
Welfare, Child Support, and Strategic Behavior

Do High Orders and Low Disregards Discourage Child Support Awards?

Jennifer Roff

ABSTRACT

Qualitative research has documented strategic behavior in response to child support policy. Parents of children on welfare have an incentive to avoid formal child support, since most states limit the amount of formal child support that women on welfare can receive (the “disregard”) and have relatively high child support orders for low-income fathers. This paper develops a simple model to make several predictions about how the disregard and order might interact to influence formal child support orders. Using data from the CPS-CSS merged with state child support variables, I find some evidence that higher orders and lower disregards are associated with fewer child support orders.

I. Introduction

Both the federal and state governments have invested considerable resources in improving child support receipt over the past 30 years, enacting numerous laws and devoting government expenditures to child support enforcement. At the same time, trends in child support receipt have remained fairly constant, largely due to demographic factors such as a relative increase in the number of never-married mothers. Several studies indicate that this increased emphasis on child support enforcement has paid off, with child support receipt positively associated with child support expenditure, along with a host of enforcement measures such as

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income tax intercepts and wage withholding (Freeman and Waldfogel 2001; Garfinkel et. al. 2001; Sorensen and Oliver 2002; Sorensen and Hill 2004). However, relatively few quantitative studies have focused on the complex interacting incentives of the child support system for the women on welfare and their partners. While Roff (2008) examined the incentive effects of child support and welfare policy, this paper takes a considerably different approach. Most importantly, it uses a simple reduced-form empirical strategy and nationwide data with cross-state and over-time variation in the order amount and disregard, whereas Roff's paper estimated structural parameters using cross-sectional data in three cities. Finally, this paper also has a key theoretical difference in that it assumes fathers may offer a strategic informal child support payment to influence the mother's child support decision.

Women on welfare face child support disincentives since those who receive formal child support may have most, or all, of their child support taxed away. Following the Personal Responsibility and Work Opportunities Reconciliation Act (PRWORA), the majority of states rescinded the \$50 child support disregard that allowed women on welfare to keep the first \$50 of child support that the father paid without any reduction in their welfare benefit. While some states have maintained the \$50 disregard, most have reduced the disregard to zero, and only Wisconsin allowed a 100 percent child support disregard during the time our data were collected. Once a mother leaves welfare, she becomes eligible to keep all formal child support, although past due support from when she was on welfare may still be kept by the state. Experimental evidence from Wisconsin as well as nonexperimental analyses of the child support disregard have provided some evidence that higher disregards lead to increased child support payment, as well as increased paternity establishment, but no studies to date have examined the interacting effects of child support disregards and child support orders for low-income parents following PRWORA (Meyer and Cancian 2001; Cancian et al. 2003; Sorensen and Hill 2004; Cancian et. al. 2006; Cancian et. al. 2008).

In addition, child support policy has limited fathers' discretion regarding compliance with child support payment. Automatic wage withholding, which was instituted as part of the Family Support Act of 1988, mandates that child support be automatically deducted from fathers' paychecks like the payroll tax. Moreover, to help locate fathers, a national new hire directory was established in 1996; all employers are required to report every new hire to the child support enforcement agency within 20 days. States also have attempted to enforce maternal cooperation with child support for mothers on welfare by establishing sanctions for maternal noncooperation that may involve reducing the amount of welfare received or removing the case from the rolls. However, many states still allow mothers to simply attest to a lack of information about the father, and all states have a "good cause" exemption to protect mothers who may suffer injury from cooperation due to factors like domestic violence. Finally, states generally allow mothers who have not identified the father to do so as circumstances change (Turetsky 1998; Roberts 2000).

While parents of children on welfare face limited disregards, child support orders are often quite high for low-income fathers; Sorensen and Oliver estimate that 25 percent of poor nonresident fathers who actually pay child support pay more than 50 percent of their income in child support, while only 2 percent of nonpoor fathers pay such a large amount (Sorensen and Oliver 2002). Qualitative research has

pointed out that the combination of high order amounts and low child support disregards among low-income parents creates an incentive to avoid the formal child support system in favor of underground employment and “under-the-table” payments (Edin 1994; Bassi and Lerman 1996; Johnson 1999; Waller and Plotnick 2001). Indeed, in her 1994 study, Edin cites that over half of her sample of mothers had hidden identifying information about their partners to avoid the formal child support system, for reasons that included higher informal child support payments. This paper examines how the limited disregard and high child support orders interact to create disincentives for mothers on welfare to cooperate with child support workers in establishing a child support order, as well as incentives for fathers to offer under-the-table child support payments. The paper uses data from the CPS-CSS and state-level data on disregards, orders and child support enforcement to test whether low child support disregards and high child support orders encourage strategic behavior, such as an increased reliance on informal child support orders and decreased formal child support agreements among parents of children on welfare. I find some evidence that parents do indeed behave strategically in response to high child support orders and low child support disregards, and that such policies lead to increased informal child support agreements and fewer formal child support orders among those women likely to be eligible for welfare.

II. Theory

The theoretical model assumes that both parents derive utility from their own consumption and from their child’s consumption, $U_p(c_c, c_p)$ where $p = f, m$ for father or mother respectively, with the relative utility they derive from each depending on their level of altruism. The father makes a child support payment, which may be informal or formal, and the mother chooses her own consumption and the child’s, given her income including child support. Children are a public good, and the father cannot observe or influence how his child support payment is spent, leading to a nonpareto optimal solution.¹

In addition to choosing the child’s consumption given her income, the never-married mother of children on welfare faces two choices: She can either cooperate with the child support authorities to name the father of her child and work to have a legal child support order established, or she can refuse to cooperate and claim that she has no knowledge of the child’s father. The father in turn can influence the mother’s decision to cooperate with the child support authorities by offering an informal child support payment. Assuming common knowledge of the parents’ parameters, the father can theoretically determine the mother’s cooperation decision via his informal or under-the-table payment. The parents’ decisions make up the dependent variable, which includes three possible states: (1) a legal agreement is established, $s = 1$, (2) no legal agreement is established, $s = 0$, but an informal agreement, $x^* > 0$ is established, (3) no legal agreement is established, $s = 0$, nor is any informal child support agreement established, $x^* = 0$. Since automatic wage

1. For a cooperative model of child support, see Flinn 2001.

withholding has been in place since the data was collected, I assume that if a formal child support order is established, the father has no choice but to comply with child support payment.^{2,3}

Assuming common knowledge, a rational father will choose an informal child support payment x^* such that:

$$x^* = \max[x^{**}, \bar{x}^*, 0]$$

where:

$$x^{**} = \arg \max U_f(c_c, c_f | s=0),$$

$$\bar{x}^* = \{ \min x | U_m(c_c, c_m | s=0, x) > U_m(c_c, c_m | s=1) \} \\ \text{if } U_f(c_c, c_f | s=0, \bar{x}^*) > U_f(c_c, c_f | s=1)$$

In other words, the father will offer the mother the maximum of the following three possible child support payments: (1) the informal child support payment that maximizes his utility if the mother does not cooperate with the child support authorities, (2) the informal child support payment that will induce the mother to not cooperate with the child support authorities, if the required payment is not so high that the father is no longer better off with maternal noncooperation, (3) zero, if the father's optimal child support payment is negative. The father pays the maximum of these three possible payments, since he may pay more than \bar{x}^* if his optimal payment x^{**} is greater than his strategic payment \bar{x}^* , but he must pay at least \bar{x}^* to induce the mother to not cooperate with the child support authorities.

