UNWED FATHERS' ABILITY TO PAY CHILD SUPPORT: NEW ESTIMATES ACCOUNTING FOR MULTIPLE-PARTNER FERTILITY*

MARILYN SINKEWICZ AND IRWIN GARFINKEL

We present new estimates of unwed fathers' ability to pay child support. Prior research relied on surveys that drastically undercounted nonresident unwed fathers and provided no link to their children who lived in separate households. To overcome these limitations, previous research assumed assortative mating and that each mother partnered with one father who was actually eligible to pay support and had no other child support obligations. Because the Fragile Families and Child Wellbeing Study contains data on couples, multiple-partner fertility, and a rich array of other previously unmeasured characteristics of fathers, it is uniquely suited to address the limitations of previous research. We also use an improved method of dealing with missing data. Our findings suggest that previous research overestimated the aggregate ability of unwed nonresident fathers to pay child support by 33% to 60%.

The past four decades saw a steep increase in nonmarital births in the United States, alongside high rates of child poverty and welfare dependence among female-headed families. These trends gave rise to the seemingly reasonable expectation that child support should play a key role in improving the circumstances of poor children and easing the burden on the public purse. Compared with just 6% in 1960, nonmarital births currently account for fully one-third of all births, and up to twice that proportion for some racial/ethnic groups. Although about half of new unwed parents cohabit (Bumpass and Sweet 1989; Nepomnyaschy 2003), most cohabitors with children break up over time, making the vast majority of unwed fathers potentially liable for child support.

These conditions spurred the U.S. Congress to strengthen child support policy over the past three decades. In 1974, Congress created the federal child support system and, between 1981 and 1999, enacted new child support legislation in all but three years (Lerman and Sorensen 2001). These reforms had the greatest effects on unwed parents, as paternity establishment rates soared between 1980 and 2000 (Garfinkel 2001; Pirog, Klotz, and Byers 1997; Sorensen 1997). Between 1996 and 2000 alone, there was almost a twofold increase in the total number of paternities established or acknowledged (U.S. Department of Health and Human Services, Administration for Children and Families 2002).

Efforts to strengthen child support policies and programs appear to be supported by research that found very large gaps between estimates of nonresident fathers' ability to pay child support and the amount of child support collected. Studies reported estimates of ability to pay in the range of $45 to $50 billion (Garfinkel and Oellerich 1989; Miller, Garfinkel, and McLanahan 1997; Sorensen 1997) as compared with actual payments of only $16 to $19 billion (Sorensen 1997). This discrepancy informs an important policy debate.

Aggregate estimates of fathers' ability to pay play a crucial role in decisions about how to ensure the well-being of children. If nonresident fathers have considerable capacity to contribute to the economic support of their absent children, particularly if that capacity is unrealized, then child support may play a pivotal role in the constellation of programs for children. If, however, the potential benefits from child support are limited,

*Marilyn Sinkewicz, University of Michigan School of Social Work and Columbia University Mailman School of Public Health, 722 W 168 Street, 7th Floor, New York, NY 10032; e-mail: ms2054@columbia.edu. Irwin Garfinkel, Columbia University School of Social Work.

then policymakers may consider the alternatives. Such options include, for example, child allowances—a payment for all families instituted by most industrialized countries as a way of supporting and protecting children (Kahn and Kamerman 1983); and child support assurance—a "social security" program for children that involves shared risk by absent parents and a minimum level of government-backed protection for their children (Garfinkel 1996). It is imperative, then, that policy decisions are based on estimates of fathers' ability to pay that reflect the real and current circumstances of absent fathers. This is the objective of our article.

There are two ways in which existing estimates of fathers' ability to pay child support are particularly problematic. The first challenge is the underreporting of unwed parenthood (Hanson, McLanahan, and Thompson 1996; Sorensen 1997), a problem that has been addressed using various imputation strategies to estimate the earnings of missing fathers. We hypothesize that the data and methodological limitations in prior studies are likely to have produced upwardly biased estimates of fathers' earnings. The second challenge concerns the complex structure of present-day families. We hypothesize that by failing to account for mortality, non-identifiable fathers, and multiple-partner fertility, previous estimates have likely further overstated fathers' ability to pay because they assume one father who has no other child support obligations for each eligible mother with nonmarital children. This article addresses both these issues by applying new methods to new data. The Fragile Families and Child Wellbeing Study (FFCWS) was especially designed to extend research on child support. We combine a rich set of previously unavailable variables concerning men's fertility, mortality, and other relevant characteristics, with improved imputation strategies to produce new estimates of fathers' earnings and obligations.

The article proceeds as follows. First, we review previous research. Then, we provide an overview of our analytic strategy, followed by a description of the data and methods. Next, we present our results. We conclude with a discussion of these findings, possible directions for future research, and policy implications.

PREVIOUS RESEARCH

The initial challenge faced by prior research was measuring the effect of the underrepresentation of nonresident fathers in survey and administrative data. Sorensen (1997) suggested that this underrepresentation is attributable to three factors. First, surveys are primarily restricted to noninstitutionalized individuals. Hence, fathers who do not live in households, including those who are incarcerated, are often missing from survey research. Second, socially and economically disadvantaged subpopulations are likely to be underrepresented in the data. These include young African American males, an important group of nonresident fathers. Third, a significant number of fathers (or respondents who provide survey information about fathers) do not report children who live apart from their fathers.

In response to the dearth of nationally representative data on nonresident fathers, researchers developed two indirect methods to estimate, or impute, fathers' incomes. The first method, developed by Garfinkel and Oellerich (1989) and extended by Miller et al. (1997), estimates income as a function of custodial mothers' characteristics, relying on the assumption of assortative mating. If women mate with men who are similar to them, fathers' characteristics may be inferred from characteristics of the mother (Bumpass and Sweet 1989; Miller et al. 1997). The second income estimation method, developed by Sorensen (1997) and elaborated by Garfinkel, McLanahan, and Hanson (1998), uses assortative mating assumptions to reweight the data for a sample of self-identified nonresident fathers to match the number of mothers who are eligible for child support. A recent investigation of assortative mating estimation strategies found that errors due to assumptions about homogamy among unmarried parents are generally offsetting (Garfinkel, Glei, and McLanahan 2002).

The second major limitation of prior research is its simplistic approach to the structure of present day families. Both earnings estimation methods described above assume one father for each mother in the sample, and that no father has any other child support obligations. However, some fathers remain unidentified, others die, and still others have children with more than one partner. For example, recent data on welfare recipients in Wisconsin, a state that has conducted extensive research on child support over the past two decades, indicate that 31% of all mothers and fathers report multiple-partner fertility (Cancian and Meyer 2006). Thus, accounting for fathers' eligibility status and multiple obligations is necessary to improve estimates of fathers' ability to pay child support.

