

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 similar across all of our empirical approaches—including OLS and child fixed effect models, with and without an extensive set of controls. Children exhibit fewer behavior problems when 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 and full-time work in jobs with limited wage growth prospects are also both 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.

Key words: maternal employment; welfare; child development

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. Less clear, however, is whether and how the pronounced increases in maternal work involvement have influenced the well-being of children from low-income families.

In this paper, we examine 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 children's development, and detailed information about a host of demographic and personal characteristics. We consider several aspects of maternal employment including job instability and mobility as well as work intensity and regularity of work hours and schedules. We examine how these factors are associated with children's behavior problems as well as their school performance.

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 influence 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 some implications for policy.

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 & Heckman, 2003; Johnson & 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 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 more 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 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 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 influenced the development of children. Parental welfare participation could benefit young children by allowing a mother 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 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 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).

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 Korenman and Kaestner (2005), Smolensky and Gootman (2003), 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; Vandel & 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; and/or (2) estimation of fixed effect models. As discussed in section III, we pursue both 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.

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.

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). Indeed, over 40% of mothers ages 18-43 who lack post-secondary education work non-standard schedules (Presser and Cox, 1997).

Fluctuating work hours 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. While a modest body of research has related non-day work to measures of child

development (Han, 2005; Stradzins et al, 2004, 2006; Joshi and Bogen, 2007; Dunifon, Kalil and Bajracharya, 2005), very little literature has examined the role of fluctuating work hours in predicting children's well-being.

Methods

Conceptual Framework

Child development is a complex process, with maternal work patterns 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. 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 to proxy for the maternal time inputs in children. Including parental income in the child production function is problematic because income can be reduced when more time is spent caring for one's children.² However, in some model specifications we use parental income and its sources to proxy for monetary investments in children and to assess how our estimates of the effects of dimensions of maternal work history are affected by their inclusion in the model (see Appendix Tables A1-A3). We discuss below how the measures in our analysis map onto the underlying parental input parameters of interest discussed above.

Empirical Strategy

The primary methodological challenge in estimating the impact of maternal 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 (or reverse-causality) and omitted variable bias (due to unobserved heterogeneity). For example, children with mothers who experience job stability 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).

To address these issues we estimate the following models: 1) OLS models; 2) child fixed effects (specified in first-difference form); and 3) longer-run value-added (fixed-effects) models. We examine the influence on children of the level of work intensity (work hours) as well as the influence of the volatility of maternal work patterns. We compare results from OLS models and the child fixed effect models to assess the degree of bias due to time-invariant unobservable factors. In our primary models, we exclude arguably endogenous variables and factors that *result* from maternal job-holding (such as family income, parental stress, housing and neighborhood conditions), since these may capture a portion of the effect of maternal employment patterns. We then examine how our estimates of the effects of maternal work patterns change when we include an extensive set of time-varying covariates in the models. In this approach, we follow Altonji, Elder, and Taber (2005), Duncan (2003), and Ruhm (2004), who gauge how sensitive maternal employment effect estimates are to selection on unobservable variables by using the degree of selection on observables as a guide. The comparison of estimated coefficients on maternal employment patterns that result from standard and expanded models also enable us to examine the extent that the impacts of maternal employment patterns operate through these other factors. Large changes in estimates of the effect of maternal employment between the standard and expanded model specifications suggest significant selection on observable variables, and by extension, imply that there may be significant selection on unobserved variables; while small changes in estimated effects suggest only a minor role for potential selection bias. We outline in more detail below the three empirical approaches that we take.

OLS Models. The main OLS model we estimate may be specified as:

$$O_{it} = \alpha_0 + \beta E_{it}^m + \delta X_{it}^p + \varphi X_{it}^c + \varepsilon_{it} , \quad (2)$$

where: O represents child outcome measure for child i at time t ; E represents a vector of maternal employment pattern measures; X^p and X^c are vectors of parents' (p) and children's (c) demographic characteristics, including child age, gender, race, maternal age and education, home literacy environment scale, family structure, living arrangements, and the extent of father involvement in child rearing; and ε represents the composite error term, including permanent (α_i) and transitory components (v_{it}). For the child outcomes that are binary indicators—whether the child had school absenteeism problems and whether the child exhibited disobedient or disruptive behavior problems in school—we estimate probit models and present the marginal effects evaluated at the means. Linear probability models for these latter outcomes yielded the same pattern of results.

