

Work after Welfare Reform and the Well-being of Children*

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Abstract

Using data from five waves of the Women's Employment Survey (WES; 1997-2003), we examine the links between low-income mothers' employment experiences and the emotional well-being and academic progress of their children. We find robust linkages between several different dimensions of mothers' employment experiences and child outcomes. The pattern of results is remarkably similar across all of our empirical approaches—including hierarchical random effects models with an unusually extensive set of controls, child fixed effect models, and instrumental variables estimates. First, children exhibit fewer behavior problems when their mothers work and experience job stability (relative to children whose mothers do not work). In contrast, maternal work accompanied by job instability is associated with significantly higher child behavior problems (relative to job stability). Children whose mothers work full-time and/or have fluctuating levels of work hours or irregular schedules also exhibit significantly higher levels of behavior problems. However, full-time work has negative consequences for children only when it is in jobs that offer limited potential for wage growth. Such negative consequences are completely offset when this work experience is in jobs that require the cognitive skills that lead to higher wage growth prospects. Finally, fluctuating levels of work hours are also strongly associated with the probability that the child will repeat a grade or be placed in special education. These results suggest that “welfare reform,” when considered more broadly to include the new landscape of employment for low-income mothers, has imposed some risks to children's development.

JEL classification: J13, J22, I38

Key words: maternal employment; welfare; child development

I. Introduction

The past decade has registered unprecedented increases in the employment rates and work hours of low-income single mothers. These phenomena were due in large part to the combined effects of (1) the 1996 welfare reform enactment of time limits on, and work requirements for, the receipt of cash assistance; (2) significant expansions of work supports (most notably, EITC and child care subsidies) and; (3) the implementation of these policy reforms during a period of sustained economic growth and historically low unemployment rates. What remains relatively unknown, however, is whether the pronounced increases in maternal work involvement have affected the well-being of children from low-income families.

In this paper, we provide an intensive examination of the links between changes over time in mothers' work behavior and child well-being among a sample of low-income single mothers in Michigan who were studied for six years as part of the Women's Employment Study (WES). These mothers were drawn from the welfare rolls in one Michigan county and were studied over the period 1997-2003, years during which dramatic changes in welfare policies were implemented and large numbers of women left welfare for work. At each of five in-person surveys, mothers provided in-depth information about their employment, income, and program participation, their physical and mental health, and their children's development, along with detailed information about a host of demographic characteristics, including family structure and residential arrangements.

We consider several aspects of maternal employment including job instability and mobility as well as work intensity and regularity of work hours and schedules. Additionally, we examine several processes through which maternal employment experiences could potentially influence children, including the amount and sources of household income, use of child care, changes in family structure and living arrangements, residential instability and mobility, and maternal physical and mental health. The rich longitudinal nature of the WES provides a unique opportunity to understand whether and how maternal employment experiences during the post-welfare reform period influenced children, while spanning a longer time horizon than any previous welfare study (of the post-1996 era).

To preview our main results, we find linkages between several different dimensions of mothers' employment experiences and child outcomes. The pattern of results is remarkably similar across all of our empirical approaches—including hierarchical random effects models with an unusually extensive set of controls, child fixed effect models, and instrumental variables estimates. First, we observe significantly lower behavior problems among those children whose mothers worked and experienced job stability (relative to children whose mothers did not work). In contrast, maternal work accompanied by job instability is associated with significantly more behavior problems (relative to job stability). We also find that children whose mothers worked full-time and/or had fluctuating levels of work hours or irregular schedules exhibited significantly higher behavior problems. However, full-time work has large and persistent negative consequences for children only when it is in jobs that offer limited potential for wage growth. Such negative consequences are completely offset when this work experience is in jobs that require the cognitive skills that lead to higher wage growth prospects. Finally, fluctuating levels of work hours are also strongly associated with the probability that the child will repeat a grade or be placed in special education.

The remainder of the paper is organized as follows. The next section summarizes theoretical perspectives, drawing from a range of disciplines, on how mothers' transitions from welfare to work and their experiences in the low-wage labor market might be expected to affect children's development. We follow with a brief review of literature and a discussion of our study's unique contributions. In Section III, we present the data, and in Section IV we describe our methodology and model specification. We present the results in Section V. The final section concludes and draws out implications for policy.

II. Theoretical perspectives

Recent contributions in the human capital literature have emphasized the profound influence of early-life factors and cognitive and non-cognitive skills in childhood on socioeconomic success in adulthood (Carneiro and Heckman, 2003; Johnson and Schoeni, 2007). The factors that influence the formation of these cognitive and non-cognitive skills in childhood have largely remained a black box. Given their potential lasting impacts on labor market and health outcomes later in life, more attention is

warranted on the role of investments at early ages in children from disadvantaged backgrounds, including parental time and economic resources into child development.

The conceptual starting point of this analysis considers the question of how maternal employment patterns affect parental resource allocation of time and money/financial investments in children. For young children, whose social worlds revolve primarily around the home (as opposed to the peer and neighborhood contexts that are salient for teenagers), the amount and quality of children's time with parents is a key ingredient in healthy development. Mothers leaving welfare for work may experience reductions in the amount and quality of time spent with their children. Overall, time-diary data confirm that working reduces the time mothers spend with children, although there is uncertainty about the extent to which productive time is protected by cutting back least on activities directly engaging children (Sandberg & Hofferth, 2001).¹ Mothers who work long hours may have less time to provide emotional support, monitor their children's behavior, or foster the child's involvement in activities in school or in the community. They may also be more likely to be more tired and stressed, which may result in fewer and lower quality parent-child interactions.

Unstable or low-wage work limits families' economic resources and may impede monetary investments in resources and goods (e.g., schools, housing, food, safe and cognitively enriched learning environments) that are critical for successful child development. Conversely, more stable jobs and more intensive work hours may expand advancement opportunities in the labor market. Increased earnings may allow greater parental investments and resources in children that are instrumental to healthy development. This may be especially true for low-income and single-parent families where the mother is a primary earner. Thus, any deleterious impacts of mothers' longer work hours might be partially or fully offset by increases in current and future incomes.

Significantly more low-income single parent families are now wage-reliant whereas dramatically fewer are welfare-reliant. However, the substantial increases in work involvement among low-income

¹ Bianchi (2000), for example, reports that working mothers preserve time with children by cutting back on volunteer work, leisure, and sleep. Similarly, Chase-Lansdale et al. (2001), found no reduction in time with children among low-income mothers leaving welfare for work.

single mothers over the past ten years have been accompanied by only modest increases in family income. Little is known about how the effects of these changes in the composition of family income have affected child outcomes. Parental welfare participation could benefit young children by allowing mothers to spend more time with her child or it could help smooth transitory fluctuations in the family's income and help stabilize consumption (see e.g., Gruber, 1997). With family income more dependent upon success in the labor market, parental employment circumstances and children's living arrangements are more vulnerable to economic fluctuations (as welfare participation is no longer countercyclical in the post-PRWORA era). Welfare reform may have weakened the social insurance role of public assistance in smoothing consumption patterns in response to negative employment- and family-related shocks experienced by low-income families with children.

Developmental psychology underscores the importance of parental mental health and positive parent-child relationships in helping children to function optimally in emotional and cognitive realms (Shonkoff & Phillips, 2000). This literature emphasizes that parents' work experiences can influence their interactions with children by influencing parental stress, and, in turn, child well-being. Involuntary job transitions, non-standard and fluctuating work hours, or stressful work conditions could be psychologically stressful and take a physical toll on mothers, which also could impair the quality or quantity of parents' time with children (Presser, 2005; Taylor, Repetti, & Seeman, 1997; McLoyd, Jayaratne, Ceballo, and Borquez, 1994; Conger and Elder, 1994; Kessler, 1997). Parents' mental health problems or unhealthy stress-relieving behaviors, such as alcohol or drug use, in turn inhibit parents' emotional warmth, increase parents' harsh or erratic behaviors, and thereby increase children's maladjustment (Conger & Elder 1994; McLoyd et al., 1994; Catalano, Dooley, Wison, & Hough, 1993). The stress of meeting strict work requirements could also lead to increases in child maltreatment (Paxson & Waldfogel, 2003).

III. Prior Research

The effects of maternal employment on child development have been widely studied in the economics, psychology, and sociology literature. Recent reviews of this literature include Blau and

Currie (2004), Ruhm (2000), and Haveman and Wolfe (1994). The evidence is inconclusive, as demonstrated in papers reporting effects that range from positive to negative, and that are often either insignificant or vary depending on the group studied (Ruhm, 2000; Han et al., 2001; Vandell & Ramanan, 1992; Parcel & Menaghan, 1994; James-Burdumy, 2005; Waldfogel et al., 2002).

One potential explanation for the wide range of estimates reported across previous studies is that the impacts of maternal employment on child well-being may well depend on the nature and pattern of that employment (e.g., job quality, job stability versus instability, upward mobility versus employment in dead-end jobs), the number and regularity of hours worked, flexibility of work schedule, and the developmental stage in childhood when this employment takes place.

Another important source of the divergence of estimates across studies stems from the mixed degree of success in adequately addressing the endogeneity of maternal employment patterns. The main methodological hurdle that any research in this area encounters arises from the fact that (1) mothers who work may differ systematically from those who do not in observable and unobservable ways, and (2) the child's cognitive and behavioral development may influence the mother's decision to work (along the extensive and intensive margins). Differences in children's outcomes are the result of a myriad of factors, many of which may be correlated with maternal employment patterns. Neglecting to control for these other factors may lead to a biased estimate (upward or downward) of the causal link between maternal employment and child well-being, and will instead produce an estimated employment effect that is an amalgam of both employment influences and the influences of variables correlated with maternal employment. Only a handful of studies have attempted to address these endogeneity issues by either: (1) inclusion of an unusually extensive set of controls; (2) estimation of fixed effect models; and/or (3) the implementation of an instrumental variables approach. As discussed in section III, we pursue all three strategies in this paper.

Among the notable studies that can be classified as using an extensive set of observable characteristics of the child and the mother as controls are Han et al (2001), Baydar and Brooks-Gunn (1991), Parcel and Menaghan (1994), Vandell and Ramanan (1992) and Ruhm (2002). The results of

these papers vary substantially. For example, Ruhm (2002) finds significant *negative* effects of maternal employment on math scores while Parcel and Menaghan (1994) report small *positive* effects of maternal employment on child's cognitive outcomes. Baydar and Brooks-Gunn (1991) find that maternal employment in the child's first year *negatively* affects cognitive outcomes, while Vandell and Ramanan (1992) find *positive* effects of early maternal employment on math achievement, and of current maternal employment on reading achievement. When dimensions of job quality are considered, Menaghan and Parcel (1995), find that parents employed in low-wage, low-complexity jobs provide less nurturing home environments than do parents with jobs that pay more or offer more complexity and autonomy, and that this effect is particularly pronounced for single mothers.

Several recent studies adopt fixed effects approaches. Chase-Lansdale et al. (2003) use child fixed effects models to assess the effect of maternal employment on children's outcomes among low-income families during the welfare reform era. Their results suggest that mothers' transitions off welfare and into employment are not associated with negative outcomes for preschoolers. Moreover, mothers' transitions into work were associated with improvements in adolescents' mental health, and stability in employment was related to declines in adolescents' externalizing behavior problems. However, mothers' job losses were linked with adolescents' increased behavioral problems. The authors note, however, that their approach does not account for endogeneity of these transitions, and they do not attempt to use changes in local economic conditions as instruments for maternal employment as we do here.

James-Burdumy (2005) estimated family fixed effect models using sibling children in the NLSY. Her results suggest that effects of maternal employment vary depending on the particular cognitive ability assessment used and the timing of employment. However, that study is not focused on low-income children and therefore has limited generalizability in terms of welfare policy implications.

Only two papers have used an instrumental variables (IV) approach in this context—Blau and Grossberg (2002) and James-Burdumy (2005). However, in both instances, the instruments were too weak for IV to identify plausibly large effects of mother's work on child outcomes. By contrast, the local economic demand condition instruments we employ are much stronger.

Finally, experimental evidence reveals that the work requirements associated with welfare reform adversely affected the school performance of adolescent children (Gennetian et al., 2002), suggesting that the consequences for youths from low-income families may vary depending on whether the maternal employment is voluntary or mandated. Experimental designs can more soundly address endogeneity issues due to randomization of the treatment; however, experiments by their nature cannot measure the mechanisms by which the treatment programs may affect child outcomes. For example, such studies cannot separate the effects on children of leaving welfare per se, from the effects of increases in work involvement, which is a critical distinction. Moreover, most of the experimental evidence predates the post-1996 welfare reform period, so it is less clear how generalizable those findings are in the current policy context.

Until recently, research on maternal employment and child well-being had not examined the issue of “non-standard” work, defined to include work schedules that occur outside the typical daytime hours, or work schedules that change substantially from day to day or week to week. These work characteristics are increasingly prevalent in the “24/7” economy and especially likely to characterize low-wage work (Presser and Cox, 1997; Presser, 1999). The “24/7” economy means that many workers will not regularly work a fixed, Monday through Friday, daytime schedule. This is particularly true in the service sector, and thus disproportionately affects women and those with less education, because such individuals are over-represented in service-sector jobs such as cashiers, orderlies, retail salespersons, and home health aides (Presser, 1999; 2004). Indeed, over 40% of mothers ages 18-43 who lack post-secondary education work non-standard schedules (Presser and Cox, 1997).