Once the correct number of eligible fathers is established and their annual earnings are estimated, the amount of child support they are expected to pay is determined using state child support guidelines. Insofar as all states are mandated to develop and implement their own guidelines, there are no universally agreed-upon normative standards in the United States (Brito 2007). Our article uses the Wisconsin guidelines, which apportion a flat percentage of earnings.[1] Not only are these guidelines simple, easily understood, and easily simulated, they are also appropriate for our goals. The flat-percentage approach allows us to expedite both of our objectives in a parsimonious fashion—that is, to examine the *relative* effect on fathers' ability to pay of (1) reestimating the earnings of absent fathers and (2) accounting for mortality, non-identifiable fathers, and multiple-partner fertility.[2]

In the majority of cases, state guidelines do not address the full complexity of multiple-partner fertility. Further, as Morgan (1996:48) noted, "states differ in the fundamental public policy question of whether a parent should be prevented from taking on additional child support responsibilities to the detriment of children already in need of support, or whether all children should be treated equally regardless of the parent's behavior." Our analyses compare two standards that account for family structure. To emulate prior studies, the first assumes single-partner fertility and therefore accounts only for current children. The second recognizes multiple-partner fertility and therefore accounts for both prior and current children. To further inform the question of who should bear the postdissolution costs of maintaining separate households, we apply two algorithms to the multiple-partner fertility standard, one based on birth order and the other on equality of all children.

ANALYTIC STRATEGY

This section provides an overview of our analytic approach. A detailed description of the data and statistical models follows in the Data and Methods sections. As shown in Table 1, we conduct six simulations that incorporate a series of innovations to produce new estimates of fathers' earnings and obligations. We use data from the Fragile Families and Child Wellbeing Study (FFCWS). The FFCWS offers a wide range of previously unobserved variables concerning unmarried fathers and mothers, making it ideal for our purposes. Further, the sample is racially/ethnically and socioeconomically diverse. Additionally, some fathers are currently incarcerated while others have incarceration histories. The data are also relatively

1. The Wisconsin guidelines also make provisions for low earners. Our simulation of this nonlinear guideline yields results that are similar to our final estimates (see the results section of this article). Calculations are available from the authors upon request.

2. Although we acknowledge that many additional issues must still be brought to bear on the wider child support debate and integrated into guidelines, such as the consideration of both parents' earnings (Income Shares Model) and the portion of time the child spends in each parent's home (Melson Formula), these factors are not germane to the goals of our analyses. In response to a reviewer's suggestion, we simulated the Tennessee Income Shares guideline and found results that were similar to our final estimates (see the results section of this article). Calculations are available from the authors upon request. For a comprehensive overview of variation in state child support guidelines, including the Percentage of Income Model, the Income Shares Model, and the Melson Formula, see Brito (2007).

Table 1. Analytic Strategy

	Earnings Estimation		
Simulation	Variables	Imputation	Family Structure
1	Assortative Mating	Single	Single-Partner Fertility
2	Mothers' Reports	Single	Single-Partner Fertility
3	Fathers' Reports +	Multiple	Single-Partner Fertility
4	Father+/Ineligibles	Multiple	Single-Partner Fertility
5	Father+/Ineligibles	Multiple	Multiple-Partner Fertility, Birth Order
6	Father+/Ineligibles	Multiple	Multiple-Partner Fertility, Equality

recent and thus reflect current conditions among a population that is difficult to study because of its changing demographic characteristics.

The objective of Simulation 1 is to provide a benchmark for comparison with previous research. We then extend this benchmark in four ways: (1) by using variables based on mothers' reports of fathers and fathers' self-reports, instead of assortative mating criteria, to predict fathers' earnings; (2) by using multiple imputation, instead of single imputation, to account for missing data; (3) by accounting for ineligible fathers, instead of assuming that all children have fathers who are child support payers; and (4) by accounting for both prior and current obligations (multiple-partner fertility), instead of assuming that fathers have no prior obligations (single-partner fertility).

In line with prior research, Simulation 1 uses a single imputation method and demographic variables based on assortative mating assumptions to predict fathers' annual earnings.[3] This model is based on human capital theory (Becker 1981; Schiller 1984) and uses standard earnings equation covariates from the economics literature (Mincy, Hill, and Sinkewicz forthcoming). Simulation 1 accounts only for current children (single-partner fertility). This estimate provides a basis of comparison to prior research, a benchmark from which we subsequently evaluate Simulations 2 through 6.

Simulation 2 employs another strategy used in the literature to deal with the lack of father data. It uses information provided by mothers about fathers to predict fathers' earnings. In turn, the substitution of mother-reported variables for assortative mating variables allows us to test the robustness of assortative mating assumptions. Like Simulation 1, Simulation 2 uses single imputation and accounts only for single-partner fertility.

Simulation 3 uses fathers' own reports of their characteristics to predict earnings. By using these self-reports, we are able to address the problem of reporting bias that may be associated with relying on mothers' reports of fathers. Further, Simulation 3 uses a multiple imputation (MI) strategy rather than single imputation. In addition to better accounting for the uncertainty associated with missing data, the MI strategy lends itself to taking full advantage of the richness of the FFCWS data. The extended model incorporates a large array of predictor variables, in addition to the standard earnings equation covariates used in Simulations 1 and 2. The MI strategy is described in detail in the methods section, as well as in a technical appendix available on the *Demography* Web site (http://www.soc.duke.edu/resources/demography). As in the first two simulations, Simulation 3 accounts only for single-partner fertility.

3. Our outcome variable is regular annual earnings. We ignore underground earnings because of the difficulty of detecting them and the impracticality of their consideration in court decisions about child support awards. Research by Rich (2001) suggests a 15% increase in mean earnings if underground earnings are counted.

Simulation 4 extends the third simulation by taking into account what we term *ineligible fathers*. Prior research assumed that each child living in a female-headed household (or with grandparents, etc.) has an absent father who is "eligible" to pay child support.[4] However, in practice, we know that some of these fathers are deceased while others have negative DNA tests for paternity, are uninformed of the pregnancy, or for a number of other reasons will not be paying support. Fortunately, the FFCWS supplies this information. Therefore, in Simulation 4, we adjust for ineligible fathers who formerly, in aggregate estimates such as these, were assumed to be child support payers. In terms of family structure, Simulation 4 follows suit in accounting only for single-partner fertility.

Simulations 5 and 6 remedy this limitation by accounting for multiple-partner fertility. After imputing earnings in the same manner as the fourth simulation, Simulations 5 and 6 apply two alternative algorithms to assess fathers' obligations. The algorithm in Simulation 5 is based on birth order and considers each family sequentially; that is, each sibship is considered in birth order. This holds children harmless with respect to parents' subsequent behavior. By contrast, the algorithm in Simulation 6 is based on the principle of equality. Instead of distinguishing by birth order, this algorithm computes the average payment across all children and allocates the same amount to each child.