Child Fixed Effect Models. Our primary 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.

Equations 3 and 4 represent two observations, one at time s and the other at time t , for the same child.

$$O_{is} = \alpha_0 + \alpha_i + \beta E_{is}^m + \delta X_{is}^p + \varphi X_{is}^c + v_{is} \quad (3)$$

$$O_{it} = \alpha_0 + \alpha_i + \beta E_{it}^m + \delta X_{it}^p + \varphi X_{it}^c + v_{it} \quad (4)$$

The term α_i represents the child-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:

$$\Delta O_{it}^c = \beta * \Delta E_{it}^m + \delta * \Delta X_{it}^p + \varphi * \Delta X_{it}^c + \Delta v_{it}^c \quad (5)$$

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 removed. 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.

One disadvantage of the CFE model is that it does not control for unobservable family characteristics that change 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.

Maternal job changes may be associated with other stressful life events. That is, there might be changes within the family (or for the child) that coincide with differences in maternal employment characteristics that also impact the child's outcomes. Our expanded model specifications that include the more extensive set of observable maternal and family characteristics aim to assess the role of these potential sources of bias and minimize their influence. 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). This is one of the reasons 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.

In the longer-run model specifications we estimate we use as dependent variables child outcomes measured at the end of the sample period, and use cumulative measures of maternal employment spanning the period between the first and last waves to predict these outcomes, controlling 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.

$$O_{i5} = \alpha_0 + \alpha O_{i1} + \beta E_{i,\Delta 1-5}^m + \delta X_{i,\Delta 1-5}^p + \varphi X_{i,\Delta 1-5}^c + v_{i5} \quad (6)$$

We count the total number of times during these five waves that a mother experienced long work hours, job instability, or unpredictable work hours, and then ask whether the total number of periods a child's mother experienced a given job condition (for example, long hours) predicts changes during that same five years in children's behavior. This allows us to examine the cumulative effect of mothers' work on children's behavior, rather than simply the effect occurring in one period, as in the child fixed-effects model.

We examined self-reports for reasons of job separations to ensure that our estimated effects of job instability are not driven by mother's response to a perceived need to provide supervision and care for the child. We also perform some analyses separately for involuntary job losses due to being fired/laid-off when this information is available.

We expect school-related academic progress indicators such as grade repetition and placement in special education to be more sensitive to persistent exposure to working conditions over several years as opposed to exposures that occur in a single period. We therefore analyze the longer-run impacts of maternal employment patterns experienced between 1997-2003 on the likelihood of grade repetition and placement in special education by the end of the sample period, conditional on these transitions not occurring in previous periods. We estimate the impact of the cumulative maternal employment experiences over the Wave 1 to Wave 5 period on the transition probabilities for these outcomes between the final two waves of the survey to help ensure that the maternal employment pattern preceded the assessed child outcome. Thus, for the longer-run models, we estimate probit models of whether the child repeated a grade between Waves 3 through 5 and whether the child had been placed in special education, conditional on the child not repeating a grade or being placed in special education in any previous period. We present the marginal effects on the likelihood of these probabilities, evaluated at the means of the set of explanatory measures.

Keeping the strengths and weaknesses of each approach in mind, we turn next to describe the data and key measures, 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 the first assessment in 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 2003, 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. 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. The 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. However, the full set of items was collected in the final wave and we make use of this fuller set of questions in our longer-run analyses. In the WES, items are available from the externalizing and internalizing behavior problems subscales. **Externalizing behavior** (3 items) includes items such as “bullies or is cruel or mean to others” and “breaks things deliberately.” Mothers respond whether these behaviors are not true (1), often true (2), or sometimes true (3) for their child. This variable ranges from 3 to 9. **Internalizing behavior** (5 items) focuses on sadness (“unhappy, sad”), being withdrawn, and feelings (“feels worthless”). Values range from 5 to 15. 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. Higher scores on each of these measures indicate higher levels of behavior problems.³

The other child outcomes we examine are school-related measures based on maternal reports of whether the child had exhibited **disruptive and/or disobedient behavior problems in school** (defined as sometimes or often displaying such behavior). We also assess **school absenteeism**, defined as regularly missing school at least one or more times a month⁴. In our longer-run models we use measures of whether the child was ever placed in **special education**, and ever **repeated a grade**. 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.

