Young Children's Health and Behavior Following Welfare Reform

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ABSTRACT

This study uses data from the Fragile Families and Child Well-being Study to investigate the effects of welfare and employment on the health and behavioral outcomes of 3-year-old children among a sample of former and current welfare recipients. To limit selection bias, we use instrumental variable models to predict welfare receipt and employment. We find that although employed mothers who are no longer receiving welfare report better health and behavioral outcomes for their children, these advantages are explained by the unobserved characteristics of mothers who make a successful transition to employment, rather than to work per se.

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A primary goal of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) of 1996 was to transition mothers from welfare dependence toward employment, with the hope that this transition would improve child well-being. PRWORA ended poor mothers' long-standing entitlement to welfare benefits under the Aid to Families with Dependent Children (AFDC) program that critics argued discouraged work (Mead 1992), encouraged non marital childbearing (Murray 1984), and generally provided a disservice to the mothers and children it served. AFDC was replaced by the Temporary Assistance to Needy Families (TANF) program, which mandates that mothers work in order to receive benefits and limits lifetime welfare benefits to a maximum of five years.

Employment, supporters argued, provides a family with a regular schedule, gives the child a positive role model of a working parent, enhances the mother's self-esteem and motivation, and increases the family's income. Each of these factors, in turn, promotes better parenting behaviors and improves the child's health and behavior.

Opponents to the strict work requirements under TANF had a less sanguine prediction as to how maternal employment, particularly low-wage, unstable employment, would affect parenting and child well-being. Low-wage, unstable employment may not significantly increase a mother's resources and may introduce higher levels of stress into the household as the mother attempts to balance caring for her children with many more competing responsibilities. Thus maternal and child well-being may diminish as a result (Duncan and Brooks-Gunn, 2000).

A substantial body of research has focused on the employment and income effects of PRWORA (Blank, 2002). The findings reveal that as a result of welfare reform's emphasis on work, in combination with a strong economy in the late 1990s and government supports for

working families, the welfare rolls declined by over fifty percent since 1996 and poverty decreased as well. Most of the women leaving welfare found employment, albeit the majority entered into low-paying and unstable jobs (Johnson and Corcoran, 2003; Pavetti and Acs, 2001; Zedlewski, 2002). Since the recession of 2000, however, poverty rates have been climbing steadily and employment prospects for current and former welfare recipients have diminished somewhat (Fremstad, 2004; Loprest, 2003;), underscoring how vulnerable low-wage workers are to downturns in the economy, and reigniting concerns among skeptics of welfare reform.

In contrast to the substantial research on employment and earnings, fewer welfare studies have focused on the well-being of very young children; this, despite the fact that over two-thirds of welfare recipients are children and improving child well-being was a major platform for reform. The extant studies generally conclude that children of working mothers as compared to welfare mothers have similar or somewhat better outcomes (Morris, Huston, Duncan, Crosby, and Bos, 2001; Zaslow, et al. 2002) but these effects are largely explained by the antecedent characteristics of mothers who leave welfare for work and by concomitant increases in their household incomes (Dunifon, Kalil, and Danziger, 2003; Kalil, Dunifon, and Danziger, 2001; Morris, Gennetian, and Duncan, 2005). Indeed, maternal employment is not associated with better outcomes for children unless the mother's income increases (Future of Children 2002; Gennetian and Miller, 2002).

Further analyses on the effects of welfare and employment on child well-being are needed before a consensus can be formed. Welfare regimes vary widely across states, and maternal employment is sensitive to changes in the economy, thus, the effects of welfare reform on children may vary across states and over time. The effects of employment may also differ across the age of the child, and little research has been conducted on very young children. In

addition, mothers on TANF today, particularly those who are not meeting the mandatory work requirements, may be a more extreme, select group of disadvantaged women; characteristics that may also negatively affect the well-being of their children. Moreover, few studies have examined how welfare mothers have fared since the economic downturn of 2000.

In this analysis, we use data from the Fragile Families and Child Wellbeing Study (Fragile Families Study), a survey of primarily unmarried, low-income mothers who live in 20 large cities across the US, to examine the health and emotional behavior of the 3-year-old children of four groups of mothers: those who receive welfare and do not work (welfare only), those who receive welfare and work (welfare/work), those who do not receive welfare and work (work only), and those who do not receive welfare and do not work (no welfare/work). We argue that the effects of welfare will be moderated by a mother's work status. It is not clear, however, whether the benefits of work will outweigh the potential costs to welfare mothers who face many barriers to employment (Danziger et al, 2000) and who generally participate in low-wage work (Johnson and Corcoran, 2003; Pavetti and Acs, 2001; Zedlewski, 2002). We also examine several possible mechanisms through which welfare and work may affect child well-being, including family structure, household income, maternal depression, and maternal stress.

We control for several antecedent characteristics of the mother that may be correlated with both welfare receipt, employment, and mothering and child well-being (e.g. education, race, age), however, the risk remains that we have not accounted for some unmeasured or unobserved characteristic that is driving the observed associations. To this end, we use instrumental variable models to limit selection bias. We instrument welfare receipt and employment with several terms that approximate welfare generosity (e.g. the maximum TANF + Food Stamp benefit for a family of three, the harshness of sanctions for non-compliance, whether there were any

restrictions on two-parent families' welfare receipt, whether there were transitional child care guarantees for at least some families, and whether there were any upfront cash diversion programs) and whether the state had an earned income tax credit in 2002 and the average unemployment rate in the state for 2002.