DATA

A detailed description of the Fragile Families and Child Wellbeing sample and study design is available elsewhere (Reichman et al. 2001), and so only the salient facts as they relate to this article are provided here. The Fragile Families Study follows a birth cohort of 3,710 children born to unmarried parents and 1,188 children born to married parents in 75 hospitals in 20 cities across the United States. Importantly, the FFCWS is racially/ethnically diverse. Our sample comprises white, non-Hispanic black, and black fathers. The parents were first interviewed upon the birth of their focal child. New mothers were interviewed in person at the hospital within 48 hours of giving birth, and fathers were interviewed in person either in the hospital or as soon as they were located thereafter. A follow-up phone interview was administered to both the father and the mother of the focal child when the child reached 1, 3, and 5 years of age. Baseline interviews were conducted between 1996 and 1999. Our analyses use the first two waves of data: baseline and one-year interviews.

Unmarried participants in the FFCWS comprise a nationally representative sample of nonmarital births in large urban cities in the United States. The demographics of the sample are largely consistent with data reported by the National Center for Health Statistics (DeKlyen et al. 2006). However, several factors should be borne in mind when interpreting the findings. First, the baseline eligibility criteria for mothers to participate in the FFCWS are as follows: the child's father is alive; the mother plans to keep the child; the mother speaks English or Spanish; and the mother is healthy enough to complete the interview. Less than 5% of mothers failed to meet these criteria. Second, mothers younger than 18 years were excluded in about half the cities due to legal restrictions on minors. Based on natality data reported by the U.S. Department of Vital Statistics, the exclusion of these mothers is likely to have limited effect because these births account for only 4% of all births in 1999 (DeKlyen et al. 2006). Third, compared with the 3,710 unwed mothers who completed the baseline interview, 75% of the unwed fathers completed baseline interviews. The response rate for unwed fathers at the one-year interview was 65%, although lower for nonresident fathers.

4. Though Garfinkel et al. (1998) made a crude adjustment for mortality, they had no information on which fathers have discordant DNA, are unknown, are not told of the pregnancy, deny paternity, or are otherwise ineligible.

METHODS

Estimating Earnings

As Table 1 indicates, we develop four approaches to estimating fathers' annual earnings. Of the 3,710 nonmarital births in the FFCWS, 14 children were adopted and 21 died by the end of the first year, leaving 3,675 fathers potentially liable for support. Of these, 1,612 lived with the child, leaving only 2,063 nonresident fathers. This is our study sample. Of this cohort, 853 fathers reported earnings at the one-year interview. Our goal is to estimate earnings for all 2,063 fathers in the sample. In what follows, we describe the statistical model we use in each simulation. In all models, ε denotes an assumedly uncorrelated random disturbance factor.

Simulation 1. The purpose of the first model is to construct a benchmark estimate of fathers' earnings, which parallels estimates from previous research based on assortative mating. We use this estimate to evaluate the innovations in subsequent simulations, including a robustness test of assortative mating assumptions. Ordinary least squares regression is used to fit the model and predict annual earnings for the full sample of fathers. Predictions of fathers' annual earnings are computed by combining the coefficients from the earnings equations with the respective covariates from our full study sample of fathers who were unmarried at baseline and nonresident at the one-year interview. The regression equation takes the following form:

$$y_{am} = \beta_{0am} + \mathbf{d}_{am}\,\beta_{1am} + \varepsilon_{am}, \tag{1}$$

where y_{am} is father-reported annual earnings at the one-year interview, and $\mathbf{d}_{am}$ is a vector of mothers' demographic characteristics from the baseline interview (race, age, and education) to which assortative mating criteria are applied. The assortative mating criteria are as follows: fathers are two years older than mothers; fathers have the same education as mothers; and fathers are members of the same racial/ethnic group as mothers. These criteria are selected because they are straightforward and they are similar to those used in prior research (Garfinkel et al. 2002).

Simulation 2. The second model is similar to the first except that rather than using assortative mating predictors based on mothers' characteristics, actual mothers' reports of fathers' demographic characteristics are used:

$$y_{act} = \beta_{0act} + \mathbf{d}_{act}\beta_{1act} + \varepsilon_{act}, \tag{2}$$

where y_{act} is father-reported annual earnings at the one-year interview, and $\mathbf{d}_{act}$ is a vector of mothers' reports of fathers' demographic characteristics. Again, the standard earnings equation variables include mothers' reports of fathers' race, age, and education at the baseline interview.

Simulation 3. The third simulation represents a substantial departure from the first two. Notably, Simulation 3 uses MI to impute fathers' earnings based on fathers' self-reported variables, whereas as the first two simulations use conventional single imputation to impute fathers' earnings based on mothers' reports (assortative mating and mothers' reports of fathers, respectively). Because the response rates of mothers are substantially higher than the response rates of fathers, most studies using the FFCWS impute values of fathers' earnings variables using mothers' reports about fathers. However, as the literature on couples data suggests, it is possible that mothers may systematically misrepresent fathers' earnings (Smith, Gager, and Morgan 1998). For this reason, we need an alternative strategy for imputing missing data about fathers' earnings.

MI is increasingly used to account for nonresponse in administrative and large-scale data sets, such as those of the National Center for Health Statistics, the Department of

Transportation, and the Federal Reserve Bank. It is a principled technique that uses observed data from study participants to predict missing values. Simply put, MI constructs several complete data sets (based on a prediction model) that reflect both sampling uncertainty and uncertainty about the imputation model. MI has several advantages over alternative strategies to dealing with missing data (Rubin 1987; Schafer 1997). Importantly, MI relies on weaker (more plausible) assumptions about how the missing data came to be, as compared with complete-case analysis (listwise deletion) and other standard approaches (Little and Rubin 2002). For a comparison of imputation methods (complete cases, conventional single imputation, and multiple imputation) that account for missing data in the FFCWS, see Sinkewicz (2006).

In our study, five complete-case data sets are imputed. Standard errors that account for sampling variation and uncertainty about the model are computed according to straightforward algebraic rules laid out by Rubin (1987). The MI computations are implemented in Stata using the MICE method of multiple multivariate imputation described by van Buuren, Boshuizen, and Knook (1999); MICE stands for multivariate imputation by chained equations. The application in Stata was developed by Patrick Royston (2004).

While MI imputes missing values for all variables, the model for earnings takes the following form:

$$y_{mi} = \beta_{0mi} + \mathbf{d}_{mi(dad)}\beta_{1mi(dad)} + \mathbf{d}_{mi(mom)}\beta_{2mi(mom)} + \mathbf{d}_{mi(dad)}\beta_{3mi(dad)} + \varepsilon_{mi}, \quad (3)$$

where y_{mi} is father-reported annual earnings at the one-year interview, $\mathbf{d}_{mi(dad)}$ is a vector of self-reported father characteristics, $\mathbf{d}_{mi(mom)}$ is a vector of self-reported mother characteristics, $\mathbf{d}_{mi(dad)}$ is a vector of mother-reported father characteristics, and ε_{mi} denotes the assumedly uncorrelated error.