Given x^* , the mother will cooperate with the child support authorities to establish a legal child support order if $U_m(c_c, c_m | s=1) > U_m(c_c, c_m | s=0, x^*)$. Otherwise, the mother will not cooperate with the child support authorities and will accept an under-the-table payment of x^* . Note that the father's informal payment x^* may well be less than his formal payment, due to maternal preference for the informal system and due to the limited disregard. Indeed, x^* may be zero; in this case, the father makes no informal child support payment.

This theoretical structure implies that the father captures the surplus of noncooperation. However, this assumption could be relaxed to allow bargaining between the parents so that:

$$\{ \max x | U_f(c_c, c_m | s=0, x) > U_f(c_c, c_m | s=1) \} > \\ \bar{x}^* > \{ \min x | U_m(c_c, c_m | s=0, x) > U_m(c_c, c_m | s=1) \}.$$

The implications of the theory regarding the effects of a change in the order or disregard on participation in the informal or formal child support system discussed below would remain the same.

2. By construction, if a legal agreement is established and the father wishes to pay more than the ordered amount, and does so informally, this is considered a legal agreement.

3. Note that the assumption that the father has no choice but to comply with child support due to automatic wage withholding ignores the possibility of the father avoiding payment through participation in "off-the-books" work. Using a reduced form analysis, Rich, Garfinkel, and Gao (2007) find little influence of stronger enforcement policy on paternal participation in the underground economy.

For simplicity, the model assumes a nonrepeated game. In a dynamic model, a father might renege on informal child support. However, introducing this possibility does not substantially alter the implications of the model below, since mothers may still seek a formal child support order if the father fails to pay sufficient informal support. A dynamic model also introduces the possibility that circumstances, such as parents' incomes, may change. In this case, since a legal child support order is nonreversible, if the game were played repeatedly, the effects of the disregard and order amount on formal child support could be expected to be smaller, since parents might choose not to cooperate with child support to maximize their lifetime utility even if it were in their short-term interests to cooperate.

A. Theoretical Effects of the Disregard and Child Support Order

1. Disregard

Given the above model, we can examine the theoretical effects of the disregard and order, and their interaction, on the formation of legal child support orders and informal child support agreements, including no informal or formal child support. Note that if the child support disregard falls, then the model predicts that cooperation with the child support authorities to establish a child support order must fall (nonstrictly).

This straightforward result occurs since the lower disregard can only decrease maternal income under a legal agreement and therefore decreases $U_m(c_c, c_m | s=1)$. At the same time, the likelihood that the father will offer a strategic child support payment, \bar{x}^* , such that $U_m(c_c, c_m | s=0, \bar{x}^*) > U_m(c_c, c_m | s=1)$ increases.

Figure 1 illustrates the effect of a decrease in the disregard on the father's strategic child support payment if the disregard is less than the order amount. The top graph shows the father's utility given his informal child support payment. When the disregard falls from f_1 to f_2 , the father's utility given a formal child support order falls, assuming the father would prefer that the child receive his payment rather than the state. As a result, the maximum strategic payment that the father is willing to make to avoid the formal child support system increases from \bar{x}_1 to \bar{x}_2 . The bottom graph shows the mother's utility given the informal child support payment. When the disregard falls, the mother's utility given a formal child support order also falls, leading the mother to be willing to accept a lower informal child support payment, \bar{x}_2^* , in exchange for her noncooperation with the child support authorities. As a result, the likelihood that there will exist a strategic payment \bar{x}^* such that both parents' utility is higher than that if they cooperated with the formal child support system increases. Note that the choice to operate in the informal system is not determinate given a limited disregard, due to individual maternal preferences for the formal system, as well as factors such as sanctioning for noncooperation with child support. The direct decrease in $U_m(c_c, c_m | s=1)$ also makes a formal agreement less likely versus no agreement ($s=0, x^*=0$).

2. Child Support Order

The theoretical effects of a change in the child support order on the establishment of a legal child support order are more complicated and are dependent on the dis-

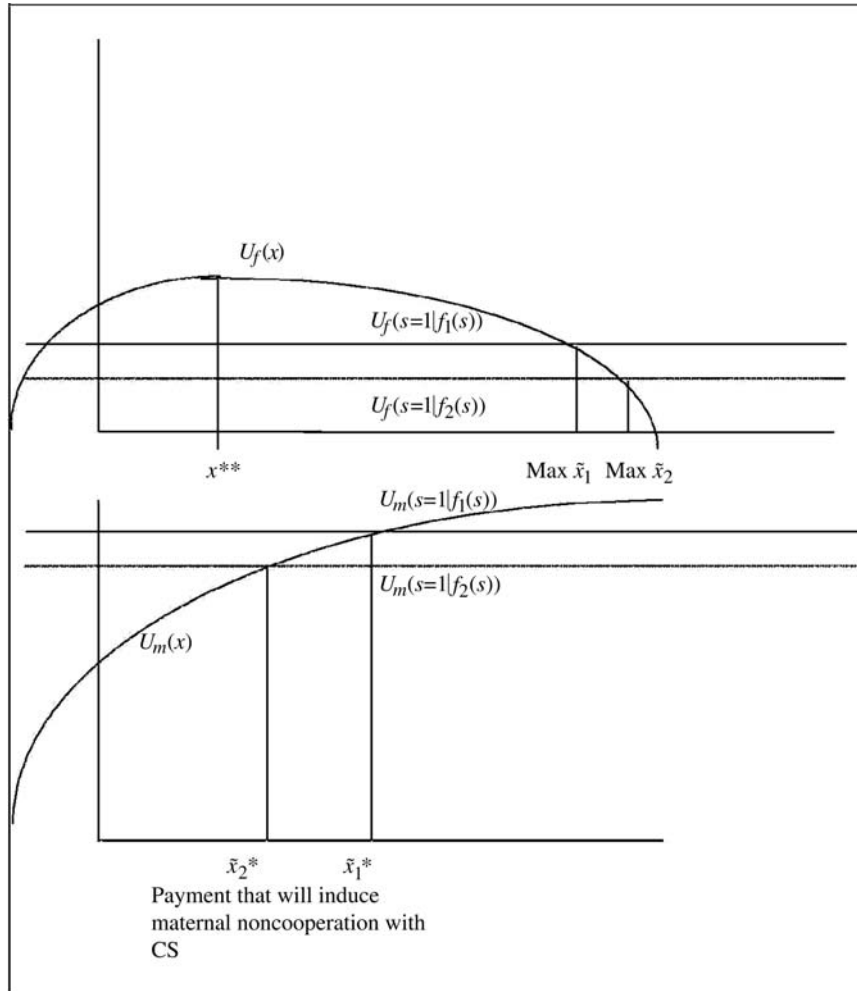


Figure 1
Effect of Decrease in Disregard on Strategic Child Support Payment

regard. Consider an increase in the child support order from q_1 to q_2 for fathers of children on welfare under the following two scenarios:

3. $q_1 < \text{Disregard Ceiling}$

In this case, an increase in the order from q_1 to q_2 has an ambiguous effect on the establishment of a formal child support order versus an informal child support order.