BACKGROUND

Whether maternal employment improves child well-being is dependent on several factors, including changes in household income that result from work versus welfare, and the effect that employment has on the mother's psychological well-being. To the extent that income and psychological health increase as a result of work, the mother's interaction with her child and the child's outcomes should improve as well (McLoyd, 1990). If income does not increase and maternal employment imposes psychological strains on the mother, the mother's interaction with her child may decline along with the child's well-being (Duncan and Brooks-Gunn, 2000).

Family income is an important predictor of child well-being. Children that live in poverty, particularly at very young ages, are at an increased risk of experiencing a host of negative outcomes, with both short-term and long-term consequences (Duncan and Brooks-Gunn, 2000). Poverty affects child well-being through the limited material resources available to the child, as well as through the deficits poverty imposes on the mother's emotional well-being which affects the mother-child interaction (McLoyd, 1990). Employment is generally associated with higher levels of income than mothers receive on welfare (Gennetian and Miller, 2002; Morris et al., 2005), but the employment trajectories of former welfare recipients may be unstable, the income may not be steady, and it may not be enough to cover the increased expenses associated with work. Thus, slight increases in household income associated with

maternal employment may not substantially advance the mother's resources nor improve the child's well-being.

A mother's emotional well-being is a strong predictor of her ability to optimally interact with her child, which affects the child's well-being (McLoyd, 1990). High levels of maternal stress and depression dampen a mother's ability to care and provide for her child (Chase-Lansdale, 2003). Employment is associated with lower levels of maternal stress and depression and better mother-child interaction (Chase-Lansdale, 2003; Dunifon et al., 2003), but his finding is more likely to be true if the mother's job encourages independence and self-sufficiency (Moore and Driscoll, 1997; Parcel and Meneghan, 1997). Women moving from welfare into work are the least likely to move into jobs which promote autonomy, however, and thus employment for these women may not be associated with better emotional well-being. In fact, employment in low-wage, menial work may diminish a mother's self-esteem. In addition, maternal employment may impose serious strains on the mother as she attempts to balance work and family responsibilities with limited resources (Marshall and Barnett, 1991).

Each of these factors – income, maternal stress, and depression – may be influenced by whether the mother shares the parenting responsibilities with a partner. Children's outcomes are generally better when the child lives with both biological parents (McLanahan and Sandefur, 1994; Amato, 2005) largely because of the higher levels of income in two-parent households and because of the socialization process within two-parent versus one-parent households. Thus, to the extent that living with a partner (who, in most cases in this analysis, is the biological father) leads to higher income and lower levels of stress and depression, then children in two-parent households should have better outcomes compared to children whose mother lives without a partner. However, many of the unmarried mothers in this study have likely chosen not to marry the child's

biological father because of his limited resources and emotional strains in their relationship (Edin and Kefalas, 2005), thus these partners may have limited effect on the outcomes.

Rather than employment leading to better outcomes for children, it is possible that mothers who are capable of transitioning from welfare to work have certain positive characteristics that are also associated with better child outcomes; thus the benefits associated with work may be due to selection, and not to work per se. The more advanced welfare studies have attempted to correct for selection bias by employing fixed-effects (Dunifon et al., 2003; Kalil, et al. 2001), and instrumental variable models (as we do in this analysis) (Currie and Cole, 1993; Levine and Zimmerman, 2005), as well as random-assignment experiments (for example Gennetian and Miller 2002; Huston, et al. 2001; Morris, et al. 2001;; Morris, Duncan, Clark-Kauffman, 2005; Zaslow et al. 2002). It is important to determine if maternal employment has any causal benefit to children because of the centrality of work in the new welfare policies. However, proving a causal relationship in any non-randomized experiment is an arduous goal.

The empirical evidence finds that maternal employment among former welfare recipients is not harmful to children (Chase-Lansdale et al., 2003) and is beneficial in some cases, so long as employment is associated with concomitant increases in income (Gennetian and Miller, 2002; Zaslow et al., 2002). Mothers who combine welfare with work also tend to report better outcomes for their children compared to mothers who remain on welfare (Dunifon, et al, 2003; Smith, Brooks-Gunn, Klebanov, and Lee, 2000). Most of the benefits associated with work are due to the antecedent characteristics of mothers who move into the workforce, although as more women are being forced off of the rolls and into the labor-market, the selection effects may dampen. The prior welfare studies generally conclude that after accounting for selection, it is not work per se, but the higher levels of income from work that really matter for child well-being

(Gennetian and Miller, 2002). In addition, although the evidence generally supports the notion that employment is associated with more positive mother-child interactions, improvements in parenting do not seem to be the pathway through which employment improves children's outcomes (Chase-Lansdale and Pittman, 2002). Instead, most of the benefits of employment *and* higher income seem to be exercised through better child care arrangements for children (Chase-Lansdale and Pittman, 2002).