The FFCWS provides a wide range of previously unobserved variables, and so our MI model is large. The following selection gives a sense of the 88 variables in the extended model. Beyond the standard wage equation demographic variables, examples of self-reported father characteristics are mental and physical health, father-child contact, father's supportiveness of the mother, incarceration, a proxy for IQ, religiosity, informal earnings, illegal activities, and car ownership. Examples of self-reported mother characteristics are age, race/ethnicity, education, health, religiosity, a proxy for IQ, and car ownership. Examples of mother-reported father characteristics are age, race/ethnicity, education, physical and mental health, nativity status, labor force participation, number of children with other mothers, earnings, whether the father suggested abortion or provided prenatal assistance, whether the father has been physically violent, and whether the father has ever been incarcerated. The vast majority of the missing data we impute concerns fathers who were not interviewed and information about fathers that we could not accurately ascertain from mothers. Further information about the scope of missing data, the variables in the MI model, and the MI strategy is provided in the online technical appendix.

Simulations 4, 5, and 6. The last three simulations extend the third by accounting for ineligible fathers. To review, of the 3,710 nonmarital births in the FFCWS, 14 children were adopted and 21 died by the end of the first year, leaving 3,675 fathers potentially liable for support. Of these, 1,612 lived with the child, leaving only 2,063 nonresident fathers. However, of these 2,063 nonresident fathers, 202 fathers are codified as ineligible to pay support: 17 are deceased, 14 have negative DNA tests proving they are not the father of the child, 58 are unknown to the mother, 69 are not informed of their paternity, 37 deny being the father (though so far as we know, this denial of paternity has not been confirmed by a DNA test), and 7 are ineligible for other reasons, leaving 1,861 nonresident fathers who are truly potentially liable for paying child support. In contrast to prior research in which aggregate estimates ignore the status of such fathers, Simulations 4, 5, and 6 adjust for the ineligibility of the 202 fathers in our sample by setting their

earnings to zero. Apart from this adjustment, the form of the equation is similar to Simulation 3:

$$y_{mi} = \beta_{0mi} + \mathbf{d}_{mi(dad)}\beta_{1mi(dad)} + \mathbf{d}_{mi(mom)}\beta_{2mi(mom)} + \mathbf{d}_{mi(dad)}\beta_{3mi(dad)} + \varepsilon_{mi}, \quad y_{mi} = 0 \text{ if ineligible.} \quad (4)$$

Appendix A, available on *Demography*'s Web site, provides an overview of the samples corresponding to the four earnings estimation models described above.

Estimating Child Support Obligations

After estimating the earnings of nonresident fathers, the next step in calculating fathers' ability to pay child support is applying decision rules about how much of their earnings fathers are required to pay in support of their absent children. The normative standards incorporated in the decision rules operationalize a rationale regarding issues such as what income to consider and the relative needs of the fathers' various dependents. As noted earlier, because all states are mandated to develop and implement their own guidelines, there are no universally agreed-upon normative standards in the United States. Our simulations use the Wisconsin guidelines, which apportion a flat percentage of earnings. The Wisconsin guidelines are based on percentages of pretax income (fathers' annual earnings in this case) applied as follows: 17% for one child; 25% for two children; 29% for three children; 31% for four children; and 34% for five or more children (Wisconsin Department of Workforce Development 2004).

We compare two standards that account for family structure. To parallel prior studies, the first assumes single-partner fertility and accounts only for current children. The second recognizes multiple-partner fertility and accounts for both prior and current children. We provide two simulations of the latter standard, one based on birth order and the other on equality of all children.

Simulations 1, 2, 3, and 4: Current obligations. In line with previous studies, we begin by assuming that nonresident fathers have no other child support obligations. We do so by considering only fathers' current obligation, that is, the offspring of fathers and the focal mothers. Based on the number of current children, the amount of the child support payment is computed by applying the proportion set out in the Wisconsin guidelines to the father's estimated earnings. Limiting the estimate to fathers' current children provides a reference point to previous research. However, to the extent that fathers have obligations to more than one family, their ability to support their current children will be diminished. We consider this eventuality next.

Simulation 5: First prior, then current obligations. Our last two simulations account for multiple-partner fertility, that is, fathers' offspring with mothers other than the focal mothers. In the absence of a cross-state normative standard on how to treat current versus prior obligations, we simulate two alternatives that reflect predominant differences in guidelines and court decisions. They are based on principles concerning birth order and equality. Simulation 5 takes account of fathers' prior dependents by applying the proportion set out in the Wisconsin guidelines, corresponding to the number of prior children, to fathers' full earnings. The resulting current child support obligation is subtracted from fathers' full earnings to yield fathers' reduced earnings. Then, the focal mothers' dependents are considered by applying the proportion corresponding to the number of current children to the father's reduced earnings. This child support standard holds prior siblings harmless from the advent of subsequent children.

Simulation 6: Prior and current obligations together. Simulation 6 applies an alternative standard to holding prior children harmless. Unlike Simulation 5, this estimation treats all children equally. It simply sums the number of children from prior mothers and the current focal mothers. Based on the total number of children with all mothers, the support obligation is computed by applying the proportion set out in the Wisconsin guidelines to

fathers' full earnings. Compared with Simulation 5, this estimation reduces the total obligation of fathers and reduces the obligation to both prior and current families.[5]

Under both Simulations 5 and 6, if fathers have prior obligations (children with mothers other than the focal mothers), then their current obligations to children with focal mothers will be less than the child support amount estimated in Simulations 1, 2, 3, and 4. At the same time, if fathers have prior obligations, they will be obliged to pay more child support overall because their total child support obligation will reflect their responsibilities to all eligible children.

RESULTS

Our discussion of the results begins with descriptive statistics. In Table 2 we compare means and proportions of the variables across the three earnings estimation samples in our analyses, corresponding to Simulations 1, 2, and 3 through 6, respectively. In each case, our goal is to use the observed covariates to estimate (impute) earnings for the full sample of unwed nonresident fathers (N = 2,063).

The top panel in Table 2 presents the complete case and imputed means across the three samples for our outcome variable, fathers' regular annual earnings at the one-year interview. These results are discussed in detail later in this section. The middle panel in Table 2 presents the proportions for the standard wage equation variables across the three samples. A comparison between Simulation 1 (assortative mating) and Simulation 2 (mothers' reports of fathers) reveals no large differences in the race, age, and education variables used to impute fathers' earnings (complete cases, N = 853). Moreover, the relatively small differences are often offsetting in terms of their predictive value for earnings. For example, compared with Simulation 1, proportionately more fathers in Simulation 2 are younger than 21 years, yet proportionately more fathers are also older than 30 years. Again, compared with Simulation 1, a smaller proportion of fathers in Simulation 2 have less than a high school education, but a smaller proportion also have a college education. Further, compared with Simulation 1, the sample in Simulation 2 has proportionately fewer white and more black fathers, suggesting that predicted earnings might be lower in Simulation 2. At the same time, the sample in Simulation 2 has a greater proportion of older fathers, indicating an offsetting increase in earnings due to the age distribution. Overall, these offsetting differences portend relatively similar earnings estimates for Simulations 1 and 2.