Characterizing Maternal Employment Patterns. We focus on several important aspects of mothers’ employment. Our key independent measures capture maternal employment

experiences occurring over the periods between waves. First, we include in our analysis a measure of **whether a mother worked** at all between waves. Nearly ninety percent of mothers worked at some point over the past year. The diversity in work involvement among our sample lies not in whether or not mothers worked, but in the significant variation in 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, and flexibility of work schedule. As a result, the work versus non-working comparison is less useful than is identifying differential effects in the type of maternal work involvement on child well-being.

Including an indicator of whether a mother worked allows our analysis to control for, or hold constant, whether a mother was working or not, and to ask the following question: “when mothers work, how do conditions of her job, such as its stability or the predictability of its work hours, influence children’s development?” If we did not control for whether a mother was working, it would be difficult to know what our measure of “fluctuating hours,” for example, was capturing; the effect on children of working fluctuating hours compared with nonwork (which is not our primary interest), or the effect of fluctuating hours compared with work at predictable hours (which is our primary interest).

The second key measure reflects mothers’ **job transitions** between waves. We characterize employment patterns and the extent of job stability and job mobility between waves, using mothers reports gathered at each wave on job tenure, monthly job/employment history, and reported reason for job separation (if any occurred). This measure includes information on whether any job changes resulted from involuntary job separations, as well as job changes that were initiated by women owing to child care concerns and/or concerns about their children’s

health.⁵ We can distinguish job transitions as voluntary or involuntary (i.e., due to being laid off or fired), and whether they were followed by a nonemployment spell of four or more weeks.

In our main analyses, we examine three patterns of job transitions: **job stability**, **job mobility**, and **job instability**. Individuals whose current or most recent job at a given wave was the same as that held at the previous wave have **job stability** (this is the group to which all others are compared in our analysis). **Job mobility** occurs when a respondent makes a voluntary job change from one wave to the next, without experiencing any involuntary separations or transitions into nonwork, and the interval between jobs is less than four weeks. Conversely, we define **job instability** as being laid off or fired. Also included in this category are women who quit a job because of dissatisfaction with their current job, for reasons such as inadequate pay, poor working conditions, suboptimal hours, poor job match, or transportation problems, with an intervening spell of nonemployment of at least one month.⁶ Job changes that are driven by maternal concerns for child care or the general well-being of the child are not considered in our measure of job instability; they are classified as voluntary job mobility.

Our main analyses 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 that her job entailed **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 identifying mothers who answered “a lot” or “a fair amount.”⁷

Other controls. As aforementioned, our main specifications include controls for strictly exogenous factors. Our analyses control for child age, race (whether African American or white) and gender. We also control for mothers’ age and education, the latter using the following

measures: whether the mother dropped out of high school, whether she completed high school but had no other years of schooling, or whether she attended college. In addition, we include an index capturing the home literacy environment from the total of four items 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.⁸

We also control for mothers' living arrangements, using measures indicating whether she was married, cohabiting with romantic partner, or single, and whether the child's grandmother lives in the household. We also include a measure of father involvement in childrearing using a scale composed of four mother-reported items (each item ranges from 1 to 4, where higher numbers indicate greater involvement). The four questions are: 1) how often the target child sees his or her biological father; 2) how often the respondent and the biological father discuss the target child; 3) how well the respondent and the target child get along; and 4) how often the biological father provides diapers, clothing, or other items. The measure of father involvement in childrearing is included as a way of capturing other time inputs into children's development, to allow us to better isolate the contribution of mothers' inputs. Because family structure and living arrangements influence child development outcomes, we control for these measures in our main models so that we do not mistakenly attribute their influences to those of maternal employment patterns.⁹

We also present expanded model specifications (shown in Appendix Tables A1-A3), which utilize an extensive set of additional controls, not available in most other studies, for the influence of paid child care use and 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, parenting style, and a host of health-related measures of the mother. Because the use of paid child care reflects not only parental resources to purchase high quality care, but also the time inputs of others (the child care provider) it is important to control for child care use in order to better isolate the effects on children of the maternal time and money inputs associated with employment. 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 and is included as a control in our analyses. Some of these additional measures in the expanded models 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 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.¹⁰

In all regression models, standard errors are clustered at the child level as each child is observed multiple times in our data.

