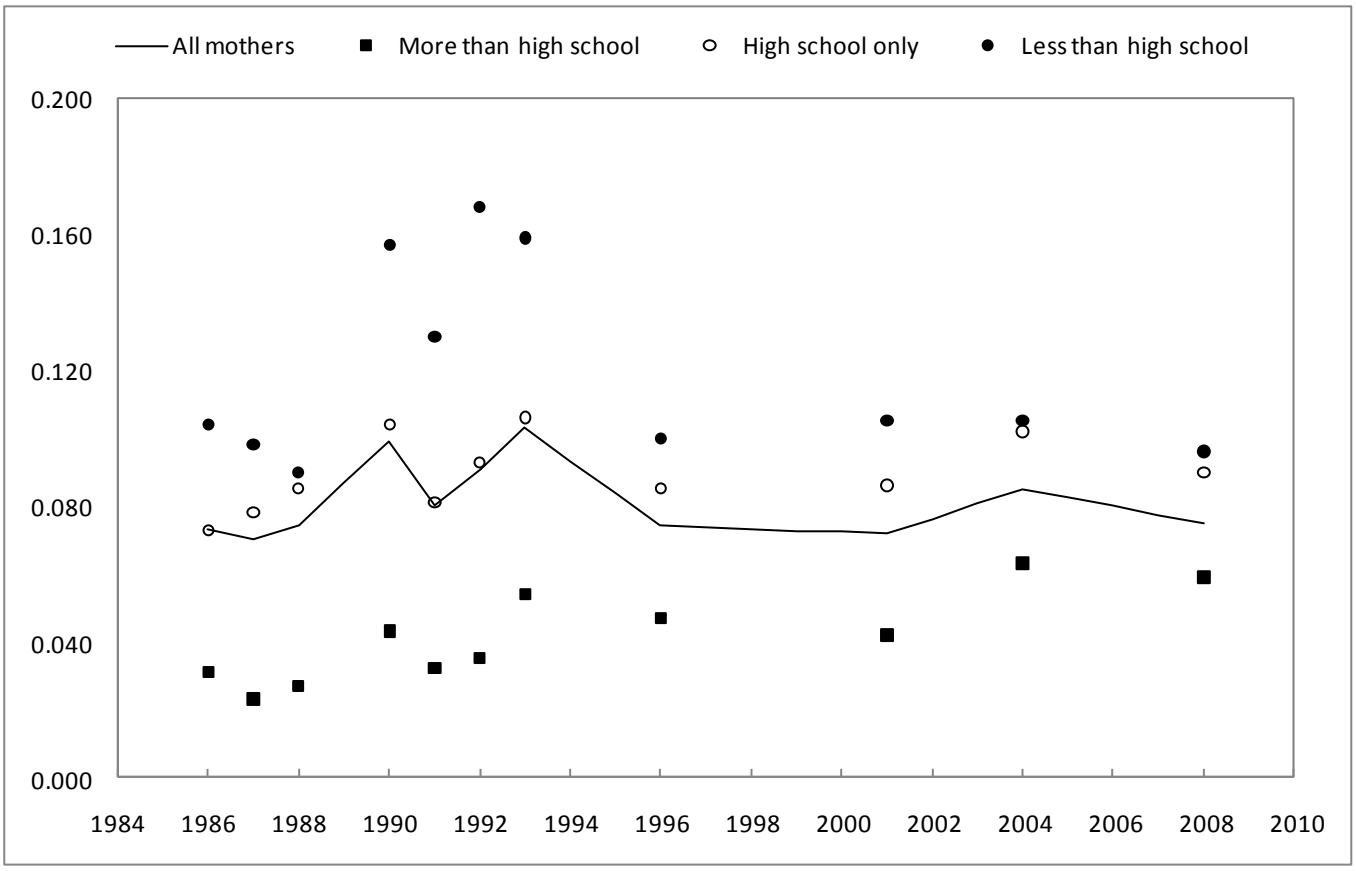
Notes: Unit of analysis is a mother with resident children. Data from the 1985-1988, 1990-1993, 1996, 2001, 2004 and 2008 SIPP panels. MFF rates are weighted.