Our third sample is described in the two right-hand columns of Table 2. The MI model used in Simulations 3–6 (fathers' self-reports plus other previously unobserved variables) is more expansive than the single imputation models of Simulations 1 and 2. The full MI model includes not only the standard earnings equation variables but also a wide range of previously unmeasured variables based on fathers' self-reports, mothers' self-reports, and mothers' reports of fathers. Beyond the larger number of variables in the model, part of the MI strategy is to first fully impute the predictor variables and then use the MI predictors to estimate earnings, instead of imputing only the outcome variable using complete-case predictors, as in Simulations 1 and 2. (Although the predictor variables could themselves be imputed using conventional single imputation strategies, in practice they rarely are.) The MI proportions for the standard wage equation variables (race, age, and education) do not differ substantively from those in Simulations 1 and 2, and again we see offsetting differences in age. However, the distribution of the new MI predictors in the bottom panel

5. In all state child support guidelines, in order to reflect economies of scale, the obligation per child decreases as the number of children increases. The decrease is substantial—for example, 17% for one child but only 25% for two children in the Wisconsin guideline. Simply adding one more child and then dividing by the total number of children as compared with treating the new child as a first child results in a lower total obligation. In principle, however, the reduction in the obligation per child could be much smaller than is the case in current guidelines. If the decline were small enough, the child support obligation per child would be the same no matter the number of children.

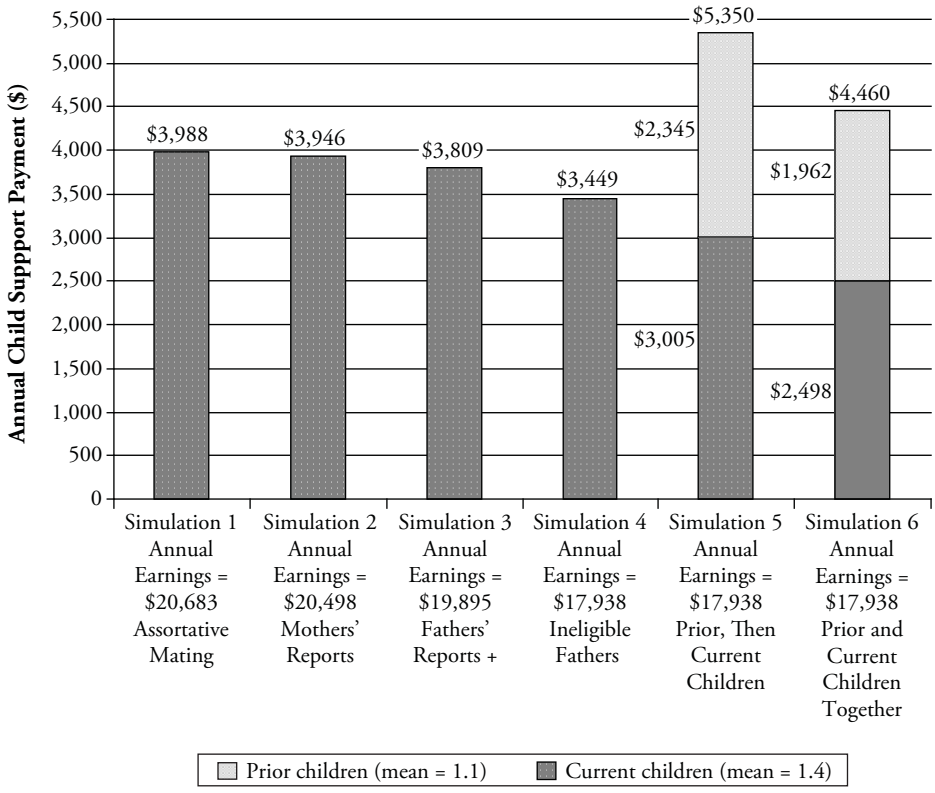
Table 2. Characteristics of Fathers Unwed at Birth and Nonresident at the One-Year Follow-up

	Simulation 1 Assortative Mating		Simulation 2 Mothers' Reports		Simulations 3–6 Fathers' Reports +	
Variable	Complete Cases	Single Imputation	Complete Cases	Single Imputation	Complete Cases	Multiple Imputation
Outcome Variable: Fathers' Earnings at One-Year Postbirth Interview	(*N* = 853) $20,748	(*N* = 1,990) $20,683	(*N* = 853) $20,748	(*N* = 1,993) $20,498	(*N* = 853) $20,748	(*N* = 2,063) $19,895
Standard Wage Equation Variables						
Race	(*N* = 853)	(*N* = 1,990)	(*N* = 853)	(*N* = 1,993)	(*N* = 1,300)	(*N* = 2,063)
White	17	15	14	12	12	16
Black	64	63	66	66	67	64
Hispanic	19	22	20	22	21	20
Age	(*N* = 853)	(*N* = 1,990)	(*N* = 853)	(*N* = 1,993)	(*N* = 1,320)	(*N* = 2,063)
< 21	14	13	21	18	21	18
21–29	66	65	54	55	54	50
30+	20	22	25	27	26	32
Education	(*N* = 853)	(*N* = 1,990)	(*N* = 853)	(*N* = 1,993)	(*N* = 1,320)	(*N* = 2,063)
< High school	39	42	32	38	39	38
High school	32	33	43	41	37	33
Some college	25	22	22	18	20	19
College degree	4	3	3	3	3	10
Selected Variables From the Expanded Multiple Imputation Model						
Bad health					8	14
Depression					16	23
Anxiety					5	10
Alcohol/Drug problems					33	32
Incarceration					60	60
U.S.-born					91	86
Multiple-partner fertility					40	43

Notes: Figures reported for covariates are percentages. All covariates are measured at baseline except incarceration and multiple-partner fertility, which are measured at the one-year interview. The vast majority of the missing data that are imputed concern fathers who were not interviewed and information about fathers that could not be accurately ascertained from mothers.

of Table 2 now more accurately reflects the relative disadvantage of nonrespondent fathers, and so we expect lower earnings estimates based on MI data than on observed data. For example, 14% of unwed nonresident fathers are estimated to have bad health in the MI data, compared with 8% reported in the observed data. Similarly, in the MI data, 23% and 10% of fathers are estimated to have depression and anxiety, respectively, compared with 16% and 5% reported in the observed data. Again, 91% of fathers reported that they are U.S.-born in the observed data compared with an estimated 86% in the MI data. These comparisons suggest that nonrespondent fathers are disadvantaged in ways that will decrease earnings estimates. Further, the larger proportion of fathers estimated to have multiple-partner

Figure 1. Annual Child Support Payment per Nonresident Father



fertility in the MI data (43%) compared with the proportion reported in the observed data (40%) suggests that MI estimates of fathers' ability to pay child support will be lower than those produced by observed data. For further comparisons of the MI and observed data, see Table B2 in the online technical appendix.

