THE ROLES OF CHILD SUPPORT ENFORCEMENT AND WELFARE IN NONMARITAL CHILDBEARING

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ABSTRACT

Most of the public discussion and academic analyses of nonmarital birthrates focus on women's fertility intentions and welfare. In contrast, we argue that stricter child support enforcement may lower nonmarital birthrates by raising the costs of fatherhood for men. The analysis is based on aggregate state level data for the years 1980 through 1996 and utilizes (primarily) fixed effects regression models. We find that strict child support enforcement deters and generous welfare promotes non-marital births. Compared to welfare, the estimated effects of child support enforcement are more robust. Moreover, the largest estimates for each imply that in the 1980-1996 period, decreases in welfare led to a 6% decrease in non-marital births while increases in child support enforcement led to a decline of 12%.

Key Words: child support enforcement, nonmarital births

I. Introduction

The proportion of children in the United States born outside marriage has grown dramatically over the past three decades. In the mid 1960s, when Daniel Patrick Moynihan (1965) warned that marital instability and father absence were undermining the progress of black Americans, the nonmarital birth ratio – the ratio of births to unmarried mothers over total births – was approximately 23 percent for black Americans and 8 percent for the country as a whole. Today, the figures are 68 percent and 30 percent respectively (DaVanzo and Rahman 1993).

In response to these changes, policy makers and social scientists have become increasingly concerned about the causes of nonmarital childbearing and the extent to which government policies may have fostered its growth. Despite empirical evidence to the contrary (Garfinkel and McLanahan 1986, Moffitt 1992, Moffitt 1998), many people have come to believe that increases in welfare benefits are a major cause of increases in nonmarital childbearing (Murray 1984, 1993). State and federal legislators, in turn, have recently passed legislation designed to reduce welfare eligibility and increase the costs of single motherhood. Included here are policies that lower AFDC benefits and limit eligibility (time limits and family caps) as well as policies that impose work requirements on welfare recipients.

What is missing from much of the recent debate is a full recognition of men's role in nonmarital childbearing and a discussion of how government policies affect men's behavior. In particular, there has been little notice of how the government's failure to establish paternity and to collect child support from nonresident fathers may have contributed to men's failure to take responsibility for contraception. Although paternity establishment and child support enforcement

have intensified during the past decade, and although these policies are part of most welfare reform proposals, they are generally viewed as ways of reducing welfare costs rather than as strategies for preventing nonmarital childbearing.

The focus on welfare incentives strikes us as one-sided, given that decisions about sexual intercourse, contraception, and marriage involve two adults rather than one. Moreover, policies designed to increase the costs of single motherhood for women run the risk of harming children who are already born. In contrast, policies aimed at making unmarried fatherhood more costly for men not only have the potential to prevent nonmarital births, but they also are likely to benefit existing children.[1]

In this paper we test the hypothesis that strong child support enforcement is associated with lower nonmarital birthrates. In the next section we discuss the theory and empirical evidence that motivate our analysis. In the third and fourth sections, we describe our data and analytical techniques. In the fifth section we present estimates of the effects of child support and welfare on nonmarital birthrates. And in the final section we discuss our results, their limitations, and their implications for future research.

II. Changing Institutions and Expected Effects

Up until very recently, financial responsibility for children born outside marriage rested primarily with the mother and with government. Mothers who met the income test, which included the vast majority of unwed mothers, were eligible for AFDC, Food stamps, Medicaid, and in many cases, housing subsidies. In contrast, unwed fathers were more or less free to shirk their parental obligations and most did so (Garfinkel 1992; Beller and Graham 1993).

During the past two decades, the federal government has taken a number of steps to prevent unmarried fathers from abandoning their children financially (Garfinkel, McLanahan and Robins 1994; Garfinkel and McLanahan 1986, 1994). In 1975, Congress created the Child Support Enforcement Program (CSE) which established local offices of child support enforcement and authorized Federal matching funds for states to help locate absent parents, establish paternity, establish child support orders, and obtain child support payments (Solomon 1988). The 1984 Child Support Amendments extended this legislation by requiring states to withhold child support obligations from the paychecks of delinquent fathers and to develop legislative guidelines to be used in determining child support awards. In 1988, the Family Support Act mandated states to adopt presumptive guidelines for child support awards and to initiate automatic withholding from fathers' paychecks, regardless of delinquency. The Family Support Act also included a number of provisions aimed at strengthening paternity establishment for children born to unmarried parents, including a requirement that states use genetic tests in cases where paternity is in dispute. PRWORA, the most recent welfare legislation, contains a number of provisions designed to improve child support enforcement, including requiring states to simplify the paternity establishment process and to offer new parents the opportunity to acknowledge paternity at the birthing hospital.