The bottom line from the theoretical and empirical research is that if income and resources increase as a result of maternal employment, then the children should benefit, if they decline, then the children may likely suffer.

DATA AND METHODS

In this paper, we use data from the Fragile Families Study to examine the effect of welfare and employment on young child outcomes. The Fragile Families Study follows a cohort of nearly 5,000 children born in 20 large urban areas between 1998 and 2000. Because the design includes an over-sample of non-marital births, these data provide extensive information on the population of women who were most likely to be affected by PRWORA –unmarried mothers – around the time when the new policies took effect in most states. Moreover, the 20 cities (in 15 states) in the Fragile Families sample were drawn via a stratified random sample scheme which was designed to capture the extremes of welfare and child support policies and labor market conditions. See Reichman et al (2001) for more detail on the study design. Because we examine outcomes of children at age 3, all of the mothers in this sample have experienced the downturn in the economy of 2000, which might affect their welfare and employment behavior.

Mothers were interviewed in the hospital around the time of the focal child's birth, with follow-up interviews occurring around the child's first and third birthdays. At baseline, the Fragile Families sample included 1,186 married mothers and 3,712 unmarried mothers whose response rates were 82 percent and 87 percent, respectively. Child outcomes are measured at the three-year follow-up in a supplement to the core survey. We exclude from our sample mothers who did not respond to the three-year core survey (N=667) and mothers who did not respond to the three-year child supplement (N = 914). We also exclude mothers who have never received welfare (N = 1,711) as we are interested in the effects of welfare and leaving welfare for employment on child outcomes. We also drop from the sample 89 mothers who are immigrants because Fragile Families does not have data on the immigrants' legal status and PRWORA limits legal immigrants' participation in Medicaid and TANF, with rules applied differentially to legal immigrants depending on date of arrival. Finally we drop 132 cases that are missing data on one of our key measures, resulting in a final sample of 1,385 mothers.

Measures

We examine three outcomes of child emotional and behavioral problems at age 3: aggressive, withdrawn, and anxious/depressive behavior. The scale items for the three outcomes, derived from the Child Behavior Checklist 2-3 (Achenbach, 1992), are displayed in Table 1. Each item was read to the child's mother, and the mother indicated whether the statement was not true (0), sometimes or somewhat true (1), or very true or often true (2) of her child. The aggressive scale is comprised of the mean responses of 15 items (M = 10.7 and S.D. = 6.2). The withdrawn scale consists of the mean responses of 14 items (M = 4.7 and SD = 3.6) and the anxious/depressive scale consists of the mean responses of 10 items (M = 6.0 and SD = 3.3). The outcomes are positively correlated with one another: The correlation between aggressive and

withdrawn behavior is .66; between aggressive and anxious/depressive is .61; and between withdrawn and anxious/depressive is .60.

We also include a fourth child outcome, a categorical indicator of *child's overall health,* which is measured by a question that asks mothers whether they would describe their child's health as "excellent, very good, good, fair, or poor." A value of 1 represents excellent health and 5 represents poor health. As shown in Table 2, the mean on this item is 1.6 and the standard deviation is 0.8.

The key independent variables are measures of mothers' welfare receipt and employment. We compare child outcomes across four groups of mothers: those who receive welfare and do not work (*welfare only*), those who receive welfare and work (*welfare/work*), those who do not receive welfare and work (*work only*), and those who do not receive welfare and do not work (*no welfare/work*). At the year 3 interview, welfare receipt is measured by a question that asks mothers if they received any income from welfare or TANF in the past *month*. At year 3, employment is measured by a question that asks the mother if she did any regular work for pay in the past *week*. As shown in Table 2, 26 percent of this sample of mothers who have ever received welfare were currently receiving welfare and not working (welfare only), 42 percent were currently employed and not receiving welfare (work only), and 7.5 percent were working and receiving welfare (welfare/work). Twenty-five percent of mothers reported that they were not working and not receiving welfare (no welfare/work). Although there is a slight time discrepancy between the two measures (one refers to the past month and one the past week), this cannot account for the large proportion of mothers who are not receiving welfare or working. One-half of the mothers not working or receiving welfare report that they are looking for work.

Among the remainder, one-third report that they are stay-at-home moms, whereas some are in school or disabled.

We also control for characteristics of the mother that may be associated with her welfare receipt, employment, and the child's outcomes. All of the multivariate models control for mother's *age* and *education* at the child's birth, whether she is *non-Hispanic Black* (with non-black as the reference cell), and whether the focal child is a *girl*. Because we use state-level policies in the instrumental variables models, and therefore cluster the standard errors at the state level, we have limited degrees of freedom for the control variables. Therefore, education is measured as a continuous categorical variable, with 1=less than high school, 2= high school diploma, 3=some college, 4= college degree or higher. We also do not include a control for number of children or whether the mother was married at the child's birth because the results are similar with and without these controls and we chose to preserve degrees of freedom.