Results

Descriptive analyses. The average child age was 7 years. The average level of externalizing problems was 4.69 points on a scale ranging from 3 to 9, and the average internalizing scale was 6.05 points on a scale ranging from 5 to 15. To understand how children in the WES compare to other children, we compared their behavior problems measures to those of the average 5-15-year old U.S. child in 1997 (using data from the 1997 Panel Study of Income Dynamics Child Development Supplement). This comparison shows that WES children, on average across all 5 waves, have significantly higher average levels of mother-reported

externalizing behavior problems than the average U.S. child, (4.69 in WES vs. 3.95 in the PSID-CDS), but have similar levels of internalizing behavior problems (6.05 vs. 5.96; authors' calculations).

We also find high levels of school-related behavior problems for children in the WES. About 34% of the WES children, who have an age range of 5-15 years during this study, were disruptive in school and 20% had missed school at least one or more times per month. While adequate data do not exist to compare these outcomes to those of the average U.S. child, these levels appear quite high. Furthermore, these children exhibit high prevalence rates of ever repeating a grade and/or being placed into special education. By the end of the study period, roughly one-fourth of these children had ever repeated a grade, one-fifth had been placed in special education, 37 percent had either repeated a grade *or* been placed in special education, two-thirds had exhibited disruptive behavior problems in school and nearly half had experienced missed school at least one or more times per month at one of the survey waves over the seven-year analysis period. Appendix Table A1 presents descriptive statistics for the variables used in our main set of analyses, pooled across all available waves of data.

Before presenting the results of our regression analysis, we first examine the simple bivariate associations between maternal employment patterns and child developmental outcomes. Table 1 presents simple descriptive statistics for each of our child behavioral outcomes (in standard deviation units) broken out by the intensity of mother's work per week (full-time vs. part-time), regularity of work schedule, and type of job transition pattern experienced over the past one to two years (job stability, instability, mobility).

We see that children whose mothers worked full-time experienced more externalizing behavior problems and were more likely to be disruptive in school, relative to children whose

mothers worked part-time. Relative to children whose mothers worked a predictable set of hours or whose jobs were stable, those whose mothers either had fluctuating hours or experienced job instability had significantly more behavior problems overall, greater externalizing and internalizing problems, and were more likely to have school absenteeism problems.

Of course, mothers who have different employment patterns are different from one another in ways, beyond simply their work experiences, that may also contribute to the differences in their children's developmental outcomes. Table 2 highlights this point by presenting a series of family characteristics broken out by the same maternal employment patterns as presented in Table 1. For example, compared with mothers who experienced job stability, mothers who experienced job instability had, on average, less family income and earnings; were less educated; were more likely to receive welfare, experience food insufficiency, or have been evicted at some time in the past year; and had worse health. We would expect all these other factors to affect child well-being, independent of maternal employment. The remainder of this analysis aims to examine whether it is the maternal employment pattern itself that leads to the child's disadvantage, or these other differences in family characteristics.

In analyses not shown (to conserve space), we estimated a series of 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. We found significant variation across children in their initial levels of behavioral problems as well in the growth rate of these problem behaviors over time; and the results indicate that a standard deviation increase in the average annual *growth* rate of behavior problems is equivalent to roughly 0.20 of a standard deviation increase in the average *level* of behavior problem indices we measure. The estimated average levels and year-to-year changes in these

behavioral outcomes (net of measurement error and transitory fluctuations) are used to assess effect sizes of the maternal employment estimates in the multivariate regressions to follow.¹¹

Regression Results. Table 3 presents results from OLS models examining the associations of maternal employment patterns and the child behavioral problem indices, and probit models of school-related disruptive behavior problems and school absenteeism. The coefficient on “years of work experience” show the influence on children of an additional year of maternal work with job stability, compared to a year of not working (because years spent working with experiences of job instability are controlled for elsewhere in the model). Results from Table 3 show working is associated with lower behavior problems scores compared to not working. However, because nearly ninety percent of WES mothers worked at some point over the past year on average, 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 therefore turn to the other coefficients in the model. The coefficient on “cumulative years of job instability” indicates the relationship of an additional year of work experiencing job instability to children’s outcomes, compared to an additional year of work with job stability. Similarly, “cumulative years of job mobility” represents the influence on children of an additional year experiencing job mobility, compared to an additional year with job stability. In order to compare outcomes among children whose mothers experienced job instability vs. those whose mothers did not work, one would sum the coefficients on “years of work experience” and “cumulative years of job instability”.