Figure 1
Fraction of mothers with children by more than one man, by ethnicity



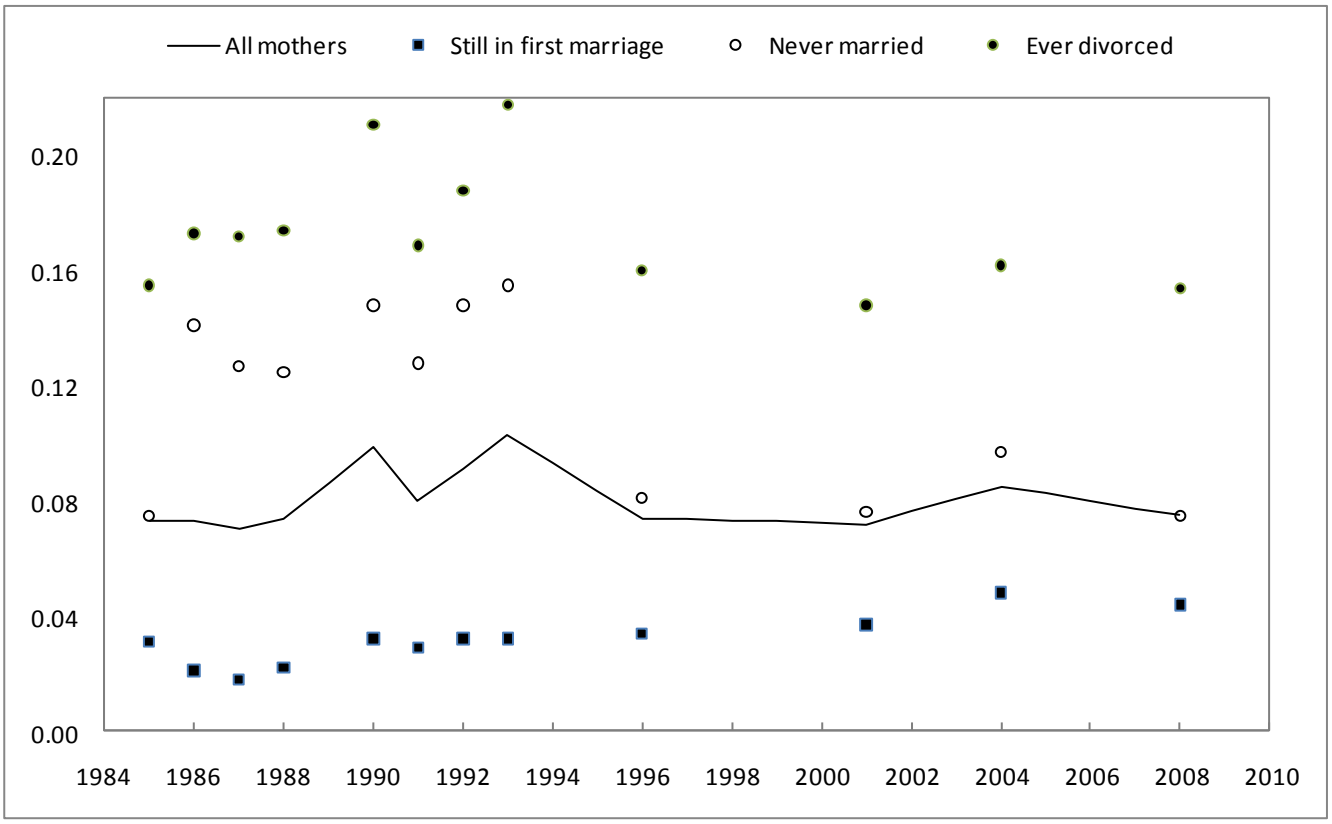
Notes: Data from the 1985-1988, 1990-1993, 1996, 2001, 2004, and 2008 SIPP panels, weighted to be nationally representative.

Figure 2
Fraction of mothers with children by more than one man, by mother's level of education



Notes: Data from the 1986-1988, 1990-1993, 1996, 2001, 2004 and 2008 SIPP panels, weighted to be nationally representative.

Figure 3
Fraction of mothers with children by more than one man, by marital history



Notes: Data from the 1985-1988, 1990-1993, 1996, 2001, 2004 and 2008 SIPP panels, weighted to be nationally representative.

Table 5. Binary logit models: "Mother has children by one father" versus "Mother has children by two or more fathers"