The results of the legislation up through the early 1990's have been striking. Paternity establishment rates have increased from 20 percent in the early 1980s to over 40 percent in the early 1990s (Nichols-Casebolt and Garfinkel 1991, U. S. Department of Health and Human Services, 1993). And the proportion of never married mothers with a child support award has

grown from 12 percent to over 20 percent during this same period (Beller and Graham 1993, Freeman and Waldfogel 1998).

Changes in child support laws and practices have increased the costs of children for men, which, according to economic theory, should make men more reluctant to father children outside marriage (Becker 1991, Weiss and Willis 1985, Willis 1994). Although stronger child support enforcement may appear to reduce the costs of children for women (making them more willing to have children outside marriage), the size of the effect is likely to be small. A mother on welfare can keep only the first $50 of child support each month. If the father pays more than $50, the welfare benefit is reduced accordingly. Indeed, the cost of children may actually *increase* if a mother is getting informal child support from the father and if she loses that support as a result of stricter child support enforcement. In sum, we expect the deterrence effect on males to predominate.[2]

Empirical research on the effects of child support enforcement on nonresident fathers is limited, but growing. Early research focused on the trends in and determinants of) child support payments (Beller and Graham 1993, Teachman 1991, Hanson, Garfinkel, McLanahan, and Miller 1996, Meyer and Bartfeld 1996), the effects of policies on payments (Garfinkel and Robins 1994, Argys, Peters and Waldman 1995, Nixon 1994, Miller, Garfinkel, and McLanahan 1994), and the effects of payments on child poverty and well-being (Knox and Bane 1994, Knox 1996, Graham, Beller and Hernandez 1994, McLanahan, Seltzer, Hanson, and Thomson 1994, Baydar and Brooks-Gunn 1994). A few researchers have studied the association between child support payments and father-child contact (Seltzer, Schaeffer, and

Charng 1989, Veum 1993, Seltzer, McLanahan, and Hanson 1998), and the effects of child support on fathers' remarriage (Bloom, Conrad, and Miller 1998).

Three papers are particularly relevant to our argument that stronger child support enforcement should reduce nonmarital childbearing. Sonenstein, Pleck and Ku (1994) found that a substantial proportion of adolescent males were aware of paternity establishment and modify their sexual behavior and contraceptive use accordingly, especially if their peers are doing so. This study suggests that child support enforcement may be having an effect. Nixon (1997) found that states with stricter child support enforcement regimes had lower rates of marital disruption among families with children. The theoretical effects of child support enforcement on divorce, like those on nonmarital child bearing, are ambiguous because the incentives go in opposite directions for mothers and fathers. Thus Nixon's findings are consistent with the argument that, in the presence of welfare, the male effect will dominate. Her results are therefore consistent with our hypothesis that increasing the costs of children for nonresident fathers will lower the incidence of nonmarital childbearing. Finally, utilizing aggregate data on states over time, Case (1998) found that three of five state laws designed to strengthen child support enforcement were negatively related to state nonmarital birth rates. Two of three laws related to paternity establishment deterred nonmarital births. Only one of two laws relating to the amount of support owed and the collection of child support deterred nonmarital births. These findings suggest that laws deter births only if they effectively increase paternity establishment and child support collections.

Our paper complements Case's work by examining the effects of child support enforcement practices on nonmarital birth rates. Effective practices are derived in part, but not

in whole, from laws. Good laws that are not effectively enforced may have little effect. Freeman and Waldfogel (2000) show that effective child support enforcement requires both strong laws and high expenditures on enforcement. Furthermore, the laws interact with one another so that isolating the effects of any particular law is difficult. Thus, it seems reasonable to hypothesize that effective enforcement practices will be more strongly related to nonmarital births than laws per se. Our paper also tests the robustness of the finding that child support enforcement matters by examining a number of alternative specifications of the model and the key independent variables. Finally, our paper addresses explicitly the relative roles of child support enforcement and welfare.

In addition to child support enforcement, a number of other factors are expected to affect out-of-wedlock birthrates. As suggested above, generous welfare benefits limited to single mothers undermine marriage and promote out-of-wedlock childbirth, both by making single motherhood more affordable and by reducing the gains from marriage. Poor employment opportunities for men undermine marriage by making males less attractive and reliable husbands. To the extent that poor employment prospects discourage marriage more than childbearing, they promote out-of-wedlock births. Good employment opportunities for women may reduce marriage by increasing women's independence, but they may reduce birth rates more than marriage rates, and thereby decrease out-of-wedlock child bearing.

