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Falling Further Behind? Child Support Arrears and Fathers' Labor Force Participation

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Abstract

This study examines how child support arrears affect fathers' labor force participation. It relies on longitudinal data from the Fragile Families and Child Well-Being Study. Findings from analyses of these data suggest that child support arrears result in declines in average weeks worked in the formal labor market in subsequent time periods. These findings are driven by the behaviors of fathers who had relatively high amounts of arrears and no income in the previous year and are mostly robust to tests for selection into no work or low levels of work by fathers. Findings also suggest that arrears obligations that are low relative to income result in increases in the probability that fathers engage in any formal work. Arrears are not statistically significantly related to informal labor force participation. This study highlights both intended and unintended consequences of the growth in arrears under current child support enforcement policies.

In recent years, the accumulation of arrears in the nation's child support enforcement (CSE) system has received increased attention. From the inception of the Office of Child Support Enforcement (OCSE) in 1975 to 2010, arrears, defined as unpaid child support owed to custodial parents, grew to over \$110 billion. And although in 2010 the OCSE collected and distributed approximately \$7 billion of these arrears, 11.3 million child support cases still had arrears due (OCSE, 2011). In perhaps the most comprehensive review of child support arrears, Elaine Sorensen, Lilian Sousa, and Simon Schaner (2007) examine arrears in nine large states. They find that the growth of arrears is driven largely by three factors: the accumulation of interest on outstanding arrears, nonpayment on existing orders by obligors with little or no income, and low payment rates on existing arrears. They also find that in each of the nine study states, approximately 10 percent of obligors owe over half of the arrears, many of whom have little or no reported income. Finally, in regards to the ultimate collectability of arrears, simulations run by the authors suggest that only 40 percent of current arrears will be collected in the next 10 years, mostly due to the accrual of arrears by noncustodial fathers with little ability to pay (Sorensen, Sousa, and Schaner 2007).

Sorensen, Souza, and Schaner (2007) suggest that large child support arrears are damaging for many reasons: they represent losses to custodial families who could benefit from child support, they involve a loss of funds owed to the government, and they portray the CSE system as ineffective. However, the authors neglect to mention another major possible consequence of arrears: their impact on the labor force participation (LFP) of noncustodial obligors. In the last 20 years of the twentieth century, there was a secular decline in male LFP that was particularly pronounced among low-income men, who tend to be young, less-educated men of color. This is also the group responsible for a disproportionate share of the arrears that accumulated in the CSE system during the same period. For example, between

1979 and 2000, the labor force participation rate of 16–24 year old men with a high school diploma or less and who were not enrolled in any post-secondary education continued to decline even though the US economy experienced its two longest periods of economic expansion (1982 through 1990 and 1992 through 2000) during this time. Declines were especially pronounced among black men. Employment population ratios also declined during this period, and particularly for these groups (Holzer, Offner, and Sorenson 2005). An inverse relationship between the accumulation of arrears and the LFP of this increasingly disadvantaged group would be problematic because it would reinforce an already negative employment trend for this group. Furthermore, reductions in LFP would compound the accumulation of arrears, making it less likely that child support debt will ever be resolved.

Though previous studies find little evidence that child support obligations reduce employment among these populations (Freedman and Waldfogel 1998; Holzer et al. 2005), no study yet explores the consequences of arrears for fathers' LFP. Thus, this article examines the extent to which child support arrears affect noncustodial fathers' formal and informal LFP. The study relies upon data from the Fragile Families and Child Wellbeing Study, a longitudinal birth cohort study, in which young, less-educated black and Latino men are oversampled (Reichman, Teitler, Garfinkel, and McLanahan 2001).

Child Support Enforcement Processes and the Accumulation of Arrears

Arrears occur at the final stages of an orderly process through which the government assigns and collects financial support for children from their nonresident parents. This process would not be exceptional if not for the overrepresentation in the child support system of low-income men, who are responsible for staggering amounts of accumulated arrears. For couples who divorce or legally separate, this process usually begins with a child support order. The order is one of the principle outcomes of the court proceedings, and establishes a legal obligation for the noncustodial parent (hereafter NCP), usually the father, to provide financial support for the child or children until the age of maturity. To establish the right amount of child support, the courts require information about the father's (and in some cases also the mother's) income. If the father refuses to provide this information voluntarily, the mother or her attorney can obtain this information via subpoena (Roberts 1994).

In order to set child support order, federal law requires states to use guidelines that are based upon estimates of the cost of child rearing. Although states may choose among three different guideline formulas, each requires low-income NCPs to pay a higher portion of their income in child support than middle- and high-income NCPs (Sorensen, 1999; Huang, Mincy, and Garfinkel 2005).

To limit costs to low-income fathers, most states make adjustments to their child support guidelines at the lower end of the distribution of NCP income. However, these adjustments must balance the NCP's ability to pay against the needs of the child. Some states achieve this balance by establishing a minimum order below which child support orders do not fall, whatever the NCP's income. This approach may yet result in a child support order that exceeds the father's ability to pay, which increases defaults and causes arrears (Sorensen 1999; Pearson 2004; Primus 2006). Other states establish a self-support reserve which is proportional to the poverty line for a single person. If the difference between the self-support reserve and the unadjusted guideline amount is positive, the child support order is set proportional to that difference. Otherwise, the child support order is set to \$0 or to a very low value (e.g., \$25). While this approach avoids a child support order that would impoverish NCPs, it is likely to provide an inadequate standard of living for the child, impose a heavy burden on the custodial parent, or require the custodial parent to utilize public benefits such as Temporary Assistance for Needy Families (TANF) or the

Supplemental Nutrition Assistance Program. In either case, once the child support order is established, the NCP is directed to pay the required amount usually in monthly or bi-weekly installments. Thus, a child support order is established first, and arrears do not accrue unless the NCP fails to pay the required amount afterwards.

In most cases, the NCP's employer is directed to deduct the required amount from the NCP's paycheck and forward it directly to the OCSE. This procedure, called automatic wage withholding, has been in place since 1984 (US House of Representatives 2008) and is used to collect child support on behalf of children who receive public assistance and custodial parents who request assistance from a CSE agency in collecting their child support. Thus, defaults on child support orders are rare for stably employed NCPs (Bartfeld and Meyer 2003). Even if stably employed NCPs experience layoffs, child support payments are automatically deducted from unemployment insurance (UI) benefits (US House of Representatives 2008), although a lag may occur between job separations and the receipt of UI benefits.

On the other hand, self-employed NCPs or NCPs who work less than full time and full year (hereafter, underemployed) can experience repeated defaults on their child support orders, resulting in arrears. If they do not resolve these arrears quickly, CSE agencies add an amount intended to pay down arrears to the regular installment payments. Together, installment payments on the NCP's regular child support order and arrears can total up to 65 percent of the NCP's income (US House of Representatives 2008). Furthermore, most states assess penalties and interest on arrears, so once self-employed or underemployed NCPs begin to fall behind, the amount owed can accumulate rapidly. Thus, one reason that low-income men account for a disproportionate share of arrears is that they also tend to be underemployed (Lerman 2010; Rich 2001).

The circumstances under which low-income men tend to become nonresident fathers also lead to large arrears. A low-income man usually becomes a nonresident father after he discontinues his relationship with his unmarried partner. Alternatively, he may marry and have a child or children, but his marriage may dissolve without a divorce or formal separation. Although both mothers and fathers in these circumstances may initially prefer informal support to a formal child support order, over time the fathers' informal contributions usually decline. When this occurs, the mother will likely eventually petition the courts for a child support order, or a child support agency may do so after the mother applies for public benefits (Folbre and England 2002; Nepomnyaschy and Garfinkel 2007, 2010). Under these circumstances the courts may decide that the father has a legal obligation to support his child or children even before the amount of the child support order is determined. After the amount is determined, the court uses it to establish a current order and a retroactive order to cover the period back to the birth of the child, the date that the married (or cohabiting) parents separated, or the date of the petition for paternity (or child support) was brought before the court. Further, the court may add court, birthing, and administrative costs (for genetic testing and other services related to the child support case) to the child support order. Since the court proceedings that establish the initial child support and retroactive orders in such cases may not conclude until the child is several years old, the NCP may already have substantial child support debt when he begins paying child support. If the NCP is unable to satisfy this full amount by the first installment, arrears begin to accumulate.