After controlling for years of work experience, the coefficients on job instability, job mobility, full-time work and fluctuating work hours measure the effect of changes in maternal work patterns on child behavior outcomes, holding constant maternal education, family structure,

demographic and other measured characteristics. For example, the comparison of interest would be between two otherwise identical women, woman *A* and woman *B*, both whom have children of the same age and gender, and have accumulated the same number of years of work experience. Woman *A* has experienced job stability throughout her work history, while woman *B* has exhibited greater volatility in her work history by experiencing more years of job instability. Therefore, the coefficient on cumulative years of job instability may be interpreted as the effect on child behavior problems of an additional year of job instability (holding overall work experience constant).¹²

As Table 3 shows, the association between work experience and child behavior outcomes depends on the stability of that work involvement both in terms of hours and job transitions. We find that children whose mothers experienced greater levels of job instability or spent more time working in jobs with fluctuating 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). For example, children whose mothers worked an additional year and experienced job instability had 0.55-point higher behavior problem scores relative to mothers who worked with one additional year of job stability—this magnitude is equivalent to a 17 percent standard deviation increase in the level of total behavior problems. Each additional year of job instability is associated with a four percentage point increase in both the child's likelihood of disruptive problems in school and school absenteeism problems, compared to job stability. An additional year of voluntary job mobility is not associated with worse behavioral outcomes relative to job stability. We also find that an additional year of exposure to fluctuating work hours is associated with greater externalizing and total behavior problems. The combination of an additional year of maternal job instability and fluctuating work hours together

have estimated effects on child well-being that are equivalent to a 27 percent standard deviation increase in the level of total behavior problems.

For each outcome, we performed a series of such models, with various control measures such as income, residential stability, parental stress and maternal characteristics added sequentially to examine whether they account for the relationship between maternal employment and child behavior. Results from these models indicated that while these factors have independent influences on child behavior problems, these measures did not change the relationship between employment and child well-being. Therefore, for parsimony, we do not discuss these additional models but present the results of the expanded specification with all variables included in Appendix Table A2.

First-Difference Model Results

Table 4 presents results from our first-difference specifications. For computational simplicity, we apply linear probability models for the dichotomous child outcome measures despite the discrete nature of these outcomes.¹³ Here, we relate wave-to-wave changes in mothers' employment experiences to changes in children's outcomes.

In these analyses, the coefficient on “worked” represents mothers who worked and experienced job stability from one wave to the next, relative to those who did not work. As with the OLS models, the coefficients on job instability are in reference to those who worked and experienced job stability. So, for example, the coefficient on “worked*job instability” indicates the change in children's behavior associated with an additional year of work with job instability, relative to work with job stability between waves. To understand the influence on children of the movement from non-work to work with job instability, one would sum the coefficients on “worked” and “worked*job instability”.

Results in Table 4 show 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.¹⁴ To put the magnitude of these relationships in perspective, we find the impact of moving from stable, predictable work hours to fluctuating weekly work hours represents approximately one full standard deviation increase in the average growth rate of behavior problems.¹⁵ While a single year-to-year change, on average, represents a relatively small impact on the overall level of problem behaviors, such changes in the growth rate of problem behaviors could accumulate over several years to yield significant impacts on the level of problem behaviors.

To interpret the increases in child behavior problems represented by these effects, it is useful to consider a child who, if their mother experienced stable work patterns, would achieve about the average behavior score of all children in the sample. What would be the result, then, of an increase of one-fifth of a standard deviation in the level of internalizing problem behaviors because of the mother's movement to fluctuating work hours in the subsequent period (i.e., the average increase in the level of internalizing behavior problems among children when mothers experienced fluctuating work hours)? That child would move from the 50th percentile of all children up to the 58th percentile in exhibiting problem behaviors, thus surpassing an additional 8 percent of children in problematic behavior (after a single period of exposure). Clearly, a one-fifth of one standard deviation increase can accumulate and lead to a considerable increase in behavior problems over time.

We also see that the effects of increases in the incidence of job instability (relative to job stability) also represents about a full standard deviation increase in the average growth rate of behavior problems index. Moreover, the effect size of job instability on the growth rate of

internalizing behavior problems translates into 0.27 of a standard deviation increase in the level of internalizing behavior problems. For the average child, this means that he or she would move from the 50th percentile of all children up to the 61st percentile in exhibiting internalizing problem behaviors when a mother experiences job instability, thus surpassing an additional 11 percent of children in problematic behavior. Effect sizes on the order of .10, .20, or .30 may not seem to be large increases in the overall level of problem behavior for an individual child due to a single-period exposure to mothers' unstable work patterns; however, for a population of children whose mothers experience these unstable work patterns with some persistence (e.g., 25% of our mothers experienced 4 or more episodes of job instability), they can be quite substantial. Moreover, the combined estimated effects of maternal job instability and fluctuating work hours on child well-being are equivalent in magnitude to a 47% standard deviation increase in the level of internalizing behavior problems.