Working the evening or night shift or on weekends may be preferable for some mothers to the extent that they can rely on “split-shift” parenting with another caregiver. In general, however, most nonstandard workers view employment during nonstandard hours as an accommodation to labor market needs, not as a personal preference. Evidence from the Current Population Survey reveal that more than half of the workers with nonstandard schedules report the nature of their jobs as the reason for their choice. Presser & Cox (1997) report that in a national sample of young, low-educated unmarried mothers

surveyed in the early 1990's, only 19% of the sample reported that they worked a non-standard shift for “better child care arrangements” and less than ten percent report working such schedules for better pay. Thus, we expect that for most welfare leavers, working a non-standard shift is not likely to reflect a personal preference. Work at non-standard times may make it difficult for women to secure child care, may stress family relationships, and could interfere with parental supervision of and involvement with children. There is only limited research evidence to date on the consequences of non-standard work for child well-being. Some studies have shown that work at nonstandard times is associated with lower test scores (Han, 2005), and more behavior problems among children (Stadzins et al, 2004, 2006; Joshi and Bogen, 2007). Additionally, Dunifon, Kalil and Bajracharya (2005) found that a different measure of maternal work, mothers' commute time, was associated with child behavior, such that children whose mothers had longer commutes exhibited worse behavior.

IV. Methods

Conceptual Framework

Child development is a complex process, with maternal work involvement representing only one influence on how children develop. Because of the inherently dynamic character of children's development, an outcome in one period is influenced by outcomes in earlier periods and inputs—from the home and other environments—which operate with a lag. The use of longitudinal data is necessary to address these issues. Our approach, which relies on rich, longitudinal data, has several advantages.

The empirical framework we adopt for the estimation of a child well-being production function conceptualizes child development as a cumulative process. The current and past inputs from maternal and other investments interact with the child's innate ability to produce child development. The child well-being production function can be expressed as:

$$O_{it} = \beta_1 T_{it} + \beta_2 C_{it} + \beta_3 G_{it} + \beta_4 X_{it} + \alpha_i + v_{it}, \quad (1)$$

where O_{it} is a behavioral outcome for child i at age t ; T_{it} is a measure of the quantity/quality of maternal time spent with the child through age t ; C_{it} is a measure for the quantity/quality of child care and other

non-maternal time inputs; G_{it} represents goods used in the production of child development (e.g., financial investments in medical care and books/toys to promote healthy child development); X_{it} is a vector of controls for living arrangements, parental characteristics, and demographic variables. The error component, α_i , represents a fixed innate child ability/temperament effect, and v_{it} is a transitory error term that may be interpreted as a measurement error in the reported child behavioral outcome.

A key empirical challenge is the measurement of maternal time and goods inputs, since we do not observe these parental time and financial investments in children. To circumvent this challenge, we use dimensions of the maternal work history patterns, as well as parental income and its sources to proxy for the maternal time inputs and monetary investments in children, respectively. We discuss below how the measures in our analysis map onto these underlying parental input parameters of interest.

We allow our specification for the inputs in (1) to be flexible to test for alternative scenarios where (a) only cumulative inputs matter, rather than their timing; or (b) only average or current inputs matter. For example, we estimate different specifications to determine whether the cumulative number of periods the mother worked versus her employment in the contemporaneous period is a more critical determinant of current child well-being.

Empirical Strategy

The primary methodological challenge in estimating the impact of maternal labor supply and employment patterns on child well-being stems from the fact that the decision to work or stay at home (or the choice of the type of work and number of work hours more generally) is endogenous to child outcomes. Moreover, mothers who hold jobs, work long hours, or experience a given type of job transition, for example, differ from those who do not in both observable and unobservable ways that may also affect child well-being. As a result, cross-sectional estimates of the impact of hours worked by the mother on measures of child well-being may suffer from both simultaneity and omitted variable bias (due to unobserved heterogeneity), and cannot, in general, be interpreted as *causal*. For example, children with mothers who hold good jobs may come from relatively more advantaged family backgrounds and possess

attributes that promote positive child development outcomes. Similarly, mothers may vary their work hours in response to a perceived need to provide greater supervision to certain children (i.e., reverse causality). Most prior analyses inadequately control for this heterogeneity and therefore may substantially understate the costs of early maternal employment.

To address these issues we estimate the following models: 1) hierarchical random effects models; 2) child fixed effects (specified in first-difference form); 3) longer-run value-added fixed-effects models; and 4) an instrumental variables approach using local monthly unemployment rates as an instrument for maternal employment patterns. As noted above, in our examination of child well-being, we contrast the relative importance of the cumulative history and duration of exposure to maternal work patterns vs. recent maternal work patterns of the year prior to the child assessment. We also emphasize the effects of the level of work intensity as well as the effects of the volatility of maternal work patterns on child behavioral outcomes. We carefully distinguish between the total effect of maternal work patterns, which includes the effect of family income, and the partial effect of maternal work, which holds family income constant. Initial models exclude variables that *result* from maternal job-holding (such as living arrangements and housing and neighborhood conditions), since these capture a portion of the labor supply effect. Other models hold constant family income and other factors which are likely to be affected by work hours, to examine the extent that the impacts of maternal employment patterns operate through these factors. In addition, the tradeoffs between parental time investments in children and household income may exhibit nonlinearities, with the consequences for child well-being of employment changes along the extensive margin (the labor force participation decision) and the intensive margin (number of hours worked, conditional on employment) moving in opposite directions. We estimate models to explore these potential nonlinearities. Therefore, we present several different specifications of each of our models. We outline in more detail below the four empirical approaches that we take.

Hierarchical Random Effects Models. First, we estimate a series of unconditional hierarchical random effects models that allow us to examine the correlation of levels and trajectories of children's behavioral adjustment over time, as well as the extent to which these measures differ across children.

Understanding the within- and between-child variation in children's adjustment is important to set the stage for our later models, which rely on the examination of both levels and changes in these measures. In our unconditional random effects models we ask. For each child behavioral outcome analyzed, we ask

- What is the average initial child assessment and the average change in this outcome over time?
- How much do the initial child assessments vary across children?
- How much do the average changes in child assessments over time vary across children?
- Is there a correlation between the initial level of child behavior problems and their growth rate of these problem behaviors over time?

These questions are addressed through the estimation of a hierarchical random effects model of child behavioral development (these models are also known as unconditional growth curve models). In particular, we estimate the equation:

$$O_{it}^c = (\alpha_{00} + \alpha_{10} * Age_{it}) + (u_{0i} + u_{1i} * Age_{it} + v_{it}^c), \quad (2)$$

where u_{0i} and u_{1i} are the random intercept and random coefficient on age terms, respectively; both are assumed to be normally distributed with mean zero, to be independent of v_{it}^c , and to have variances τ_0^2 and τ_1^2 with a covariance of τ_{01} . The term α_{00} represents the average level of behavior,

while α_{10} captures trajectories, or changes in child behavior over time, as children age; and v_{it}^c represents the individual transitory component of the child development outcome (which includes measurement error). We center the age variable around age 5 so that the random intercept term can be interpreted as the average initial child outcome as the child enters school-age years. We estimate the

covariance/correlation between initial child outcome at age 5 and subsequent developmental trajectory, given by $cov(u_{0i}, u_{1i}) = \tau_{01}$. Because children in the WES are observed multiple (up to five) times, we

utilize multilevel modeling techniques, which can accommodate the hierarchical and unbalanced structure of our data and the non-independence of the multiple observations of the same child over time

(Raudenbush & Bryk, 2002).

We next expand our hierarchical random effects models to examine the role of maternal employment patterns in explaining the heterogeneity in child behavioral outcomes across children. Given the unusually rich array of variables at our disposal across the seven-year analysis period of the WES data, it is possible to include a wide range of controls for the characteristics of the mother. With these models we examine whether children are more affected by the onset of long maternal work hours (or volatility of work patterns) in the contemporaneous period in which it occurs, or whether effects manifest in subsequent periods.

Specifically, the model we estimate may be specified as

$$O_{it}^c = (\alpha_{00} + \alpha_{10} * Age_{it}) + \beta E_{it}^m + \gamma Y_{it} + \delta X_{it}^p + \phi X_{it}^c + (u_{0i} + u_{1i} * Age_{it} + v_{it}^c), \quad (3)$$

where: O represents child outcome measure for child c ; E represents a measure of maternal employment patterns; Y are measures of family income sources; and X^p and X^c are vectors of parents' (p) and children's characteristics, including demographics, educational attainment, and various measures that may be correlated with employment, such as mothers' mental health or ability. The goal is to include a sufficiently rich set of covariates in order to produce unbiased estimates of the effects of maternal employment patterns.

Fixed-Effects Models. The second method involves the estimation of child fixed effects (CFE) models (specified in first-difference form as discussed below), taking advantage of the repeated measures of child well-being and maternal work behavior over time. This estimation strategy identifies changes in child outcomes for an individual child over time as a function of changes in maternal employment patterns, controlling for common age-related development effects. This approach will successfully control for all observable and unobservable family and child characteristics that do not change over time.

With longitudinal data, equation (3) can be modified to represent two observations, one at time s and the other at time t , for the same child.

$$O_{is}^c = \alpha_0 + \alpha_i + \beta E_{is}^m + \gamma Y_{is} + \delta X_{is}^p + \phi X_{is}^c + v_{is}^c. \quad (4)$$

$$O_{it}^c = \alpha_0 + \alpha_i + \beta E_{it}^m + \gamma Y_{it} + \delta X_{it}^p + \phi X_{it}^c + v_{it}^c. \quad (5)$$

The term α_i represents the individual-specific fixed effect. Parental characteristics are allowed to change over time although some of them may remain constant. Based on these equations, we estimate a model of changes in child outcomes of the form:

$$\Delta O_{it}^c = \beta * \Delta E_{it}^m + \gamma * \Delta Y_{it} + \delta * \Delta X_{it}^p + \varphi * \Delta X_{it}^c + \Delta v_{it}^c \quad (6)$$

where all differences are estimated by subtracting characteristics of the previous time period from those of the contemporaneous period. The advantage of this model is that all observable and unobservable family- and child-specific fixed effects are differenced out. The effect is identified from the difference in children's outcomes as a function of maternal employment patterns (job stability, voluntary job-to-job changes, and involuntary job instability), changes in work hours, and other changes in job attributes that have occurred over this period. This model is also sufficiently flexible to control for observable differences in family characteristics that have taken place over time.

While the CFE models remove the impact of unobserved family and child heterogeneity that is constant over time, one might reasonably wonder what causes changes in maternal employment patterns over time, and whether these changes in maternal employment are behavioral responses to changes in child health or general well-being (e.g., onset of a child's learning or health problem). There is considerable evidence that mothers work less when their children have health or developmental problems (e.g., Behrman et al., 1982; Corman et al., 2003; Powers, 2003). To address this, we utilize self-reported information on reasons for job changes, including information on whether job changes were initiated by women due to child care concerns and/or concerns about their children's health, and our analyses utilize a measure of maternal job changes that only includes those that were not initiated by women due to such concerns. We also perform some analyses separately for involuntary job losses (i.e., due to being fired/laid-off) when this information is available and found to have differential effects.

One other disadvantage of the CFE model is that we cannot control for unobservable family characteristics that change over time. Maternal job changes may be associated with other stressful life events. That is, there might be changes within the family (or for the child) over time that coincide with

differences in maternal employment characteristics that also impact the child's outcomes. Our extensive set of observable maternal and family characteristics aims to minimize these potential sources of bias. However, if unobserved maternal characteristics are associated with patterns of employment continuity and children's developmental trajectories, then our child differenced-based estimates of the effect of maternal employment would be biased.

Long-Difference Models. A well-known drawback with any difference method is that it may exacerbate attenuation bias due to measurement error (Greene, 1993). It is for this reason that we have chosen to estimate child fixed effect models in long differences in addition to the primary first difference specifications described above. If a mother's work behavior is highly serially correlated, then much of the observed variation in work intensity over short periods of time may be due to measurement error. Long differences reduce this problem (Griliches and Hausman, 1986). An additional consideration is that fixed effect estimation is not always precise enough to distinguish between some potentially large effects from effects that are essentially equal to zero. Some previous work, using small and unrepresentative samples, have often inappropriately interpreted large and imprecisely estimated coefficients as indicating no effect, without consideration of statistical power.

The long-difference specifications are designed to examine the longer-run impacts of maternal employment patterns on child development, and to investigate whether these effects compound over time. By comparing the results of first-difference and long-difference fixed-effects models, we examine whether the influence of maternal work behavior on child behavioral outcomes represents a short-term adjustment, or whether employment effects have longer-run consequences for child well-being.

The longer-run value-added model specifications we estimate are similar in spirit to conventional long-difference models. In particular, we regress child outcomes at the end of the sample period and control for the corresponding child assessment measure from the first wave, so coefficient estimates on the maternal employment pattern variables over the subsequent 6-year period can be interpreted as the cumulative effects of these employment patterns on the change in child well-being over the sample period.

Instrumental Variables. The fourth strategy we employ is an instrumental variables (IV) approach that uses measures representing local labor market demand conditions (in particular, the county unemployment rate) that may affect labor supply but not child development in order to predict maternal employment patterns. This strategy exploits the tremendous variation in local labor market demand conditions over the seven-year analysis period (including the economic boom of the late 1990s and the 2001 recession and beyond). In theory, this method can account for unobservable heterogeneity, whether it is fixed or variable, and for measurement error bias. Instruments should be related to mothers' work behavior, but have no direct effect on child well-being.