Finally, courts must have information about the NCP's income to establish a child support order, but this information is much less likely to be available when the child support order is not the result of a divorce or separation proceeding. Unmarried fathers and fathers who end their marital unions without a divorce or legal separation often do not respond to letters from

CSE agencies or court summonses to establish legal paternity or child support (Johnson, Levine, and Dolittle 1999). When the NCP simply does not respond, the courts issue a default child support order, and many state laws require the court or CSE agency to set the order assuming that the NCP is capable of earning what a worker would earn if he earned the minimum wage and worked full-time and full-year.

However, this may well exceed the income of NCPs who are unemployed, underemployed, or out of the labor force despite wanting to work. Segments of the population with such limited work income have grown substantially since the recession beginning in December 2007, especially among black, Hispanic, young adult, and less educated workers (Sum and Khatiwada 2010). When the NCP does respond, but is currently unemployed or underemployed, many state laws direct the courts or CSE agencies to set the order assuming the NCP is capable of earning what he earned in his last full-time and full-year job. NCPs may subsequently petition the court for a downward modification of orders that exceed their ability to pay, but such petitions usually require an attorney, take months to resolve, and require NCPs to miss days of work in order to attend modification hearings. This discourages many NCPs from applying for downward modifications. Those who do apply pay what they can while waiting for the court to rule on their petition, but arrears accrue all the while.

Theoretical and Empirical Evidence

Microeconomic theory provides evidence regarding the potential relationship between arrears and fathers' LFP. Using the theory of consumer choice, the potential consequences of arrears for labor supply can be derived by treating arrears as an addition to the tax that the CSE system imposes on wages. The theory assumes that the consumer spends all his or her income on leisure and other goods. The consumer has a fixed amount of time, and every unit of time spent working increases his or her income, but leaves less time for leisure. Wages, therefore, represent the opportunity cost, or the price, of leisure. Child support operates like a tax on wages for those NCPs who, like most, pay their child support through automatic wage withholding. Besides the amount withheld from the paycheck to meet the current child support order, an additional amount is withheld to pay off arrears. Then, NCPs with arrears face higher taxes on wages than NCPs without arrears. This means that the cost of leisure is lower for the former. If two NCPs are otherwise identical, the lower cost of leisure induces the NCP with arrears to buy fewer goods and more leisure. As a result of this substitution effect, the NCP with arrears also spends less time working than the NCP without arrears.

At the same time, the NCP with arrears perceives himself to be poorer than the NCP without arrears, because each unit of time spent working contributes less to income. Because he perceives himself to be poorer, the NCP with arrears consumes fewer goods and less leisure than the NCP without arrears, which implies that the former spends more time working than the latter. This is the income effect. Whether the NCP with arrears actually devotes more time to work than the NCP without arrears depends upon whether the substitution effect or the income effect dominates. In other words, how NCPs with arrears will act is theoretically ambiguous.

Including informal work makes the analysis more complex and its results more ambiguous, because the NCP pays taxes only on his formal earnings. He pays taxes on informal earnings only if these earnings are discovered by authorities and taxed as well, or if he voluntarily reports them. As a result, there are two ways in which the NCP can adjust if the usual tax on wages arising from child support becomes higher because he also owes arrears. First, he can alter his consumption bundle by altering the mix of goods and leisure, as before. Second, he can achieve a given level of leisure by altering the mix of time spent in formal and informal

work, which involves some risk-taking. Frank Cowell (1985) shows that, when taking into account decisions about informal work, changes in taxes, which could represent payments on current child support or arrears, have an ambiguous effect unless restrictive assumptions are made about the way consumers derive utility from disposable income and leisure. And even with these assumptions, how changes in taxes affect labor supply depends upon the relative magnitude of the substitution and income effects as before, as well as additional assumptions about risk aversion.

There is reason to believe that arrears may affect low-income NCPs more than other NCPs. For one, as described above, fathers who owe past child support may actually face a higher marginal tax rate, because they can be subject to additional wage withholding to help pay down the total amount of arrears. Moreover, for fathers with arrears more than 12 weeks old, the total percent of wages that may be withheld to cover a child support order and arrears (65 percent) is higher than the upper limit for those without arrears (60 percent). Additionally, arrears may affect LFP because low-income men have higher labor supply elasticity than other men (Juhn, Murphy, and Tophel 1991; Grogger 1997).

No previous study directly examines the possible consequences of child support arrears on either formal or informal LFP. A few studies, however, examine whether variation in state- and city-level CSE affects LFP for men. For example, Richard B. Freeman and Jane Waldfogel (1998) find little evidence for an association between state-level CSE policies and male formal labor supply. Similarly, Lauren M. Rich, Irwin Garfinkel and Qin Gao (2007) find no relationship between a city-level measure of CSE strictness and fathers' formal employment. However, Harry Holzer, Paul Offner, and Elaine Sorensen (2005) show that a state-level index of CSE activities is marginally associated ($p < .10$) with labor supply among black men between the ages of 25 and 34. Additionally, making the assumption that the exogenous debt associated with Medicaid birthing costs to unmarried fathers (referred to as lying-in costs) are randomly assigned (and thus might provide an unbiased estimate of the impact of child support debt), Maria Cancian, Carolyn J. Heinrich, and Yiyoon Chung (2009) find that such costs are associated with decreases in both formal earnings and child support payments.

Rich, Garfinkel, and Gao (2007) is the only previous quantitative study to examine how the CSE system affects informal LFP. They find that stricter city-level CSE policies are associated with fewer hours of informal work by fathers. Limited contrary evidence is available from qualitative work, however. Earl Johnson, Ann Levine, and Fred Doolittle (1999) find that it is common for fathers to stop working entirely in order to avoid large withholdings for child support orders or arrears in the face of what they perceive as an unfair system. Results from the same study provide support for the notion that child support obligors may turn to informal work, drug dealing, or other illegal activity to meet their child support obligations and to ensure that their children are receiving the support they deserve (Johnson, Levine, and Doolittle 1999). In addition, summarizing the findings of a number of other qualitative studies, Maureen R. Waller and Robert Plotnick (2001) indicate that some fathers report quitting jobs when they discover the amount to be garnished from their wages, and that others shift work into the informal sector to make up for lost wages.

In summary, the results of theory and research to date provide a mixed view of the possible associations between arrears and LFP, with some indication that fathers, facing a tax imposed by the arrears they owe, might reduce both their formal and informal LFP. Because no previous study specifically examines arrears, the authors treat the relationship between arrears and LFP empirically.

There are a few notable characteristics of this study that distinguish it from previous research and which should bolster its ability to detect an association between arrears and LFP should one exist. For one, arrears may be more likely to impact LFP than other child support obligations. As discussed above, arrears may have greater implications for LFP than child support obligations, particularly since the 1996 welfare reform law (U.S. Congress 1996), which increased penalties for arrears. For instance, current law requires states to impose a number of sanctions on NCPs with arrears. Among these, states may: withhold tax refunds and unemployment benefits; impose liens against real estate or personal property; withhold, suspend, or restrict drivers' professional and occupational licenses; and, deny passports when arrears exceed \$2,500 (US House of Representatives 2008).

In addition, the FFCWS provides information on a group of fathers that would likely be particularly susceptible to the implications of arrears, namely an oversample of young, unmarried, and low-income fathers (Reichman, Teitler, Garfinkel, and McLanahan 2001). Although previous research (Rich, Garfinkel, and Gao 2007) uses the FFCWS, this is the first study to examine the arrears burdens of individual fathers. This is important for two reasons. First, it allows this study to make use of the individual variation in both arrears and LFP among fathers who might be overlooked in examinations of aggregated city- or state-level policy. Second, the potential consequences of arrears can be examined by calculating the amount owed in arrears relative to fathers' income. This is an important step, which the authors believe has been neglected by previous research.

Data

Data for this study come from the FFCWS (Reichman, Teitler, Garfinkel, and McLanahan 2001), a longitudinal sample of 4,892 infants and their parents, born in 20 United States cities between the spring of 1998 and the fall of 2000. The FFCWS included approximately 3,675 non-marital births that are representative of such births in American cities with populations greater than 200,000. This study uses data from the first four waves of the FFCWS, beginning at childbirth and continuing with follow-up surveys conducted when children were 1, 3, and 5 years old.