Figure 2 again illustrates the effects of an increase in the order from q_1 to q_2 on the father's strategic payment. If q_1 is above the father's optimal child support payment, then the increase in the order will cause the father's utility under a formal child support payment, $s = 1$, to fall, leading to an increase in the strategic payment that the father is willing to pay to induce the mother's noncooperation with the child support authorities from \tilde{x}_1 to \tilde{x}_2 .⁴ On the other hand, assuming automatic wage withholding and full compliance with payment of child support, $U_m(c_c, c_m | s = 1)$ must increase when the order increases to q_2 , increasing the minimum strategic payment that the mother will accept to not cooperate with the child support authorities.⁵ As Figure 2 shows, the minimum payment a mother will accept to not report paternity (\tilde{x}^*) increases, while the maximum informal payment a father is willing to make to induce the mother to not cooperate (\tilde{x}) also increases. It is unclear which of these effects will dominate, and therefore unclear whether a higher order in this case will lead to greater cooperation with formal child support or less.⁶

Assuming full compliance, an increase in the order when $q_1 < \text{disregard}$ is predicted to increase formal child support agreements versus no child support, since $U_m(c_c, c_m | s = 1)$ increases while $U_m(c_c, c_m | s = 0, x^* = 0)$ remains the same.

4. $q_1 > \text{Disregard Ceiling}$

In this case, an increase in the order from q_1 to q_2 decreases the theoretical likelihood of a formal child support order relative to an informal agreement, since $U_m(c_c, c_m | s = 1)$ remains the same as the order increases, but $U_m(c_c, c_m | s = 0, x^*)$ will nonstrictly increase. Figure 3 illustrates the effects of the increase in the order from q_1 to q_2 when q_1 is greater than the disregard ceiling. As Figure 3 demonstrates, the increase in the order amount decreases paternal utility if an order is established. As a result, the father's maximum strategic child support payment \tilde{x} increases from \tilde{x}_1 to \tilde{x}_2 . Since the mother's utility is unchanged, \tilde{x}^* remains the same, and the likelihood that there will exist a strategic payment that makes both parents better off increases. As before, the increase in the father's strategic payment \tilde{x} also leads to an increase in informal child support agreements relative to no child support agreement.

Therefore, the theoretical model predicts that: (1) lower disregards should be associated with fewer legal child support orders relative to informal or no child support agreement, and (2) when child support orders are high relative to the child support disregard, an increase in the order should be associated with fewer legal child support orders as compared to informal child support orders.

4. If q_2 is below the father's optimal payment then the father's utility is unchanged, since the father is free to "overcomply" and pay his optimal child support amount if it exceeds the order. Note that his optimal child support payment will never exceed the disregard limit.

5. Note that if the assumption of full compliance is relaxed, then expected child support may fall due to noncompliance, leading to a decrease in $U_m(c_c, c_m | s = 1)$. In any case, the increase in the order continues to have ambiguous effects on the likelihood of a formal order versus an informal one.

6. Note that if q_2 is above the disregard and q_1 is below, the essential predictions regarding an increase in the order given above do not change. The father's utility under a formal order still falls, so that his strategic payment increases. The mother's utility under the formal system increases (albeit less than it would if q_2 were above the disregard), so the payment that she is willing to accept to not cooperate also increases. The effects on formal child support orders are indeterminate.

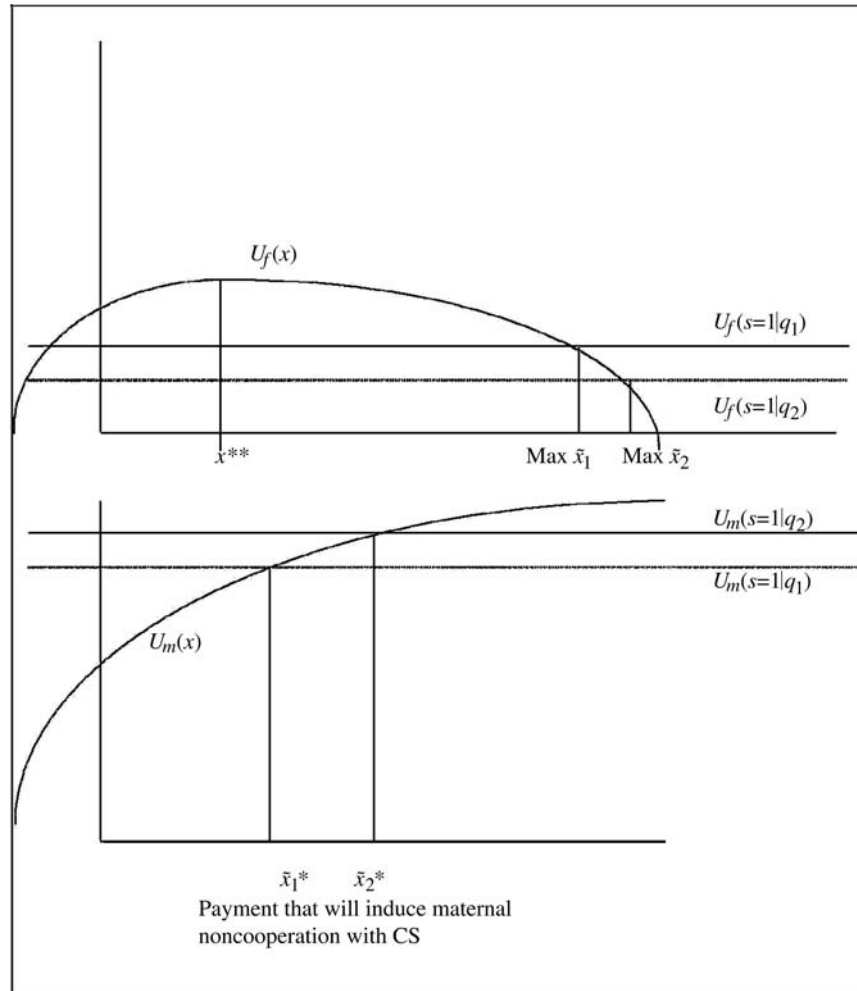


Figure 2
Effect of Change in Child Support Order on Strategic Child Support Payment if $q_1 < \text{Disregard}$

Note that this theoretical model, which does not allow for altruism between parents, predicts that a higher order should lead to no change in the mother's preference for a formal agreement versus no agreement ($x^* = 0$) if $q_1 > \text{disregard}$. This result occurs because the mother's utility is unchanged under both cooperation ($s = 1$) and noncooperation with no informal child support ($s = 0, x^* = 0$). However if the mother is altruistic toward the father, then we should expect to see fewer formal agreements versus no agreements as well.