As potential pathways for the welfare and employment effects, we examine four maternal outcomes at the three-year follow-up interview: family structure, household income, maternal depression/anxiety, and maternal parenting stress. For family structure, we determine whether the mother is *married or cohabiting* at the year 3 interview (albeit the partner does not have to be the biological father of the focal child). *Household income* is divided by $10,000 in the models. For mothers who provided only bracketed income data, we used hotdeck imputation to impute household income based on mothers who provided the full dollar amount in the same bracketed range. We also look at whether the mother was depressed or anxious and her level of parenting stress. Mother's *depression or anxiety* is derived from the Composite International Diagnostic Interview Short Form or CIDI-SF (Walters et al, 2002). Mother's *parenting stress* at the three-year interview is the mean response to four questions: being a parent is harder than I thought it

would be, I feel trapped by my responsibilities as a parent, I find that taking care of my child(ren) is much more work than pleasure, and I often feel tired, worn out, or exhausted from raising a family. Mothers respond on a scale of 1 (strongly agree) to 4 (strongly disagree). We reverse code these items so that higher responses represent higher levels of stress.

Table 2 shows the characteristics of mothers in our sample of current and former welfare recipients. Mothers are 24 years old on average, with less than a high school degree. Nearly 70 percent of the sample is Black and mothers have nearly three children each. One-third of mothers are married or cohabiting with either the biological or social father of the focal child at the three-year follow-up. Over one-quarter of mothers are anxious or depressed at the three-year follow-up. These estimates are in line with estimates of depression among mothers with young children (Heneghan et al., 1998; Jayakody and Stauffer, 2000) and among welfare recipients (Lennon et al., 2002). Finally the mean of the parenting stress scale is 2.3, which suggests that mothers are likely to "somewhat disagree" with the parenting stress questions, but on the side moving toward "somewhat agree."

Analytic approach

For the first part of our analysis, we look at the relationships between welfare and employment and child outcomes. Using ordinary least squares regression models, we control for exogenous individual level characteristics that may be associated with welfare receipt, employment, and child outcomes, specifically mother's age, race, education, and gender of the child. Subsequently, we add the maternal variables that may be pathways through which welfare or employment affect child well-being (marriage/cohabitation, household income, depression/anxiety, and parenting stress.)

Because we suspect the selection into welfare and employment is very strong, even among a sample of current and former welfare recipients, these results may be biased. One strategy to deal with this would be to employ fixed effects models (Dunifon et al., 2003; Kalil, et al. 2001), but we do not have repeated child outcome measures over time yet, as the focal children are just three years old.

Therefore, we use welfare and labor market policies as instruments to predict welfare receipt and employment. The IV models allow us to eliminate unobserved characteristics of the mothers that may be correlated with welfare receipt, employment, and child outcomes. The instrumental variables approach assumes that the instruments are not correlated with child outcomes except through their effects on welfare receipt and employment. The instrumental variables will be unbiased if the welfare and labor market policies that are used to identify the welfare and work predictions are uncorrelated with unobserved city variables that are correlated with child outcomes. To check the exogeneity of the regressors, we compute a test of overidentifying restrictions using Hansen's J-statistic. For these models, we use two-stage least squares estimation, with standard errors clustered at the state level.

The welfare instruments include five policies that may influence a mother's decision or ability to receive welfare or work: 1) the maximum TANF + Food Stamp benefit for a family of three (this is divided by $100 in the models); 2) the harshness of sanctions for non-compliance (lenient-1, moderate-2, or stringent-3); 3) whether there were any restrictions, aside from financial eligibility, on two-parent families' welfare receipt; 4) whether there were transitional child care guarantees for at least some families, and 5) whether there were any upfront cash diversion programs. The classification of sanction policies was obtained from Pavetti and Bloom (2001). The remaining measures are based on data from 1999 and were obtained from the State

Policy Documentation Project (www.spdp.org). The labor market instruments are whether the state had an earned income tax credit (EITC) in 2002 (NCCP, 2006) and the average unemployment rate in the state for 2002 (U.S. Department of Labor, 2002). The welfare and labor market policies for the states in the Fragile Families sample are displayed in Appendix Table 1.

The results from the first stage regressions are presented in Appendix Table 2. The F-statistics for the test of the joint significance of the instruments predicting welfare and work, work only, and no welfare or work are 22.7, 13.4, and 3.6. Each is statistically significant at the $p \leq .10$, level indicating that even after controlling for individual-level characteristics, the instruments are significant predictors of welfare receipt and/or employment.

In the model predicting a combination of welfare and employment (welfare/work), having a state EITC is associated with less combining of welfare and work, whereas providing transitional child care benefits is associated with more working while on welfare. In the model predicting work only, having two-parent restrictions on welfare receipt or an upfront cash diversion program is associated with increased employment. Higher levels of unemployment and transitional child care guarantees were associated with lower levels of working only. The guaranteed child care may result in less work because of child care shortages. Finally, stronger sanctions and higher unemployment are associated with more mothers not being on welfare or working. By contrast, the generosity of TANF and Food Stamps and providing transitional child care are associated with lower levels of mothers not working or on welfare.

Among this relatively homogenous sample of current and former welfare recipients, observed individual level characteristics are less important predictors of welfare receipt and employment than among a sample of all women. The strongest associations are that mothers

with more education are more likely to be employed and less likely not to be working or on welfare. Older mothers are less likely to be combining work and welfare and more likely not to be working or receiving welfare.