Previous research finds that poor employment opportunities for men (William 1987, Mare and Winship 1991, Lichter, LeClere, and McLaughlin 1991), good employment opportunities for women (South and Lloyd 1992, Schultz 1994, McLanahan and Casper 1995), and more generous welfare benefits (Lichter et al. 1991, Murray 1993, Fossett and

Kiecolt 1993, Lundberg and Plotnick 1995) lead to lower marriage rates and higher out-of-wedlock birthrates. While a large number of studies also find little or no effect of these variables (Moore 1995), we include them in our model because of their theoretical salience.

III. Data and Methods

The federal government can issue mandates and provide economic support for child support enforcement, but ultimately, family law is a state responsibility. Not surprisingly, state programs vary widely. When the federal government began pushing child support reforms in the early 1980's, some states were already relatively effective in terms of establishing paternity for children born outside marriage. Most states, however, were doing very little. Since the early 1980s, nearly all states have improved their records: some dramatically and others hardly at all. As is often the case with social science research, variability in state programs offers researchers an excellent opportunity to explore the impact of national policy. In this case, variation in the vigor and commitment with which states have implemented their Child Support Enforcement (CSE) policies allows us to assess the impact of alternative CSE regimes on nonmarital fertility. To ensure variability across and within states and to allow for the effects of recent changes in child support enforcement, we use data from 1980 to 1996. More recent years are not included because data from child support enforcement are not available after 1996. The final sample contains 867 observations—50 states plus the District of Columbia for 17 years, 1980-1996.

Dependent Variable

In all our analyses, we use the nonmarital birth rate (nonmarital birth count/1000

unmarried females age 15-45) as the dependent variable. Women age 15-45 are considered to be of childbearing age, and therefore unmarried females age 15-45 are the population "at risk" of having a nonmarital birth. An alternative specification would have been to use the total number of births, i.e. the nonmarital birth ratio. This variable, while seemingly easy to interpret, depends upon changes in both marital fertility and nonmarital fertility. The nonmarital birthrate is preferred because it is not mathematically a function of marital fertility over time.

Indicators of Child Support Enforcement

We use two indicators to measure child support enforcement: 1) the paternity establishment rate and 2) the child support collections per AFDC mother.

Establishing paternity is a prerequisite to strong child support enforcement. If paternity is not established, there can be no legal child support obligation. For this reason, we expect the paternity establishment rate to have the strongest effect on nonmarital birth rates. The paternity establishment rate is measured as the total number of paternities established during a given year divided by the total number of nonmarital births during the same year.[3] Data on the number of paternities established by each state in each year come from the Office of Child Support Enforcement (OCSE) 1980-97 annual Reports to Congress (U. S. Department of Health and Human Services, 1980-1997). Data on the number of nonmarital births by state and year come from Report of Final Natality Statistics (National Center for Health Statistics, 1980-97).

Establishing Paternity for children born outside marriage is a necessary but not sufficient condition for enforcing child support. Therefore, to measure how well states are doing not just at paternity establishment, but also at establishing awards and collecting child support

obligations, we include the amount of child support collected for welfare mothers. The numerator is total child support collections for AFDC cases. The denominator is the total number of AFDC mothers in the state. Data for the numerator-total child support collections--come from the OCSE 1980-97 annual Reports to Congress. Data for the denominator—AFDC cases-- is from Quarterly Public Assistance Statistics (U. S. Department of Health and Human Services, 1980-97). Though this indicator is measured accurately because it comes from administrative records, it is likely to be dominated by collections among formerly married mothers, because divorce cases are easier to process and likely to have a higher payoff for the state than never-married cases. To smooth year to year fluctuations, we construct three-year moving averages for each indicator.

Each of the child support enforcement variables is an imperfect measure of the strength of a state's child support enforcement regime. This is true because of measurement error. Even more important, total child support payments are a multiplicative function of the components of child support enforcement such as paternity establishment and collection effectiveness. Thus in addition to linear specifications of the child support enforcement indicators, we create three categories—high, medium, and low--for each variable and also create nine categories from the interaction of the two variables. Finally, we examine whether there is a lag between the practices and non-marital births.

Welfare

The other policy variable that we expect to affect nonmarital childbearing is the generosity of the state welfare benefit. To measure welfare generosity we use the total cash value of the AFDC plus Food Stamps for a family of four[4] (U.S. House of Representatives,

1980-98). Our examination of the robustness of the welfare effect is parallel to our examination of the robustness of child support enforcement.

Other Control Variables

We also use a variety of economic and demographic variables to control for state differences in population characteristics and labor market conditions. Counts of marital and nonmarital births come from Report of Final Natality Statistics (National Center for Health Statistics, 1980-97). Labor force participation and unemployment rates come from the Statistical Abstract (U. S. Census Bureau, 1980-97). Male and female median wages were calculated from 1979-97 March CPS. Information on other state-level variables comes from the 1980 and 1990 Censuses and includes total population counts, percent of population that is Black, percent of population that is Hispanic, percent of population that is living in urban areas (metropolitan areas), and percent of population with less than a high school education. Values for the intercensal years are interpolated, and values for 1991 through 1996 are extrapolated from the 1980-1990 trend. Finally, we include a measure of abortions in each year in each state.