At each survey point, the FFCWS attempts to collect direct data from each of the 4,892 father and mother pairs. Fathers respond to the survey at a lower rate than mothers at each wave, but because the authors used multiple imputation of missing data (see below) to impute data for both mothers and fathers, none of the sample is lost to study attrition or to item non-response. However, after completing the imputation process, the authors drop the 90 fathers from the sample who were reported as deceased at any of the survey waves. The sample thus comprises all living fathers in the dataset, including both nonmarried fathers, some of whom are in arrears in a given wave, and married fathers, who do not pay child support or have arrears. Consistent with previous research (e.g. Freeman and Waldfogel 1998), the authors retain the group of married fathers in part to provide a valid comparison group for those fathers with arrears. The choice to include all fathers is further motivated by the fact that between survey waves some fathers transition out of marriage into other relationship statuses, making it possible for them to have child support orders (and thus accumulate arrears). Nearly 2 percent of the fathers who were married at the 1-year follow-up have child support arrears by the 3-year follow-up wave.

After dropping fathers who were reported as deceased, an analytic sample of 4,802 fathers is left. In the analyses, the authors pool observations on fathers' LFP at the three- and 5-year follow-ups, resulting in a final sample of 9,604 father observations.

Measures

Outcome variables—The authors examined fathers' LFP in the 3-year and 5-year follow-up waves of the FFCWS. At each wave, the survey asked fathers, "In the last 12 months, how many weeks did you spend at your regular jobs?" and, "When you were working at these jobs, about how many hours per week did you work?" Using responses to these two variables, the authors created continuous variables indexing the number of weeks fathers worked in the past 12 months, and average hours per week typically worked in the past 12 months. They recoded each of these variables to 0 if a father reports no regular earnings in the past 12 months, or if he reports never having worked since his child was born or never having worked 2 consecutive weeks. Last, the authors created a dummy variable indicating whether a father engaged in any formal work in the past 12 months, coded as 1 if a father worked any weeks in the past 12 months, worked greater than 0 average hours per week, or had any earnings from formal employment in the past 12 months. Table 1 contains summary information on all of the main independent and dependent variables.

To calculate informal LFP, the authors also used fathers' reports at the 3-year and 5-year follow-up waves. An advantage of the FFCWS is the particularly rich information it includes on fathers' participation in the informal market. At the 3-year follow-up, the survey asked, "During the last 12 months did you: Work off the books or under the table? Work in your own business? Sell or deliver drugs, engage in prostitution, or do other kinds of hustles? Do anything else to earn money?" If fathers indicate that they engaged in any of these types of informal LFP, the survey also asked about how many weeks in the past 12 months they performed the activity, and about how many hours per week they engaged in the activity in the past 12 months. In the final wave, the survey did not ask about their participation in off-the-book or under-the-table work. This change in the survey is likely responsible for the decrease in overall participation in the informal labor market between the 3-year and 5-year follow-ups reported in Table 1. To account for this change between survey waves, the authors conducted sensitivity tests by excluding reports of off the book and under-the-table work from all waves. Models using this operationalization of informal LFP (available upon request) do not differ from those reported in the results below.

Based on the responses to these questions, the authors created three variables to index informal LFP, which mirror those variables used to represent formal LFP. The first is a dichotomous variable coded as 1 if fathers report participating in any of these activities and 0 otherwise. The second is a variable measuring the average number of weeks fathers spent working in all types of informal LFP in the past 12 months. The last variable indicates the average number of hours per week fathers spent in the past 12 months in all types of informal LFP.

Treatment variables—The authors specify two child support arrears variables. Because questions on arrears are not asked of fathers at each survey point, both measures rely primarily on mothers' reports. Mothers did not report on child support orders or arrears if they are married to the focal child's father, although mothers cohabiting with fathers report whether a child support order is established and whether a father owes arrears. At the 1-year, 3-year, and 5-year follow-ups, the survey asked mothers, "Does [the father of the focal child] have any arrears that he is supposed to pay to you, or does he owe anything to the welfare department for unpaid monthly support or for reimbursing birthing costs?" If mothers responded "yes," the survey further asked them to provide the dollar amount of the arrears.

A mother's report of a father's child support arrears is almost certainly an imperfect proxy. At issue is mothers' ability to accurately report the amount of arrears owed by fathers. For example, it may be the case that in states where child support payments due to TANF

recipients are intercepted and not passed through families, mothers may wrongly believe that fathers are not providing any support. However, this possibility may have minimal implications for reporting, as federal law (Section 454(5) of the Social Security Act) and regulation (Federal Regulation 45 CFR 302.54) require that states notify mothers at least quarterly of the amount of support provided by fathers (John Langrock, personal communication, October 8, 2010). Conversely, mothers may undercount the amount of arrears, because they may not have knowledge of arrears that fathers owed for children with different mothers. Although the FFCWS collects this information from mothers, this study does not include it because of its likely limited accuracy and because not all of the survey waves included it.

Nonetheless, the overall credibility of mothers' reports of arrears is strengthened by several factors. First and foremost, mothers' reports from the bi-annual Child Support Supplement of the Current Population Survey (CPS) serve as the basis for national estimates of child support compliance. Thus, while the FFCWS data on child support arrears may be biased, any bias attending to mothers' reports is already characteristic of the major source of information on child support receipt. Second, relying on mothers' reports of arrears may actually minimize some bias in the treatment variables, as mothers might be less likely than fathers to misrepresent the presence or dollar amount of arrears. Last, as a basic check on the validity of this measure, the authors regressed a measure of the dollar amount of arrears reported by mothers on the measure of the city-level strictness of child support. As expected, the measure is statistically significantly and positively associated with city-level child support strictness.

Beginning with mothers' responses to the two questions on child support arrears, the authors calculated two variables to index fathers' arrears. First, a simple dichotomous variable indicates whether the focal child's father owes arrears on the child support he was supposed to pay the mother or whether he owes the welfare department for unpaid support or birthing costs. Hereafter, this article refers to both types of unpaid support as "arrears" or "child support arrears." Second, the authors include a variable that measures the ratio of the dollar amount of child support arrears at each survey point to fathers' reports of their income in the 12 months before the survey (both in 2010 constant dollars). Preferring to rely on actual data when possible, in rare instances where mothers report that fathers of focal children are in arrears but nevertheless fail to report the dollar amount the fathers owe, the authors substitute fathers' reports of the dollar amount of arrears if available: the study recoded five cases in this way at the 1-year follow-up, and three cases at the 3-year follow-up.

Including the second variable rather than one measuring the simple dollar amount of arrears owed by fathers is important for two reasons. First and foremost, child support award amounts, and thus arrearages, may exceed the ability of such fathers to pay, so it may be the amount of arrears relative to income that matters for fathers' LFP. For example, fathers whose earnings are high may be able to better absorb the additional cost of arrears, whereas fathers with low earnings may not. Thus, as expected, early models (not shown) that included only a measure of the dollar amount of arrears as a treatment variable find no association with LFP. Indeed, although no previous study examines whether the ratio of a child support order amount to income is associated with LFP, research demonstrates a link between order-to-income ratio and child support compliance (Meyer 1999; Bartfield and Meyer 2003; Huang, Mincy, and Garfinkel 2005). Whereas ideally this study would examine the marginal tax imposed by arrears, in the absence of such data, the ratio of arrears-to-income indexes a similar construct. Second, a review of pertinent research suggests that the overall accumulation of arrears is driven by a group of low-income fathers with particularly large amounts of arrearages, making the use of a ratio of arrears-to-income directly relevant to policy.

The authors calculate a ratio of the amount a father owed in arrears in each wave to his report of the dollar amount of his formal income sources from the preceding 12 months. Thus, the measure of income in the denominator includes earnings from all formal employment, income from cash welfare such as the TANF program, the monetary value of food stamps, and the value of other assistance such as unemployment insurance or worker's compensation.