The results of the child support estimates in the six simulations in our analyses are represented by the progression of six bars in Figure 1. The aggregate earnings estimate for each simulation is indicated below the corresponding bar. Next we discuss the earnings estimates, followed by an explanation of the child support estimates.

The earnings estimate in Simulation 1 provides a benchmark comparison with prior research by using assortative mating variables and single imputation. We use this estimate, $20,683, to evaluate subsequent simulations. The earnings estimate in Simulation 2 ($20,498) represents a more advanced strategy to deal with the dearth of father data. It is based on actual mothers' reports of fathers' characteristics and, again, single imputation. See Table A1 in the online Appendix for coefficients from the regression models in Simulations 1 and 2. In both cases, the coefficients of the demographic variables are of the expected sign, are large, and are mostly statistically significant. As expected, annual earnings predicted by

mothers' reports of fathers are close to, although somewhat lower than, those predicted by assortative mating variables.

The earnings estimate in Simulation 3 ($19,895) is based on a wide range of self-reported variables from fathers and mothers, along with mothers' reports of fathers' characteristics. This time, an MI technique is used, which produces better standard errors that reflect uncertainty about the missing data. Additionally, the extended MI model produces estimates that more accurately reflect the comparative disadvantage of nonrespondent fathers. The earnings estimate in Simulation 3 is about 5% lower than our benchmark estimate in Simulation 1. About half the decrease resulting from the MI strategy is due to the large number of previously unmeasured variables provided by the FFCWS, with the other half due to the full imputation of the predictor variables.

Simulation 4 ($17,938), however, produces the greatest decrease in earnings (along with Simulations 5 and 6). The earnings estimate in these simulations adjusts for ineligible fathers—that is, those fathers who are deceased, whose DNA tests do not match the child, who are uninformed of the birth, or who are otherwise ineligible to pay support. The earnings in Simulation 4 are about 16% lower than the baseline earnings estimate in Simulation 1.

In sum, using actual mothers' reports of fathers' characteristics rather than assortative mating reduces the earnings estimate only by about 1%. This is consistent with prior research (Garfinkel et al. 2002). About 4% of the decrease in our best estimate is due to MI and the rich set of previously unobserved covariates in our expanded model. The bulk of the difference—about 11%—is due to accounting for ineligible fathers.

Now we examine the corresponding estimates of fathers' ability to pay child support, denoted by the height of the six bars in Figure 1. Proceeding from left to right, the first four bars, corresponding to Simulations 1 through 4, ignore multiple family obligations. The respective aggregate estimates of the annual child support payment per nonresident father are $3,988, $3,946, $3,809, and $3,449. As with earnings, the child support estimate in Simulation 4 is 16% lower than the benchmark estimate in Simulation 1 ($3,988 / $3,449 = 1.16). This decrease is due to progressively lower estimates of fathers' earnings in Simulations 1 through 4.

Like Simulation 4, Simulations 5 and 6 are based on our best estimate of fathers' earnings ($17,938). However, the latter two simulations account for multiple-partner fertility. The mean number of children in fathers' current families is 1.4, while the mean number of previous children is 1.1. In Simulation 5, the estimated child support obligation to current children ($3,005) is computed by first calculating prior obligations based on fathers' full annual earnings and, after subtracting what fathers owe to their children by other mothers, then calculating current obligations based on fathers' reduced earnings. This decreases the estimated ability of fathers to support their most recent nonresident children by another 17% ($3,988 / $3,005 = 1.33), compared with Simulation 4. Alternatively, Simulation 6 gives equal weight to all children. This algorithm further lowers the estimated obligation to current families to $2,498, or by an additional 27% ($3,988 / $2,498 = 1.60), compared with Simulation 5. This means that previous estimates of the ability of unwed fathers to pay child support may be overestimated by 33% to 60%! Additionally, the new estimates of total obligations (current and prior) indicate that unwed fathers' total liabilities for paying child support have been underestimated by 12% ($4,460 / $3,988 = 1.12) to 34% ($5,350 / $3,988 = 1.34).

We also estimate fathers' ability to pay child support by racial/ethnic group.[6] Because MI data more properly account for the distribution of earnings within demographic groups, we are more confident about these subgroup analyses. We find that white fathers have the highest earnings ($19,324), followed by Hispanic fathers ($18,880), and then black fathers ($16,927). Though differences in earnings are modest, they are reinforced

6. Analyses by racial/ethnic group are available from the authors upon request.

by differences in multiple-partner fertility; that is, white and Hispanic fathers have the fewest children by former partners (mean = 1.0), while black fathers have the most children by former partners (mean = 1.2). As a consequence, previous research may have overestimated black fathers' ability to pay child support by 35% ($3,787 / $2,807 = 1.35) to 64% ($3,787 / $2,313 = 1.64).

Finally, we conduct two additional sensitivity analyses. The first uses a guideline that provides an exemption for low earners (Wisconsin Department of Workforce Development 2004). The second uses an Income Shares guideline (Tennessee Department of Human Services 2006). Both simulations yield results similar to our final estimates, which suggest that previous research overestimates the aggregate ability of unwed nonresident fathers to pay child support by 33% (in Simulation 5, which holds prior children harmless) to 60% (in Simulation 6, which treats all children equally). Allowing for an exemption of income for personal needs changes the range of overestimation from between 33% and 60% to between 43% and 68%. Substituting the Tennessee Income Shares guideline for the Wisconsin flat percentage guideline changes the range to between 29% and 70%.

DISCUSSION

We use the Fragile Families and Child Wellbeing Study to present new estimates of unwed fathers' ability to pay child support. The Fragile Families Study was explicitly designed to address the limitations of previous research on unwed fathers. Prior research has relied on surveys that drastically undercount nonresident unwed fathers and provide no link to their children who live in separate households. To overcome these restrictions, previous research assumed assortative mating and, more importantly, that each mother partners with one father who is actually eligible to pay support and has no other child support obligations. However, the Fragile Families Study contains data on couples, multiple-partner fertility, and a rich array of other previously unmeasured characteristics of fathers, including whether fathers are deceased, uninformed of the birth, or otherwise ineligible as child support payers. Therefore, these data are uniquely suited to address the limitations of previous research. Combining these data with improved imputation methods allows us to produce better estimates of fathers' earnings and to account for fathers' obligations to both prior and current families.