Abortions might be considered as either an endogenous or an omitted variable, and their effect on the coefficients of interest are ambiguous. On the one hand, strong child support enforcement and low welfare benefits should reduce nonmarital birth rates by increasing abortions. In this case, the abortion rate is an intermediate outcome, and controlling for abortions will dilute the effects of child support enforcement (and welfare) on nonmarital birth rates. On the other hand, independent variation in the abortion rate is likely to reduce nonmarital births; and, to the extent that abortions eliminate births where the father is less committed to the

child, abortions rates will be positively correlated with paternity establishment and child support collections. Because failure to control for abortion might lead to an overestimate of the deterrent effects of child support, we ran the results with and without controlling for the abortion rate in each state over time. The data on state abortions was given to us by Stanley Henshaw of the Alan Guttmacher Institute.

Cohabitation may also be considered as both endogenous and omitted. Strong child support enforcement (and low welfare) are likely to increase marriage via a reduction in cohabitation. On the other hand, states with high cohabitation rates because of a taste for cohabitation rather than marriage would have higher nonmarital birth rates and higher paternity establishment rates. The latter would be true because a greater proportion of nonmarital births would be to cohabitors who are more likely to be willing to establish paternity—though less likely to pay support. This suggests that to the extent that cohabitation is exogenous, failing to control for it underestimates the deterrence effect of paternity establishment and overestimates the effect of the child support enforcement variables. In view of the ambiguity of the appropriateness of including cohabitation, the difficulty of constructing a state by state time series for cohabitation, and the direction of bias in the child support coefficients, we did not experiment with including cohabitation in the model.

Analysis Techniques

Our analyses are based on fixed effects regression models which treat nonmarital birthrates as a function of child support enforcement, welfare benefits, and other state characteristics. All fixed effects models are run using ordinary least squares (OLS) regressions

with state and year binary variables as the fixed effects (Greene 1993). The model specification uses the natural logarithm of the nonmarital birthrate and is represented by the following equation:

$$\ln y_{it} = \alpha_i + \beta' x_{it} + \delta_t + \varepsilon_{it}$$

where y_{it} is the nonmarital birthrate for state i at time t, α_i is the individual state effect (which is taken to be constant over time), β is a matrix of regression coefficients for the $\mathbf{x}_{it}$ vector of child support enforcement, welfare, demographic, and economic variables, δ_t is the time effect which is taken to be constant across states, and ε_{it} is the cross-section time-series error component. Finally, in one set of models we add a third fixed effect: state specific linear time trends.

The x variables include two child support variables—the paternity establishment rate and collections per AFDC case and the welfare benefits variable, the natural log of total state population, the marital birth rate, percent of population that is Black, percent Hispanic, percent with a high school degree, percent urban, unemployment rate, male and female median wages. Wages, welfare benefits, and child support collections are expressed in (constant) 1996 dollars.

V. Results

Table 1 reports the means and standard deviations of the dependent and independent variables. The first column reports the average for the entire 1980-1996 period, and the other columns report the average for 1980, 1984, 1988, 1992, and 1996. Nonmarital birthrates increased by over 80 percent over the 1980-1996 period, from 35 per 1000 women in 1980 to 64 per 1000 in 1993. During the same period, both indicators of child support enforcement nearly tripled. Paternity establishment rates increased from 22 to 57 percent and collections per

case increased from $318 to $860. During the same period welfare benefits decreased by 15 percent, from $10,273 in 1980 to $8,723 in 1996. In short, nonmarital birthrates increased in the face of increases in state child support enforcement and decreases in welfare benefits. These time series relationships, however, do not control for the effects of other variables.

Table 2 presents the results from four, increasingly complex models. Column 1 presents coefficients from models that include only child support and welfare variables (plus a constant). Column 2 presents coefficients from models that include the child support and welfare variables *plus* state and year fixed effects. Column 3 presents coefficients from models that add the demographic and economic control variables to the previous model, and column 4 presents coefficients from models that add state-specific time trends.

Consistent with the time trends described in Table 1, the paternity and welfare coefficients in Model 1 have the wrong signs. The coefficients in Models 2, 3, and 4, however, all have the theoretically expected sign. In models 3 and 4 all of the child support and welfare coefficients are also significantly different from zero—most at the .01 level. The paternity establishment rate and the welfare coefficients in model 3 are respectively five and four times larger than those in model 2. Finally, the addition of state specific time trends in model 4 increases the paternity establishment rate and welfare coefficients even more. In short, with one exception--when state specific time trends are included, the collections per case coefficient becomes positive but not significantly different from zero--we find that the greater the degree of control for differences over time and across states, the larger are the estimated effects of child support and welfare. This suggests that the effects of child support and welfare on non-marital birth rates are masked by stronger forces effecting the secular trend in non-marital birth rates,

cross state differences in the levels of non-marital child-bearing, and even secular trends within states.