Regarding the corresponding evidence for externalizing behavior problems, we find a similar pattern of results, with a few differences of note. As shown in column (2) of Table 4, 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. The average effect of transitions to full-time work hours is equivalent to about a full standard deviation increase in the growth rate of externalizing problem behaviors.

Taken together, our results indicate that intermittent work patterns and fluctuations in work hours are important predictors of children's well-being. Results are remarkably consistent across the OLS and fixed-effects model specifications, providing no evidence from these

estimates, then, that our earlier OLS model results were driven primarily by unobserved heterogeneity in fixed characteristics.

Long-Difference (Value-Added) Model Results.

We next 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 the final two waves of the study. We expect these latter school-related academic progress indicators of grade repetition and placement in special education to be more sensitive to persistent exposure to working conditions over several years as opposed to exposures that occur in a single period. We therefore analyze the longer-run impacts of maternal employment patterns experienced between 1997-2003 on the likelihood of grade repetition and placement in special education during the end of the sample period, conditional on these transitions not occurring in previous periods. We estimate the impact of the cumulative maternal employment experiences over the Wave 1 to Wave 5 period on the transition probabilities for these outcomes between the final two waves of the study to help ensure that the maternal employment pattern preceded the assessed child outcome.

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. We also perform some analyses separately for involuntary job losses due to being fired/laid-off. With respect to job instability in particular, it is important to point out that a significant minority of mothers experienced numerous job transitions, both between any pair of survey waves and across the study period as a whole. In the WES sample, about 35% of mothers lost a job due to being fired or laid-off at least once over the seven years of the study, and 10% lost two more jobs for such involuntary reasons. The median job duration for women

in the WES was 7 months, and only about a third of jobs lasted a year or more. Job transitions observed in the sample are disproportionately comprised of job-to-nonemployment transitions, as opposed to voluntary job-to-job transitions, which are associated with wage gains. The greater adverse consequences for children whose mothers experience multiple experiences of job instability may accumulate and compound to yield sizeable effects over the longer-run.

In the longer-run models, we also investigate whether the potentially negative consequences for children of longer work hours are offset by the positive effects of greater earnings and wage growth in subsequent years that may result from working longer hours. 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, exhibit lower turnover, and were primary pathways to upward mobility, independent of characteristics of the workers who fill these jobs. 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 with an indicator for whether reading/writing and computer skills were required on this job. 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 may be less likely to be negatively affected by their longer work hours in the contemporaneous and future periods.

While a single job loss over the period is associated with a much smaller detrimental impact on child behavior outcomes in the longer-run, these negative effects intensify with multiple occurrences of instability accumulated over time. Results from these longer-run

analyses are presented in Table 5, and Appendix Table A4. Because all transitions can be difficult for children, we compare the effect of involuntary job separations due to being fired or laid-off to that of voluntary job-to-nonemployment transitions typically initiated by women due to dissatisfaction with working conditions. Being laid off or fired leads to significantly greater (roughly 2-4 times greater) child behavior problems, particularly internalizing behavior problems, and a greater likelihood the child is disruptive in school than when mothers' jobs change by choice. For example, although an additional voluntary job-to-nonemployment transition is associated with a 4 percentage-point increase in the likelihood of the child being disruptive in school at wave 5, being laid off or fired is associated with a 10 percentage-point increase in the probability of being disruptive in school at that time.

Additionally, the results indicate that the significant difference in child behavior problems between those whose mothers experienced two involuntary job separations compared with children whose mothers had never been fired or laid-off over the study period amounts to roughly one half of one standard deviation disparity in behavior problems by the end of the survey (more specifically, these effect sizes are 0.41, 0.31, and 0.60 of a standard deviation in the total behavior problem index, externalizing scale, and internalizing scale, respectively). To put the magnitude of these effects in perspective, consider that in the absence of these involuntary job losses, a reduction of half a standard deviation in the overall level of behavior problems would move children who were originally average (which is also the 50% point on these distributions) down to about the 31st percentile point in problem behaviors. Thus, a child whose level of behavior problems initially exceeded half this low-income population of children would now exhibit fewer behavior problems than 69% of the sample of children if his or her mother had never experienced being laid-off or fired.