	State and MSA characteristics	With state fixed effects added	With MSA fixed effects added instead
Lagged MSA arrest rate *(per 1,000 residents aged 15-44)* z-score	**.0028** *(.036)*	**.0025** *(.039)*	**.0029** *(.013)*
Never married	**.0858** *(.000)*	**.0830** *(.000)*	**.0820** *(.000)*
Has been divorced	**.1317** *(.000)*	**.1288** *(.000)*	**.1272** *(.000)*
Number of resident biological children	**.0241** *(.000)*	**.0239** *(.000)*	**.0238** *(.000)*
Aged 15 or less at birth of oldest resident child	**.1128** *(.000)*	**.1190** *(.000)*	**.1219** *(.000)*
Aged 16-17 at birth of oldest resident child	**.0748** *(.000)*	**.0796** *(.000)*	**.0840** *(.000)*
Aged 18-19 at birth of oldest resident child	**.0692** *(.000)*	**.0725** *(.000)*	**.0740** *(.000)*
Aged 20-24 at birth of oldest resident child	**.0259** *(.000)*	**.0271** *(.000)*	**.0280** *(.000)*
Black	.0040 *(.225)*	.0050 *(.131)*	.0041 *(.272)*
Hispanic	- .0018 *(.438)*	- .0003 *(.907)*	.0010 *(.656)*
Asian	**- .0114** *(.032)*	**- .0123** *(.049)*	-.0117 *(.065)*
Less than high school education	- .0024 *(.327)*	- .0025 *(.311)*	-.0021 *(.386)*
More than high school education	**- .0105** *(.000)*	**-.0103** *(.000)*	**-.0103** *(.000)*
Age *(years)*	**.0057** *(.000)*	**.0059** *(.000)*	**.0062** *(.000)*
Age squared	**-.0001** *(.000)*	**-.0001** *(.000)*	**-.0001** *(.000)*
---------- *MSA characteristics* ----------			
Men per 100 women (*ages 15-44)*	.0002 *(.124)*	.0002 *(.128)*	.0002 *(.420)*
Poverty rate (z-score) *(threshold=150% of poverty line)*	- .0018 *(.183)*	- .0025 *(.064)*	-.0024 *(.196)*
Male 10^{th}-grade dropout rate (z-score)	- .0017 *(.212)*	- .0007 *(.614)*	-.0007 *(.670)*
Employment rate of men aged 15-44 (z-score)	- .0009 *(.319)*	- .0010 *(.202)*	-.0013 *(.176)*
Lagged rent level *(40^{th} percentile, in $100s of 2009 $)*	- .0003 *(.790)*	- .0007 *(.581)*	.0002 *(.829)*
---------- *State characteristics* ----------			
Lagged child support enforcement intensity *(0 - 1.2)*	- .0007 *(.906)*	**- .0108** *(.021)*	**- .0107** *(.021)*
Lagged per capita income *(in $1,000s of 2009 $)*	- .0000 *(.976)*	.0000 *(.979)*	.0008 *(.112)*
Lagged AFDC benefit *(in $100s of 2009 $)*	- .0003 *(.536)*	**- .0032** *(.003)*	**- .0025** *(.005)*
Year fixed effects	Yes	Yes	Yes
State fixed effects	-	Yes	-
MSA fixed effects	-	-	Yes
Proportion (weighted) of obs in the "2+ fathers" category	*0.078*	*0.078*	*0.078*
Sample size	28,612	28,570	28,594
Pseudo-R^2	0.223	0.229	0.234

Omitted outcome is one father. Arrest rate and MSA sex ratio are race-specific rate for second year after birth of mother's oldest resident child. State characteristics are also for second year after birth of oldest resident child. Table reports marginal change in P(multiple fathers) for 1-unit change in variable (p-value of underlying logit coefficient in parentheses). Bold font denotes significance at 5-percent level or better. Omitted racial/ethnic category is non-Hispanic white. Omitted marital status is "still in first marriage." Omitted education category is "high school only." Family structure data from 1985-88, 1990-93, 1996, and 2001 SIPP surveys. Arrest data from FBI's 1980-2001 Uniform Crime Reports. Error clustering at state level.

Table 6. Six-outcome multinomial logit model: Whole sample, with MSA fixed effects