Johnson's previous work (2005) demonstrates a significant first-stage effect and highlights the sensitivity of recipients' job transition patterns to changes in labor market demand conditions. He finds that a one percentage-point increase in the local unemployment rate increases the monthly probability of being laid-off/fired by about ten percent, which is robust to explicit controls for unobserved heterogeneity. Furthermore, Allard, Johnson, Danziger (2005) find that such involuntary job separations lead to increased incidence of involuntary residential instability, which may all have important consequences for the well-being of children in low-income families.²

Estimating an IV model that treats income as well as maternal welfare receipt as endogenous would be preferable because the impact of income on child outcomes is of independent interest. Unfortunately, we do not know of any variables that are obviously related to family income but not to children's outcomes. We, therefore, estimate specifications that include and exclude controls for family income to probe the sensitivity of our estimates to this problem. Furthermore, maternal employment instability could be decomposed into those events that lead to the job separation. Some of these events—such as residential moves or divorce, for example—could themselves have an independent effect on children's outcomes. Such outcomes, however, are potentially endogenous and thus are not included as

² The disadvantage of the IV approach is that for the methods in this study, local economic conditions may not generate sufficient power given sample size considerations from one locale to predict differences in employment patterns during the sample period; and it is difficult to devise alternative valid instruments.

control variables in our model specifications. Keeping the strengths and weaknesses of each approach in mind, we turn next to describe the data and present the results.

Data and Measures

The Women's Employment Study (WES) is a longitudinal study, spanning a seven-year period, of a sample of women drawn from the cash assistance rolls in an urban Michigan county in February 1997. The WES is conducted at the University of Michigan's Poverty Research and Training Center. Michigan's Family Independence Agency (FIA) provided names and addresses of all single-parent cases in the county, and a stratified random sample of women between the ages of 18 and 54 was drawn. Approximately 56% of respondents were African American and 44% were White.

The sample was drawn as welfare reform and the resulting new work requirements were being implemented in Michigan. Whereas all respondents received cash assistance in February 1997, about one-quarter had left welfare by Fall 1997, one-half by Fall 1998, seventy percent by Fall 1999, and seventy-five percent by Fall 2001.

The first wave of WES interviews was completed between August and December 1997, with a sample of 753 single mothers (an 86% response rate). Of these 753 mothers, 575 who had a child between the ages of 2-10 at wave 1 were selected to be part of the "target child sample" and were administered additional questions assessing parenting and child well-being in each survey wave, via mothers' reports. The analyses presented here use data from questions asked about these target children. The WES respondents were interviewed five times over the period from Fall 1997 to early 2004, with wave-to-wave attrition rates consistently less than ten percent. No other post-1996 welfare reform study has followed a panel of respondents for this length of time, making the WES a uniquely important data set for examining the life experiences of welfare leavers.

The analyses presented here take advantage of all five waves of data. The average age of target children was 4.7 years at Wave 1. Half of the target children were girls. At wave 5, the target children were between the ages of 5 and 17, with an average age of 10.75 years ($SD = 2.40$ years).

Dependent Variables. Our dependent variables capture aspects of children's emotional well-being with three measures of child behavior: a total behavior problems index, an index of externalizing behavior problems, and an index of internalizing behavior problems. Each of these scales relies on maternal reports of children's behavior. In addition, we assess the incidence of child disruptive behavior problems in school, school absenteeism, being placed in special education, and grade repetition. School absenteeism problems is defined as regularly missing school at least one or more times a month; other thresholds for defining school absenteeism problems were examined that yielded qualitatively similar patterns of results as reported here. While the externalizing and internalizing behavior problems are analyzed across all the different empirical approaches utilized (short-run and long-run), grade repetition and being placed in special education are examined for the longer-run models as outcomes since they are one-time events and the consequence of longer-run processes. Our child outcome measures are described in greater detail in the Data Appendix.

Characterizing Maternal Employment Patterns. Our key independent measures capture maternal employment experiences occurring over the periods between waves. One key measure is women's job transitions between waves. To capture this, we utilize information collected from self-reported reasons for job changes between each of the five waves over the period 1997-2003. This information includes whether any job changes resulted from involuntary job separations, as well as job changes that were initiated by women due to child care concerns and/or concerns about their children's health.³ Our data allow us to distinguish job separations both by whether they were voluntary or involuntary (i.e., due to being laid-off or fired), and by whether they were followed by a nonemployment spell of four or more weeks. As noted above, we constructed our job transition pattern variables so as not to include job changes that were driven by maternal concerns for child-care or the general well-being of the child.

³ There is some non-comparability in the characterization of involuntary job loss (i.e., being fired/laid-off) because of changes in the wording of these questions across waves, so we emphasize the involuntary job loss effects in the longer-run models as opposed to the short-run models that use between-wave changes that could instead reflect changes in the wording of the survey question.

In our primary analyses, we define three patterns of job transitions: **job stability**, **job mobility**, and **job instability**. Individuals whose current/most recent job at wave t was the same as that held at the previous wave are denoted as experiencing job stability (this is the omitted group in the regression analysis). Job mobility occurs when respondents made a voluntary job change without experiencing any involuntary separations or transitions into nonemployment, and the interval between jobs was less than four weeks. Conversely, we define job instability as a transition into nonemployment when the spell of nonwork lasts four or more weeks, or if the job change results from being laid-off or fired.⁴

Our main regressions also include a variable indicating **whether the mother worked full-time**, defined as 35 or more hours per week in the current or most recent job as of the survey date. We also include a variable measuring whether the mother reported **fluctuating work hours**, derived from a question asking “Does the number of hours you work from week to week change a lot, a fair amount, a little, or hardly at all” and coded “1” if the mother answers “a lot” or “a fair amount.” Some of our analyses also make use of a measure of **irregular work schedules** which is coded “1” if mothers report that the time of day they begin and end work each day “varies quite a bit” (as opposed to being “regular”).

Other controls. Our analyses control for a rich set of other covariates. Because the use of paid child care reflects both non-maternal time inputs and parental resources to purchase high quality care, we view it as related to our conceptual discussion of time and monetary resource investments in children. We would ideally like to utilize a measure of child care use specific to the target child being assessed. However, the WES contains only mothers’ reports of whether paid child care services were utilized for any child in the family. This variable is assessed at each survey wave.

We utilize an extensive set of additional controls, not available in most other studies, for the influence of an array of parental factors including income levels and its sources, material hardship measures, residential location changes (voluntary and involuntary), neighborhood quality (neighborhood disadvantage and high crime area based on maternal reports), parental stress, mother’s education, home literacy environment, family structure, father’s involvement in the child’s life, parenting style,

⁴ Royalty (1998) and Gladden and Taber (2000) use similar definitions of job transitions.

demographic variables, and a host of health-related measures of the mother. Some of these additional measures were not collected in every wave, so we were not able to include a subset of them in the child fixed effect models that require comparable measurement across waves. These measures were included in the full model specifications when this information was available. The details of the construction of these additional unique measures and the corresponding survey questions that were used to assess these aspects is described in the Data Appendix section along with descriptive statistics for these variables in the sample.⁵

By examining changes in the maternal employment coefficients as each of these sets of variables is added to the basic regression model, we can gain insight into the potential linking mechanisms between mothers' work experiences and child well-being as well as minimize potential omitted variable bias. For each dependent variable, we examined alternative functional forms of the key explanatory variables to best fit the data. As a result, the functional forms vary to some degree across the models. In all regression models, standard errors are clustered at the child level.

V. Descriptive analyses

Before presenting the results of our econometric analysis, we first examine the simple correlations between maternal employment patterns and child developmental outcomes. Table 1 presents simple descriptive statistics for each of our child behavioral outcomes by intensity of mother's work per week, regularity of work schedule, and type of job transition pattern experienced over the past 1-2 years (job stability, instability, mobility). We see that children whose mother worked full-time experienced greater externalizing behavioral problems and were more likely to be disruptive in school, relative to children whose mother's worked part-time. Columns (7) and (11) show that, relative to children whose mothers worked a regular set of hours and/or experienced job stability, children whose mothers either had fluctuating work hours or experienced job instability had significantly more behavior problems overall,

⁵ Missing data occurred for a limited number of these additional unique measures when respondents were asked but did not answer aspects of these questions. Our missing data procedures include the use of a dummy variable indicating who has missing data and assigning the mean/modal value of the variable for those individuals.

greater externalizing and internalizing problems, were more likely to be disruptive in school, have school absenteeism problems, and were more likely to repeat a grade or be placed in special education.

Of course, mothers who exhibit different employment patterns are different from one another in a multitude of ways that may also contribute to the raw differences in their children's developmental outcomes that we observed. Table 2 highlights this point by presenting a series of family characteristics for the same categories of maternal employment characteristics as presented in Table 1. For example, compared with mothers who experienced job stability, mothers who experienced job instability had, on average, lower levels of family income and earnings; were less educated; were more likely to receive welfare, experience food insufficiency, or been evicted sometime in the past year; and to be in worse health. We would expect all of these other factors to affect child well-being, independent of maternal employment. The remainder of this analysis aims to identify whether it is the maternal employment pattern itself which leads to the child's disadvantage, or these other differences in family characteristics that are the main causal factors.

VI. Regression Results

Growth Curve Models of Children's Behavioral Development Outcomes

We began by estimating unconditional hierarchical random effects (growth curve) models of children's behavioral development outcomes to examine the within-child correlations of levels and trajectories of outcomes over time, as well as between-child variation in these measures. Results from this analysis are shown in Table 3, which presents the intercept and slope coefficients, their respective variance components, and the correlation between the initial child behavior outcome and the average change in that behavior over time. Since we center the age variable around the child's age in Fall 1997, the intercept (for total behavior problem index: $\beta_{00} = 15.98$) represents the average initial level of the child behavioral outcome at Wave 1. The slope (for total behavior problem index, $\beta_{10} = 0.14$) represents the average year-to-year change in that behavioral outcome over the subsequent six year period.

We see parallel patterns for all of the behavior problems measures. The variance components indicate that there is significant heterogeneity in both the initial levels as well as the growth rate of each of these behavioral outcomes across children. We find that there is a significant positive correlation between the initial level and rate of change in behavioral development for the internalizing scale (correlation= 0.34)—i.e., those children who exhibited higher than average behavior problems at Wave 1 were also more likely to have higher than average growth in the development of these problem behaviors over the subsequent 6-year period. There is a negative correlation between the initial level and rate of change in the total behavioral problem index (correlation = -0.197) and in externalizing problem behaviors (correlation = -0.2682).

The next aspect of our work evaluated the extent to which dimensions of maternal work history, parental income and its sources, and child care and living arrangements can account for the heterogeneity in children's behavioral trajectories. Table 4 presents results from hierarchical random effects models examining the effects of maternal employment patterns on child behavioral problems. For each outcome, we performed a series of such models, with various control measures such as income, residential stability, family structure, and maternal characteristics added sequentially to examine whether they account for the relationship between maternal employment and child behavior. However, results from these models indicated that these measures did not change the relationship between employment and child well-being. Therefore, for parsimony, we present only the results of the final specification with all variables included.

Nearly ninety percent of mothers worked at some point over the past year. As a result, the work versus non-working comparison is less useful than is characterizing the nature and pattern of employment, and identifying differential effects in the type of maternal work involvement on child well-being. We find that children whose mothers over the past year experienced job instability or transitioned from stable work hours to fluctuating work hours are all consistently shown to have significantly worse behavior problems on average at the end of the period (relative to children whose mothers experienced stable work patterns).

The results provide some indication that maternal employment patterns in the recent 12 months may be more important than employment patterns at other times. For example, an additional year of exposure to maternal fluctuating work hours during the child's life is related to approximately a 0.26 (0.09) point higher behavior problem index (externalizing) score; if that additional volatility in maternal work hours from week-to-week results from a change in work hours status that occurred over the most recent year, the estimated increase in the behavior problem index (externalizing scale) is an additional 0.38 (0.15). Thus, the strength of the total estimated relationship between children's recent exposure to fluctuating work hours and behavior problems is equivalent to 27% of a standard deviation increase in the behavior problem index. Alternative specifications of longer work hours revealed that children whose mothers recently transitioned to full-time work exhibited significantly higher externalizing behavioral problems ($0.0966=0.0306+0.0660$), though effects of longer work hours appear to dissipate over time. (We present results that examine the dynamics of the effects of maternal employment patterns in more detail in the final portion of the analysis section).

The results also indicate that, holding the overall change in family income constant, increases in maternal labor earnings are associated with worse behavioral outcomes. Since changes in mothers' work hours on her primary job are included in these specifications, the effects of recent increases in maternal labor earnings capture differences that are often the result of taking a second job, since annual wage growth is modest for most women in the sample. These results highlight that the composition of income changes appear to matter in the direction we hypothesized if mothers' heavier reliance on labor market success crowds out quality/quantity of parental time spent with children.