Concerning earnings estimates, first, our study provides a test of the robustness of the assortative mating assumptions on which our benchmark estimate is based. Like Garfinkel et al. (2002), we find that departures from assortative mating assumptions have offsetting errors so that the net effects are quite small. Mean annual earnings estimates differ by only about 1%. Therefore, our results suggest that assortative mating assumptions are robust, relative to actual mothers' reports about fathers. Second, we incorporate into our earnings estimation model a rich array of previously unobserved variables provided by the Fragile Families and Child Wellbeing Study—variables based on fathers' self-reports as well as mothers' reports. Further, we use these unique data in conjunction with an MI method. This strategy makes more of a difference to the earnings estimate, but the added effect (4%) is relatively small. This suggests that, overall, the relatively crude approaches for estimating earnings used in previous studies hold up comparatively well to the more elaborate estimation in Simulation 3. Third, we adjust for ineligible fathers, who in prior aggregate estimates were assumed to be child support payers. This yields a more substantial reduction in the earnings estimate (a further 11%). In total, our best earnings estimates are 16% lower than our benchmark estimates.

Yet the biggest effect on estimates of fathers' ability to pay child support results from taking account of multiple-partner fertility. Depending on whether older children are prioritized, fathers' ability to pay child support to current children is reduced by another 17% to 27%. Taking all factors into consideration, the aggregate ability of these fathers to pay child support to current children may have been overestimated by 33% to 60%. At the same

time, previous aggregate estimates of unwed nonresident fathers' total obligations to both prior and current children may have been underestimated by 12% to 34%.

While our analyses indicate that prior estimates may be optimistic, the Fragile Families data, though far superior to previous data, are also far from perfect. The number of fathers interviewed is still less than half of the fathers eligible for support. Nonetheless, in accounting for missing data, MI is an improvement over traditional strategies. Not only does MI yield improved standard errors, but it also accommodates a "kitchen sink" approach to incorporating a large number of variables into the imputation model to good result. Moreover, the predictor variables are themselves multiply imputed and thus better represent the relative disadvantage of the full distribution of FFCWS fathers, both respondent and nonrespondent. In other words, the MI data more closely approximate the population of interest. In turn, this allows us greater confidence in sensitivity analyses across demographic groups. Nonetheless, there is no way of knowing with certainty that we have satisfied the assumption relied on by MI, which posits that individuals who have the same values on all observed covariates should be expected to have the same probability of having missing data. Still, this assumption, known as missing at random (MAR), is more plausible than that underlying conventional methods, such as complete cases or complete variables. The latter methods assume that individuals with missing data are a completely random subset of the full sample, an assumption known as missing completely at random (MCAR). We suspect, if anything, that we provide conservative estimates of the degree to which previous research overestimates ability to pay. This would be the case if the probability that the father is nonrespondent were related to his multiple-partner fertility. Under this condition, even after controlling for all the variables in the model, MI will underestimate multiple-partner fertility.

There is another way in which our results may underestimate multiple-partner fertility and therefore overestimate fathers' ability to pay child support. As discussed in the literature review, we know that respondents are likely to underreport multiple-partner fertility. One way we can gain leverage on this potential problem is to compare fathers' and mothers' reports of fathers' multiple-partner fertility, a better marker of true multiple-partner fertility than prior data provide (Carlson and Furstenberg 2006). The following comparison is based on observed data (complete cases). Among our sample of Fragile Families couples who were unwed at the birth of the focal child and nonresident at the one-year interview, there is a 77% concordance rate overall within couples at the one-year interview. Of the remaining discordant cases, 60% of the time, fathers reported that they have children living elsewhere whereas the corresponding mothers reported none. Conversely, in 40% of discordant cases, mothers reported that fathers have other children whereas the corresponding fathers reported none. If we assume multiple-partner fertility when either parent affirms, then the true rate is 65%—23 percentage points higher than the reported rate of 42%. This represents a 55% increase.

At least as worrisome for accurate estimates of fathers' ability to pay child support is the implication of potential future iterations of multiple-partner fertility. This issue points the way to future research and policy directions. Additional research into how fathers' ability to pay child support changes over time is warranted. More work on multiple-partner fertility beyond the first year after birth, on the degree of underreporting of multiple-partner fertility, and on ineligibility for child support liabilities over time are all necessary. Further, our article amplifies the call by other researchers (e.g., Meyer, Cancian, and Cook 2005) for an evaluation of guidelines that account for multiple-partner fertility on the part of both mothers and fathers, as well as guidelines that reflect principles of justice for all the children in complex family structures. Different guidelines will produce different levels of support for children in current, prior, and future families and consequently will produce different fertility incentives for parents. A subtext here is the question of who should marry whom (Mincy 2002). This issue poses a challenge to the

conceptualization of any policy that seeks to promote marriage initiation among partners in complicated relationships.

In addition to providing improved estimates of fathers' ability to pay, our analyses help to clarify the outstanding issues for relevant stakeholders. In this respect, the story in Figure 1 is doubly disturbing. Failing to account for multiple-partner fertility leads to an underestimate of the burden on fathers and an overestimate of their ability to pay their most recent progeny. On one hand, the height of the bars in Simulations 5 and 6 are notably higher than those in Simulations 1 through 4. This means that previous aggregate estimates of unwed nonresident fathers' total obligations may have been considerably underestimated. This finding has particular import for one of the most obdurate issues related to child support: the problem of arrears. If, as our results suggest, fathers' total obligations are as much as one-third higher than previously estimated, then current remedies for the problem of child support arrears, whether punitive or capacity building, deserve a second look.

At the same time, Simulations 1 through 6 show a monotonic decrease in estimated payments to current children. The difference between our best estimates and prior estimates is substantial. This suggests that, once both their prior and current obligations are accounted for, the potential contribution of unwed nonresident fathers to the improved well-being of children is less than has been assumed heretofore. To illustrate, estimates from previous research peg the overall gap between child support awards and payments at around $35 billion (Sorensen 1997). However, in prioritizing the most vulnerable children at the bottom of the distribution of social and economic indicators, we know that other studies show that only about $4 billion of this is owed to the children of mothers on welfare (Oellerich, Garfinkel, and Robins 1991). Now, our new analyses suggest that this amount may be overestimated by 33% to 60%, making it closer to $2.4 billion and perhaps as low as $1.3 billion. This represents a notable reduction in benefits, to both families and the public purse. This result has negative implications, for example, for a cost-benefit analysis of child support enforcement programs. More importantly, in the broader policy context, reduced estimates of fathers' ability to pay child support call into question the prominent place of child support in the constellation of programs for poor children. Perhaps it is time to reexamine the utility of child allowances and assured child support benefits in light of these findings.

REFERENCES

Becker, G.S. 1981. *A Treatise on the Family*. Cambridge, MA: Harvard University Press.