	Children by one father and…		Children by multiple fathers and…		
	…never married	…divorced (once or more)	…never married	…still in first marriage	…divorced (once or more)
Lagged MSA arrest rate *(*z-score)	.0019 *(.088)*	.0075 *(.153)*	**.0004** *(.016)*	- .0007 *(.557)*	**.0063** *(.000)*
Number of resident biological children	- **.0267** *(.000)*	- **.1018** *(.000)*	**.0013** *(.000)*	**.0054** *(.000)*	**.0171** *(.000)*
Aged 15 or less at birth of oldest child	**.0308** *(.000)*	**.1585** *(.000)*	**.0107** *(.000)*	**.0468** *(.000)*	**.1409** *(.000)*
Aged 16-17 at birth of oldest child	**.0176** *(.000)*	**.2210** *(.000)*	**.0059** *(.000)*	**.0336** *(.000)*	**.1025** *(.000)*
Aged 18-19 at birth of oldest child	**.0193** *(.000)*	**.1421** *(.000)*	**.0064** *(.000)*	**.0237** *(.000)*	**.1043** *(.000)*
Aged 20-24 at birth of oldest child	**.0092** *(.000)*	**.0746** *(.000)*	**.0027** *(.000)*	**.0110** *(.000)*	**.0325** *(.000)*
Black	**.1828** *(.000)*	**.0318** *(.000)*	**.0095** *(.000)*	**.0148** *(.000)*	- .0093 *(.623)*
Hispanic	.0174 *(.032)*	- .0227 *(.425)*	**.0025** *(.007)*	.0009 *(.539)*	- .0069 *(.114)*
Asian	.0011 *(.141)*	- **.1275** *(.000)*	.0012 *(.676)*	- .0007 *(.359)*	- **.0259** *(.000)*
Less than high school education	**.0369** *(.000)*	.0149 *(.099)*	**.0031** *(.000)*	.0002 *(.529)*	- .0077 *(.236)*
More than high school education	- **.0258** *(.000)*	- **.0589** *(.000)*	- **.0032** *(.000)*	- **.0064** *(.000)*	- **.0123** *(.000)*
Age *(years)*	- **.0099** *(.000)*	**.0481** *(.000)*	- .0003 *(.697)*	- .0008 *(.877)*	**.0140** *(.000)*
Age squared	**.0001** *(.000)*	- **.0005** *(.000)*	.0000 *(.868)*	.0000 *(.916)*	- **.0002** *(.000)*
-------- *MSA characteristics* ----------					
Men per 100 women (*ages 15-44)*	- **.0008** *(.023)*	- .0005 *(.209)*	- **.0001** *(.000)*	.0001 *(.720)*	- .0001 *(.523)*
Poverty rate (z-score)	.0033 *(.066)*	.0015 *(.801)*	- .0001 *(.851)*	- .0011 *(.283)*	- .0010 *(.575)*
Male 10^{th}-grade dropout rate (z-score)	.0010 *(.481)*	- .0025 *(.536)*	**.0004** *(.034)*	- .0008 *(.496)*	.0007 *(.576)*
Employment rate of men 15-44 (z-score)	- .0015 *(.415)*	.0038 *(.391)*	- .0002 *(.556)*	.0007 *(.261)*	.0001 *(.956)*
Lagged rent level *(40^{th} pctl, $100s of 2009 $)*	- .0011 *(.189)*	- .0044 *(.320)*	- .0000 *(.640)*	.0001 *(.953)*	.0000 *(.824)*
-------- *State characteristics* ----------					
Lagged child support enforcement intensity	- .0065 *(.062)*	- **.0578** *(.000)*	- **.0015** *(.039)*	- **.0060** *(.001)*	- **.0111** *(.019)*
Lagged p.c. income *(in $1,000s of 2009 $)*	.0006 *(.599)*	- **.0048** *(.002)*	**.0002** *(.020)*	.0001 *(.964)*	.0004 *(.695)*
Lagged welfare benefit *(in $100s of 2009 $)*	.0016 *(.092)*	.0001 *(.822)*	- .0001 *(.177)*	- .0003 *(.358)*	- **.0028** *(.002)*
Year fixed effects			Yes		
MSA fixed effects			Yes		
Number of observations in category	*3,139*	*7,510*	*395*	*579*	*1,516*
Proportion (weighted) of obs in category	*0.099*	*0.237*	*0.012*	*0.018*	*0.048*
Sample size		28,612			
Pseudo-R^2		0.178			

Omitted outcome is "One father, still in first marriage" (58.6 percent of observations). Table reports change in outcome's probability for a 1-unit change in each variable (p-value of underlying logit coefficient in parentheses). Arrest rate, MSA sex ratio, and state characteristics are lagged to second year after birth of oldest resident child. Bold font indicates significance at the 5-percent level or better. Omitted education category is "High school education." Family structure data are from the 1985-88, 1990-93, 1996, and 2001 SIPP surveys. Error clustering at state level.