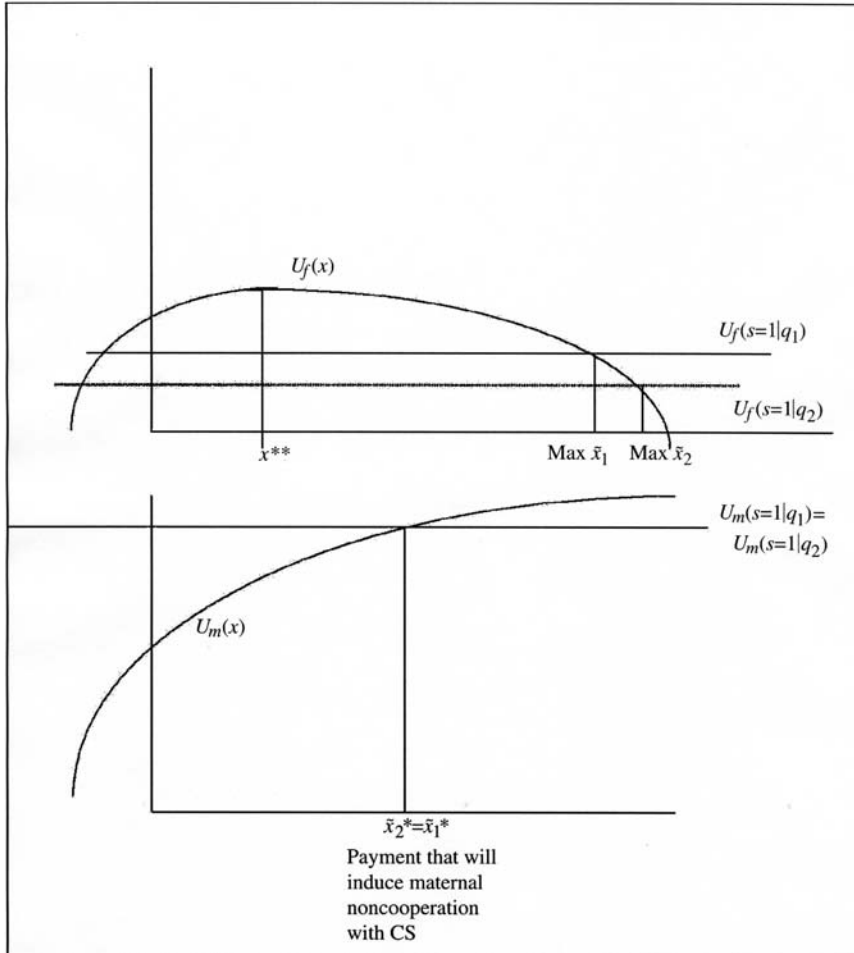


Figure 3
Effect of Change in Child Support Order on Strategic Payment if $q_1 >$ Disregard

III. Methods and Data

I test this model of parents' strategic behavior in the child support and welfare system by using microdata from the March/April CPS-CSS (Current Population Survey-Child Support Supplement) merged with state level data on the

disregard, average order amount for low-income fathers, and child support enforcement variables. Since the March/April CPS-CSS underwent significant changes in 1994 and since data on the average order amount for low-income fathers is only available to 2001, I use CPS-CSS data that was collected from 1994 to 2002.

The empirical model uses state variation in the disregard and child support order for low-income parents over time to estimate the effects of the disregard and order amounts on: (1) the existence of a legal child support order, and (2) the existence of an informal agreement versus no order, or a legal child support order. Because the disregard should only affect welfare recipients, I estimate the models on a low-education sample and high-education control group. I use education to define the experimental group and the control group in the primary models since a mother's welfare decision could well be affected by disregard policy and since the composition of the caseload has changed as welfare rolls have fallen significantly. For illustrative purposes, however, I also present results for the low-education group subdivided by welfare status. The universe is single-mother-headed families who live in their own household with their own child younger than 18; widows are excluded from the sample.⁷

I merge the microdata from the CPS-CSS with data from the Office of Child Support Enforcement on the maximum child support disregard in the state and several state-level child support enforcement variables from prior research, including a dummy variable for full federal certification of the state's child support system, a variable for the average administrative expenditures of the IV-D child support enforcement program given the caseload in each year/state and a variable for the number of years that a new hire directory has been in place^{8,9} (Garfinkel et al. 1994; Freeman and Waldfogel 2001; Sorensen and Oliver 2002; Sorensen and Hill 2004). These data have the advantage of allowing variation in the disregard both at the state level and over time.

In particular, the data include the state-level disregard in states in which a waiver or fill-the-gap policy was in place, allowing a more precise measurement of the maximum disregard and greater variation in the data over time. Although all states faced a \$50 per month federally mandated disregard of child support prior to PRWORA, several states had waivers that allowed them to change the disregard level. In particular, Connecticut offered a disregard of \$100 starting in 1994 as part of a welfare reform bill, and Wisconsin offered a full disregard with the introduction of Wisconsin Works in 1997 (Cohen 2006). In addition, even preceding PRWORA, there was state-level variation in the disregard since "fill-the-gap" states allowed women on welfare to disregard child support more than the \$50 federally mandated disregard if their welfare benefit was less than the state need standard, enabling women on welfare to "fill the gap" between their AFDC benefit and the state's need

7. In other words, "subfamilies"—that is, those families living in another family member's household—are excluded.

8. I also estimated the model with a dummy for whether the state had a new hire directory in a given year. I was not able to estimate this model for the multinomial probit, but this slight modification made essentially no difference in the results for the legal order probit.

9. Many thanks to Maria Cancian and Dan Meyer for providing access to the state-level child support enforcement, disregard, and economic variables.

standard. States that have had fill-the-gap policies during the period covered here include: Maine, Georgia, Mississippi, South Carolina, Tennessee, Virginia, and Wyoming. Of these, Georgia, Mississippi, Virginia, and Wyoming have seen their disregard fall, while the disregard has increased in South Carolina and Tennessee. (The disregard remained constant in Maine.)

Table 1 and 2 show the variation in the disregard by state and over time. As Table 1 illustrates, much of the variation in state disregard levels was generated by PRWORA, which allowed states to rescind the \$50 mandated disregard. Preceding PRWORA, eight states (the fill-the-gap states and Connecticut) had a disregard greater than \$50 a month, and none had a disregard less than \$50. Following PRWORA, nearly 30 states eliminated the disregard, leading to a fairly even split of states with a disregard of \$50 or greater, and those with less (generally zero). Other than the changes generated by PRWORA, the disregard has been fairly stable, with a handful of states changing the disregard each period, mostly due to changes in disregard among fill-the-gap states discussed above. As such, it should be noted that identification depends crucially on variation in the disregard following PRWORA and among fill-the-gap states.