RESULTS

In the first part of the analysis, we examine the association between reported welfare receipt, employment, and child outcomes using OLS regression models and controlling for a set of exogenous individual characteristics that may affect child well-being (Table 3). In addition, we examine four possible pathways through which employment and welfare may affect child well-being: family structure, household income, maternal depression, and parenting stress. Mothers who receive welfare and do not work (welfare only) are the reference group.

Working Only compared to Welfare Only

A primary question of this analysis is how the well-being of children of working mothers compares to that of children of mothers who do not work and receive welfare. Presumably, the first group of mothers (work only) has made a successful transition from welfare to employment (albeit, it could be temporary), given that all of the mothers in our sample are former or current welfare recipients. We would expect that if employment improves the home environment, family income, and mother-child interactions in a household, then the outcomes of the children of the work only mothers would be superior to those of welfare only mothers.

The results support this hypothesis, somewhat. Mothers who work and are not on welfare (work only) report better health and behavioral outcomes for their 3-year-old children compared to mothers who are on welfare only. In terms of child health, exogenous background characteristics of the mother explain only a small fraction of the better health outcomes reported by working only mothers; indeed, the coefficient on working only mothers merely declines from -.148 to -.140

when the exogenous characteristics are introduced in the second model, and remains significant. Better health among children of working mothers is largely explained, however, by lower levels of parenting stress and depression/anxiety among these mothers as compared to mothers who receive welfare and do not work. When these maternal variables are introduced in the third model, the coefficient on working only declines to -.083 and is no longer significant. Interestingly, maternal education and household income are not associated with child health after controlling for the other variables in the model. The mother's age and the child's gender are significantly associated with child health.

In contrast to child health, the lower incidence of child behavioral problems among children of working mothers is largely explained by selection into employment; specifically, the higher level of education of mothers who have made the successful transition to work from welfare explains a substantial portion of the better child behavioral outcomes among this group. After accounting for differences in maternal education between working and welfare mothers, there are no significant differences in aggressive behavior between the groups, only marginally significant differences in withdrawn behavior, and significant differences in anxious/depressive behavior, although the size of the coefficient is reduced by over one-third.

None of the coefficients declines to zero in model 2, however, indicating that selection may not be the entire story. We test four possible pathways through which maternal employment and welfare may affect child behavior: family structure, family income, maternal depression, and maternal stress. The findings suggest that although working only mothers are more likely than welfare mothers to live with a partner when the child is age 3 (37% versus 22%, respectively, results not shown), these differences in family structure do not explain any of the differences in child outcomes, after taking account of the other variables in the model. In contrast, higher

levels of income and lower levels of maternal stress and depression among working only mothers explain a significant portion of the better outcomes of their children.

Because all of these variables are measured at the same point in time, it is not possible to determine the precise direction of this association. Our conceptual model posits that maternal employment leads to higher income and lower levels of maternal stress and depression and thus better child outcomes, but it is possible that mothers with these characteristics may actually be more likely to work *and* to have children with fewer behavioral problems. Regardless, higher levels of income, and lower levels of maternal stress and depression among mothers who have left welfare for employment seem to explain a significant portion of the better outcomes of their three-year-old children. However, the antecedent characteristics of mothers who are employed as opposed to only on welfare also play a significant role in explaining the better behavioral outcomes of children of working mothers.

Work and Welfare compared to Welfare Only

A small percentage of women in our sample (7.5%) have not made a full transition from welfare to work, and instead are combining work and welfare to meet their family's needs. Prior studies have found that women who combine work with welfare report similar child outcomes as compared to mothers who work without receiving welfare, and better outcomes than mothers who receive welfare only (Dunifon, et al, 2003; Smith et al., 2000). Our findings are somewhat inconsistent with these prior studies. We find that mothers who combine welfare and work report similar levels of child health and behavioral problems as welfare only mothers, but both groups report poorer child health and behavior relative to working only mothers. Differences between work/welfare and welfare only mothers in the background maternal characteristics associated with child health and behavior are small (results not shown), but the models suggest

that when these differences are taken into account, mothers who combine work and welfare report slightly worse outcomes for their children than mothers on welfare only, albeit the differences are not statistically significant.

No Welfare or Work compared to Welfare Only

The final group of mothers that we analyze is that of mothers who are no longer on welfare and are not working for pay (no welfare/no work). This is a heterogeneous group of mothers in which half are looking for work, one-third are stay-at-home mothers, and the remainder are in school or disabled. We find no significant differences in child health and behavior between this heterogeneous group of mothers and welfare only mothers. It is possible that the subset of mothers who are unsuccessfully looking for work or who have been sanctioned from the rolls are worse off than mothers who remain on welfare, and that the other mothers in this group have better outcomes than welfare only mothers; and thus their results cancel each other out. But because of small sample sizes, it is difficult to determine the true outcomes for this group relative to welfare only mothers. Preliminary analyses separating the mothers looking for work from the other mothers in this group showed no significant differences between their children's outcomes.

Instrumental Variable Models

The OLS regression results presented above provide an illustration of the observed differences in child health and behavior across groups. However, as mentioned previously, these results may be biased because we are unable to control for unobservable characteristics of mothers who "choose" employment versus welfare, and these characteristics may also affect child behavior. To address this problem of selection bias, we use instrumental variables to predict mothers' welfare receipt and employment, to determine whether welfare and work affect

children's wellbeing. The IV models allow us to eliminate unobserved characteristics of the mother that may be correlated with welfare receipt and employment and with child outcomes. For these models, we use two-stage least squares estimation, with standard errors clustered at the state level.