As shown in Table 5, we also find that the number of years spent working in jobs with fluctuating schedules has significant impacts on child internalizing and externalizing behavioral issues over time (controlling for the child's relevant initial assessment of each outcome at wave 1). In particular, a child's additional two years of exposure to mother's fluctuating work hours leads to about .30 of a standard deviation increase in the level of behavior problems by the end of the survey. For the average child, this effect size would move the child from the 50th percentile of all children up to the 62nd percentile in exhibiting problem behaviors, thus surpassing an additional 12 percent of children in problematic behavior.

The shorter-run analyses presented may mask the fact that, for some mothers, sustained employment leads to upward mobility, while for many others it represents the first in a succession of dead-end jobs. We therefore investigated whether the effect of full-time work on children differs depending on whether the job leads to greater wage growth in subsequent years. In our longer-run analyses (Table 5 and Appendix Table A4), we find that working full-time in jobs that require reading/writing and computer use (i.e., more cognitive skills) is not associated with children's behavior problems; this is likely because women in such jobs are more likely to experience wage growth and less likely to experience job instability in future periods than are women in less cognitively demanding jobs. However, working full-time in jobs that do not require those cognitive skills is associated with significantly worse child behavioral outcomes by the end of the period.

Increases in earnings among the mothers in our sample over the study period were driven disproportionately by increases in the number of weeks worked per year and the number of hours worked, as opposed to increases in the wages earned per hour. Wage growth opportunities enable greater earnings over time without necessarily having to sacrifice the quantity or quality

of time spent with the child, whereas increases in work hours may constrain the quality of time spent with the child. Thus, the route that provides the primary source of earnings growth may have very different ramifications for child well-being. The data bear out this reality. As shown in Table 5, we find that changes to full-time work in less cognitively demanding jobs (which offer more limited wage growth opportunities) are associated with greater externalizing and internalizing behavioral problems for children.

Finally, in turning to the results in the final two columns of Table 5 for the longer-run school-related outcomes, our previous descriptive evidence highlighted the significant proportion of children in our low-income sample who had ever repeated a grade or been placed in special education (37%). We see a parallel and equally noteworthy set of findings of the differential effects of maternal full-time work hours by wage growth prospects for the likelihood of grade repetition and placement in special education. In particular, increases to full-time work status between waves 1 and 5 while working in jobs with limited wage growth prospects is associated with roughly a 6 percentage point increase in both the probability of repeating a grade and the probability of placement in special education between the final two waves of the survey, where the average two-year transition probability for each of these outcomes is roughly 10 percent. In contrast, increases to full-time work status between waves 1 and 5 while working in jobs with high wage growth prospects during the period were not significantly linked with an increased likelihood of either grade repetition or placement in special education. These worsening behavior and school problems were not evident when a mother increased her work hours in more cognitively-demanding jobs that offer higher wage growth prospects.

Similarly, large 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. An additional year spent working fluctuating hours is associated with a six percentage-point increase in the likelihood of school absenteeism problems at the end of the study, as well as about a four percentage-point increase in the probability of repeating a grade or being placed in special education. Thus, the longer-run impacts of mothers' fluctuating work hours are associated with a twenty percent increase in the likelihood of a child repeating a grade and a twenty-four percent increase in the likelihood of a child being placed in special education over the final two waves of the study.

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.

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.

Assessing role of selection bias

Our primary regression estimates contained in Table 4 were obtained from child fixed effects models (specified in first-difference form), which control for unmeasured time-invariant child and family characteristics. The OLS results that exclude these controls, as in Table 3, yielded similar patterns of results, providing some evidence that selection on unobservable characteristics is not leading to significant selection bias, at least in the case of time-invariant factors. But there may still be significant selection on unmeasured, time-varying factors that may bias estimates. To assess the likely importance of time-varying factors, we re-estimated all models including the richer set of covariates that includes controls for child care use, income sources, material hardship, residential mobility/instability patterns, parental stress, stressful life events, social support, parenting style, maternal alcohol or drug use problems, and maternal health problems. Estimates from these models are presented in Appendix Tables A2-A4 and are very similar to those reported in Tables 3-5. In general, estimates do not indicate a significant confounding (or mediating) role for these additional covariates. While the inclusion of measures of child care use, income sources, material hardship, residential mobility/instability patterns, parental stress, and maternal health-related characteristics did not significantly alter the magnitude of the estimated coefficients on the maternal employment-related variables, each of the aforementioned additional measures were related in expectable ways with our child outcome measures. The fact that these other variables in the expanded model were unable to explain the associations between maternal job instability, full-time and irregular work and children's well-being, suggest 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.