First-Difference Model Results

Table 5 presents first-difference specifications across several child outcomes: behavior problems index, externalizing and internalizing behavior problems, as well as indicator variables of whether the child was disruptive or had disobedience problems in school, and whether the child had school absenteeism problems. For computational simplicity, we apply linear probability models for the latter

two child outcomes despite the discrete nature of these outcomes.⁶ Again, we tested models that build progressively to control for changes in a fuller set of family and parental characteristics. However, because the inclusion of additional controls did not change the relationship between maternal work behavior and child outcomes, for parsimony we simply present the results of the full specifications.

In Table 5, we find that increases in the incidence of job instability (i.e., the number of job-to-nonemployment transitions) and fluctuating work hours are both significantly related to children developing greater behavior problems. Importantly, we examined self-reports for reasons of job separations to ensure that our estimated effects of job instability are not driven by endogenous maternal behavior, in response to a perceived need to provide supervision and care for the child.

We do not put great emphasis on the point estimates, due to the difficulty in interpreting some of these additional coefficients in a causal way because of their interrelationships. However, to put the magnitude of these relationships in perspective, we see that the effects of job instability and fluctuating weekly work hours each represent about a full standard deviation increase in the average growth rate of internalizing behavior problems (Table 5, column (3)). Moreover, the combined estimated effects of maternal job instability, fluctuating work hours, and child care on child well-being are equivalent in magnitude to a 70% standard deviation increase in the level of internalizing behavior problems.

Regarding the corresponding evidence for externalizing emotional well-being, we find a similar pattern of results, with a few differences of note. As shown in column (2) of Table 5, we find that while working is associated with reductions in externalizing behavior problems, increases in work intensity (i.e., movements to full-time hours) lead to greater externalizing behavioral problems for children. Moreover, the beneficial effects of working are completely mitigated when the maternal work involvement includes episodes of job instability and fluctuating work hours, and/or is full-time.

A significant minority of children in these low-income households experienced housing instability or involuntary residential location change that was directly related to maternal employment

⁶ We have also estimated a pooled linear probability model that is not expressed in first-difference form and found that the parameter estimates in this model are virtually identical to the derivatives from the analogous probit model estimates (results not shown).

instability (Allard, Johnson, Danziger, 2007). We find substantial negative consequences for children when the family experiences an eviction.

Taken together, this evidence is consistent with a story that mothers who are more time-constrained due to working more hours per week and more intensively over the year, may have more difficulty promoting positive emotional and behavioral child development. Our results suggest that intermittent work patterns and fluctuations in work hours are equally important as the intensity of work effort in terms of number of hours and weeks worked. There is no evidence from these estimates, then, that our earlier hierarchical random effects model results were driven primarily by unobserved heterogeneity in fixed characteristics.

Long-Difference (Value-Added) Model Results.

In Table 6, we examine the longer-run impacts of maternal employment patterns on various dimensions of child development, including whether ever repeated a grade or placed in special education between Wave 1 and Wave 5. Here, we extend our previous findings to show that involuntary job-to-nonemployment transitions (i.e., laid-off/fired), which are highly sensitive to changes in economic conditions, have significantly larger negative consequences for both internalizing and externalizing child behavior problems. As shown in the first two columns, the magnitude of involuntary work disruptions is roughly 2-4 times greater than the estimated effects of voluntary work-to-nonemployment transitions. We also find in the longer-run models that movements to full-time work and the number of years spent working in jobs with fluctuating work hours from week-to-week lead to significantly worse child internalizing and externalizing behavioral outcomes by the end of the period (controlling for the child's relevant initial assessment outcome at Wave 1). As well, the longer-run model results indicate that while increases in family income between Wave 1 and Wave 5 are associated with fewer child externalizing behavior problems, these improvements are mitigated as the sources of this income are increasingly comprised of maternal labor earnings and welfare receipt (controlling for changes in family structure), although this was not the case for the other child outcomes examined.

Finally, in turning to the results in columns (3)-(5) of Table 6 for the longer-run school-related outcomes, our previous descriptive evidence highlighted the significant proportion of children in our low-income sample who had repeated a grade or had been placed in special education at some point between Wave 1 and Wave 5. As shown in columns (3)-(5) of Table 6, we find that increases in maternal full-time work involvement are associated with roughly a five percentage-point increase in the probability of repeating a grade or being placed in special education between Wave 1 and Wave 5 (relative to a mean probability of 0.3680). Similarly, enormous effects on the probability of repeating a grade or being placed in special education are found for the number of years spent working fluctuating hours over the sample period and for the number of years the mother used paid child care services.

Instrumental Variable Results.

In Table 7, we present our first-stage estimates of the effects of local economic conditions, as measured by the local unemployment rate (expressed as a percent), on six maternal employment pattern and income composition variables: (1) maternal work hours, (2) full-time work hours, (3) irregular work schedules, (4) the number of job-to-nonemployment transitions over the past year, (5) maternal earnings, and (6) whether received welfare.⁷

Columns (1)-(6) display the first-stage estimates of the effects of local economic conditions on maternal work hours, the probability of working full-time, the probability of having an irregular work schedule, the number of job-to-nonemployment transitions experienced over the past year, maternal earnings, and the probability of welfare receipt. All regressions include a linear time trend and controls for race, age and gender of child. For the IV models that involve a job transition flow variable (column (4)), we also include controls for whether worked between waves, whether held a "good" job as of the beginning of the period $t-1$, and the number of months between waves. For the IV models that involve maternal earnings and welfare receipt, we also include controls for family income, since we are interested in the effects of changes in the composition of income sources.

⁷ We do not present results for fluctuating weekly work hours because of a weak first-stage relationship between local unemployment rates and fluctuating weekly work hours, which is in part due to small sample sizes.

The first-stage estimates are statistically significant across each of these maternal employment pattern measures. Higher unemployment makes it more difficult for mothers to find work. As shown in Table 7, worsening economic conditions leads to reduced maternal work hours, reduced probability of working full-time, reduced maternal earnings, and an increased probability of welfare receipt. Increases in the unemployment rate also lead to decreases in the number of job-to-nonemployment transitions and the unconditional probability of having an irregular work schedule, but these latter effects are driven by the reduction in work involvement that results from worsening labor market conditions.

Table 8 reports the IV/2SLS estimates of the effects of the maternal employment variables, and Table 9 reports the IV/2SLS estimates of the effects of the composition of income (maternal earnings and welfare receipt) on child internalizing and externalizing behavior problems, and the probability that the child has disruptive or disobedient problems in school. The magnitudes of the IV estimates across all of these employment pattern variables are striking and reveal a consistent and much stronger statistically significant pattern of results than the previous first-difference and long-difference specifications, though the standard errors around the point estimates are quite large. We find large, statistically significant detrimental effects of maternal work hours, maternal full-time work hours, irregular work schedules, and job instability on each of these child behavioral outcomes. Furthermore, in Table 9 we see that holding family income constant, as the sources of this income are increasingly comprised of maternal labor earnings, as opposed to welfare receipt, child behavior outcomes worsen. This pattern holds across three different measures of child well-being. Note that the finding of a positive effect of welfare receipt, holding income constant, differs from the difference model estimates of the effects of welfare receipt (holding family income constant).

This evidence provides further evidence, consistent with our earlier models, that children fare worse when mothers experience job instability or irregular work hours. There is also some empirical support for the hypothesis that mothers who are more time-constrained, due to working more hours per week and more intensively over the year, may have more difficulty monitoring and promoting positive emotional and behavioral child development. Our results, while differing from many previous

observational studies' findings, are consistent with experimental evidence contained in Gennetian et al. (2002), which suggests that the consequences for children from low-income families may vary depending on whether the maternal employment is voluntary or mandated.

Alternative specifications of maternal employment

To address issues relating to possible nonlinear effects of maternal work involvement, we experimented with several alternative functional forms for our maternal employment pattern variables. For example, we wanted to be able to distinguish between two low-hours mothers, one who worked part-time but year-round and one who worked full-time but only part of the year. Particularly, if the part-year work of the second mother is attributable to involuntary job loss, one might expect the two work patterns to have different effects on children. The results for alternative specifications of the relationships between maternal employment patterns and child behavioral outcomes yielded qualitatively similar results as reported here. In the end, we chose the functional forms of the key explanatory variables that best fit the data, as shown in the tables.

Analyses by Sub-group

We also examined whether the consequences of maternal employment patterns and moving for children are uniform by conducting analyses separately by subgroup defined by race, age, gender, and family structure. This investigation did not yield any consistently significant differences across outcomes for these sub-groups. However, due to small sample sizes, our data cannot provide any definitive evidence on the issue of heterogeneous treatment effects, as estimation was not precise enough to be able to distinguish some potentially large effects from effects that are essentially zero.

Short-run vs. longer-run effects

Though the estimated effects of maternal employment are significant, their importance for child development over the long-term depends on how persistent the maternal employment effects are over time—in particular, are the effects of maternal employment constant, increasing, or decreasing over time? We examine these issues in Table 10 and return to our hierarchical random effects models. We examine the duration of maternal employment effects by interacting the maternal employment pattern experienced

between Wave 1 and 2 with years since Wave 2 to explore whether children are more affected by the onset of long maternal work hours (or volatility of work patterns) in the contemporaneous period in which it occurs, or whether effects manifest in subsequent periods. These models allow us to test whether maternal employment patterns in the first two years following 1996 welfare reform affect the child's initial assessment measure in Fall 1998, as well as the trajectory in the child's behavior assessment over the subsequent five-year period.

Additionally, our previous results highlighted the significant relationship between longer work hours and worse child outcomes for the behavior problems index and externalizing behaviors. We therefore in Table 10 also investigate whether the negative consequences of longer work hours are offset by the positive effects of greater earnings and wage growth in subsequent years. Our test of this dynamic relationship is informed by Johnson's (2006) previous work using this same data that demonstrated that jobs requiring more cognitive skills—in particular, daily use of reading/writing and computer use—have significantly higher prospects for wage growth and were primary pathways to upward mobility, independent of the workers who fill these jobs. Moreover, these differences in wage growth opportunities across jobs are important determinants of women's quit propensities (explicitly controlling for worker heterogeneity). Extensive work involvement in jobs not requiring these skills did not lead to appreciable increases in earnings growth on average.

This finding led us to interact our indicator for full-time work hours on the primary job between Wave 1 and Wave 2 with an indicator for whether reading/writing and computer skills were required on jobs held over this early period. We expect that, since women working full-time in jobs requiring reading/writing and computer use (cognitive skills) are more likely to experience wage growth and less likely to experience job instability in future periods, their children will be less likely to be negatively affected by their longer work hours in the contemporaneous and future periods.

The results in Table 10 reveal that the maternal employment patterns between February 1997 – January 1999 appear to have persistent effects on child outcomes over the subsequent five-year analysis period ending in January 2004. The key finding from this set of models is the differential effects of

maternal full-time work hours by potential wage growth and job turnover propensity, where the latter is proxied by our job skill use measures. In particular, we find that longer work hours have large and persistent negative consequences for children when this work experience is in jobs that offer limited potential for wage growth (i.e., jobs that do not require reading/writing and computer use), while these negative consequences are completely offset when this work experience is in jobs that require the cognitive skills that lead to higher wage growth prospects. For example, the magnitude of the estimated relationship between full-time work in the early period in jobs that do not require reading, writing, and computer skills on subsequent child behavior problems is equivalent to half a standard deviation increase in the behavior problems index, and equivalent to a 45% of a standard deviation for the externalizing scale, and these effect sizes are only slightly smaller in the valued-added model specifications. On the other hand, we see the striking pattern that there are no significant negative consequences for children when mothers work full-time in jobs that require these skills.

VII. Discussion and Conclusion

Our study of maternal work after welfare reform and the well-being of children is among the most comprehensive to date on the topic, especially in terms of the range of empirical approaches utilized. Our data offered the opportunity to examine numerous aspects of child well-being, including externalizing and internalizing behavior problems, disruptive behavior at school, school absenteeism, grade repetition, and placement in special education. Exploiting the unique features of the WES data, we provide some of the first evidence in the post-1996 welfare reform era on the linkages between maternal work experiences and longer-run trajectories of child well-being.

Most work (both theoretic and measurement) on the relationship between maternal employment and child well-being has taken a static view in characterizing employment patterns/status. These traditional snapshot measures do not enable a meaningful understanding of the dynamic relationships between maternal employment and child well-being. This is especially the case among low-income families.

Only a handful of prior studies have examined changes over time in child development when mothers leave welfare and begin work. These studies are limited in their ability to inform policy, however, because they have largely ignored the considerable variation in mothers' work experiences after welfare reform. This variation reflects the experiences of mothers with positive trajectories that include stable work, good wages, and upward mobility; but also those whose experiences are decidedly less positive, among whom job instability, low wages, and non-standard work conditions prevail.

We pay careful attention to the role of observable characteristics and unobserved heterogeneity. The consistency of the pattern of results across these empirical approaches bolsters our confidence in the findings of the consequences of maternal employment for low-income children. There is no evidence from the more rigorous model estimates presented that our results were driven primarily by unobserved heterogeneity in fixed characteristics. It is not the case that children of mothers who work longer hours are more likely to have behavior problems irrespective of their maternal employment patterns.

Consistent findings from our study suggest an adverse impact of mothers' job instability, in the form of job-to-nonemployment transitions, as well as mothers' full-time work hours and irregular work (defined as hours that fluctuate from week to week as well as schedules that vary from day to day) on levels of children's behavior problems and academic progress.