The two-stage least-squares estimates (shown in Table 4) suggest that all of the observed association between maternal employment and better health and behavioral outcomes is due to omitted-variable bias. These findings are similar to prior studies using IV models (Currie and Cole, 1993; Levine and Zimmerman, 2005). Thus, maternal employment does not appear to *cause* better health and behavior, rather the mothers who make the transition from welfare to work differ in important ways that are also associated with better child outcomes. In table 4, the IV results are compared to the second model of the OLS estimates (shown in table 3), in which none of the potential mediators are included.

A note regarding the two-stage least square models is that the magnitude of the effects in the IV results is much larger than in the OLS models. Such large coefficients for IV estimates are relatively common (Currie and Cole, 1993; Levine and Zimmerman, 2005). The variation in generosity of welfare and labor market policies is much smaller than the variation in welfare receipt and employment. Second, even though our first stage results suggest that we have valid instruments of welfare receipt, as is common in instrumental variables analyses, the predicted receipt variables generated by instrumental variables models are estimated with less precision than the observed receipt variables, which means that the standard errors are larger and hence it is more difficult to achieve statistical significance with the IV estimates. A number of estimates in our analysis are close to, but do not achieve statistical significance at the 10 percent level.

It is possible that the IV models are in effect controlling for the mediators that we included in our third model, if the welfare and employment instruments also predict family structure, household income, parenting stress, and maternal depression. We used IV models to predict the four mediators we examined as pathways through which employment and welfare may affect child outcomes (results not shown). We found that the two-stage least squares estimates suggest that employment leads to less cohabitation and more parenting stress, whereas combining welfare and work leads to less parenting stress. None of the other associations was significant. Thus, it seems likely that the association between employment and better child outcomes is due to selection rather than work per se.

CONCLUSION

The goal of this analysis has been to determine whether maternal employment following welfare dependence has positive or negative effects on young children's health and behavior. We compare the health and behavioral outcomes across children whose mothers were working and no longer on welfare, combining welfare and work, not working and not receiving welfare, and those who remained on welfare without working for pay. Our conceptual model posits that employment may increase household income and reduce maternal stress and depression, and thus improve child outcomes. Alternatively, we argued that employment may have the opposite effect if it is not associated with higher levels of income and thus increases maternal stress and depression.

We find that mothers who work and are no longer on welfare report better child health and behavior in their three year old children. The OLS results find that a significant portion of the advantages experienced by working mothers is explained by higher levels of education of mothers who make the full transition from welfare to work. We tested four possible mechanisms

through which employment may affect child well-being and found that higher levels of household income and lower levels of maternal stress and depression among working mothers accounts for any remaining difference in child health and behavior, once education is controlled. We cannot, however, determine if these conditions predate employment or are caused by employment as our model posits.

We employed instrumental variable models to limit issues of selection bias in our models. These two-stage least squares estimates suggest that work is not causally related to better child outcomes, but that the observed differences in child outcomes between working and welfare mothers are due to unobserved characteristics of mothers who transition from welfare to work, rather than work per se.

These results imply that the children of mothers who are capable of making the full transition from welfare dependence to employment will do better than those who lack this capability. Mothers who remain on welfare, even if they combine welfare with work, are less educated, have lower levels of income, more maternal stress, and higher levels of depression, and these characteristics impede their child's health and behavioral development. Policies must eliminate these barriers to successful employment transitions by providing education and counseling. In addition, welfare policies should ensure that a family's income increases as a result of employment and that resource levels remain higher as the mother navigates the very unsteady path of low-wage work. Without these supports for all low-wage workers, children may suffer.

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Table 1: Outcome Measures: Questions in Child Emotional and Behavioral Problem Scales

Aggressive	Withdrawn	Anxious/Depressive
Defiant	Acts too young for age	Clings to adults, dependent
Demands met immediately	Avoids eye contact	Feelings easily hurt
Disobedient	Doesn't answer people	Looks unhappy
Easily frustrated	Refuses to play games	Self-conscious, embarrassed
Fights often	Unresponsive to affection	Too fearful or anxious
Hits others	Shows little affection	Unhappy, sad, depressed
Angry moods	Shows little interest in things	Upset by separation from parents
Punishment doesn't matter	Withdrawn, doesn't get involved	Overtired
Screams a lot	Underactive, slow moving	Shy, timid
Selfish or won't share	Doesn't get along with others	Wants attention
Temper tantrums	Doesn't know how to have fun	
Easily jealous	Lacks guilt after misbehaving	
Moody	Stubborn, sullen, irritable	
Unusually loud	Uncooperative	
Whiny		

Source: Fragile Families Study

Scales based on Achenbach, 1992 for 2 to 3 year olds.

Mother's responses range from 0 (not true) to 2 (very/often true).