Table 7. Six-outcome multinomial logit model, for different subsamples

	Children by one father and…		Children by multiple fathers and…		
	…never married	…divorced (once or more)	…never married	…still in first marriage	…divorced (once or more
Whole sample *(n=28,612)**:***					
Lagged MSA arrest rate z-score	.0015 *(.104)*	.0090 *(.082)*	**.0005** *(.003)*	- .0004 *(.905)*	**.0058** *(.000)*
Proportion of observations in category	*0.099*	*0.237*	*0.012*	*0.018*	*0.048*
Non-Hispanic white subsample *(n=18,735)**:***					
Lagged MSA arrest rate z-score	.0014 *(.060)*	**.0294** *(.000)*	.0001 *(.431)*	- .0004 *(.932)*	**.0059** *(.003)*
Proportion of observations in category	*0.046*	*0.249*	*0.004*	*0.014*	*0.049*
Black subsample *(n=4,634):*					
Lagged MSA arrest rate z-score	**.0117** *(.020)*	- .0007 *(.140)*	**.0028** *(.003)*	.0001 *(.257)*	**.0066** *(.000)*
Proportion of observations in category	*0.323*	*0.243*	*0.043*	*0.033*	*0.050*
Hispanic subsample *(n=4,069)**:***					
Lagged MSA arrest rate z-score	.0042 *(.791)*	- .0287 *(.068)*	.0017 *(.214)*	**.0029** *(.027)*	.0044 *(.244)*
Proportion of observations in category	*0.132*	*0.202*	*0.022*	*0.023*	*0.048*
High school only subsample *(n=15,354)**:***					
Lagged MSA arrest rate z-score	.0010 *(.292)*	.0094 *(.052)*	**.0005** *(.004)*	- .0001 *(.666)*	**.0066** *(.000)*
Proportion of observations in category	*0.105*	*0.255*	*0.012*	*0.020*	*0.055*
High school dropout subsample *(n=4,941)**:***					
Lagged MSA arrest rate z-score	.0076 *(.214)*	.0041 *(.513)*	.0024 *(.065)*	- .0048 *(.155)*	.0059 *(.092)*
Proportion of observations in category	*0.200*	*0.213*	*0.034*	*0.029*	*0.052*
College-educated subsample *(n=8,317)**:***					
Lagged MSA arrest rate z-score	.0009 *(.147)*	.0133 *(.066)*	.0000 *(.578)*	.0008 *(.297)*	**.0045** *(.001)*
Proportion of observations in category	*0.038*	*0.209*	*0.002*	*0.008*	*0.030*

Omitted outcome is "One father, still in first marriage." Table reports change in each outcome's probability for an increase of 1 standard deviation in lagged MSA arrest rate (p-value of underlying logit coefficient in parentheses). Bold font indicates significance at 5-percent level or better. Model estimated is without fixed effects, given small size of some of the subsamples. Other regressors (except controls for education or race) as in preceding table.

Appendix Table 1. Means and standard deviations of regressors

Variable	Mean	Std dev
Characteristics of SIPP mothers		
Black	0.162	
Hispanic	0.140	
Asian	0.049	
Never married	0.108	
Has been divorced	0.281	
Aged 15 or less at birth of oldest resident child	0.008	
Aged 16-17 at birth of oldest resident child	0.041	
Aged 18-19 at birth of oldest resident child	0.087	
Aged 20-24 at birth of oldest resident child	0.302	
Aged 25 or older at birth of oldest resident child	0.562	
Less than a high school education	0.169	
More than a high school education	0.296	
Age *(years)*	35.400	7.8
Number of resident children	2.04	1.04
Year=1985	0.053	
Year=1986	0.060	
Year=1987	0.063	
Year=1988	0.065	
Year=1990	0.113	
Year=1991	0.066	
Year=1992	0.101	
Year=1993	0.098	
Year=1996	0.214	
Year=2001	0.168	
State characteristics		
Lagged intensity of child support enforcement *(Number of paternities established per nonmarital birth)*	0.29	0.31
Lagged state per capita income *(in $1,000s)*	30.00	5.1
Lagged AFDC/TANF benefit *(in $100s)*	9.07	3.7
MSA characteristics		
Lagged arrest rate, nonblack *(arrests per 1,000 people 15-44)*	69.2	43.1
Lagged arrest rate, black *(arrests per 1,000 people 15-44)*	158.3	100.4
Lagged MSA sex ratio, nonblack *(men per 100 women, population aged 15-44)*	101.5	4.5
Lagged MSA sex ratio, black *(men per 100 women, population aged 15-44)*	89.1	11.4
Lagged MSA rent level *(40^{th} percentile, in $100s of 2009 $)*	8.15	1.12
MSA male dropout rate (10^{th} grade or less) *(per 100 men)*	10.6	5.3
MSA poverty rate *(families per 100 below 150% of poverty line)*	24.7	6.9
MSA male employment rate *(per 100 men)*	74.6	6.0

Note: Data from 1985-1988, 1990-1993, 1996 and 2001 SIPP surveys, weighted to be nationally representative. Lagged variables are lagged to two years after birth of mother's oldest resident child.