Note that most of the coefficients of the economic and demographic control variables are statistically significant in models 3 and 4. Most, but not all of the coefficients have the expected sign. Thus, in model 3, lower wages for women, higher proportions of hispanics, high school drop outs, and urban dwellers and low marital birth rates and low abortion rates are all associated with high non-marital birth rates. But surprisingly, low unemployment rates and low proportions of blacks are also associated with high non-marital birth rates. The positive black coefficient results from controlling for state differences which makes the black coefficient reflect changes within states in non-marital births over time. During this period, white non-marital birth rates grew more rapidly (from a much lower base) than black rates. In results not shown in the Table 2, we found that if the state fixed effects were dropped, the black coefficient became positive and significant. We have no explanation for the perverse unemployment sign, but note that it too had the correct sign in a model (not shown in table) without state fixed effects. Even more disturbing, the female wage, Hispanic, and high school drop out variables flip signs when the state specific time trends are added to the model. Because the signs in the model without the state specific time trends are more in accord with expectations, this gives us slightly more confidence in the model without the state specific time trends.

Finally, we ran models 3 and 4 without controlling for abortion. In results not reported in the table, we found that both the child support and welfare coefficients were virtually identical to those reported in Table 2. The constancy of the coefficients suggests either that the effects of child support (and welfare) on abortion are small or that the positive effects of abortion on

paternity establishment rates and child support enforcement offset the negative effects of enforcement on abortion. There is no reason to expect a positive effect of abortion on welfare. Thus we interpret these results as suggesting that the effects of both child support and welfare on abortions are small.

Tests of Robustness: Functional Form, Interactions, and Time Lags

Table 3 presents results from alternative specifications of the child support and welfare variables to test the robustness of the findings in Table 2. Except for changing the specification of these variables, the models estimated are identical to the 3rd and 4th models in Table 2. Thus both models contain all the control variables and state and year fixed effects and the fourth model also contains state specific time trends. The top panel presents non-linear estimates of the effects of child support enforcement and welfare. The middle panel presents interactions of the two child support enforcement variables and the bottom panel presents estimates of interactions between paternity establishment and welfare. Finally, the last two columns present estimates of the lagged effects of welfare and child support.

The top panel presents estimates from a specification of the child support and welfare variables as step functions. Each variable was arrayed from top to bottom and the distributions divided into equal thirds. The bottom third of each distribution is omitted. Thus states with medium and high levels of child support and welfare are compared to states with low levels.

The child support step-function estimates in the top panel of Table 3 are consistent with the linear estimates in Table 2. Medium levels of paternity establishment deter non-marital births more than low levels and high levels have the greatest deterrence effect. The difference between the medium and high levels is much smaller than the difference between the medium

and low levels. Note the inclusion of state specific time trends in model 4 increases the linearity of the relationship by lowering the medium estimate. The collections per case variable behaves well in model 3, but as in Table 2 is insignificant in model 4.

In stark contrast, the welfare step function coefficients appear to be inconsistent with the linear estimates. Both medium and high welfare benefit levels, as compared to low benefit levels are associated with lower rather than higher non-marital birth rates. In the model without state specific time trends, the highest benefits are associated with the lowest birth rates. Though there is no reason to prefer the step function to the linear estimates, that the estimates are so different indicates that the estimated effects of welfare are not very robust.

The interactions between paternity establishment and collections per case presented in the 2nd panel of Table 3 are striking. In model 3, with one exception, the coefficients are perfectly ordered from low to medium to high. High paternity establishment combined with high collections per case is no higher than medium paternity establishment-high collections. Consistent with previous results, the coefficients are not quite so well behaved in the model (4) with state specific time trends.

In the bottom panel, we present results for interactions between paternity establishment and welfare. Consistent with results in the top panel, within the medium and high paternity regimes, the welfare results are perverse in that higher benefits are associated with lower non-marital birth rates. By way of contrast, the paternity establishment results are well-behaved.

Finally, columns three and four present results for models 3 and 4 in which the child support and welfare variables are lagged for one year. The appropriate lags are not clear, a priori. On the one hand, it appears that the stringency of child support enforcement and the

generosity of welfare would affect pregnancy outcomes with a lag. It takes time for knowledge to spread, and there is a nine-month interval between conception and birth. On the other hand, while it takes time for knowledge to spread, current practice is likely to have a stronger effect on behavior than previous practice. Furthermore, whether or not a conception results in a nonmarital birth depends not only on whether an unmarried couple conceives a child, but also on decisions about abortion and marriage. A comparison of the coefficients in columns 3 and 4 with those in columns 1 and 2 indicates that a one year lag in the child support and welfare varaibles has a relatively small effect—weakening child support and strengthening welfare a bit. In results not reported we found that 2 year lags weakened both variables.