Our analysis also pays attention to the effects of the level of income and the sources of income and the effects of variability of income sources on various dimensions of child development. Our results highlight that, for child well-being, the composition of income matters, not just its level. We find that holding family income constant, as the sources of this income are increasingly comprised of maternal labor earnings, as opposed to welfare receipt, child behavior outcomes worsen. These findings are particularly important in light of the fact that the composition of family income has been significantly altered in the post-welfare reform period (from welfare-reliant to work-reliant).

Finally, our results consistently show adverse impacts of maternal full-time work and irregular schedules on children's emotional well-being and academic progress. The adverse impacts of full-time work are consistent with the notion of maternal time constraints on the opportunity to promote positive

child adjustment. However, our analyses revealed that longer work hours have large and persistent negative consequences for children only when this work experience is in jobs that offer limited potential for wage growth. The negative consequences of long work hours are completely offset when this work experience is in jobs that require the cognitive skills that lead to higher wage growth prospects.

What factors account for the links between job experiences and children's behavior problems? Despite a wide range of potential mediating variables, none of the ones we were able to include here explained a particularly large share of these linkages. They were, however, typically related in expectable ways with our outcome measures. We identified, for example, an important role for involuntary residential moves, which were previously shown in these data to be precipitated by job losses. Evictions in this sample affected a significant minority of families at each survey wave and were strongly associated with children's behavior problems. With evictions included in the model, the associations between job loss and children's behavior problems were reduced by about 15%. These findings highlight the precarious economic position of low-income, mostly single mothers in the post-welfare reform era and raise important concerns about housing stability and the well-being of children. The phenomenon of involuntary moves has received little attention in research devoted to welfare reform and child well-being and deserves greater study in future work.

Neither evictions nor any of the other variables in the model, however, appeared to explain the associations between maternal full-time and irregular work and children's emotional well-being, suggesting that these linkages are due to unmeasured aspects of mothers' time or perhaps the organization of family time that matter for children's well-being and that are constrained by mothers' extensive or unpredictable work.

Policy importance

This study has identified some potential negative consequences for children of policies designed to promote work among low-income mothers. It is worth recalling that a key goal of welfare reform was to "break the cycle" of poverty and unemployment from one generation to the next. It is only by following the children of former welfare recipients, in the post-reform era, that we can know whether

their developmental trajectories point toward a brighter economic future than the one their own mothers once faced. In particular, our analysis highlights the considerable instability in the lives of children whose mothers left welfare in the wake of welfare reform. This instability is reflected in terms of mothers' employment status, their levels of work hours, their work schedules, as well as their children's residences. The near-term consequences of this instability appear to be greater levels of behavior problems for children. Although it remains to be seen what the long-term consequences will be, this study provides insights into potential intergenerational consequences of welfare reform.

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Data Appendix

Child Outcome Measures

The WES survey contained a subset of items from the Behavioral Problems Index (BPI) described in Chase-Lansdale et al., (1991). Unfortunately, due to space constraints, the WES did not include the entire 28-item BPI at each wave. The items in these scales ask the mother to report on the child's behavior as she has observed it over the past three months. Mothers respond whether these behaviors are not true (1), sometimes true (2), or often true (3) for their child. The **Externalizing behavior** scale (3 items) includes items such as "bullies or is cruel or mean to others" and "breaks things deliberately." This variable ranges from 3 to 9. Alphas at the first and fifth waves, respectively, are .48 and .65. The **Internalizing behavior** scale (5 items) focuses on sadness ("unhappy, sad"), being withdrawn, and feelings ("feels worthless"). Values range from 5 to 15, and the alphas are .66 and .75 for waves 1 and 5, respectively. These alphas are consistent with those found in the National Longitudinal Survey of Youth (Baker et al., 1993), which also administered the BPI.

Our measure of **total behavior problems** is a 12-item summary index that combines these two scales and includes 4 additional items measuring fear/anxiety in the child.

Disruptive behavior in school: This two-item scale asks mothers how often the school-age target child is a) disobedient in school or b) has trouble getting along with teachers, coded in the same fashion as the behavior problems indices, where higher scores indicate higher levels of school behavior problems.

School absenteeism problems: coded "1" if the child regularly missed school at least one or more times a month; "0" otherwise.

Repeated a grade or placed in special education: coded "1" if either event occurred since last survey

Family Characteristics

Used paid child care services: coded "1" if yes since last survey

Family income to needs ratio: Monthly income-to-needs ratio net of taxes, CPI-U deflated to 1997 dollars.

Maternal earnings: Measured at the monthly level and CPI-U deflated to 1997 dollars.

Received welfare: coded "1" if respondent received any income from FIP/TANF in past month

Food Insufficiency: Coded "1" according to how the respondent answers the following question: "Which of the following best describes the amount of food your household has to eat: enough to eat, sometimes not enough to eat, or often not enough to eat? Respondents who answered "sometimes" or "often" not enough to eat were designated as food insufficient.

Moved: Coded "1" for yes if the respondent reported having moved since the previous survey and/or the residential address changed since the previous survey wave.

Evicted: Coded "1" for yes if respondent reports being evicted or experiencing an episode of homelessness since the previous interview.

Neighborhood Problems. Summary scale based on 11 self-report items (each item ranges from 1 to 3 where higher scores indicate higher levels of problems) asking the respondent how big a problem the following issues are in her neighborhood: a) availability of public transportation; b) availability of affordable housing; c) slow/no police response; d) groups of teenagers hanging about; e) vandalism; f) prostitution; g) sexual assault/rape; h) muggings; i) gangs; j) drug use/dealing; and k) general safety of neighborhood.

Parental Stress Index: The parenting stress scale is a seven-item index that measures the degree of stress or irritation mothers perceive in relation to their interactions with their children. This scale explores mothers' subjective sense of difficulty with regard to the parenting role and, in previous research, has been related to child maltreatment. Items for this scale were taken from or adapted from Abidin's Parenting Stress Index (PSI) (Abidin, 1990) and from the New Chance Study (Morrison et al. 1998). A sample item is "I find that being a mother is much more work than pleasure." Items are measured on a five-point scale and are coded such that a score of one means "never" and a score of five means "almost always." The theoretical range of the scale is seven through thirty-five, higher scores indicating greater parenting stress. Cronbach's alpha for this scale is .81.

Stressful Life Events Index. A summary checklist of 7 yes/no items that may have occurred to respondents in the past 12 months, including whether: a) the respondent or one of her children had been robbed or attacked; b) the respondent had a relative or close friend in jail; c) she had people living with her that she wished weren't there; d) a close relation or friend had died or been killed; e) a close relation or friend had a drug or alcohol problem; f) she had trouble finding a place to live; and g) she had been hassled by bill collectors or agencies.

Social Support Index. A summary checklist of 5 items (coded "1" if yes) that asks the respondent whether there is someone she could count on to a) run errands; b) lend money; c) give encouragement and reassurance; d) watch her children; and e) give her a ride or lend a car if necessary.

Home Literacy Environment Index: A summary scale of four items (coded "1" if yes) asking if anyone in the household a) has a library card; b) uses the library card; c) subscribes to newspapers or magazines; and d) whether the respondent ever reads to herself.

Father Involvement Index: A summary scale comprised of four items (each item ranges from 1 to 4 where higher numbers indicate higher levels of involvement) asking a) how often the target child sees his or her biological father; b) how often the respondent and the biological father discuss the target child; c) how well the respondent and the target child get along; and d) how often the biological father provides diapers, clothing, or other items.

Harsh Parenting. Mothers' harsh parenting toward the focal child is measured with an 8-item index. Mothers respond "often" (1), "sometimes" (2), or "never" (3) when asked how often they use harsh measures to punish the target child, including: spanking, yelling, threatening to send the child away, or talking things over with the child (reverse-coded). A higher score indicates increased use of harsh parenting. Cronbach's alpha for this scale is .57. These items were derived from the New Hope Study.

Mothers' Alcohol or Drug Problem: Measured by whether the respondent met the diagnostic screening behavior within the 12 months prior to the interview. The screening criteria are derived from the Composite International Diagnostic Interview (CIDI) used in the National Co-Morbidity Study (NCS) and are based upon symptoms and conditions specified by the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). The respondent received a "1" on this variable if she was alcohol dependent, used drugs, or both. Alcohol dependence is coded affirmatively when a respondent meets any 3 of the following criteria over a 12 month period: 1) increased tolerance

for alcohol; 2) symptoms of withdrawal; 3) increased intake over longer periods of time; 4) persistent desire and/or unsuccessful attempt to curb or control use; 5) spending a lot of time obtaining the substance; 6) reducing number/amount of time in social, occupational, or recreational activities because of use of the substance; or 7) the substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance. The drug use variable equals "1" if the respondent responds affirmatively to the question "The next questions are about your use of drugs on your own. By "on your own" we mean either without a doctor's prescription, in larger amounts than prescribed, or for a longer period than prescribed. With this definition in mind, did you ever use any of the (following) drugs on your own during the past 12 months?" Drug use is indicated if the mother either used illegal drugs in the past 12 months or used prescription drugs to get high in the past 12 months.

Mothers' Physical Health Problem. Measured with self-reports of general well-being and the presence of a physical impairment or limitation. Using indicators in the SF-36 Health survey, we define a woman as having health problems if she both self-reports fair or poor health (as opposed to excellent, very good or good) and if she is in the lowest age-specific quartile of a physical functioning scale (where she rates any limitations in walking, climbing, lifting, carrying, etc.) (Ware, Snow, & Kosinski, 1993). Because having only one of these problems may indicate a temporary condition or less severe problem, we count her as health impaired only if she has both.

Mothers' Probable Diagnosis Major Depression: Measured by whether the respondent met the diagnostic screening behavior for major depression within the 12 months prior to the interview. The screening criteria are derived from the Composite International Diagnostic Interview (CIDI) used in the National Co-Morbidity Study (NCS) and are based upon symptoms and conditions specified by the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). To meet the screening criteria for major depression, a respondent has to report a certain number of symptoms and level of impairment in functioning such that a psychiatrist would recommend further clinical assessment. The respondent is asked whether in the past 12 months she felt sad or blue or depressed, or whether she lost interest in things, felt down on herself or worthless or had thoughts of death. If affirmative, she is asked how prolonged the feelings were, how frequent, and the degree to which her activities, energy level, sleep, concentration, etc. were affected. To be classified as having a major depressive episode, a mother has to report having had a 2-week period in the preceding year during which she either experienced feeling sad, blue, or depressed or that she lost interest in things for at least most of the day almost every day. She also has to report having had at least three other symptoms of major depression.

Table 1. Children's outcomes classified by mother's recent employment history

Data: WES 1997-2003[†]											
Mother's employment patterns _(t-1,t)											
	No work _(t-1,t)	Part-time job _(t-1,t)	Full-time job _(t-1,t)	<i>Difference:</i> Full vs. Part-time	Fluctuating work hours _(t-1,t)	Regular work hours _(t-1,t)	<i>Difference:</i> Fluctuating vs. Regular hours	Job Stability _(t-1,t)	Job Instability _(t-1,t)	Job Mobility _(t-1,t)	<i>Difference:</i> Job Instability vs. Stability
<i>Child Outcome:</i>											
BPI--total score	17.2603	16.7392	16.8092	0.0700	17.4988	16.5688	0.9300***	16.1398	17.4528	16.2894	1.3130***
BPI--externalizing	4.7694	4.5933	4.7229	0.1295**	4.8172	4.6222	0.1950***	4.4793	4.8559	4.6130	0.3765***
BPI--internalizing	6.2097	5.9946	6.0425	0.0478	6.1419	5.9845	0.1574*	5.9337	6.3314	6.0000	0.3976***
Disruptive in school	0.2805	0.3251	0.3736	0.0485**	0.3357	0.3604	-0.0246	0.3570	0.4105	0.3656	0.0535*
School absenteeism problem	0.2195	0.1945	0.1909	0.0036	0.2207	0.1851	0.0356*	0.1591	0.2353	0.1504	0.0762***
Repeated grade or placed in special education	0.2934	0.1923	0.1914	-0.0009	0.2366	0.1772	0.0594**	0.2016	0.2034	0.1488	0.0017

[†]The sample consists of all WES target children, where information was collected during 5 waves of interviews with mothers between 1997 and 2004. *** p<0.01, ** p<0.05, * p<0.10

Table 2. Other characteristics of childhood families classified by mother's recent employment history