To ensure a valid arrears ratio value for each father, the authors recode the denominator of this ratio to a value of "1" if fathers report no income in the previous year. Further, to allow for a non-linear association between the arrears ratio variable and fathers' LFP and lacking guidance from previous literature, the authors recoded the ratio variable into five categories, both to contextualize the variable and to capture the policy environment relevant to child support arrears. First, all fathers with no arrears comprise one category, the omitted comparison group in all analyses. There are four additional groups as follows: fathers with arrears greater than 0, but less than or equal to 50 percent of their income (hereafter referred to as a relatively low arrears burden); fathers with arrears greater than 50 percent of their income, but less than or equal to 100 percent of their income (hereafter a moderate arrears burden); fathers with arrears greater than 100 percent of their income, who reported no income from any source in the past 12 months (for whom we assigned an income of \$1 to calculate a valid ratio) (hereafter a high arrears burden with no income); and, fathers with arrears greater than 100 percent of their income who reported some income in the past 12 months (hereafter a high arrears burden with some income). Among fathers with arrears greater than 100 percent of their income, the authors distinguish between those with no income and those with any income for two reasons. First, as noted above, previous research (Sorensen, Sousa, and Schaner 2007) demonstrates that the vast amount of arrears that accumulated in the CSE system accrue to fathers with low or no income, making the group of fathers with high arrears and no incomes in the FFCWS dataset of direct importance to policy. Second, splitting this group of fathers in this way acknowledges that there may substantively different processes contributing to high arrears burdens.

Although the study retains these categories of the arrears-to-income ratio as the preferred operationalization, the authors explored whether the results reported below are sensitive to alternative choices about operationalization. Supplementary analyses (available upon request), which use various different cut points, or use quartiles to establish categories, arrived at results that are almost identical in meaning and significance.

Covariates—The authors used a large number of covariates to control for omitted and confounding effects. Based on the temporal ordering of the modeling approach, described below, controls are measured at baseline or the 1-year follow-up. Table 2 provides summary information for all model covariates.

First, the analyses include a set of covariates typically controlled for in standard earnings equations, such as fathers' self-report of age in years and age in years squared,¹ fathers' race and ethnic group (non-Hispanic white, non-Hispanic black, Hispanic, and other), fathers' education in four categories (less than high school, high school degree, some college, college degree, or higher), whether the father was born in the US, and whether the father received any additional job-related training.

The authors also control for other characteristics of fathers that might plausibly account for a relationship between arrears and the study's dependent variables. These include some time-

¹Although previous studies (Card 1999) show that the inclusion of a cubic age term helps to correct for under-prediction of earnings in young workers, cubic terms are not significant in any models and hence dropped from the analyses.

invariant characteristics such as intelligence (measured by a subset of questions from the Wechsler Adult Intelligence Scale–Revised [WAIS-R]), the mental health of the father’s father and father’s mother (measured at the 3-year follow-up by a scale from the National Comorbidity Survey), whether the father suggested an abortion of the focal child, and whether the father’s name is on the birth certificate of the child. In addition, this study controls for time-varying characteristics of fathers, including variables based on reports by both mothers and fathers regarding whether the father was incarcerated at a given survey point,² fathers’ self-reports of their total number of children, and the frequency they attended religious services.

The set of time-varying controls also includes a measure of fathers’ depression and a variable indicating whether fathers have children with other mothers (multiple-partner fertility, MPF). The first and second waves measured fathers’ depression differently. At childbirth, the FFCWS measures depression according to a shortened version of the Center for Epidemiological Studies Depression scale (CES-D) (Radloff 1977). At the 1-year follow-up, the survey measures fathers’ depression according to the Composite International Diagnostic Interview–Short Form (CIDI-SF) (Kessler, Andrews, Mroczek, Ustun, and Wittchen 1998). In order to ensure that these two measures are comparable, the authors create standardized depression variables (mean = 0, standard deviation = 1) at each time point. The FFCWS only measures MPF at the 1-year and 3-year follow-ups. Despite the fact that this variable is contemporaneous to the treatment variable, following previous research (Mincy, Hill, and Sinkewicz 2009), this study includes this variable in both of the overall temporal models rather than risk omitted variable bias as a consequence of excluding it.

Three variables measured at baseline aim to index the overall economic and policy climate in each of the 20 survey cities. The first of these is the citywide unemployment rate. The second is a variable constructed by Lenna Nepomnyaschy and Irwin Garfinkel (2010) assessing the strictness of the CSE in each city. Using census data, the variable is a “ratio of the proportion of mothers receiving child support to the predicted probability of receiving child support in a given city...adjusted for a number of individual- and city- level characteristics” (350) that would likely be associated with receipt of child support. The last variable measures the year that a child was born to assess any year-specific factors that might be related to both child support compliance and LFP.

Multiple Imputation and Missing Data

The authors use multiple imputation (MI) to deal with missing data (Rubin 1987; Schafer 1997). With MI, values for missing data were imputed based on multivariate prediction algorithms. These algorithms were used to create ten complete data sets, each of which is based on different prediction equations and thus incorporates sampling variability for every variable with missing data. Data analysis on multiply-imputed data combines information from each imputed dataset and arrives at model estimates, which account for variability amongst the different datasets. The MI imputation procedure for this study used the “mi” suite of commands available in the computer program, STATA 12.

MI is advantageous in that it allows the authors to make use of the full sample of fathers and mothers in the FFCWS, but also because of assumptions about the nature of missing survey data. The typical approach to dealing with missing data is to drop observations that are missing data for any variable included in modeling. This approach (called complete case

²Although the FFCWS includes this composite variable of current incarceration, there is no data available regarding the amount of time fathers were incarcerated. Thus, there was no reasonable way to determine whether fathers’ incarceration precluded them from participating in formal or informal labor markets. As a consequence, the authors chose to include all fathers independent of their incarceration histories.

analysis) involves the rather strict assumption that data are missing completely at random (MCAR) (Little and Rubin 2002). According to the MCAR assumption, each observation has the same probability of being missing (Gelman and Hill 2007). But missing data conditioned on any other variable violate this assumption: for example, it is often the case that low-income respondents are less likely than others to respond. Instead, MI assumes that data are missing at random (MAR), a more likely assumption which suggests that data are missing conditioned only on available information (Gelman and Hill 2007).

In general, the analysis imputes data at the highest rate for those variables based on fathers' reports, in part because not all fathers participated in the baseline survey. Thus fathers are also more likely than mothers to be missing at subsequent survey waves. For instance, the study imputes data on formal and informal LFP for about 35 percent of fathers at the 3-year and 5-year follow-ups, but data on arrears (based on mothers' reports) were missing for only approximately 15 percent of cases at the 1-year and 3-year follow-ups.

Although no objective post hoc test of the multiple imputation procedure is possible, the study follows the advice of Kobi Abayomi, Andrew Gelman, and Marc Levy (2008), who recommend assessing the differences between the imputed and non-imputed distributions of each variable to flag cases in which there are extreme departures. For all variables included in this study's analyses, there are no such extreme departures, and all imputed distributions matched with the authors' a priori expectations.

Analytic Strategy

The authors took a number of steps to address possible limitations of the data and analyses, which might otherwise limit the causal interpretation of the study's findings. First, reverse causality is of major concern to the analyses: a cross-sectional model might suggest that arrears decrease LFP when in fact decreases in LFP may cause increases in fathers' unpaid child support. To address this concern, the authors used the longitudinal data of the FFCWS data to estimate multivariate logistic and ordinary least squares regressions examining lagged associations between child support arrears and fathers' labor force outcomes. Additionally, to avoid the potential bias that might accompany the inclusion of covariates that occur post-treatment (Mincy, Hill, and Sinkewicz 2009), the authors included all control variables lagged an additional survey wave³.

One approach might be to pool data and model the relationship between arrears and LFP as in equation (1):

$$LFP^{it} = \alpha + \beta^1 \text{arrears}^{it-1} + \beta^2 \mathbf{X}^{it-2} + \beta^3 \mathbf{Z}^i + \beta^4 \text{wave}^{it} + e^{it} \quad (1)$$

where *LFP* indicates any of the formal or informal LFP variables detailed above for the *i*th father at time *t* (either the 3- or 5-year follow-up), *arrears* stands for either a dichotomous variable indicating a father owes arrears at time *t-1* (the 3- or 1-year follow-up) or the series of variables indicating the ratio of arrears-to-earnings at time *t-1*, *X* is a vector of time-varying covariates pertaining to a father at time *t-2* (either the 1-year follow-up or baseline, excepting the measure of MPF), *Z* is a vector of time-invariant covariates (measured at

³To avoid omitted variable bias in our estimate of the effect of arrears on LFP, our model must include other predictors of arrears, such as depression. Panel data gives us the option of observing pre-or-post treatment depression. Suppose a father had arrears at time *t* and as a result, he had lower labor force participation at time *t+1*, but the fact that he had arrears at *t* also adversely affected his mental health at *t+1*. If we included depression at *t+1* among the regressors, it would be correlated with our treatment variable, arrears at *t+1*, and as a result our estimates of the coefficient of arrears at *t+1* would be biased. We diminish the prospects of this bias by controlling for depression (and other covariates) at *t-1*.

baseline), *wave* is a term indexing the survey wave at which LFP is measured, and *e* is a father-specific error term.