Estimating the Size of the Effects

Finally, the magnitudes of the child support and welfare coefficients are also of interest. We assess the magnitude of the coefficients by using them to simulate the reduction in the 1996 nonmarital birth rate that resulted from the historic changes between 1980 and 1996 in welfare benefits and child support enforcement. From table 1, we see that between 1980 and 1996, the real value of AFDC plus Food Stamps declined by 15 percent and the child support enforcement variables nearly tripled. If we utilize the largest estimated effect of welfare (from table 2, model 4) the 15% decrease in welfare reduced nonmarital birth rates by 6 percent. If we use the largest estimated effect of the increases in child support enforcement (from the interaction specification in the middle panel of table 3, model 3) the historic increases in paternity establishment and collections per case reduced non-marital births by 12 percent.

VI. CONCLUSION

Much of the public debate on nonmarital child bearing has focused on the alleged enabling effects of welfare benefits. There has been very little discussion or analysis of the enabling effects of weak child support enforcement. In this paper we explore the hypothesis that stricter child support enforcement may lower nonmarital birthrates by raising the costs of fatherhood for men. The analysis is based on aggregate state-level data for the years 1980 through 1996 and utilizes primarily fixed effects regression models.

We find some evidence that both low welfare benefits and stringent enforcement of child support deter non-marital births. In one sense, both effects are relatively robust. Rather than weakening with the inclusion of more controls, the effects of both welfare and child support only emerge after controlling for state and year fixed effects and get even stronger when state specific time trends are included. But the welfare coefficients are far more sensitive to functional form and produce some perverse estimates. Moreover, the largest estimates for each imply that in the 1980-1996 period, decreases in welfare led to a 6% decrease in non-marital births while increases in child support enforcement led to a decline of 12%.

The data and analysis have several limitations. First, unexplained counter-intuitive results and flips in signs across models for a few control variables suggest some caution in interpreting the findings. Second, omitted variable bias is a special danger in aggregate analyses like the kind undertaken in this paper. Though we have explored the effects of one potential omitted variable—abortion—we were not able to account for differences across states and over time in co-habitation and it is possible that we have overlooked other variables. Finally, although we infer causal relationships between the explanatory variables and nonmarital fertility, the models

show associations between nonmarital birthrates and the explanatory variables and offer no definitive establishment of the mechanisms through which the associations derive. Still, the fixed effects estimation, which uses each state as its own control enhances confidence in the causal inference.

In short, our results suggest both cutting welfare benefits to single mothers and establishing paternity and enforcing child support are likely to deter out-of-wedlock childbearing. But, the effects of cutting welfare appear less certain than those of enforcing child support and the historical effects of cutting welfare benefits appears to be smaller than the historical effect of increasing child support enforcement. Furthermore, cutting welfare reduces aid to children already born whereas increasing child support enforcement increases aid to children already born. Thus, there is a good case for paying more academic and policy attention to strengthening child support enforcement.

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ENDNOTES

[1] It is possible that the increases in children's incomes that result from stronger child support enforcement could be offset by a reduction in support to children in new families of nonresident fathers. Since only about a third of nonresident fathers live with other children, the direct transfer effect must benefit children as a whole. But, it is possible that stronger enforcement could deter nonresident fathers from repartnering with mothers who already have children and this effect could in principle be large enough to offset the direct effect. See Bloom, Conrad, and Miller (1998).

[2] Even if a man and woman disagree about having a child, Willis (1994) has shown that if there is a shortage of males, the male effect will dominate. Willis' theory rests on the idea that women allow men to "free ride" with respect to the costs of raising children because they are relatively self-sufficient and because there is a shortage of men.

[3] The paternity establishment rate can be greater than zero since the numerator includes children up to age 18 whereas the denominator includes child born during the past year. An alternative paternity rate uses never-married mothers as the denominator. These two rates are highly correlated, and produced nearly identical results in the regression models.

[4] The total cash value of AFDC plus Food Stamp is assigned to be 70 percent of the maximum AFDC benefit plus the Food Stamp maximum benefit. We experimented with AFDC alone and AFDC plus Food Stamps plus the value of Medicaid benefits. The AFDC plus Food Stamps variable yielded the most robust results.