Table 2: Means of Dependent and Independent Measures

	Unweighted Percent/Mean	*S.D.*
Child outcomes (mean)		
Aggressive behavior	10.7	6.2
Withdrawn behavior	4.7	3.6
Anxious/depressive behavior	6.0	3.3
Overall health (1=excellent, 5=poor)	1.6	0.8
Mother's welfare/work status at three-year (%)		
Welfare only	26.3	--
Welfare and working	7.5	--
Working, no welfare	41.6	--
No work, no welfare	24.6	--
Demographic controls and mediators		
Mother's age (mean)	23.9	5.3
Mother's education[1] (mean)	1.8	0.8
Mother is black (%)	68.4	--
Child is a girl (%)	47.6	--
Married or cohabiting at the 3 year interview (%)	34.4	--
Household income/$10,000 (mean)	2.0	2.0
Mother is depressed/anxious at 3 year interview (%)	26.6	--
Mother's parenting stress (mean)	2.3	0.7

N = 1,385

Notes:

[1] Education is measured as a continuous variable where 1=less than high school diploma, 2=high school diploma, 3=some college, & 4=college degree or higher.

Table 3: OLS estimates of effects of welfare and work on child wellbeing at age three

	Poor child health						Aggressive behavior					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
Variable	**OLS**		**OLS**		**OLS**		**OLS**		**OLS**		**OLS**	
Working only	-0.148	**	-0.140	*	-0.083		-1.077	**	-0.680		0.108	
	(0.053)		(0.056)		(0.058)		(0.413)		(0.435)		(0.442)	
Welfare & work	-0.041		-0.028		0.001		0.659		0.794		1.217	^
	(0.089)		(0.089)		(0.088)		(0.686)		(0.686)		(0.667)	
No welfare or work	-0.060		-0.066		-0.043		-0.109		0.041		0.316	
	(0.060)		(0.061)		(0.061)		(0.465)		(0.469)		(0.463)	
Mother is black	--		-0.049		-0.065		--		-0.172		-0.361	
			(0.046)		(0.046)				(0.359)		(0.352)	
Mother's education	--		-0.032		-0.025		--		-0.541	*	-0.382	^
			(0.029)		(0.030)				(0.225)		(0.223)	
Mother's age	--		0.013	**	0.014	**	--		-0.021		-0.014	
			(0.004)		(0.004)				(0.033)		(0.032)	
Child is a girl	--		-0.125	**	-0.121	**	--		-0.925	**	-0.901	**
			(0.043)		(0.042)				(0.331)		(0.321)	
Married or cohab at 3yr	--		--		-0.042		--		--		-0.072	
					(0.048)						(0.362)	
HH income/$10000	--		--		-0.010		--		--		-0.229	*
					(0.012)						(0.091)	
Parenting stress	--		--		0.096	**	--		--		1.574	**
					(0.032)						(0.246)	
Depressed/anxious at 3yr	--		--		0.195	**					1.973	**
					(0.050)						(0.377)	
Constant	1.637	**	1.469	**	1.185	**	11.168	**	13.009	**	8.590	**
	(0.042)		(0.109)		(0.134)		(0.323)		(.845)		(1.013)	

Table 3: (continued)

	Withdrawn behavior						Anxious/depressive behavior					
	Model 1		Model 2		Model 3		Model 1		Model 2		Model 3	
Variable	**OLS**		**OLS**		**OLS**		**OLS**		**OLS**		**OLS**	
Working only	-0.887	**	-0.464	^	-0.046		-1.109	**	-0.690	**	-0.321	
	(0.242)		(0.252)		(0.260)		(0.217)		(0.226)		(0.233)	
Welfare & work	0.195		0.344		0.548		0.162		0.334		0.520	
	(0.401)		(0.398)		(0.393)		(0.360)		(0.358)		(0.352)	
No welfare or work	-0.121		0.008		0.207		-0.387		-0.237		-0.071	
	(0.272)		(0.272)		(0.272)		(0.244)		(0.244)		(0.244)	
Mother is black	--		-0.288		-0.421	*	--		0.023		-0.087	
			(0.208)		(0.207)				(0.187)		(0.186)	
Mother's education	--		-0.620	**	-0.522	**	--		-0.656	**	-0.570	**
			(0.130)		(0.131)				(0.117)		(0.118)	
Mother's age	--		-0.008		-0.004		--		0.009		0.013	
			(0.019)		(0.019)				(0.017)		(0.017)	
Child is a girl	--		-0.634	**	-0.617	**	--		-0.186		-0.173	
			(0.192)		(0.189)				(0.173)		(0.169)	
Married or cohab at 3yr	--		--		-0.268		--		--		-0.180	
					(0.213)						(0.191)	
HH income/$10000	--		--		-0.141	**	--		--		-0.121	*
					(0.054)						(0.048)	
Parenting stress	--		--		0.633	**	--		--		0.647	**
					(0.145)						(0.130)	
Depressed/anxious at 3yr	--		--		0.809	**	--		--		0.715	**
					(0.222)						(0.199)	
Constant	5.074	**	6.685	**	4.960	**	6.569	**	7.408	**	5.653	**
	(.189)		(.490)		(.596)		(.170)		(.440)		(.535)	