Brito, T. 2007. "Child Support Guidelines and Complicated Families: An Analysis of Cross-State Variation in Legal Treatment of Multiple-Partner Fertility." Discussion Paper. Institute for Research on Poverty, University of Wisconsin.

Bumpass, L.L. and J.A. Sweet. 1989. "Children's Experience in Single-Parent Families: Implications of Cohabitation and Marital Transitions." *Family Planning Perspectives* 21:256–60.

Cancian, M. and D. Meyer. 2006. "Alternative Approaches to Child Support Policy in the Context of Multiple-Partner Fertility." Discussion Paper. Institute for Research on Poverty, University of Wisconsin.

Carlson, M.J. and F.F. Furstenberg, Jr. 2006. "The Prevalence and Correlates of Multipartnered Fertility Among Urban U.S. Parents." *Journal of Marriage and Family* 68:718–32.

DeKlyen, M., J. Brooks-Gunn, S. McLanahan, and J. Knab. 2006. "The Mental Health of Married, Cohabiting, and Non-Coresident Parents With Infants." *American Journal of Public Health* 96:1836–41

Garfinkel, I. 1996. "Economic Security for Children: From Means Testing and Bifurcation to Universality." Pp. 33–84 in *Social Policies for Children,* edited by I. Garfinkel, J.L. Hochschild, and S.S. McLanahan. Washington, DC: Brookings Institution Press.

———. 2001. "Assuring Child Support in the New World of Welfare." Pp. 442–60 in *The New World of Welfare,* edited by R. Blank and R. Haskins. Washington, DC: Brookings Institution Press.

Garfinkel, I., D. Glei, and S.S. McLanahan. 2002. "Assortative Mating Among Unmarried Parents: Implications for Ability to Pay Child Support." *Journal of Population Economics* 15:417–32.

Garfinkel I., S.S. McLanahan, and T.L. Hanson. 1998. "A Patchwork Portrait of Nonresident Fathers." Pp 31–60 in *Fathers Under Fire,* edited by I. Garfinkel, S.S. McLanahan, D.R. Meyer, and J.A. Seltzer. New York: Russell Sage Foundation.

Garfinkel, I. and D. Oellerich. 1989. "Noncustodial Fathers' Ability to Pay Child Support." *Demography* 26:219–33.

Hanson, T.L., S.S. McLanahan, and E. Thomson. 1996. "Double Jeopardy: Parental Conflict and Stepfamily Outcomes for Children." *Journal of Marriage and the Family* 58:141–54.

Kahn, A.J. and S.B. Kamerman. 1983. *Income Transfers for Families With Children: An Eight-Country Study*. Philadelphia: Temple University Press.

Lerman, R. and E. Sorensen. 2001. "Child Support: Interactions Between Private and Public Transfers." NBER Working Paper No. W8199. National Bureau of Economic Research, Cambridge, MA. Available online at http://ssrn.com/abstract=265294.

Little, R.J.A. and D.B. Rubin. 2002. *Statistical Analysis With Missing Data.* 2nd ed. New York: John Wiley.

Meyer, D., M. Cancian, and S. Cook. 2005. "Multiple-Partner Fertility: Incidence and Implications for Child Support Policy." Discussion Paper 1300-05. Institute for Research on Poverty, University of Wisconsin.

Miller, C., I. Garfinkel, and S. McLanahan. 1997. "Child Support in the U.S.: Can Fathers Afford to Pay More?" *Journal of Income and Wealth* 43:261–81.

Mincy, R. 2002. "Who Should Marry Whom? The Incidence of Multiple-Partner Fertility Among New Unmarried Parents." Working Paper 02-03-FF. Center for Research on Child Wellbeing, Princeton University.

Mincy, R., J. Hill, and M. Sinkewicz. Forthcoming. "Marriage: Cause or Mere Indicator of Future Earnings Growth?" *Journal of Policy Analysis and Management*.

Morgan, L.W. 1996. *Child Support Guidelines: Interpretation and Application*. New York: Aspen Law & Business.

Nepomnyaschy, L. 2003. "The Effects of Child Support Enforcement on the Lives of Fragile Families." Doctoral dissertation. School of Social Work, Columbia University.

Oellerich, D.T., I. Garfinkel, and P.K. Robins. 1991. "Private Child Support: Current and Potential Impacts." *Journal of Sociology and Social Welfare* 18(1):3–23.

Pirog, M.A., M.E. Klotz, and K.V. Byers. 1997. "Interstate Comparisons of Child Support Awards Using State Guidelines." *Family Relations* 47:289–95.

Reichman, N.E., J.O. Teitler, I. Garfinkel, and S.S. McLanahan. 2001. "Fragile Families Sample and Design." *Children and Youth Services Review* 23:303–26.

Rich, L.M. 2001. "Regular and Irregular Earnings of Unwed Fathers: Implications for Child Support Practices." *Children and Youth Services Review* 23:353–76.

Royston, P. 2004. "Multiple Imputation of Missing Values." *The Stata Journal* 4:227–41.

Rubin, D.B. 1987. *Multiple Imputation for Non-response in Surveys*. New York: John Wiley and Sons.

Schafer, J.L. 1997. *Analysis of Incomplete Multivariate Data*. London: Chapman and Hall.

Schiller, B.R. 1984. *The Economics of Poverty and Discrimination*. Englewood Cliffs, NJ: Prentice-Hall, Inc.

Sinkewicz, M. 2006. "The Mental Health of Men: Profile and Life Trajectories of Urban American Fathers." Doctoral dissertation. School of Social Work, Columbia University.

Smith, H.L., C.T. Gager, and S.P. Morgan. 1998. "Identifying Underlying Dimensions in Spouses Evaluation of Fairness in the Division of Household Labor." *Social Science Research* 27: 305–27.

Sorensen, E. 1997. "A National Profile of Nonresident Fathers and Their Ability to Pay Child Support." *Journal of Marriage and the Family* 59:785–97.

Tennessee Department of Human Services. 2006. "Child Support Guidelines." Rules of Child Support Services Division. Chapter 1240-2-4.

U.S. Department of Health and Human Services, Administration for Children and Families. 2002. "Table 3. Program Trends for Fiscal Years 1996, 1999, and FY 2000." Available online at http://www.acf.hhs.gov/programs/cse/pubs/2002/reports/datareport/table_3.html.

van Buuren, S., H. Boshuizen, and D. Knook. 1999. "Multiple Imputation of Missing Blood Pressure Covariates in Survival Analysis." *Statistics in Medicine* 18:681–94.

Wisconsin Department of Workforce Development. 2004. Percentage of Income Standard Child Support Guidelines. Available online at http://www.co.portage.wi.us/Clerk%20Of%20Courts/Forms/Divorce%20With%20Children/Child%20Support%20Guidelines.pdf.