	Data: WES 1997-2003*							
	Mother's employment patterns _(t-1,t)							
	No work _(t-1,t)	Part-time job _(t-1,t)	Full-time job _(t-1,t)	Fluctuating work hours _(t-1,t)	Regular work hours _(t-1,t)	Job Stability _(t-1,t)	Job Instability _(t-1,t)	Job Mobility _(t-1,t)
Used Paid Child Care services _{t-1,t} (for any child)	0.0335	0.2273	0.2761	0.2169	0.2704	0.2604	0.2390	0.3036
<i>Income Sources and Material Hardship:</i>								
Family Income-to-Needs ratio _{t-1,t}	0.8417	1.0517	1.2929	1.1162	1.2225	1.3600	1.1024	1.3431
Maternal Earnings _{t-1,t}	0.0162	0.4943	0.9599	0.6756	0.8045	1.0906	0.5245	1.1103
Received Welfare _{t-1,t}	0.7132	0.4967	0.2762	0.4189	0.3470	0.2133	0.3544	0.1888
Food Insufficiency Index _{t-1,t}	0.2925	0.2282	0.1813	0.2287	0.1915	0.1814	0.2121	0.1684
<i>Residential Mobility/Instability vars:</i>								
Moved _{t-1,t}	0.3779	0.4098	0.4571	0.4318	0.4426	0.3632	0.5089	0.4059
Moved _{t-1,t} *Evicted _{t-1,t}	0.0823	0.0897	0.0679	0.0870	0.0725	0.0346	0.1156	0.0510
Neighborhood Disadvantage (crime) _{Wt}	0.5468	0.4778	0.5400	0.5512	0.5049	0.4972	0.5341	0.4872
<i>Parental characteristics:</i>								
Parental Stress Index _t	22.2928	21.6761	22.0078	21.8171	21.9040	22.0501	21.8950	22.0318
Stressful Life Events Index _{Wt}	2.0926	2.1564	2.2509	2.3366	2.1756	2.0981	2.3183	2.1071
Social Support Index _{Wt}	4.2734	4.3463	4.3178	4.2236	4.3628	4.4183	4.2801	4.3903
White	0.4436	0.5128	0.4022	0.3984	0.4610	0.4723	0.4297	0.4362
Black	0.5564	0.4872	0.5978	0.6016	0.5390	0.5277	0.5703	0.5638
<i>Maternal Education</i>								
HS Dropout	0.4061	0.2652	0.2393	0.2787	0.2393	0.1831	0.3045	0.1837
HS grad _t	0.3429	0.3797	0.3903	0.3827	0.3875	0.3939	0.3970	0.3520
Some college _t	0.2510	0.3551	0.3704	0.3386	0.3732	0.4230	0.2985	0.4643
Home Literacy Environment Index _{Wt}	2.9063	3.1272	3.2530	3.2094	3.2014	3.2853	3.1034	3.2628
Never Married Mom _{Wt}	0.5774	0.5762	0.6437	0.6000	0.6214	0.6177	0.6365	0.5765
Father Involvement Index _{Wt}	10.0457	9.6773	9.5434	9.9080	9.4880	9.8786	9.3338	9.7160
Harsh Parenting Index _{Wt}	13.3885	14.3270	14.4215	14.4180	14.3745	14.3390	14.4364	14.4841
Mother's alcohol or drug use problem _{Wt}	0.1893	0.2252	0.2098	0.2299	0.2117	0.1981	0.2440	0.1888
Mother's physical health problem _{Wt}	0.3709	0.1670	0.1554	0.2031	0.1465	0.1373	0.1853	0.1403
Mother's probable diagnosis major depression _{Wt}	0.2957	0.2232	0.2072	0.2353	0.2068	0.1803	0.2398	0.2106

*The sample consists of all WES target children, where information was collected during 5 waves of interviews with mothers between 1997 and 2004.

Table 3: Unconditional Growth Curve Models of Children's Behavioral Problems, WES 1997-2003

Hierarchical Random Effects Models			
<u>Dependent variables:</u>			
	Behavior Problem Index	Externalizing Behavior Problems	Internalizing Behavior Problems
	(1)	(2)	(3)
Boy	0.8956*** (0.3090)	0.2669*** (0.0938)	0.0136 (0.0943)
Mean Growth Rate, β_{10} , (Years since Wave 1)	0.1419*** (0.0415)	-0.0316** (0.0125)	0.1424*** (0.0163)
Mean initial score, 1997, β_{00}	15.9784*** (0.2384)	4.6067*** (0.0701)	5.7616*** (0.0674)
<i>Random Effects Components:</i>			
SD(Random Intercept)	3.2312*** (0.1732)	1.0358*** (0.0451)	0.8423*** (0.0499)
SD(Random Coef on Age)	0.4490*** (0.0566)	0.1440*** (0.0170)	0.2241*** (0.0190)
Corr(Initial Level, Growth Rate)	-0.1971* (0.1135)	-0.2682** (0.0906)	0.3407** (0.1293)
SD(Transitory component)	2.2527*** (0.0598)	0.9296*** (0.0906)	1.0536*** (0.0213)
Child-year Observations	1570	2253	2246
Number of children	518	575	575

Robust Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.10

Table 4. The Effects of Maternal Employment Patterns on Child Well-Being: All Behavior Problems, WES 1997-2003

	Dependent variables--Child Outcomes:				
	Hierarchical Random Effects Models			Probit Models (Marginal Effects)	
	Behavior Problem Index _t	Externalizing Scale _t	Internalizing Scale _t	Prob(Disruptive in School) _t	Prob(School Absenteeism) _t
	(1)	(2)	(3)	(4)	(5)
<i>Maternal Employment-related variables:</i>					
Years of work experience,	-0.0493+ (0.0331)	-0.0148+ (0.0110)	-0.0134 (0.0128)	-0.0013 (0.0040)	0.0028 (0.0035)
Worked _{t-1,t} (ref cat: Job Stability)	-0.6967** (0.3197)	-0.2543** (0.1176)	-0.2301+ (0.1406)	-0.0211 (0.0566)	-0.0071 (0.0507)
Worked _{t-1,t} * Job Instability _{t-1,t}	0.6371*** (0.1891)	0.1586** (0.0704)	0.1832** (0.0839)	0.0666* (0.0345)	0.0692** (0.0324)
Worked _{t-1,t} * Vol Job Mobility _{t-1,t}	0.1826 (0.2126)	0.1042+ (0.0800)	0.0274 (0.0954)	-0.0007 (0.0408)	-0.0168 (0.0365)
Cumulative yrs of Full-time Work _{w0,t}	0.1369 (0.1229)	0.0306 (0.0421)	0.0573 (0.0525)	0.0091 (0.0148)	0.0260** (0.0130)
Δ Full-time work hours _{t-1,t}	0.0559 (0.1160)	0.0660+ (0.0441)	-0.0053 (0.0525)	0.0048 (0.0207)	-0.0139 (0.0207)
Cumulative yrs of Fluctuating Work Hours _{w0,t}	0.2601* (0.1366)	0.0886* (0.0467)	0.0733 (0.0581)	0.0066 (0.0172)	0.0269* (0.0139)
Δ Fluctuating work hours _{t-1,t}	0.3779*** (0.1195)	0.1475*** (0.0454)	0.1533*** (0.0540)	-0.0119 (0.0222)	0.0119 (0.0205)
Cumulative yrs Used Paid Child Care _{w0,t}	0.2813+ (0.1719)	0.0072 (0.0606)	0.1816** (0.0805)	0.0143 (0.0244)	-0.0591*** (0.0197)
Used Paid Child Care services _{t-1,t} (for any child)	-0.0006 (0.2172)	0.0301 (0.0813)	0.0420 (0.1002)	0.0282 (0.0395)	0.0559+ (0.0430)
<i>Income Sources and Material Hardship:</i>					
Cumulative Net Family Income _{w0,t}	-0.0535 (0.0648)	0.0029 (0.0226)	0.0031 (0.0290)	0.0040 (0.0087)	-0.0082 (0.0077)
Δ Net Family Income _{t-1,t}	-0.0415 (0.0688)	0.0162 (0.0266)	-0.0572* (0.0319)	-0.0106 (0.0122)	-0.0139 (0.0130)
Cumulative Maternal Earnings _{w0,t}	-0.0145 (0.1006)	0.0084 (0.0349)	-0.0449 (0.0448)	-0.0097 (0.0129)	-0.0136 (0.0108)
Δ Maternal Labor Earnings _{t-1,t}	0.2405** (0.1068)	0.0808** (0.0408)	0.0883* (0.0489)	0.0651*** (0.0199)	0.0405** (0.0170)
Cumulative yrs Received Welfare _{w0,t}	0.2106* (0.1209)	0.0844** (0.0412)	0.0901* (0.0516)	-0.0181 (0.0155)	0.0112 (0.0124)
Δ Received Welfare _{t-1,t}	0.2042+ (0.1318)	0.0642+ (0.0500)	0.1044* (0.0596)	0.0021 (0.0238)	0.0450* (0.0254)
Cumulative yrs Food Insufficiency _{w0,t}	0.4295*** (0.1337)	0.0667+ (0.0456)	0.2082*** (0.0571)	0.0329** (0.0157)	0.0067 (0.0127)
Δ Food Insufficiency Index _{t-1,t}	0.5084*** (0.1369)	0.0946* (0.0520)	0.2162*** (0.0620)	0.0011 (0.0247)	0.0293 (0.0238)
<i>Residential Mobility/Instability vars:</i>					
Cumulative yrs Moved _{w1,t}	-0.2789* (0.1695)	-0.1014* (0.0598)	-0.0953 (0.0783)	0.0098 (0.0244)	-0.0156 (0.0199)
Cumulative yrs Evicted _{w1,t}	0.2551 (0.3238)	-0.0294 (0.1136)	0.1706 (0.1496)	-0.0456 (0.0431)	0.0189 (0.0344)
Moved _{t-1,t}	0.2607+ (0.1980)	0.1837** (0.0741)	0.0478 (0.0913)	0.0331 (0.0359)	-0.0631** (0.0320)
Moved _{t-1,t} * Evicted _{t-1,t}	0.3122 (0.3681)	0.2496* (0.1381)	0.0433 (0.1696)	0.0304 (0.0649)	0.1167* (0.0663)
Neighborhood Disadvantage (crime) _{w1}	0.3037 (0.2855)	0.1148 (0.0934)	-0.0156 (0.1082)	0.0051 (0.0325)	-0.0225 (0.0297)

Dependent variables--Child Outcomes :

	Hierarchical Random Effects Models			Probit Models (Marginal Effects)	
	Behavior Problem Index _t	Externalizing Scale _t	Internalizing Scale _t	Prob(Disruptive in School) _t	Prob(School Absenteeism) _t
	(1)	(2)	(3)	(4)	(5)
<i>Maternal Employment-related variables:</i>					
<i>Parental characteristics :</i>					
Parental Stress Index _t	0.1165*** (0.0308)	0.0328*** (0.0100)	0.0268** (0.0116)	0.0109*** (0.0035)	-0.0048+ (0.0030)
Δ Parental Stress Index _{t-1,t}	0.0864*** (0.0331)	0.0374*** (0.0108)	0.0122 (0.0125)	0.0066* (0.0037)	-0.0001 (0.0033)
Stressful Life Events Index _{W1}	0.2097* (0.1235)	0.1002** (0.0402)	0.0486 (0.0465)	-0.0078 (0.0144)	0.0164+ (0.0119)
Δ Stressful Life Events Index _{W1,W2}	0.1645+ (0.1159)	0.0768** (0.0378)	0.0346 (0.0438)	-0.0100 (0.0131)	0.0048 (0.0115)
Social Support Index _{W1}	-0.0939 (0.1286)	-0.0558+ (0.0420)	-0.0719+ (0.0486)	0.0052 (0.0140)	-0.0072 (0.0127)
Maternal age _t	0.0531* (0.0291)	0.0031 (0.0096)	0.0321*** (0.0111)	0.0048+ (0.0035)	0.0011 (0.0031)
Black (ref cat: White)	-0.9893*** (0.3158)	-0.1954* (0.1036)	-0.4418*** (0.1201)	0.0442 (0.0359)	-0.0301 (0.0318)
Maternal Education (ref cat: HS Dropout)	-0.1717 (0.2793)	-0.1859* (0.0973)	0.1430 (0.1139)	-0.0182 (0.0401)	-0.0110 (0.0339)
HS grad _t	0.1067 (0.3175)	-0.2162** (0.1094)	0.2118* (0.1276)	0.0399 (0.0449)	-0.0796** (0.0348)
Home Literacy Environment Index _{W1}	-0.1052 (0.2046)	-0.0868+ (0.0668)	0.0765 (0.0773)	-0.0192 (0.0241)	-0.0187 (0.0224)
Δ Home Literacy Environment Index _{W1,W2}	-0.1924 (0.1982)	-0.1103* (0.0647)	0.0148 (0.0750)	-0.0487** (0.0235)	0.0105 (0.0213)
Never Married Mom _{W1}	0.1084 (0.3326)	0.0286 (0.1089)	0.0579 (0.1266)	0.0681* (0.0366)	0.0116 (0.0328)
Father Involvement Index _{W1}	-0.0108 (0.0382)	-0.0109 (0.0124)	-0.0084 (0.0144)	-0.0083* (0.0046)	-0.0019 (0.0038)
Δ Father Involvement Index _{W1,W2}	-0.0559 (0.0600)	-0.0329* (0.0196)	-0.0024 (0.0227)	-0.0077 (0.0066)	0.0011 (0.0061)
Harsh Parenting Index _{W1}	0.4703*** (0.1023)	0.1891*** (0.0334)	0.1180*** (0.0387)	0.0336*** (0.0117)	0.0056 (0.0097)
Δ Harsh Parenting Index _{W1,W2}	0.2863*** (0.0892)	0.1184*** (0.0292)	0.0461+ (0.0338)	0.0299*** (0.0103)	0.0057 (0.0091)
Mother's alcohol or drug use problem _{W1}	0.3535 (0.3773)	0.1233 (0.1232)	0.2519* (0.1436)	-0.0211 (0.0421)	-0.0113 (0.0383)
Δ Mother's alcohol or drug use problem _{t-1,t}	0.4362*** (0.1450)	0.1593*** (0.0557)	0.2120*** (0.0667)	0.0259 (0.0274)	0.0246 (0.0269)
Mother's physical health problem _{W1}	0.1054 (0.4013)	-0.0653 (0.1310)	-0.0110 (0.1522)	0.0029 (0.0465)	0.0093 (0.0422)
Δ Mother's physical health problem _{t-1,t}	0.2728* (0.1529)	0.1155** (0.0579)	0.0945+ (0.0694)	0.0353 (0.0278)	-0.0076 (0.0275)
Mother's probable diagnosis major depression _{W1}	-0.2897 (0.4218)	-0.1653 (0.1383)	-0.0190 (0.1610)	-0.0117 (0.0488)	0.0469 (0.0429)
Δ Mother's probable diagnosis major depression _{t-1,t}	-0.0401 (0.1349)	0.0063 (0.0513)	-0.0003 (0.0615)	0.0155 (0.0262)	0.0329+ (0.0238)
Boy	0.7165*** (0.2780)	0.1737* (0.0908)	0.1229 (0.1053)	0.1420*** (0.0317)	0.0418+ (0.0274)
Child Age (years since W1)	0.0741 (0.1279)	-0.0202 (0.0479)	0.0744 (0.0595)	0.0218 (0.0217)	0.0101 (0.0184)
# of children in HH	-0.0557 (0.1004)	-0.0000 (0.0343)	-0.0736* (0.0403)	-0.0242* (0.0126)	0.0059 (0.0106)
Constant	6.3545*** (1.9271)	2.0714*** (0.6345)	2.9788*** (0.7352)		
<i>Random Effects Components:</i>					
SD(Random Intercept)	2.8926*** (.1725)	.9288*** (.0636)	.9210*** (.0797)		
SD(Random Coef on Age)	.4325*** (.0556)	.1398*** (.0238)	.2241*** (.0250)		
Corr(Initial Level, Growth Rate)	-.3316*** (.1089)	-.3876*** (.1204)	-.1613 (.1449)		
SD(Transitory component)	2.1782*** (.0584)	.8818*** (.0225)	1.0408*** (.0268)		
Child-year observations	1547	1658	1653	1611	1281
Number of children	514	522	521	512	482