I supplement these data with Pirog's data on the child support order by year and state for the lowest income group of fathers in her analysis (Pirog 2003; Pirog, personal correspondence). Pirog's research calculates the child support obligation over four different income assumptions by surveying the state child support enforcement programs as well as the administrative directors of each state. I use Pirog's lowest income calculation, which assumes that the father's gross income is \$720, and the mother's is \$480 for a combined gross income of \$1,200. This measure can be interpreted as a general measure of orders for low-income parents by state. It does not calculate individual order amounts, which might be considered endogenous and would substantially complicate the analysis. Most previous literature has ignored the effects of the amount of the child support order (exceptions include Del Boca and Flinn 1993; Meyer et al. 2008; Roff 2008); however, given the above theoretical model, the order amount among low-income parents has important implications for their child support decisions.

As Table 3 indicates, child support orders for the low-income group have been falling on average over time from roughly \$200 in 1994 to about \$175 by 2002. While most low-income orders used in this study are above the disregard, 15–20 percent of the sample in any given year have orders that are less than the disregard.

In addition to my independent variables of interest, the maximum disregard and the low-income child support order, I include a variable for the interaction of the low-income child support order with the difference of the state's disregard from the maximum in the sample over all states and years to capture interacting effects of the order amount and the disregard. This variable, $(maxdisregard-disregard_{st})q_{st}$, is included to examine the effects of low child support disregards combined with high child support orders (or high disregards combined with low orders), since the theoretical model predicts that low child support disregards combined with high child support orders should decrease the likelihood of a formal child support order. Note that the order amount is interacted with the difference in the state's disregard from the maximum disregard over the full sample. Using the difference from the top disregard level as opposed to the ongoing disregard level in the state allows the

Table 1
Maximum State Disregard by Year

	1994	1996	1998	2000	2002
Disregard < 50	0	0	27	28	28
Disregard = 50	43	43	16	16	17
Disregard > 50	8	8	8	7	6

Table 2
Changes in State Disregard over Time

	1994–96	1996–98	1998–2000	2000–2002
Disregard same	49	18	45	48
Disregard higher	2	3	3	2
Disregard lower	0	30	3	1

Table 3
Average Low-Income Order

	Mean	Standard Deviation	Minimum	Maximum
1994	\$202	80	\$15	\$327
1996	\$193	89	\$0	\$315
1998	\$177	90	\$0	\$327
2000	\$177	95	\$0	\$302
2002	\$176	94	\$10	\$321

interaction term to increase as orders increase and the disregard falls, since the model predicts that low disregards combined with high orders should decrease legal child support orders. This variable is intended to capture the general interaction between the disregard and order and does not formally test the effects of a change in the order if the disregard is below the order; these data include only a state-level measure of low-income orders making the construction of the aforementioned variable problematic.

Finally, I also include three variables to control for state-level economic conditions: the female unemployment rate, median household income, and the AFDC/TANF benefit level for a family of three. Following Sorensen and Hill (2004), I include several individual demographic variables, including race, age, age-squared,

the number of children, and an indicator for whether the mother has a child less than six years of age. The summary is in Table 4.

To examine the effects of the disregard and order on the existence of a legal child support, I first estimate a simple probit with state and year fixed effects and with robust standard errors. The variable for a legal child support order is a dummy that equals 1 if there is a legal child support order, and 0 if there is no order or only an informal child support agreement. Finally, I also estimate a multinomial probit with the following three categories: (1) a legal child support order exists, (2) no legal child support order exists, but the parents have an informal agreement, (3) no informal or formal child support agreement exists.

Error terms within state-by-year cells are allowed to be correlated, following Bertrand et al. 2004. In addition, to check for spurious correlation and to further limit serial correlation, an extension to the probit model allows state-specific time trends, so that $\varepsilon_{ist} = \theta_{st} + v_{ist}$. Unfortunately, I was not able to obtain convergent estimates including the time trends in the multinomial probit model.

While the analyses include state fixed effects and state-specific time trends, this research still may suffer from time-varying policy endogeneity. However, to the extent that states with poor child support outcomes seek to improve child support through higher disregards, this would bias the results downward. Finally, the analysis also attempts to control for possible policy endogeneity through state-level controls, such as child support expenditures, the number of years that the new hire directory has been in place and state certification status.

The model I estimate is then:

$$y_{ist} = \beta_1 \text{disregard}_{st} + \beta_2 q_{st} + \beta_3 (\text{maxdisregard} - \text{disregard}_{st}) q_{st} + Z_{st} \alpha + X_{it} + S \gamma + T \eta + \varepsilon_{ist}$$

where:

y_{ist} = dependent variable.

disregard_{st} = maximum disregard in state s in year t .

maxdisregard = highest disregard in sample.

q_{st} = low-income child support order in state s in year t .

Z_{st} = vector of state level child support and economic variables at time t .

X_{it} = vector of individual demographic characteristics.

S = vector of state dummies.

T = vector of year dummies.

IV. Results

The theoretical model predicts that: (1) higher disregards should increase the existence of formal child support orders, and (2) if low-income orders are high relative to the disregard, then higher orders also should decrease the probability of a formal child support order versus an informal payment or no child support among parents of children on welfare. While little quantitative research has documented these effects, ethnographic research suggests that many poor families

Table 4
Summary Table

Variable	Mean	Standard Deviation
Legal order	0.60	0.49
Black	0.28	0.45
Hispanic	0.11	0.32
Age of mother	34.5	8.1
Number of own children younger than 18	1.8	1.0
Child younger than 6 dummy	0.39	0.49
IVD program expenditures/IVD caseload	214	98
Number of years new hire directory in place	2.9	3.1
State certification dummy	0.14	0.35
Maximum AFDC for family of three	415	163
Female unemployment rate	5.2	1.4
Median state income	39,331	6,691

avoid the formal child support system, since they perceive the combination of low disregards and high order amounts to be punitive. To examine whether disregard policy and high order amounts for low-income families do indeed lead to reduced cooperation with the child support system, including strategic behavior such as informal child support payments for mothers on welfare, I estimate a probit for the existence of a legal child support order, as well as multinomial probit with the following Three categories: (1) a formal order exists, (2) an informal order exists, (3) no order exists.

Table 5 reports the results of the probit for the existence of a legal child support order, excluding the year and state dummies, for a low-education group (those with a high school diploma or less) who are most affected by the disregard and low-income order policy, and a higher-education control group (those with more than a high school degree). Column 2 of Table 5 also reports the results with the sample restricted to mothers with a single child younger than the age of six. I expect to see greater effects of current disregard and order policy on orders for relatively new parents, since parents with older children are more likely to have an order already established and legal child support orders are generally nonreversible. Finally, Column 3 reports the results for never-married new mothers (Sorensen and Hill 2004). As with new mothers, we expect to see particularly strong results for never-married women, since never-married mothers may more easily avoid the formal system by claiming no knowledge of the father. Results for previously married new mothers are not reported because the sample size is quite low. Table 6 shows the same results with the time trend included.