A concern with equation (1) is that results might be biased if the covariate vector, *X*, does not include all relevant confounding factors. For example, one potentially damaging unobserved factor might be a father's overall inclination or ability to work. If fathers are generally inclined not to work or toward low levels of work, this preference might account for both low levels of LFP at time *t* and the amount of child support arrears at time *t-1*. To account for this sort of selection, an alternative approach is to specify lagged dependent variable (LDV) models of the general form found in equation (2):

$$LFP^{it} = \alpha + \beta^1 \text{arrears}^{it-1} + \beta^2 \mathbf{X}^{it-2} + \beta^3 \mathbf{Z}^i + \beta^4 LFP^{t-2} + \beta^5 \text{wave}^{it} + e^{it}, \quad (2)$$

where *LFP* on the right hand side of the equation is an earlier (lagged) measure of the dependent variable, measured at time *t-2*. In general, the inclusion of an earlier measure of the dependent variable helps account for unobserved factors that might contribute to the outcome of interest. Thus, an LDV model might account for the sort of selection into little or no work described above: if fathers have an overall tendency not to work, this tendency might be present before the measurement of arrears and thus to be accounted for in the lagged term. Additionally, unlike alternate modeling strategies such as fixed-effects models, LDV models can be useful in accounting for the influence of time-variant factors such as layoffs, which occur before the study period and could plausibly account for both current LFP and arrears (Angrist and Pischke 2008).⁴

Because of its relative advantages to other models, the LDV model is the preferred analytic strategy for this study. Following direction from previous literature, analyses for equation (2) used logistic regression for models that measure LFP dichotomously and ordinary least squares (OLS) regression that measure LFP continuously (Freeman and Waldfogel 1998; Holzer, Offner, and Sorensen 2005; Rich, Garfinkel, and Gao 2007). The authors are, nonetheless, cognizant of the potential pitfalls in using OLS to estimate models examining lower-bound censored limited dependent variables, as in the case of weeks and hours worked in labor markets. However, rather than risk the distributional assumptions necessary for the specification of alternative strategies like Heckman selection and Tobit models (Winship and Mare 1992; Angrist and Pischke 2008), the authors used OLS, which can often perform as well as these other models when examining policy data (Angrist and Pischke 2008).

For models examining dichotomous measures of formal or informal LFP, the lagged dependent term represents the number of previous waves in which a father reports working up until and inclusive of time *t-2*. For models with continuous dependent variables, the lagged dependent term is an average of weeks worked or hours per week worked in formal or informal labor markets up until and inclusive of time *t-2*. For all analyses, the cluster command in STATA 12 groups standard errors by father.

Although the LDV model helps address selection into working or not working, there are still potential concerns to address. First of all, any correlation between arrears and average hours of weekly work or the number of weeks worked might actually reflect fathers' exit from (or entry into) the formal or informal labor market as a consequence of their arrears. Thus for all analyses, the study first estimated all models examining the full sample and then again

⁴Although a common method to account for selection bias, fixed-effects models rely on within-person variation to estimate causal effects (Allison 2009). Because a relatively small number of fathers change their arrears status over the study period, fixed-effects modeling is not a useful strategy in this case.

including only those fathers who engage in any formal or informal work at time t , in order to ensure that the estimates of the relationship between arrears and the weeks of work and average weekly hours worked are not biased by labor force entry or exit.

Secondly, it is possible that any prediction about arrears and fathers' LFP derived from analyses of equation (2) may still reflect selection into low levels of work or no work by fathers, independent of their previous LFP histories. As a final step, the authors undertook sensitivity analyses of the results from equation (2) by separating the sample into fathers who are firmly attached to the labor force (those working on average 35 or more hours per week and 26 or more weeks per year in the formal labor market by the time that arrears were measured) and those who are not. This step assesses whether results from equation (2) are sensitive to fathers' overall participation in the labor market. If the consequences of arrears for LFP are consistent across both marginally and firmly attached fathers, this provides evidence that estimates from equation (2) do not simply reflect selection into low levels of work, providing greater confidence in the study's estimate of the influence of arrears.

Results

Main Results

Table 3 presents the results of the LDV models. All analyses use the `mim` routine for analyzing multiply imputed data in STATA 12 (Royston, Carlin, and White 2009). The left and right panels of the table provide results for formal and informal LFP, respectively. The first row of the table presents estimates of the influence of the arrears indicator variable on the various formal and informal LFP variables along with the coefficient for the lagged LFP variable. Subsequent rows present results from models utilizing the arrears-to-income ratio variables.

The results reported in column 1 suggest that, on average, having any arrears does not change the odds that fathers engaged in any formal LFP. However, arrears are associated with a marginally statistically significant 1.813 week decrease in average weeks of work. When the sample is restricted to fathers who are working at time t , having arrears is related to a statistically significant decrease in of 2.912 weeks of work. The differences between columns 2 and 4 suggest that there may be some selection into work not captured in the results in column 1 that masks an overall average decrease in weeks of work. There is no statistically significant relationship between having arrears and the average hours of work in the full sample or among only working fathers.

The results of models predicting the relationship between the ratio of arrears-to-income and fathers' LFP are provided in the lower half of table 3. The results suggest that the dichotomous measure of arrears conceals important variation in the way that arrears may be related to fathers' formal LFP. Results reported in column 1 suggest that a low arrears burden (greater than zero, but less than or equal to half of income in the past year) is statistically significantly related to a more than 50 percent increase in the odds that fathers engage in any work. Reported in columns 2 and 3, results which base analyses on the full sample suggest that having a high arrears burden with no income in the past 12 months is associated with a statistically significant 56 percent decrease in the odds that fathers engage in any (reported) work and to large and statistically significant decreases in weeks of work (9.475) and average weekly hours of work (9.230). However, when the sample is restricted only to those working fathers as reported in columns 4 and 5, the magnitude of these coefficients is diminished. While the coefficient for weeks of work is statistically significant and large (-6.333), the coefficient attached to hours of work is no longer statistically significant, suggesting that overall decreased odds of work in part account for the results from columns 2 and 3.

Similarly, as reported in column 3, a relatively low arrears burden is related to statistically significant increases in average hours of work in the full sample, but as shown in column 5, this association is no longer statistically significant among the sample of only working fathers, suggesting that this relation is accounted for by the overall increased odds of any formal LFP for this group.

Unlike for formal LFP, the results for informal LFP (reported in columns 6–10 of Table 3) indicate no significant associations between any measure of arrears and informal LFP. The relevant results suggest large differences in the magnitude of comparable coefficients for analyses involving the full sample and the sample of fathers working informally, reflecting the large proportion of fathers who reportedly do not engage in any such informal work. In many instances, the standard errors are many times the size of the coefficients, suggesting possible imprecision in the measurement of the various aspects of informal LFP.

Sensitivity Test Results

A sensitivity test on the main analyses consists of re-estimating all LDV models first among marginally attached fathers who work part time (less than 35 hours per week) and less than half year (less than 26 weeks) and next among firmly attached fathers who work full time and more than half year on average. These analyses examine whether the study's findings are sensitive to fathers' overall participation in the labor force, and thus represent an attempt to rule out the possibility that the results from the LDV models summarized in Table 3 are a consequence of overall tendency by fathers toward no or low levels of work.

Results for the sensitivity test are displayed in table 4, which is arranged like table 3. Because in previous analyses there was no statistically significant relationship between arrears and informal LFP, the sensitivity tests focus on formal LFP only. In addition, because the majority of firmly attached fathers report working (6,215 out of 6,749), there is little variation in the dependent variable for results in column 6. Thus, logistic models are not feasible, and the authors substitute linear probability models for this column, and for models in column 1, to allow for comparison between firmly and marginally attached fathers. Logistic regression models for column 1 (not shown) arrive at the same conclusions as those reported in the table.