Table 1: Means and Standard Deviations of Main Variables, 1980-96

Variables	1980-96	1980	1984	1988	1992	1996
Nonmarital Births Rate (Nonmarital Births/1000 Unmarried Women)	48.87	34.76	38.54	48.26	58.71	63.84
	(18.20)	(10.53)	(11.05)	(14.97)	(15.27)	(24.59)
Paternity Establishment Rate [a]	35.16	21.55	27.00	31.30	44.33	56.62
	(22.80)	(13.94)	(19.49)	(16.58)	(23.13)	(31.45)
Collection Amounts per AFDC Cases [$ real 1996] [b]	597	318	499	646	681	860
	(321)	(210)	(267)	(297)	(289)	(371)
Total Yearly Cash Value of AFDC and Food Stamp [$1,000 real 1996] [c]	9,359	10,273	9,426	9,412	9,311	8,723
	(1729)	(1953)	(1800)	(1695)	(1663)	(1475)
Unemployment Rate	6.60	6.77	7.29	5.48	6.80	5.21
	(2.19)	(1.62)	(2.18)	(1.89)	(1.59)	(1.24)
Male Median Wage [$ real 1996]	12.99	13.61	13.03	13.28	12.55	12.52
	(1.82)	(2.13)	(1.85)	(1.94)	(1.62)	(1.47)
Female Median Wage [$ real 1996]	8.86	8.45	8.56	8.98	9.07	9.26
	(1.27)	(1.06)	(1.11)	(1.35)	(1.36)	(1.21)
Percent Black	11.47	12.26	12.81	10.71	10.63	10.60
	(12.06)	(12.01)	(11.90)	(12.29)	(12.25)	(12.37)
Percent Hispanic	5.33	4.02	4.54	5.20	5.99	7.01
	(7.47)	(6.68)	(6.92)	(7.29)	(7.86)	(8.77)
Percent with Less Than High School Education	26.05	32.75	29.42	25.89	22.55	20.05
	(7.36)	(7.66)	(6.81)	(5.91)	(5.49)	(5.28)
Percent Urbanization	64.23	62.12	64.09	64.67	64.88	65.17
	(22.27)	(23.25)	(22.27)	(22.54)	(22.07)	(21.90)
Marital Birthrate (Marital Births / 1000 Married Women)	80.09	93.40	87.11	78.80	72.73	67.84
	(20.15)	(24.52)	(23.41)	(12.06)	(11.12)	(14.08)
Abortion Rate (Number of Abortion / 1000 Women age 15-44)	23.23	25.72	24.21	23.24	22.83	20.37
	(14.11)	(12.15)	(11.03)	(12.09)	(18.33)	(18.41)

Note: *Unit is state, Standard errors appear in parentheses.*

a. OCSE reported paternity establishment cases divided by nonmarital births.

b. OCSE reported child support collection amounts for AFDC cases divided by administrative caseloads data.

c. The total cash value is assigned to be 70 percent of the maximum AFDC benefit plus the food stamp maximum benefit.

Table 2: The Linear Effects of Child Support Enforcement and Welfare on Nonmarital Birthrate Regressions [a]

	Model 2-1			Model 2-2			Model 2-3			Model 2-4		
Variable	**Coef.**	**S.E.**	**P**	**Coef.**	**S.E.**	**P**	**Coef.**	**S.E.**	**P**	**Coef.**	**S.E.**	**P**
Paternity Establishment Rate	0.210	0.055	***	0.003	0.032		-0.070	0.032	**	-0.136	0.026	***
Log (Collection Amounts per AFDC Cases) [$ real 1996]	-0.027	0.023		-0.119	0.027	***	-0.098	0.028	***	0.043	0.027	
Log (Yearly AFDC+FS Cash Value) [$ real 1996]	-0.713	0.068	***	0.164	0.135		0.364	0.134	***	0.430	0.108	***
Unemployment Rate	----	----		----	----		-1.872	0.385	***	-1.332	0.259	***
Log (Male Median Wage) [$ real 1996]	----	----		----	----		0.138	0.120		-0.022	0.087	
Log (Female Median Wage) [$ real 1996]	----	----		----	----		-0.386	0.136	***	0.303	0.099	***
Percent Black	----	----		----	----		-0.600	0.342	*	0.213	0.413	
Percent Hispanic	----	----		----	----		0.958	0.349	***	-1.642	1.219	
Percent with Less Than High School Education	----	----		----	----		1.693	0.431	***	-9.126	1.137	***
Percent Urbanization	----	----		----	----		1.366	0.215	***	0.917	0.187	***
Marital Birthrate: (births/1000 married women)	----	----		----	----		-0.133	0.046	***	-0.151	0.044	***
Abortion rate: (number of abortion / 1000 women 15-45)	----	----		----	----		-0.224	0.107	**	-0.242	0.082	***
Constant	10.431	0.566	***	2.518	1.224	***	0.310	1.219		1.349	1.124	
State and Year Effects	No			Yes			Yes			Yes		
State-Specific Time Trends	No			No			No			Yes		
Adjusted R^2	0.182			0.871			0.886			0.962		
N	867			867			867			867		