Turning first to our preferred specification with the time trend included, Table 6 shows insignificant effects of the disregard and order amount on the full sample of lower-education mothers. However, once the sample is restricted to new mothers

Table 5
Probit for Formal Child Support Order, by Education

Variable	Low Education			High Education		
	Total	Young Child	Young Child— Never Married	Total	Young Child	Young Child
Disregard	0.0039** (0.0014)	0.0079** (0.0033)	0.0093** (0.0039)	-0.0004 (0.0011)	-0.0020 (0.0036)	-0.0020 (0.0036)
q	-0.0112** (0.0044)	-0.0312** (0.0101)	-0.0367** (0.0121)	0.0010 (0.0036)	0.0043 (0.0114)	0.0043 (0.0114)
$(maxd-disregard)*q^a$	0.0196** (0.0071)	0.0517** (0.0164)	0.0607** (0.0196)	-0.0016 (0.0059)	-0.0086 (0.0189)	-0.0086 (0.0189)
CS expenditures	0.00031 (0.00039)	-0.0006 (0.0011)	0.0016 (0.0013)	0.0004 (0.0005)	-0.0004 (0.0012)	-0.0004 (0.0012)
New hire years	0.0044 (0.0271)	0.0861 (0.0665)	0.1203 (0.0857)	0.0288 (0.0292)	0.0203 (0.0781)	0.0203 (0.0781)
Full certification	0.0755 (0.0773)	-0.0524 (0.2032)	-0.0892 (0.2420)	-0.1744** (0.0848)	0.0126 (0.2021)	0.0126 (0.2021)
Black	-0.6075** (0.0487)	-0.6641** (0.1292)	-0.6282** (0.1519)	-0.5307** (0.0599)	-0.2615* (0.1549)	-0.2615* (0.1549)
Hispanic	-0.4225** (0.0567)	-0.4106** (0.1765)	-0.5026** (0.1765)	-0.4411** (0.0816)	0.1472 (0.1806)	0.1472 (0.1806)
Age	0.0768** (0.0172)	0.0742 (0.0524)	0.1150 (0.0826)	0.0502** (0.0255)	0.1291* (0.0795)	0.1291* (0.0795)

(continued)

Table 5 (continued)

Age squared	-0.0009*** (0.0002)	-0.0009 (0.0008)	-0.0020 (0.0014)	-0.0005 (0.0003)	-0.0021* (0.0013)
Number of children	0.1137** (0.0201)			0.2506** (0.0281)	
Child younger than 6	-0.1613** (0.0494)			-0.3037** (0.0513)	
Female unemployment rate	-0.0305 (0.0338)	-0.1007 (0.0980)	-0.0174 (0.1071)	0.0152 (0.0318)	-0.0242 (0.0963)
Median state income ^a	-0.0258* (0.0135)	-0.0281 (0.0358)	-0.0164 (0.0389)	0.0132 (0.0141)	-0.0163 (0.0409)
TANF benefit for family of 3	-0.0003 (0.0006)	0.0021 (0.0018)	0.0013 (0.0017)	0.0001 (0.0006)	-0.0006 (0.0019)
N	5,043	811	627	4,317	627
Log likelihood	-3,202.1	-485.8	-360.1	-2,518.6	-402.2

**Significant at 5 percent level. *Significant at 10 percent level. a. multiplied by 0.001.

Table 6
Probit for Formal Child Support Order, with Time Trend

Variable	Low Education			High Education		
	Total	Young Child	Young Child— Never Married	Total	Young Child	Young Child
Disregard	0.0030 (0.0024)	0.0117** (0.0042)	0.0095* (0.0053)	0.0004 (0.0016)	0.0008 (0.0028)	0.0008 (0.0028)
q	-0.0073 (0.0059)	-0.0378** (0.0112)	-0.0376** (0.0134)	-0.0027 (0.0044)	-0.0027 (0.0081)	-0.0027 (0.0081)
(maxd-disregard)* q^a	0.0121 (0.0095)	0.0614** (0.0184)	0.0608** (0.0218)	0.0044 (0.0071)	0.0026 (0.0131)	0.0026 (0.0131)
CS expenditures	0.0010 (0.0007)	0.0023 (0.0021)	0.0044* (0.0026)	0.0002 (0.0008)	0.0002 (0.0014)	0.0002 (0.0014)
New hire years	0.0456 (0.0572)	0.1382 (0.1393)	0.2045 (0.1644)	0.0139 (0.0553)	0.1345 (0.1155)	0.1345 (0.1155)
Full certification	0.1641 (0.1244)	-0.2056 (0.3335)	0.1330 (0.3835)	-0.1018 (0.1304)	-0.2554 (0.2137)	-0.2554 (0.2137)
Black	-0.6152** (0.0500)	-0.6330** (0.1424)	-0.6420** (0.1766)	-0.5296** (0.0609)	-0.4807** (0.1136)	-0.4807** (0.1136)
Hispanic	-0.4204** (0.0571)	-0.4122* (0.1940)	-0.4701** (0.2022)	-0.4286** (0.0802)	0.0350 (0.1145)	0.0350 (0.1145)
Age	0.0789** (0.0173)	0.0746 (0.0571)	0.1341 (0.0899)	0.0507** (0.0257)	0.1300** (0.0500)	0.1300** (0.0500)

(continued)

Table 6 (continued)

Age squared	-0.0010** (0.0002)	-0.0009 (0.0009)	-0.0024 (0.0016)	-0.0005 (0.0003)	-0.0019** (0.0008)
Number children	0.1162** (0.0203)			0.2539** (0.0285)	
Child younger than six	-0.1704** (0.0450)			-0.3028** (0.0520)	
Female unemployment rate	0.0248 (0.0494)	-0.2952* (0.1554)	-0.3523** (0.1717)	0.0048 (0.0483)	-0.1794 (0.1120)
Median state income ^a	0.0027 (0.0173)	0.0095 (0.0441)	0.0463 (0.0518)	0.0125 (0.0183)	0.0833** (0.0369)
TANF benefit for family of three	0.0016 (0.0011)	0.0015 (0.0031)	0.0014 (0.0026)	-0.0003 (0.0011)	0.0034 (0.0026)
N	5,043	811	627	4,317	1,203
Log likelihood	-3,177.1	-450.6	-321.3	-2,499.6	-1,733.4

**Significant at 5 percent level. *Significant at 10 percent level. a. multiplied by 0.001

and never-married new mothers, Table 6 indicates that higher disregard levels increase the likelihood of a legal order being established, just as the theoretical model predicts. Higher child support orders among the low-income group also are associated with a lower probability of a legal order among new mothers. Given Sorensen's findings that child support orders can be quite high for low-income fathers and the generally low disregard levels among most states, this finding supports the theoretical model's prediction that increasing the order amount for low-income parents while holding the disregard constant decreases the incentives to establish a legal child support order. However, the interaction term is positive and significant. Contrary to the theoretical model, this implies that the biggest effects of a change in the disregard occur at lower order amounts and that decreasing the order amount is associated with more orders at higher disregards. Table 5, which excludes the time trend, shows significant effects of the disregard and order amount for the full sample of low-education mothers as well. As expected, the disregard and order fail to be significant in the higher-education control groups, as reported in the last columns of Tables 5 and 6.