** p<0.01; * p<0.05; ^ p<0.10 two tailed

Table 4: OLS and IV estimates of effects of welfare and work on child wellbeing

	Child Health				Aggressive				Withdrawn				Anxious/Depresssed			
Variable	**OLS**		**IV**		**OLS**		**IV**		**OLS**		**IV**		**OLS**		**IV**	
Working only	-0.140	*	-0.157		-0.680		4.868		-0.464	^	3.404		-0.690	**	-1.734	
	(0.056)		(.364)		(0.435)		(4.573)		(0.252)		(3.077)		(0.226)		(.3.072)	
Welfare & work	-0.028		-1.792	**	0.794		13.343		0.344		9.000		0.334		3.887	
	(0.089)		(.567)		(0.686)		(9.673)		(0.398)		(8.165)		(0.358)		(5.377)	
No welfare or work	-0.066		0.460		0.041		4.682		0.008		1.414		-0.237		1.904	
	(0.061)		(.347)		(0.469)		(3.698)		(0.272)		(2.905)		(0.244)		(2.016)	
Mother is black	-0.049		0.010		-0.172		0.131		-0.288		-0.273		0.023		0.284	
	(0.046)		(.088)		(0.359)		(.580)		(0.208)		(.312)		(0.187)		(.357)	
Mother's education at child's birth	-0.032		-0.014		-0.541	*	-1.314		-0.620	**	-1.245	^	-0.656	**	-0.336	
	(0.029)		(.084)		(0.225)		(.839)		(0.130)		(.678)		(0.117)		(.597)	
Mother's age at child's birth	0.013	**	0.007	^	-0.021		0.000		-0.008		0.013		0.009		0.010	
	(0.004)		(.004)		(0.033)		(.047)		(0.019)		(.032)		(0.017)		(.027)	
Child is a girl	-0.125	**	-0.133	*	-0.925	**	-1.018	**	-0.634	**	-0.667	**	-0.186		-0.222	
	(0.043)		(.048)		(0.331)		(.259)		(0.192)		(.160)		(0.173)		(.178)	
Constant	1.469	**	1.567	**	13.009	**	9.374	**	6.685	**	4.735	*	7.408	**	6.279	**
	(0.109)		(.172)		(.845)		(2.533)		(.490)		(2.164)		(.440)		(1.442)	

** p<0.01; * p<0.05; ^ p<0.10 two tailed

Appendix Table 1: Welfare and child support policies by state

State	Max TANF +FS /$100	Sanction policies	Two parent restrictions	Cash diversion	Transitional child care	State unemp rate 2002	State EITC in 2002
Texas	5.3	Moderate	no	yes	yes	6.3	no
Tennessee	5.6	Strict	yes	no	yes	5.2	no
Indiana	6.2	Lenient	yes	no	yes	5.2	yes
Virginia	6.2	Strict	no	yes	yes	4.2	no
Florida	6.3	Strict	no	yes	no	5.7	no
Illinois	6.8	Moderate	no	no	no	6.5	yes
Maryland	6.9	Strict	no	yes	no	4.5	yes
Pennsylvania	7.3	Moderate	yes	no	yes	5.6	no
New Jersey	7.4	Strict	no	yes	yes	5.8	yes
Michigan	7.7	Strict	no	no	no	6.2	no
Massachussetts	8.5	Strict	yes	no	yes	5.3	yes
New York	8.6	Lenient	no	no	yes	6.2	yes
California	8.7	Lenient	yes	yes	yes	6.7	no
Wisconsin	9.1	Strict	yes	no	no	5.3	yes
Ohio	6.9	Strict	no	yes	yes	5.7	no
All states in sample	7.2	Mod/Strict	no(9), yes(6)	no(8),yes(7)	no(5), yes(10)	5.6	no(8), yes(7)

Appendix Table 2: First-stage regression equations

	Welfare & work		Working only		No welfare or work	
Mother characteristics						
Mother's age	-0.002	*	-0.001		0.004	^
	(.001)		(.003)		(.002)	
Mother's education	-0.006		0.192	**	-0.050	**
	(.010)		(.017)		(.016)	
Mother is black	0.022		0.001		-0.106	**
	(.015)		(.030)		(.030)	
Child is a girl	0.002		0.002		0.019	
	(.013)		(.026)		(.020)	
Instruments						
Max TANF+FS 1999	-0.003		-0.007		-0.027	^
	(.006)		(.009)		(.015)	
Sanctions (higher = stricter)	-0.009		0.032	*	0.023	*
	(.007)		(.015)		(.019)	
Two parent restrictions	0.008		0.054	**	-0.015	
	(.009)		(.018)		(.035)	
Cash diversion	0.003		0.042	**	0.013	
	(.009)		(.015)		(.027)	
Transitional child care	0.029	*	-0.048	*	-0.054	^
	(.012)		(.023)		(.030)	
State EITC	-0.028	**	-0.018		0.021	
	(.009)		(.022)		(.027)	
Unemployment rate	0.008		-0.033	*	0.042	^
	(.007)		(.016)		(.023)	
Constant	0.112	**	0.228		0.242	
	(.039)		(.144)		(.129)	
F-statistic	22.7		13.4		3.6	

Notes:
Welfare only is reference category.
Robust standard errors in parentheses. Standard errors clustered at state level.
** p<0.01; * p<0.05; ^ p<0.10 two tailed