Results reported in columns 1, 2, and 3, upper panel, suggest that, for the fathers who are marginally attached to the formal labor force, having any arrears is not statistically significantly associated with any measure of formal labor force participation. However, results reported in column 1 suggest that fathers who are marginally attached to the labor force with relatively low arrears burdens are more likely to work and to work a statistically significantly higher number of hours per week than fathers in other burden categories (column 3). Results reported in the lower panel of column 5 suggest that, when the authors restrict the sample to marginally attached fathers who are working at time t , the coefficient attached to average hours of weekly work is close to zero and no longer statistically significantly related to the dependent variable, suggesting that the overall increased probability of work accounts for the estimated increase in hours reported in column 3. As reported in columns 1, 2, and 3, having a high arrears burden with no income is associated with a marginally statistically significant decrease in the probability of any LFP ($p < .10$), a statistically significant 6.111 week decrease in weeks of work and a marginally statistically significant decrease in average weekly hours of work. Comparable coefficients for the sample of marginally attached fathers working at time t are similar in direction, but are not statistically significant.

Among fathers firmly attached to the labor market, the ratio of arrears-to-income is not associated with the probability that fathers work, although as noted above, there is little

variation in this dependent variable for firmly attached fathers. As results reported in column 7 suggest, in the full group of fathers, arrears are associated with a marginally statistically significant decrease in weeks of work and among those working at time t , arrears are associated with a statistically significant 2.312 decrease in average weeks of work (column 9). Thus, among both marginally attached and firmly attached fathers, arrears are estimated to be related to statistically significant decreases of comparable magnitude in weeks of work in the past year.

The lower half of Table 4 indicates that there are no statistically significant relationships between arrears burden and any outcome of formal LFP among fathers who report being firmly attached to the labor force. This is true even for the dependent variable representing weeks of work among fathers working at time t , despite the statistically significant average decrease in weeks of work for this group reported in the top part of the table in column 9. Post hoc analyses suggest that the reason behind this potential discrepancy is that only a small number of fathers are firmly attached to the labor force and have moderate or high arrears burdens (either with or without income). There are fewer than 40 fathers who are firmly attached to the labor force, with high arrears burdens and any income, and fewer than 5 with high arrears burdens and reportedly no income. Thus, the small cell sizes in this portion of the table suggest this portion of the analyses is underpowered.

Together, the results from the sensitivity test suggest that selection is not entirely responsible for the findings in table 3. If indeed the results of the main analyses are biased due to an unobserved inclination by fathers to engage in less work or no work at all, the negative associations between arrears and LFP would be restricted to marginally-attached fathers. However, as noted above, there are statistically significant and negative estimated consequences on weeks of work for both firmly and marginally attached fathers. Moreover, confirming the results from column 1 of table 3 results in table 4 suggest that there is a tendency toward increased labor force participation for fathers with marginal labor force attachment and relatively low levels of arrears, but an inclination toward decreased participation for marginally attached fathers with relatively high arrears and no income.

Summary and Conclusion

This paper is the first to examine the potential connection between child support arrears and the formal and informal LFP of fathers. Using data from the FFCWS, and modeling strategies aimed at strengthening the causal interpretation of our results, LDV regressions estimate associations among two measures of fathers' child support arrears when children were 1 and 3 years old and formal and informal LFP when children were 3 and 5 years old.

Likely due to fundamental differences between this article and previous analyses, this study is also the first to find any connection between a facet of the CSE system and the formal LFP of fathers. Thus, it is not necessarily inconsistent with previous work that examines macro-level implications (Freeman and Waldfogel 1998; Holzer, Offner, and Sorensen 2005; Rich, Garfinkel, and Gao 2007). The current analysis is also the first to include an actual measure of child support arrears and to use data that measures the fathers' individual involvement with both the CSE system and LFP. In addition, the ratio variable that attempts to estimate the relative burden of arrears is an important departure from previous work.

The results of the main analyses and sensitivity tests lead to a number of specific findings. First, on average, child support arrears are estimated to result in fewer weeks of work by fathers in the formal labor market. This estimated relation exists across estimates and is strongest among working fathers, for whom arrears are estimated to result in a 2.946 week decrease in weeks worked in lagged dependent variable modeling (table 3). This relation does not appear to be driven by selection into low-levels of work or no work by fathers: in

sensitivity analyses, arrears are, on average, statistically significantly related to a decrease of 2.312 weeks of work among fathers who are firmly attached to the labor force, and to a 3.167 decrease of weeks of work among fathers who are marginally attached.

Second, the estimated consequences of child support arrears on work varies both by the relative burden of arrears to income as well as by fathers' attachment to the formal labor force. Thus, as reported in column 1 of table 3, a relatively low arrears burden is estimated to lead to a more than 50 percent increase in the odds of working compared to the odds of working for those fathers with no arrears. This relation is apparent among fathers with marginal attachment to the labor force in sensitivity tests (column 1 of table 4). Further, a relatively high arrears burden with no income is estimated to be associated with a decrease in the odds of engaging in any formal LFP (column 1 of table 3), and a decrease of more than 6 weeks of work among fathers who are employed (column 4 of table 3). To contextualize these findings, the authors note that this predicted decrease is equal to more than 14 percent of the average number of weeks of work (44.14 weeks) at the 3- and 5-year follow-ups among working fathers. Although not statistically significant at the traditional level of $p < .05$, in sensitivity tests, a similar pattern is evident among fathers with marginal attachment to the labor force.

Third, despite the fact that the study finds predicted associations between both low and high arrears burdens and average hours of work among the full sample of fathers in both tables 3 and 4, there is no statistically significant relationship between any measure of arrears burden and hours of work when samples are restricted to working fathers. This suggests that the associations between measures of arrears burden and hours of work in the full sample may reflect entry into or exit from the labor market.

Last, despite contrary findings from some qualitative research (Waller and Plotnick 2001), this study does not find an association between any measure of arrears and entry into (or exit from) work in the informal labor market, and arrears do not appear to cause a statistically significant change in the amount of time fathers spend in informal labor activity. However, the large standard errors that accompany these estimates suggest a degree of imprecision in the measurement of informal work, so the authors do not wish to overemphasize them, particularly in light of other empirical results that indicate a statistically significant association between the CSE system and informal LFP (Rich, Garfinkel, and Gao 2007).

Although only speculation is possible about the meaning of this article's findings, the authors believe that the arrears-to-income ratio variable provides important insight into how arrears influence LFP in the context of the CSE policy environment. In general, the findings suggest that it is not only the burden of arrears but also the father's ability to pay that is relevant to LFP. Thus, findings suggest that when fathers owe arrears that are low relative to their income in the past year, an income effect appears to dominate, and these fathers increase the likelihood that they work, presumably to pay off arrears with greater expediency. This finding, which is present among fathers who are marginally attached to the labor force, suggests that in this case, the system of accumulating arrears works as intended, by encouraging fathers to work to address unpaid support for children. Although this study finds no comparable result among fathers who are firmly attached to the labor force, this is not entirely unexpected given that only 8 percent of firmly attached fathers reportedly are not working at time t .

However, the estimated consequences for LFP for fathers who owe a relatively large amount of arrears are heterogeneous. Having a relatively high arrears burden with some income is not associated with formal LFP for fathers. But, having a relatively high arrears burden and no income is related to statistically significant decreases in the odds that fathers engage in

any formal work and with a significant decrease of over 6 weeks of work among working fathers. Thus, for fathers with relatively high arrears burdens, a substitution effect is estimated to dominate, as fathers are estimated to decrease formal LFP in favor of other activities while fathers with any income have no labor response.

Post hoc bivariate analyses reveal further important differences between fathers with relatively high arrears burdens and no income and those with relatively high arrears and some income. Although both groups of fathers are found to work fewer weeks and fewer hours per week on average at time t than fathers with lower arrears burdens or fathers who are not in arrears, fathers with no income at time $t-1$ are estimated to work substantially less at the following time period and to earn less money from formal employment. For example, fathers who reportedly have relatively high arrears and some income at time $t-1$ are estimated to work 27.81 weeks, and 35.59 hours per week, and to earn just over \$9,204 on average. On the other hand, fathers with relatively high arrears and no income are estimated to work only 17.57 weeks, 23.43 hours per week, and to earn \$4,649 on average.

One mechanism that might account for this difference is job-hopping: fathers take jobs in more unstable portions of the labor market in which high turnover is common (through frequent quits, layoffs, or dismissals). This might occur if fathers with high arrears who did not work in the previous time period took jobs that they quit shortly after their disposable income fell below their living expenses, because wage withholding orders (to cover current support and arrears) took effect. It is likely, in turn, that fathers who were employed in the previous time period continued employment despite possibly accumulating arrears if they were unable to meet child support obligations. Among fathers firmly attached to the labor market, the mechanism underlying the statistically significant decrease in weeks of work is less clear, as fathers across the arrears-to-income distribution in this group are found to work over 40 hours on average per week. Future research might take advantage of information on fathers' occupation as a means to unravel the heterogeneous behavioral response to arrears.