While the individual level demographic variables show the expected sign, many of the state-level variables fail to be significant. Other authors have shown a significant positive impact of new hire directories, immediate wage withholding, state expenditures, and income tax withholding on child support receipt and the establishment of child support orders (Garfinkel et al 2001; Sorensen and Oliver 2002; Sorensen and Hill 2004). However, this analysis uses a shorter time frame with reduced the variation in the child support variables, which perhaps contributes to the loss of significance of the other child support policy variables. In contrast, much of the variation in the disregard occurred following the passage of PRWORA, so these data contain significant variation in the disregard even given the shorter time period.

Table 7 presents the probit for legal child support for the low-education group by public assistance status with a state-specific time trend included. To more accurately reflect the group most likely to respond to the disregard (which includes not just those currently on welfare, but also those with a high probability of entry), the public assistance category is defined as those whose family received TANF, SSI, Medicaid or food stamps, or who contacted a state office to inquire about welfare receipt. The results in Table 7 are largely consistent with those from Table 6. As before, the disregard is positively associated with a formal child support order, and this effect is stronger for new parents. In addition, high order amounts are negatively associated with legal orders. The control group shows no effects for the disregard or order amounts.

Table 8 shows the results of the multinomial probit for the existence of an informal child support agreement or no child support agreement, with formal child support as the base category. The theoretical model predicts that an increase in the disregard should increase the probability of a legal child support order versus an informal agreement or no child support agreement. An increase in the order has ambiguous effects; however, if orders are high relative to the disregard, then an increase in the order should decrease the likelihood of a formal child support order versus an informal agreement or no child support. As before, I separate the model into the low-education group that is more likely to be affected by the welfare regulations, and a

Table 7
Probit for Formal Child Support Order by Welfare Status

Variable	Public Assistance		No Public Assistance
	Young Child	Young Child— Never Married	
	Total		Total
Disregard	0.0052** (0.0024)	0.0088* (0.0050)	-0.0006 (0.0033)
q	-0.0117* (0.0065)	-0.0376** (0.0147)	0.0024 (0.0081)
$(maxd-disregard)*q^a$	0.0197* (0.0107)	0.0606** (0.0241)	-0.0039 (0.0131)
CS expenditures	0.0010 (0.0010)	0.0052* (0.0029)	0.0002 (0.0009)
New hire years	0.0870 (0.0722)	-0.0614 (0.1716)	-0.0726 (0.1120)
Full certification	0.1053 (0.1903)	0.4921 (0.3871)	0.1975 (0.1583)
Black	-0.5469** (0.0632)	-0.6576** (0.1852)	-0.7438** (0.0801)
Hispanic	-0.3293** (0.0708)	-0.3959* (0.2331)	-0.5798** (0.1082)
Age	0.0866** (0.0230)	0.1445* (0.0803)	0.0512 (0.0353)

Age squared	-0.0020 (0.0014)	-0.0030 (0.0022)	-0.0006 (0.0005)
Number children	-0.0011 ** (0.0003)		0.2149** (0.0516)
Child younger than 6	0.1041 ** (0.0227)		-0.2833** (0.0861)
Female unemployment rate	-0.1291 ** (0.0670)		0.1447 (0.0924)
	-0.0432 (0.0610)	-0.0806 (0.1246)	
Median state income ^a	-0.0163 (0.0204)	-0.0398 (0.0458)	0.0163 (0.0334)
TANF benefit for family of three	0.0016 (0.0012)	-0.0017 (0.0022)	0.0009 (0.0025)
N	3,221	463	1,822
Log likelihood	-2,022.6	-262.0	-1,076.5

**Significant at 5 percent level. *Significant at 10 percent level. a. multiplied by 0.001

Table 8
Multinomial Probit, by Education

	Low Education		Low Education		High Education	
	$s = 0, x > 0$	$s = 0, x^* = 0$	$s = 0, x > 0$	$s = 0, x^* = 0$	$s = 0, x > 0$	$s = 0, x^* = 0$
Disregard ^b	-0.2111 (0.3139)	-0.5979** (0.1904)	-1.962* (1.164)	-1.054 (0.6648)	0.0614 (0.2830)	0.0667 (0.1566)
Order amount ^c	6.398 (9.343)	17.485** (5.814)	59.784* (34.033)	42.176** (20.796)	-1.974 (8.552)	1.713 (4.861)
Interaction ^d	-1.0582 (1.5173)	-3.0453** (0.9422)	-9.4846* (5.4740)	-7.0021** (3.3581)	0.2907 (1.4121)	0.2856 (0.8002)
CS expenditure ^e	0.0577 (0.8049)	-0.2718 (0.6019)	-1.133 (3.053)	-1.069 (1.674)	-1.089 (1.176)	-0.4150 (0.6357)
New hire years	0.0796 (0.0756)	-0.0205 (0.0419)	0.0106 (0.3218)	-0.1192 (0.1410)	0.2017** (0.0659)	-0.0722* (0.0418)
Full cert	-0.1091 (0.1803)	-0.0904 (0.1118)	0.2269 (0.5820)	0.0158 (0.3131)	0.4308** (0.1795)	0.1949* (0.1173)
Black	0.5971** (0.0926)	0.8595** (0.0693)	0.9965** (0.2774)	0.8813** (0.1749)	0.6823** (0.1343)	0.7211** (0.0815)
Hispanic	0.3322** (0.1389)	0.6174** (0.0809)	0.7012 (0.5592)	0.5275** (0.2629)	0.5516** (0.2121)	0.6024** (0.1100)
Age ^b	-7.515** (3.726)	-10.779** (2.404)	-8.964 (17.046)	-9.780 (7.847)	10.633* (5.642)	-9.636** (3.656)

Age ^c	7.758 (5.394)	13.293** (3.425)	9.781 (26.448)	12.530 (12.681)	-17.537** (7.995)	11.373** (4.953)
Number of children ^a	-0.5673 (0.4403)	-1.710** (0.2840)			-3.074** (0.5621)	-3.316** (0.4094)
Age younger than six	0.2487** (0.0957)	0.2126** (0.0716)			0.7011** (0.1093)	0.3448** (0.0738)
Median state income ^e	0.5561 (2.920)	3.671* (1.908)	-1.236 (10.102)	3.367 (5.587)	0.0672 (3.361)	-2.014 (21.998)
N	5,043		816		4,317	
Log likelihood	-3,967.7		-626.7		-3,025.6	

** Significant at the 5 percent level. *Significant at the 10 percent level.

a. Multiplied by 0.1.

b. Multiplied by 0.01.

c. Multiplied by 0.001.

d. Multiplied by 0.0001.

e. Multiplied by 0.00001.

higher education group.¹⁰ Due to difficulty with convergence, Table 8 presents estimates assuming i.i.d. errors. However, Table 9 presents the results of sensitivity tests over a range of correlation estimates.¹¹

As Table 8 indicates, the disregard follows the theoretical model's predicted effects: higher disregards have a statistically significant negative association with "no orders" versus formal child support for the low-education group, since formal child support orders become more attractive as formal child support orders are effectively taxed at a lower rate. In addition, once the sample is restricted to new mothers with little education, higher disregards show a negative effect on informal orders versus formal child support, as parents have less incentive to make and accept informal payments. Finally, while the results presented in Table 8 show no significant results of the disregard on "no orders" for new mothers; most specifications included in the sensitivity tests presented in Table 9 indicate negative effects on "no orders" versus formal child support.