Robust Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.10 (2-tailed test); + p<0.10 (one-tailed test)

Table 5. The Effects of Maternal Employment Patterns on Child Well-Being: All Behavior Problems, WES 1997-2003

First-Difference Models					
Dependent variables-- Δ Child Outcomes $_{t-1,t}$:					
Δ Behavior Problem Index $_{t-1,t}$	Δ Externalizing Scale $_{t-1,t}$	Δ Internalizing Scale $_{t-1,t}$	Δ Prob(Disruptive in School) $_{t-1,t}$	Δ Prob(School Absenteeism) $_{t-1,t}$	
(1)	(2)	(3)	(4)	(5)	
<i>Maternal Employment-related variables:</i>					
Worked $_{t-1,t}$	-0.5483*	-0.2649***	-0.1598+	-0.0212	-0.0430
(ref cat: Job Stability)	(0.2946)	(0.0993)	(0.1018)	(0.0426)	(0.0503)
Worked $_{t-1,t}$ * Job Instability $_{t-1,t}$	0.5438**	0.1429*	0.1716*	0.0120	0.0603*
	(0.2532)	(0.0736)	(0.0885)	(0.0358)	(0.0365)
Worked $_{t-1,t}$ * Vol Job Mobility $_{t-1,t}$	0.4819*	0.0648	0.0325	0.0522	0.0066
	(0.2719)	(0.0892)	(0.1020)	(0.0408)	(0.0388)
Δ Full-time work hours $_{t-1,t}$	0.1202	0.1378*	0.0663	0.0055	0.0334
	(0.2307)	(0.0721)	(0.0793)	(0.0298)	(0.0322)
Δ Fluctuating work hours $_{t-1,t}$	0.5044**	0.1130*	0.1744**	-0.0251	0.0082
	(0.2302)	(0.0665)	(0.0760)	(0.0343)	(0.0382)
Used Paid Child Care services $_{t-1,t}$ (for any child)	0.3318+	0.0417	0.2570***	-0.0147	-0.0615+
	(0.2365)	(0.0661)	(0.0792)	(0.0327)	(0.0374)
<i>Income Sources and Material Hardship:</i>					
Δ Net Family Income $_{t-1,t}$	-0.1587	0.0187	-0.1937***	-0.0168	-0.0180
	(0.1742)	(0.0895)	(0.0704)	(0.0219)	(0.0206)
Δ Maternal Labor Earnings $_{t-1,t}$	0.2480	0.0468	0.1240+	0.0630**	0.0264
	(0.2033)	(0.0639)	(0.0776)	(0.0302)	(0.0252)
Δ Received Welfare $_{t-1,t}$	0.2824	0.0849	0.1411*	-0.0043	0.0816*
	(0.2533)	(0.0817)	(0.0835)	(0.0361)	(0.0439)
Δ Food Insecurity Index $_{t-1,t}$	0.9374***	0.1449*	0.3179***	0.0027	0.0365
	(0.2853)	(0.0795)	(0.1025)	(0.0378)	(0.0355)
<i>Residential Mobility/Instability vars:</i>					
Moved $_{t-1,t}$	-0.1001	0.0181	0.0254	0.0192	-0.0701**
	(0.2222)	(0.0718)	(0.0807)	(0.0298)	(0.0325)
Moved $_{t-1,t}$ * Evicted $_{t-1,t}$	0.7542*	0.2736**	0.2754**	-0.0158	0.0514
	(0.3865)	(0.1370)	(0.1326)	(0.0594)	(0.0692)
Moved $_{t-1,t}$ * Became Homeowner $_{t-1,t}$	-0.0528	0.0782	-0.1354	-0.0917+	0.0717+
	(0.3816)	(0.1174)	(0.1404)	(0.0577)	(0.0497)
Moved $_{t-1,t}$ * Δ Neighborhood Poverty Rate $_{t-1,t}$	-0.4297	-0.1394	0.1653	0.0302	0.0333
	(1.0131)	(0.3673)	(0.4005)	(0.1973)	(0.1801)
<i>Demographic variables:</i>					
Pregnant $_{t-1,t}$	1.2282**	0.0273	0.5744***	0.2023***	0.0607
	(0.5486)	(0.1608)	(0.1856)	(0.0715)	(0.0957)
Father Involvement Index $_{W1}$	-0.0048	0.0015	-0.0052	-0.0002	-0.0079*
	(0.0203)	(0.0057)	(0.0064)	(0.0026)	(0.0040)
Δ Father Involvement Index $_{W1,W2}$	-0.0133	-0.0011	-0.0178+	-0.0049	-0.0041
	(0.0371)	(0.0095)	(0.0118)	(0.0040)	(0.0066)
Δ Grandmother resides in household $_{t-1,t}$	1.1846*	0.4229**	0.1531	-0.0683	0.1066
	(0.6786)	(0.1859)	(0.2079)	(0.1110)	(0.1798)
Δ Cohabiting $_{t-1,t}$ (ref cat: Married)	0.8683**	0.2407*	0.2321+	-0.0778	0.0657
	(0.3951)	(0.1266)	(0.1544)	(0.0609)	(0.0665)
Δ Not Cohabiting $_{t-1,t}$	0.7503*	0.0699	0.2265+	-0.0424	0.0756
	(0.4249)	(0.1260)	(0.1485)	(0.0579)	(0.0688)
<i>Maternal Health-related variables:</i>					
Δ Parental stress index $_{t-1,t}$	0.1373***	0.0415***	0.0366***	0.0061*	0.0039
	(0.0289)	(0.0089)	(0.0092)	(0.0035)	(0.0041)
Δ Mother's alcohol or drug use problem $_{t-1,t}$	0.7199***	0.1602*	0.3190***	0.0618+	0.0092
	(0.2678)	(0.0960)	(0.1042)	(0.0438)	(0.0480)
Δ Mother's probable diagnosis major depression $_{t-1,t}$	-0.1369	0.0351	0.0564	0.0125	0.0303
	(0.2520)	(0.0788)	(0.1049)	(0.0402)	(0.0384)
Δ Mother's physical health problem $_{t-1,t}$	0.2913	0.0405	0.1802+	0.0647+	0.0255
	(0.2935)	(0.0914)	(0.1095)	(0.0439)	(0.0481)
Constant	0.7394+	0.3841***	0.3986***	0.1419**	0.0213
	(0.4940)	(0.1418)	(0.1519)	(0.0596)	(0.2700)
Child-specific fixed effects?					
Child-year observations	1036	1649	1639	1463	941
# of Children	456	522	521	494	574
Robust standard errors in parentheses (clustered on child)					
*** p<0.01, ** p<0.05, * p<0.10 (2-tailed test); + p<0.10 (one-tailed test)					
All regressions control for no. of months between waves.					

Table 6. The Longer-run Impacts of Maternal Employment Patterns on Child Well-Being: WES 1997-2003

	Dependent variables--Δ Child Outcomes _{W1,W5} :				
	Internalizing Scale _{W5}	Externalizing Scale _{W5}	Prob(Ever Repeated a Grade) _{W1,W5}	Prob(Ever Placed in Special Ed) _{W1,W5}	Prob(Ever Repeated Grade OR Placed in Special Ed) _{W1,W5}
	(1)	(2)	(3)	(4)	(5)
Internalizing Behav sub-scale measure at W1	1.2163*** (0.2370)				
Externalizing Behav sub-scale measure at W1		1.5822*** (0.2524)			
<i>Maternal Employment-related variables:</i>					
Δ# of Months Worked _{W1,W5}	-0.0080 (0.0191)	-0.0185 (0.0259)	-0.0009 (0.0016)	-0.0012 (0.0014)	-0.0029* (0.0017)
Δ#of Vol. Job-to-JobTransitions _{W1,W5}	0.0477 (0.2762)	-0.0037 (0.3733)	-0.0030 (0.0249)	-0.0169 (0.0225)	0.0046 (0.0273)
Δ#of Vol. Job-to-Nonemployment Transitions _{W1,W5}	0.2502* (0.1954)	0.5056* (0.2710)	0.0065 (0.0160)	-0.0135 (0.0145)	-0.0081 (0.0176)
Δ#of Invol. Job-to-Nonemployment Transitions _{W1,W5}	1.1233*** (0.3866)	1.0843** (0.5259)	-0.0071 (0.0345)	0.0056 (0.0311)	-0.0196 (0.0378)
ΔFull-time work hours _{W1,W5}	0.5633* (0.4219)	0.6652 (0.5699)	0.0500* (0.0375)	0.0644* (0.0339)	0.0564* (0.0411)
Δ# of Yrs spent wking Fluctuating Hours _{W1,W5}	0.5525* (0.2904)	0.5360* (0.3891)	0.0532** (0.0256)	0.0298* (0.0231)	0.0418* (0.0280)
Δ# of Yrs Used Paid Child Care serv _{W1,W5} (foranychild)	0.6548*** (0.2452)	0.5272* (0.3322)	-0.0041 (0.0212)	0.0633*** (0.0192)	0.0322* (0.0233)
<i>Income Sources and Material Hardship:</i>					
Δ Net Family Income _{W1,W5}	-0.2085 (0.2544)	-0.5044* (0.3480)	0.0063 (0.0221)	-0.0147 (0.0200)	-0.0073 (0.0242)
Δ Maternal Labor Earnings _{W1,W5}	-0.0317 (0.3926)	0.6812* (0.5355)	-0.0457 (0.0343)	-0.0137 (0.0310)	-0.0368 (0.0376)
Δ # of Yrs Received Welfare _{W1,W5}	0.1618 (0.2289)	0.4943* (0.3137)	-0.0041 (0.0203)	0.0085 (0.0183)	0.0046 (0.0222)
Δ # of Yrs Food Insufficiency _{W1,W5}	0.6355** (0.2602)	1.1773*** (0.3479)	0.0246 (0.0215)	0.0245* (0.0195)	0.0216 (0.0236)
<i>Residential Mobility/Instability vars:</i>					
Moved _{W1,W5}	0.0940 (0.2274)	-0.0104 (0.3080)	0.0323* (0.0209)	-0.0061 (0.0189)	0.0145 (0.0229)
Moved _{W1,W5} *Evicted _{W1,W5}	-0.0427 (0.7725)	-0.9743 (1.0525)	-0.0053 (0.0681)	0.0104 (0.0615)	0.0294 (0.0746)
Moved _{W1,W5} *BecameHomeowner _{W1,W5}	0.7599 (0.5919)	2.0309** (0.8094)	-0.0267 (0.0530)	-0.0159 (0.0479)	0.0102 (0.0581)
Moved _{W1,W5} *ΔNeighborhood Poverty Rate _{W1,W5}	-0.4424 (1.9429)	-2.6246 (2.6619)	0.0896 (0.1757)	-0.1805 (0.1587)	0.1356 (0.1924)
<i>Demographic variables:</i>					
Biological Father resides in HH _{W1,W5}	-0.7020 (0.9579)	0.1436 (1.3026)	-0.0925 (0.0910)	-0.0034 (0.0823)	-0.0632 (0.0997)
Δ Grandmother resides in household _{W1,W5}	1.0663 (0.8099)	1.8246* (1.1024)	-0.0421 (0.0787)	-0.0164 (0.0711)	-0.0201 (0.0862)
ΔCohabiting _{W1,W5} (ref cat: Married)	0.3097 (0.7388)	0.7421 (1.0321)	0.1350* (0.0688)	0.0842 (0.0622)	0.1762** (0.0754)
ΔNot Cohabiting _{W1,W5}	-0.2192 (0.7854)	0.2943 (1.0946)	-0.0386 (0.0695)	0.0635 (0.0628)	0.0338 (0.0762)
<i>Maternal Health-related variables:</i>					
Δ Mother's alcohol or drug use problem _{W1,W5}	-0.6250 (0.5884)	-1.2161 (0.7913)	0.0759 (0.0529)	0.0617 (0.0478)	0.0822 (0.0579)
Δ Mother's probable diagnosis major depression _{W1,W5}	0.4461 (0.5677)	1.0172 (0.7897)	0.0096 (0.0475)	-0.0415 (0.0429)	-0.0287 (0.0520)
Δ Mother's physical heath problem _{W1,W5}	-0.0879 (0.5564)	0.4628 (0.7501)	-0.0116 (0.0483)	0.0192 (0.0436)	-0.0055 (0.0529)
Constant	6.1159 (13.1452)	4.1356 (17.6138)	-1.5967 (1.1217)	-1.4215 (1.0135)	-2.2309* (1.2287)
# of Children	272	271	368	368	368

Standard errors in parentheses
* significant at 10% (one-tailed test); ** significant at 5%; *** significant at 1%
All regressions control for no. of months between W1-W5.