Whatever the mechanism, working fewer weeks, even among a group of marginally attached men, is likely to restrict fathers to employers with a high tolerance for employee turnover. Such employers are unlikely to provide training that leads to the accumulation of specific human capital, which in turn might lead to higher earnings. Such employers are also unlikely to offer much in the way of fringe benefits to their employees. Finally, such low levels of work likely disqualify fathers with high arrears from receiving unemployment insurance, a much-needed protection for workers who are likely to experience frequent unemployment spells.

Though the sections below address the limitations of this study more completely, an important caveat about the sensitivity analyses used in this study is in order here. Because there are no statistically significant relationships between any of the arrears burden categories and LFP in the sample of fathers who are firmly attached to the labor force, the authors cannot entirely rule out the possibility of selection into low levels of work or no work as responsible for the negative and significant relationships between a relatively high arrears burden with no income and formal LFP reported in table 3. However, confidence in the validity of the results is strengthened by the fact that fathers with relatively low levels of arrears who are marginally attached to the labor force are estimated to be more likely to engage in any formal work, which would be unexpected if there is an overall tendency toward limited or no employment for this group. Further, and more importantly, the average negative estimated effect of having any arrears is evident among fathers who are marginally attached and firmly attached to the labor force. Because of the small number of fathers who are firmly attached to the labor force and who have relatively high arrears burdens (either with or without any income), the analyses used to generate the findings in the bottom right-

hand side of table 4 are not sufficiently powered and thus not are not sensitive enough to accurately distinguish the real pattern of relationships. Further studies, which include older children, and therefore more fathers with arrears, will be instrumental in helping to definitively establish the causal relationship between arrears and LFP.

The findings have important policy implications. First, it appears that the accumulation of arrears has differing implications for fathers' LFP, dependent on the relative burden of those arrears as well as fathers' ability to pay. Results indicate that while the accumulation of relatively low levels of arrears has the desirable result of drawing marginally attached fathers into the labor force, it pushes away the group of particularly disadvantaged group of fathers who went at least 1 year without any income. The accrual of large amounts of arrears to these fathers damages their ability to provide support for children by limiting their subsequent participation in the formal labor market, contrary to the aim of the CSE system. It thus places increased burden on custodial mothers and taxpayers to provide for the children of these fathers.

These findings are consistent with the overall trends in the accumulation of arrears over time highlighted by Sorensen and, Sousa, and Schaner (2007), wherein a small group of fathers was responsible for the accumulation of the vast majority of the \$110 billion in arrears since 1975. Data on arrears at the 5-year follow-up (not used in this analysis) indicate that the rate of arrears accumulation is faster for fathers with relatively high arrears burdens but no income than for those with relatively high burdens but some income in the previous year. Indeed, the number of fathers in each category in the arrears-to-income variable as well as the average dollar amount of arrears owed by each group reportedly increases between the 3- and 5-year follow ups, and the average ratio of arrears to income reportedly increases substantially for fathers with high arrears burdens. To the extent that such increases persist and amount to behavioral changes for fathers facing increasingly large burdens, the influence of growing arrears on LFP may become more pervasive as children age.

It is important to emphasize that the findings are not entirely negative. As reported above, fathers with relatively low arrears burdens who are marginally attached to the labor force are estimated to be more likely to engage in formal work. To the extent that such behavior is the intended response to policy (fathers working more to meet their debts), there is some evidence that when arrears are low relative to income, they can be a useful policy tool to induce child support compliance. However, findings also suggest that excessive arrears burdens may be linked to exit from the formal labor force, limiting the overall ability of arrears to encourage increased work.

This study might be improved upon in several ways. First, it relies on mother's report of arrears and arrears amounts, limiting the precision of the estimates, but ideally, direct administrative information on families' participation in the CSE system would be used to analyze arrears. However, to the authors' knowledge, no source of data exists that contains this information as well as data on the other variables necessary for this study. Also, to the extent that error in mothers' reports of arrears is random in nature, such imprecision would bias the study's coefficients for arrears downwards, implying that arrears may indeed have greater associations with formal LFP than those reported here. An undercount of arrears as a consequence of not including money owed on orders for other children could also indicate that the estimates are biased downward.

Second, although the authors attempted to strengthen the causal interpretation of the results by using a strict temporal ordering, a large number of controls, and lagged dependent variables modeling, it is nonetheless possible that the results are biased because of unobserved heterogeneity. Although the sensitivity analyses provide some additional

confidence in our results, these may still be biased by unobserved heterogeneity in the sample of fathers. As future waves of the FFCWS become available, this work should be replicated to discern whether any relationship persists as children age. Likewise, the results of this study should be replicated as new data sources become available.

In addition, the composition of the comparison group in all analyses (fathers with no arrears) poses some challenges for the interpretation of the findings. Fathers without arrears are a heterogeneous group, including unmarried fathers without child support orders, unmarried fathers with current child support orders, and married fathers. Nonetheless, previous research establishes the precedent of including all fathers in analyses (Freeman and Waldfogel 1998). The intuition for this decision is further supported by previous research of the FFCWS, which suggests that many fathers exit early, committed relationships by the time their children reach age 5 (McLanahan and Beck 2010), increasing the probability that mothers will seek child support orders and that fathers will have arrears.

Overall, the findings of this study have serious implications for the current system of arrears, particularly for those fathers with little means to pay child support obligations. Although fathers should be made legally responsible for their children, a system that further jeopardizes the ability of certain fathers to work and provide support is clearly one in need of overhaul. One option is additional means testing in the CSE program. Though in the context of enforcement policy, means testing may seem inappropriate, low-income fathers pay a higher proportion of their income in child support than higher income fathers (Huang, Mincy, and Garfinkel 2005). For this reason, means testing already occurs in provisions such as the self-support reserve, minimum child support orders, and restrictions on the total percent of wages that may be withheld to cover a child support order and arrears. Although these provisions acknowledge that all fathers have a responsibility to support their children, they also acknowledge that not all fathers can afford to do so.

Another option is to adopt proposals for forgiveness of child support debt (Bartfeld 2003). Although the full effect of such programs is not well understood, a demonstration program in the state of Wisconsin forgave child support debt for NCPs who made regular payments on their child support orders. This program finds that participants pay more toward their child support obligations, make more frequent payments, and are successful in reducing their child support debt (Heinrich, Burkhardt, and Shager 2011) than those not part of the demonstration. If such programs can be implemented more broadly, they may offset some of the negative consequences on LFP demonstrated here.

As a final note, these and other changes to the CSE system may become increasingly necessary if future policies, such as an Earned Income Tax Credit for non-resident fathers, are linked to employment and payment of child support obligations, as was the case in legislation considered before the 111th House (US House of Representatives 2979) and Senate (US Senate 1309).

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Table 1

Summary Statistics for Main Independent and Dependent Variables

Variable Name	Mean or Proportion	SD	Min	Max
Formal labor-force participation:				
Father worked past 12 mos:				
3 year	.86	...	0	1
5 year	.84	...	0	1
Avg. hours per week:				
3 year	40.11	21.31	0	120
5 year	39.70	22.40	0	120
Avg. hours per week (if worked):				
3 year	46.82	14.69	1	120
5 year	47.43	15.27	1	120
Weeks per year:				
3 year	37.98	20.06	0	52
5 year	36.78	20.89	0	52
Weeks per year (if worked):				
3 year	44.34	13.70	1	52
5 year	43.94	14.38	1	52
Informal labor-force participation:				
Father worked past 12 mos.:				
3 year	.28	...	0	1
5 year	.19	...	0	1
Avg. hours per week:				
3 year	7.21	16.55	0	160
5 year	4.69	15.31	0	190
Avg. hours per week (if worked):				
3 year	25.42	22.42	1	160
5 year	24.07	27.14	1	190
Avg. weeks worked:				
3 year	1.34	3.59	0	39
5 year	1.35	4.16	0	37.33
Avg. weeks worked (if worked):				
3 year	4.73	5.42	.25	39
5 year	6.94	7.06	0.33	37.33
Arrears variables:				
Father in arrears 1 year	.05	...	0	1
Father in arrears 3 year	.11	...	0	1
All formal income:				
1 year	33,587.6	71,277.45	0	3,111,638
3 year	30,338.8	33,232.46	0	246,251.8
Ratio of arrears to income 1 year: *				