Among the low-education group, higher order amounts also are associated with a lower likelihood of a formal child support agreement versus no agreement. In addition, once the sample is restricted to new mothers, higher order amounts become significantly associated with an increase in informal agreements versus formal child support across a range of correlation structures as well. These results provide some support for theoretical model's prediction that parents may not only avoid the formal system in response to high orders, but that fathers also may offer strategic informal payments to induce mothers to avoid the formal system in response to high orders, especially if the order is high relative to the disregard, as is the case in this sample. As before, the demographic variables show the expected sign, although state-level child support controls generally fail to be significant, and the interaction term indicates nonlinearities as in the probit models. Looking at the higher-education group, we see no significant effects of the disregard or low-income order amount.

While the empirical results support that low disregards and high orders may reduce formal child support orders, it should be noted that sample size is limited, especially for the never-married group. Moreover, the time frame for the analysis is fairly short and variation in the disregard is restricted to changes due to PRWORA and in fill-the-gap states.

V. Conclusion

In many states, child support policy has focused heavily on recouping payments made to women on welfare through the use of a limited disregard. This research provides some evidence that limited disregards and high child support orders for low-income parents may reduce the cooperation of parents with the child support authorities and encourage the use of informal child support payments. These

10. For the multinomial probit, I omitted the variables for female unemployment rate and maximum AFDC benefit due to difficulty obtaining convergence. These variables were not significant in the legal agreement probit.

11. I also estimated these models with a range of variances. The results remained substantively the same.

Table 9
Sensitivity Tests, by Education

	Disregard ^a	q^b	Interaction ^c	$\rho_{3,2}$	σ	Log-Likelihood
Low education Total sample	$s=0, x > 0$ (0.2812) -0.5872** (0.1926)	9.323 (8.422) 17.189** (5.879)	-1.5727 (1.3638) -2.9906** (0.9515)	0.5	1	-3,967.8
Low education Total sample	$s=0, x > 0$ (0.2294) -0.4619** (0.1966)	13.373* (6.954) 16.760** (6.007)	-2.2924** (1.1218) -2.9098** (0.9707)	0.9	1	-3,967.9
Low education Total sample	$s=0, x > 0$ (0.3289) -0.1199 (0.1881)	3.956 (9.755) 17.598** (6.744)	-0.6339 (1.5877) -3.0670** (0.9324)	-0.5	1	-3,967.7
Low education Total sample	$s=0, x^* > 0$ (0.3344) -0.6056** (0.1881)	2.519 (9.890) 17.662** (5.754)	-0.3833 (1.6116) -3.0787** (0.9340)	-0.9	1	-3,967.5
Low education Young child	$s=0, x^* > 0$ (0.7124) -1.919** (1.103**)	60.476** (22.312) 43.642** (13.677)	-9.7126 (3.6233) -7.2310** (2.2241)	0.5	1	-626.6
Low education Young child	$s=0, x^* > 0$ (0.5723) -1.642** (1.161**)	55.743** (17.939) 45.273** (14.219)	-9.0886** (2.9123) -7.4886** (2.3103)	0.9	1	-626.5

(continued)

Table 9 (continued)

Low education Young child	$s = 0, x^* > 0$	-1.190 (1.222)	57.015 (35.702)	-8.9492 (5.7544)	-0.5	1	-626.7
	$s = 0, x^* = 0$	-1.010 (0.6577)	40.838** (20.538)	-6.7934** (3.3178)			
Low education Young child	$s = 0, x^* > 0$	-1.833 (1.242)	54.005 (36.253)	-8.4067 (5.8417)	-0.9	1	-626.7
	$s = 0, x^* = 0$	-0.9767 (0.6520)	39.780** (20.335)	-6.6275** (3.2860)			
High education	$s = 0, x^* > 0$	0.0726 (0.2518)	-2.087 (7.730)	.3183 (1.2714)	.5	1	-3025.7
	$s = 0, x^* = 0$	0.0624 (0.1567)	-1.696 (4.889)	.2774 (.8028)			
High education	$s = 0, x^* > 0$	0.0740 (0.1969)	-2.018 (6.175)	0.3181 (1.0108)	0.9	1	-3,025.9
	$s = 0, x^* = 0$	0.0593 (0.1584)	-1.710 (4.965)	0.2743 (0.8136)			
High education	$s = 0, x^* > 0$	0.0505 (0.2975)	-1.837 (8.901)	0.2629 (1.4739)	-0.5	1	-3025.6
	$s = 0, x^* = 0$	0.0699 (0.1572)	-1.714 (4.860)	0.203 (0.8016)			
High education	$s = 0, x^* > 0$	0.0434 (0.3021)	-1.729 (8.983)	0.2433 (1.4903)	-0.9	1	-3025.7
	$s = 0, x^* = 0$	0.0719 (0.1579)	-1.707 (4.866)	0.2924 (0.8026)			

** Significant at the 5 percent level. *Significant at the 10 percent level.

a. Multiplied by .01.

b. Multiplied by .001.

c. Multiplied by .0001. Variances set to 1. $\rho_{3,2}$ = covariance of "informal" and "no child support" groups

incentives are crucial for policy makers' decisions regarding child support and welfare policy, both from a budget standpoint and for child outcomes.

Researchers have documented the benefits of paternity establishment and child support (Knox and Bane 1994; Knox 1996; Argys et al 1998; Argys and Peters 2001), and ethnographic research indicates that punitive child support policy and high child support orders may lead to more conflict between low-income parents (Johnson 1999; Waller and Plotnick 2001). Therefore, if low disregards and high child support orders for low-income parents inhibit paternity establishment and father involvement due to less participation in the formal child support system, there may be additional costs to high child support beyond fewer child support collections.

Finally, this analysis is limited in scope. These data look at effects of state level policies for the disregard and order amounts for low-income fathers. It does not explicitly measure the order for individual fathers, and so does not test the interacting effects of the disregard and order at the individual level, nor does it estimate the impacts on welfare receipt and maternal employment. As such, future research should examine the effects of the disregard and child support order with regard to the interaction of maternal employment and welfare, as well as with regard to paternal visitation and child development.

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