Note: ** significant at 10 percent level; ** significant at 5 percent level; *** significant at the 1 percent level.*

a: Nonmarital birthrate = ln(nonmarital births/1000 unmarried women age 15-44)

Table 3: Non-Linear and Interaction Estimates of the Effects of Child Support and Welfare on Nonmarital Birthrate

	Model 3-1			Model 3-2			Model 3-3 Lag 1 Year			Model 3-4 Lag 1 Year		
Variable	**Coef.**	**S.E.**	**P**	**Coef.**	**S.E.**	**P**	**Coef.**	**S.E.**	**P**	**Coef.**	**S.E.**	**P**
Specification 1: Non-Linear Estimates [a]												
Medium Paternity Establishment Rate	-0.070	0.014	***	-0.031	0.010	***	-0.058	0.014	***	-0.008	0.010	
High Paternity Establishment Rate	-0.074	0.017	***	-0.072	0.012	***	-0.049	0.018	***	-0.031	0.013	**
Medium Collection Amounts	-0.040	0.016	**	-0.006	0.012		-0.041	0.016	**	-0.010	0.012	
High Collection Amounts	-0.046	0.024	*	-0.003	0.019		-0.044	0.025	*	-0.009	0.020	
Medium Welfare Benefits	-0.018	0.019		-0.032	0.014	**	-0.016	0.020		-0.020	0.015	
High Welfare Benefits	-0.068	0.027	**	-0.013	0.020		-0.068	0.029	**	-0.005	0.021	
Specification 2: Interaction of Paternity and Collection [b]												
Low Paternity Establishment, Medium Collection Amounts	-0.063	0.023	***	-0.040	0.016	**	-0.053	0.023	**	-0.028	0.016	*
Low Paternity Establishment, High Collection Amounts	-0.062	0.033	*	-0.027	0.025		-0.063	0.035	*	-0.022	0.026	
Medium Paternity Establishment, Low Collection Amounts	-0.071	0.019	***	-0.053	0.014	***	-0.054	0.020	***	-0.026	0.015	*
Medium Paternity Establishment, Medium Collection Amounts	-0.118	0.022	***	-0.046	0.017	***	-0.107	0.023	***	-0.028	0.017	*
Medium Paternity Establishment, High Collection Amounts	-0.133	0.028	***	-0.055	0.022	**	-0.107	0.029	***	-0.025	0.023	
High Paternity Establishment, Low Collection Amounts	-0.119	0.026	***	-0.105	0.018	***	-0.082	0.028	***	-0.035	0.019	*
High Paternity Establishment, Medium Collection Amounts	-0.111	0.024	***	-0.085	0.018	***	-0.081	0.025	***	-0.042	0.018	**
High Paternity Establishment, High Collection Amounts	-0.125	0.029	***	-0.093	0.023	***	-0.096	0.031	***	-0.063	0.024	***
Specification 3: Interaction of Paternity and Welfare [c]												
Low Paternity Establishment, Low Welfare benefits	0.031	0.032		0.036	0.023		0.001	0.033		-0.018	0.024	
Low Paternity Establishment, Medium Welfare benefits	0.009	0.025		-0.001	0.016		0.001	0.025		-0.020	0.016	
Medium Paternity Establishment, Low Welfare benefits	-0.024	0.034		-0.032	0.024		-0.023	0.035		-0.035	0.025	
Medium Paternity Establishment, Medium Welfare benefits	-0.062	0.027	**	-0.042	0.019	**	-0.062	0.027	**	-0.045	0.020	**
Medium Paternity Establishment, High Welfare benefits	-0.093	0.022	***	0.007	0.015		-0.090	0.023	***	0.008	0.016	
High Paternity Establishment, Low Welfare benefits	-0.071	0.034	**	-0.062	0.025	**	-0.053	0.036		-0.038	0.026	
High Paternity Establishment, Medium Welfare benefits	-0.026	0.028		-0.072	0.021	***	-0.004	0.029		-0.055	0.021	**
High Paternity Establishment, High Welfare benefits	-0.103	0.026	***	-0.059	0.020	***	-0.106	0.026	***	-0.060	0.021	***
State-Specific Time Trends	No			Yes			No			Yes		
N	867			867			816			816		

Note: ** significant at 10 percent level; ** significant at 5 percent level; *** significant at the 1 percent level.*

All three specifications includes other socioeconomic variables controlled in model 2-3.

a. Low paternity establishment, low collection amounts, and low welfare benefits are the reference groups.

b. Low paternity establishment and low collection amounts is the reference group.

c. Low paternity establishment and high welfare benefits is the reference group.