Variable Name	Mean or Proportion	SD	Min	Max
No arrears (omitted; proportion is .95)	0	...	0	0
> 0 and .50 (proportion is .03)	2,181.19	3,219.56	.01	19,700.15
>.50 and 1.00 (proportion is .004)	10,750.10	7,378.49	.57	19,700.15
>1.00 and no income (proportion is .008)	5257.40	6211.46	2.03	19,700.15
>1.00 and any income (proportion is .006)	10,595.48	7462.96	315.29	19,700.15
Ratio of arrears to income 3 year:				
No arrears (omitted; proportion is .89)	0	...	0	0
> 0 and .50 (proportion is .07)	3,018.33	3,237.33	1.23	30,812.26
>.50 and 1.00 (proportion is .01)	6,114.10	5,027.77	421.18	30,812.26
>1.00 and no income (proportion is .02)	4,440.71	4,684.19	5.75	30,812.26
>1.00 and any income (proportion is .01)	8,582.68	8,114.14	237.02	30,812.26

Note.—Min = minimum; max = maximum.

* Mean, SD, Min, and Max refer to the amount of arrears in dollars for each category of the ratio of arrears to income. All dollar figures are presented in 2010 constant dollars.

Table 2

Summary Statistics for Control Variables

Variable Name	Mean or Proportion	SD	Min	Max
Time Invariant Controls: *				
Father race or ethnicity:				
Black not Hispanic.	.49	...	0	1
White not Hispanic.	.19	...	0	1
Hispanic	.28	...	0	1
Other	.04	...	0	1
Father US born	.81	...	0	1
Father's name on birth certificate	.95	...	0	1
Father suggested abortion	.12	...	0	1
Father WAIS ^a score	6.43	2.78	0	16.52
Father's father's NCS ^b score	.71	1.13	0	6
Father's mother's NCS ^b score	.56	1.03	0	6
Time varying controls:				
Less than high school:				
Baseline	.32	...	0	1
1 year	.29	...	0	1
High school:				
Baseline	.36	...	0	1
1 year	.34	...	0	1
Some college:				
Baseline	.21	...	0	1
1 year	.23	...	0	1
College:				
Baseline	.11	...	0	1
1 year	.13	...	0	1
Father's age:				
Baseline	27.86	7.23	12	80
1 year	29.16	7.23	13	81
Job training:				
Baseline	.41	...	0	1
1 year	.47	...	0	1
Father in jail:				
Baseline	.04	...	0	1
1 year	.08	...	0	1
Father attends religious services regularly:				
Baseline	.53	...	0	1
1 year	.45	...	0	1
Number of children:				
Baseline	2.14	1.44	1	18

Variable Name	Mean or Proportion	SD	Min	Max
1 year	2.45	1.58	1	12
Father's depression:				
Baseline	.03	1.03	-.92	4.96
1 year	.05	1.07	-.30	4.75
Father has child(ren)with other woman:				
Baseline	.33	...	0	1
3 year	.39	...	0	1
Other Controls:				
Unemployment rate *	.05	.02	.03	.10
Strictness of local CSE system *	1.06	.26	.64	1.59

Note.—Min = minimum; max = maximum; WAIS = Wechsler Adult Intelligence Scale–Revised; NCS = National Comorbidity Survey; CSE = child-support enforcement.

* Measured at baseline.

Table 3

Lagged Dependent Variable Model Estimates of the Effects of Arrears on LFP

	Formal Labor-Force Participation					Informal Labor-Force Participation				
	All Fathers <i>n</i> = 9,604		Only Working Fathers <i>n</i> = 8,133		Only Working Fathers <i>n</i> = 2,299		All Fathers <i>n</i> = 9,604		Only Working Fathers <i>n</i> = 2,299	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
Father Worked	Weeks Worked	Avg. Weekly Hours	Weeks Worked	Avg Weekly Hours	Father Worked	Weeks Worked	Avg Weekly Hours	Weeks Worked	Avg. Weekly Hours	
Odds Ratio	OLS	OLS	OLS	OLS	Odds Ratio	OLS	OLS	OLS	OLS	
Arrears Indicator	1.043 (.145)				1.045 (.124)					
Father in arrears	-1.813 ⁺ (.973)	.203 (1.173)	-2.912 ^{**} (.867)	-1.173 (.779)		.037 (.195)	-.725 (.726)	-.219 (.574)	-3.121 (2.261)	
Ratio of arrears to income:										
No arrears (omitted)	...	...	...	...	...	...	...	...	...
> 0 and .50	1.516 [*] (.305)	2.860 [*] (1.406)	-1.803 ⁺ (.995)	.582 (1.015)	1.047 (.147)	.017 (.225)	-.770 (.872)	-.187 (.695)	-3.121 (2.486)	
> .50 and 1.00	1.378 (.700)	.780 (3.715)	-4.753 (2.894)	-1.287 (2.595)	1.420 (.469)	.253 (.718)	1.071 (2.399)	-1.031 (1.827)	-3.577 (6.516)	
> 1.00 and no income	.442 ^{**} (.104)	-9.475 ^{***} (2.105)	-6.333 [*] (2.562)	-2.389 (2.584)	.852 (.240)	.101 (.446)	-2.146 (1.767)	.727 (1.540)	-4.581 (5.698)	
> 1.00 and any income	.949 (.366)	-3.275 (3.063)	-1.726 (3.046)	-1.683 (2.451)	1.014 (.348)	-.136 (.445)	-.136 (1.784)	-.773 (1.359)	-.651 (6.483)	

Note.—Standard deviations are in parentheses. All models control for the variables detailed above.

⁺ *p* < .10.

^{*} *p* < .05.

^{**} *p* < .01.

^{***} *p* < .001.

Table 4

Estimates of the Effects of Arrears on LFP by Labor Force Attachment

Arrears Indicator	Fathers who were Marginally Attached to the Formal Labor Market					Fathers who were Firmly Attached to the Formal Labor Market				
	All Marginally Attached n = 2,855		Marginally Attached and Working at time t n = 1,918		(5)	All Firmly Attached n = 6,749		Firmly Attached and Working at time t n = 6,215		(10)
	(1)	(2)	(3)	(4)		(6)	(7)	(8)	(9)	
	Father Worked	Weeks Worked	Avg. Weekly Hours	Weeks Worked	Avg. Weekly Hours	Father Worked	Weeks Worked	Avg. Weekly Hours	Weeks Worked	Avg. Weekly Hours
	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Father in Arrears	0.037 (0.032)	-0.753 (1.537)	1.067 (1.709)	-3.167* (1.527)	-0.761 (1.277)	0.003 (0.019)	-1.946 ⁺ (1.096)	0.862 (1.381)	-2.312* (0.977)	0.720 (1.002)
Ratio of Arrears to Income										
No Arrears (Omitted)	...	...	...	...	...	...	...	...	...	...
> 0 and <= .50	0.144** (0.044)	3.757 (2.588)	6.624* (2.729)	-2.032 (2.315)	0.408 (1.967)	0.007 (0.021)	-1.314 (1.131)	1.298 (1.503)	-1.756 ⁺ (1.049)	0.922 (1.161)
> .50 & <= 1.00	0.091 (0.100)	-0.209 (4.852)	1.581 (5.040)	-5.030 (5.368)	-3.014 (3.550)	0.013 (0.070)	-3.104 (3.825)	0.550 (4.598)	-4.483 (3.140)	-0.102 (3.515)
> 1.00 & no income	-0.101 ⁺ (0.051)	-6.111* (2.318)	-5.142 ⁺ (2.676)	-4.432 (2.764)	-1.385 (2.562)	-0.334 (0.367)	-15.730 (16.565)	-18.311 (23.533)	0.209 (8.791)	1.860 (9.259)
> 1.00 & any income	0.046 (0.081)	-0.134 (4.409)	0.786 (3.903)	-3.136 (4.588)	-1.754 (3.000)	-0.026 (0.077)	-5.783 (4.453)	-1.317 (4.737)	-5.611 (3.620)	-0.243 (3.677)

All models control for the variables detailed above.

⁺ p<.10;

* p<.05;

** p<.01;

*** p<.001