Table 7. First-Stage Estimates of Effects of Local Economic Conditions on Maternal Employment Patterns: WES 1997-2003

	Dependent variables					
	Maternal Work Hours _{<i>t</i>}	Prob(Working Full-time) _{<i>t</i>}	Prob(Irregular Work Schedule) _{<i>t</i>}	# of Job-to-Nonemployment Transitions _{<i>t-1,t</i>}	Maternal Earnings _{<i>t-1,t</i>}	Received Welfare _{<i>t-1,t</i>}
	(1)	(2)	(3)	(4)	(5)	(6)
Local Unemployment Rate,	-1.0436** (0.4164)	-0.0247*** (0.0094)	-0.0320*** (0.0103)	-0.0461** (0.0227)	-0.0247** (0.0121)	0.0527*** (0.0090)
F-statistic	2.86***	5.60***	4.38***	82.62***	45.10***	93.04***
Mean of dependent variable	23.6	0.3989	0.5091	0.578	0.6432	0.4535
Person-year observations	2243	2243	2032	1612	2247	2247
# of Mothers	575	575	556	521	575	575

Robust standard errors in parentheses (clustered on person)

* significant at 10%; ** significant at 5%; *** significant at 1%

Note: Columns (1)-(6) display the first-stage estimates of the effects of local economic conditions on maternal work hours, the probability of working full-time, probability of having an irregular work schedule, the number of job-to-nonemployment transitions experienced over the past year, monthly maternal earnings (in \$000s), and the probability of welfare receipt (depending on the column). All regressions include a linear time trend and controls for race, age and gender of child. For the IV models that involve a job transition flow variable (column (4)), we also include controls for whether worked between waves, whether held a "good" job as of the beginning of the period $t-1$, and the no. of months between waves. For the IV models that involve maternal earnings and welfare receipt, we also include controls for family income, since we are interested in the effects of changes in the composition of income sources.

Table 8. IV/2SLS Estimates of Effects of Maternal Employment Patterns on Child Well-being: WES 1997-2003

	Dependent variables: Child outcomes										
	Internalizing Scale _t				Externalizing Scale _t				Prob(Disruptive in School) _t		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Maternal Work Hours _t	0.0993*				0.0588*				0.0254*		
	(0.0532)				(0.0344)				(0.0159)		
Working Full-time _t		4.1626*				2.4853*				1.1586*	
		(2.2310)				(1.4732)				(0.7670)	
Irregular Work Schedule _t			3.5372**				2.4731**				0.4919*
			(1.4058)				(1.1575)				(0.3054)
# of Job-to-Nonemployment Transitions _(t-1,t)				2.6190*				0.8152			
				(1.5518)				(0.9665)			
Person-year observations	2,236	2,236	2,026	1,609	2,243	2,243	2,032	1,612	2,102	2,102	1,932
# of children	575	575	556	521	575	575	556	521	560	560	542

Robust standard errors in parentheses (clustered on person)

* significant at 10% (one-tailed test); ** significant at 5%; *** significant at 1%

Note: Columns (1)-(11) display the IV/2SLS estimates of the effects of maternal employment patterns on child well-being, using local economic conditions to instrument for maternal work patterns. The first-stage estimates are shown in Table 11. All regressions include a linear time trend and controls for race, age and gender of child. For the IV models that involve a job transition flow variable, we also include controls for whether worked between waves, whether held a "good" job as of the beginning of the period $t-1$, and the no. of months between waves.

**Table 9. IV/2SLS Estimates of Effects of the Composition of Income (Maternal Earnings and Welfare Receipt)
on Child Well-being: WES 1997-2003**

		Dependent variables: Child outcomes _t					
		Internalizing Scale _t		Externalizing Scale _t		Prob(Disruptive in School) _t	
		(1)	(2)	(3)	(4)	(5)	(6)
Maternal Earnings _t		4.0213*		2.4615*		1.1448*	
		(2.3981)		(1.5347)		(0.8430)	
Welfare Receipt _t			-1.8425***		-1.1525**		-0.4296**
			(0.6707)		(0.5364)		(0.1955)
Person-year observations		2,240	2,240	2,247	2,247	2,106	2,106
# of children		575	575	575	575	560	560

Robust standard errors in parentheses (clustered on person)

* significant at 10% (one-tailed test); ** significant at 5%; *** significant at 1%

Note: Columns (1)-(6) display the IV/2SLS estimates of the effects of the composition of income (maternal earnings and welfare receipt, respectively) on child well-being, using local economic conditions to instrument for maternal income sources. The first-stage estimates are shown in Table 11. All regressions include a linear time trend and controls for race, age and gender of child. For the IV models that involve maternal earnings and welfare receipt, we also include controls for family income, since we are interested in the effects of changes in the composition of income sources.

Table 10. The Persistence of the Effects of Maternal Employment Patterns on Child Well-Being: WES 1997-2003

Hierarchical Random Effects Models						
Dependent variable--Child Outcome _t (W2,W3,W4,W5):						
	Behavior Problem Index _t			Externalizing Scale _t		
	(1)	(2)	(3)	(4)	(5)	(6)
Behavior Problem Index measure at W1			0.6146*** (0.0495)			
Externalizing Behavior measure at W1						0.4296*** (0.0329)
<u>Maternal Employment-related variables:</u>						
Full-time work hours _{W1,W2}	1.2105*** (0.3955)	1.2522*** (0.3925)	0.9027*** (0.3474)	0.3635*** (0.1329)	0.3836*** (0.1321)	0.2744** (0.1148)
Full-time work hours _{W1,W2} * Years since W2	-0.1039 (0.1019)	-0.1144 (0.1022)	-0.1088 (0.1019)	-0.0350 (0.0359)	-0.0393 (0.0359)	-0.0448 (0.0363)
Full-time _{W1,W2} * Reading/Writing/Computer Use _{W1,W2}	-1.3786+ (0.9538)	-1.2212+ (0.9447)	-0.9761 (0.8295)	-0.4615+ (0.3252)	-0.4591+ (0.3222)	-0.4520+ (0.2818)
Full-time _{W1,W2} * Reading/Writing/Computer Use _{W1,W2} * Yrs since W2	0.2966 (0.2483)	0.2510 (0.2490)	0.2283 (0.2485)	0.1416+ (0.0891)	0.1331+ (0.0889)	0.1363+ (0.0903)
Worked _{W1,W2} (ref cat: Job Stability)	-1.4510** (0.5956)	-1.6160*** (0.5967)	-1.1206** (0.5280)	-0.4281** (0.2014)	-0.4693** (0.2019)	-0.3699** (0.1752)
Worked _{W1,W2} * Years since W2	-0.0207 (0.1525)	0.0095 (0.1529)	0.0004 (0.1525)	-0.0167 (0.0540)	-0.0094 (0.0540)	-0.0052 (0.0544)
Worked _{W1,W2} * Job Instability _{W1,W2}	1.1132*** (0.4063)	1.1302*** (0.4055)	0.7432** (0.3590)	0.2468* (0.1369)	0.2557* (0.1367)	0.2105* (0.1189)
Worked _{W1,W2} * Job Instability _{W1,W2} * Yrs since W2	-0.0527 (0.1029)	-0.0272 (0.1034)	-0.0217 (0.1032)	-0.0296 (0.0364)	-0.0238 (0.0364)	-0.0213 (0.0369)
Worked _{W1,W2} * Vol Job Mobility _{W1,W2}	0.5221 (0.5053)	0.4989 (0.5002)	0.0745 (0.4411)	0.2140 (0.1704)	0.2105 (0.1688)	0.0744 (0.1458)
Worked _{W1,W2} * Vol Job Mobility _{W1,W2} * Yrs since W2	0.0180 (0.1245)	0.0436 (0.1249)	0.0587 (0.1246)	-0.0269 (0.0440)	-0.0205 (0.0440)	-0.0149 (0.0443)
Fluctuating work hours _{W1,W2}	0.3256 (0.4024)	0.3440 (0.3980)	0.2183 (0.3500)	0.1079 (0.1365)	0.1143 (0.1351)	0.0482 (0.1173)
Fluctuating work hours _{W1,W2} * Yrs since W2	0.1541+ (0.1068)	0.1383+ (0.1069)	0.1510+ (0.1067)	0.0890** (0.0379)	0.0857** (0.0378)	0.0897** (0.0383)
<u>Residential Mobility/Instability vars:</u>						
Moved _{W1,W2}	0.0340 (0.3565)	-0.0011 (0.3525)	0.0733 (0.3101)	0.1263 (0.1203)	0.1107 (0.1191)	0.0401 (0.1033)
Moved _{W1,W2} * Yrs since W2	-0.0069 (0.0902)	-0.0064 (0.0904)	0.0065 (0.0903)	-0.0387 (0.0319)	-0.0399 (0.0319)	-0.0362 (0.0323)
Moved * Evicted _{W1,W2}	0.8914+ (0.6471)	0.8980+ (0.6407)	0.6572 (0.5643)	0.4232* (0.2161)	0.4363** (0.2142)	0.3867** (0.1855)
Moved * Evicted _{W1,W2} * Yrs since W2	-0.2363+ (0.1710)	-0.2437+ (0.1709)	-0.2667+ (0.1703)	-0.1045* (0.0602)	-0.1067* (0.0600)	-0.1183* (0.0605)
<u>Income Sources and Material Hardship:</u>						
Income-to-Needs Ratio _t		-0.2071+ (0.1496)	-0.2380+ (0.1466)		-0.0013 (0.0551)	-0.0005 (0.0538)
Maternal Labor Earnings		0.2508* (0.1438)	0.2940** (0.1411)		0.0906* (0.0526)	0.0988* (0.0515)
Received Welfare _t		0.3610* (0.1951)	0.4262** (0.1897)		0.1932*** (0.0704)	0.2008*** (0.0682)
Food Insufficiency Index _t		0.9229*** (0.2141)	0.8351*** (0.2087)		0.1876** (0.0780)	0.1990*** (0.0758)
Used Paid Child Care services _{t-1,t} (for any child)		0.1829 (0.1852)	0.2175 (0.1812)		0.0262 (0.0680)	0.0244 (0.0665)
Years since Wave 2	0.1568 (0.1516)	0.1363 (0.1514)	0.1456 (0.1512)	0.0094 (0.0558)	0.0060 (0.0557)	-0.0018 (0.0561)
Constant	9.4307*** (1.8191)	9.4391*** (1.8087)	5.3986*** (1.6225)	2.9791*** (0.6014)	2.8446*** (0.6014)	2.1128*** (0.5290)
<u>Random Effects Components:</u>						
SD(Random Intercept)	2.8784*** (.1392)	2.8401*** (.1388)	2.315*** (.1358)	.9506*** (.0491)	.9347*** (.0491)	.7191*** (.0497)
SD(Random Coef on Age)	.4375*** (.0571)	.4445*** (.0565)	.4408*** (.0568)	.1394*** (.0236)	.1374*** (.0240)	.1390*** (.0242)
Corr(Initial Level, Growth Rate)	-.1355 (.1162)	-.1439 (.1144)	-.0785 (.1336)	-.2850 (.1167)	-.2772 (.1196)	-.1184 (.1607)
SD(Transitory component)	2.2237*** (.0602)	2.2055*** (.0601)	2.215*** (.0605)	.8865*** (.0226)	.8858*** (.0227)	.8899*** (.0230)
Child-year observations	1510	1509	1507	1619	1618	1608
Number of children	495	495	494	502	502	499

Robust Standard errors in parentheses.

*** p<0.01, ** p<0.05, * p<0.10 (2-tailed test); + p<0.10 (one-tailed test)

Note: All models include the extensive set of parental and family characteristics as included in the full model specifications of Table 11. These measures include indices of parental stress, stressful life events, social support, maternal age, race, maternal education, home literacy environment scale, family structure, father involvement in child rearing, harsh parenting, and the set of maternal health-related measures. These effects are suppressed in the table to conserve space, but they yielded similar patterns as the results previously discussed.