Discussion and Conclusion

Our study of maternal work after welfare reform and the well-being of children uses a range of empirical approaches to examine how children fare when mothers leave welfare for work. 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. The finer and more detailed characterization of maternal employment patterns improved our understanding of ways in which work conditions matter for child behavioral outcomes.

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 in our analysis to the role of observable characteristics and unobserved heterogeneity. The pattern of results across our various empirical approaches was consistent. This bolsters our confidence in the findings and provides suggestive evidence that our results are not driven primarily by unobserved heterogeneity.

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.

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.

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.

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.

² We exclude family income from the primary analyses reported in the text. However, estimates from models that included family income and its sources were similar to those reported in the text (see Appendix Tables A1-A3).

³ Relying solely on mothers to gauge their children's well-being can be problematic. For example, mothers who are doing well may report that their children are doing well, and mothers who are having a hard time may do the opposite. Therefore, the measures of children's behavior and experiences may not accurately reflect how the child is doing, but rather how the mother is doing at a given point in time. Our fixed-effects regression models will help to address this issue by controlling for persistent differences between mothers, such as her sense of self-efficacy. Another potential problem is that mothers may not be good reporters of how their children are doing, and their reports may not capture their children's actual functioning. Mothers may not directly observe their children's behavior (for example, in school), or they may not be attuned to it. Prior research from validation studies of the reliability of maternal reports of child behavior problems have shown that although mothers changed their reports on individual items measuring children's behavior over a two-week period, when these items were combined in a scale, the overall measure of children's behavior was quite stable, with over 60% of the scores remaining the same over the two-week period. This suggests that mothers are, on the whole, not changing their reports of children's behavior in response to transitory changes in their own lives. Other researchers have documented that the Behavior Problems Index is associated with other, more clearly observed, aspects of children's well-being. For example, children with poorer behavior also have lower test scores. This suggests that, despite the problems of using mother-reported data, these reports of children's behavior are generally stable over time, and do capture how well children are doing (*NLSY Child Handbook*, 1993).

⁴ Other thresholds for defining school absenteeism problems were examined that yielded qualitatively similar patterns of results as reported here.

⁵ There is some noncomparability 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.

⁶ Royalty (1998) and Gladden and Taber (2000) use similar definitions of job transitions.

⁷ 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 in the paper. In the end, we chose the functional forms of the key explanatory variables that best fit the data, as shown in the tables.

⁸ Home literacy is likely associated with skills that mothers bring to the workplace and is related to dimensions that may affect child development, so it is included as part of the education controls.

⁹ Because employment status changes can lead to changes in living arrangements (e.g., “doubling-up” to share expenses) and home literacy environment, we also estimated a subset of models in which the controls for living arrangements and home literacy environment are measured in the year preceding the employment pattern. We did this to ensure the estimated effects of living arrangements and home literacy are not instead capturing part of the employment pattern effects. The results were nearly identical to those reported in our main models, which supports our exogeneity assumption of family structure, living arrangements, and home literacy environment.

¹⁰ 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.

¹¹ Based on the unconditional hierarchical random effects model results (not shown but available from authors upon request), a one-standard deviation increase in the level of BPI is 3.2312; a one-standard deviation increase in the level of the externalizing behavior problem index is 1.0358; a one-standard deviation increase in the level of the internalizing behavior problem index is 0.8423 (all net of measurement error and transitory fluctuations). A one-standard deviation increase in the annual growth rate of BPI is 0.4490; a one-standard deviation increase in the annual growth rate of the externalizing behavior problem index is 0.1440; a one-standard deviation increase in the annual growth rate of the internalizing behavior problem index is 0.2241.

¹² Or consider a comparison of woman *C* and *D*, both whom have children of the same age and gender, and have experienced identical job transition patterns and have the same level of work experience. However, assume woman *C* has worked in jobs with fluctuating work hours or schedules while Women *D* has had regular work hours (or had stable shifts) throughout her work history. The coefficient of cumulative years of working in jobs with fluctuating work hours may be interpreted as the effect on child behavior problems of an additional year of fluctuating work hours (holding overall work experience constant).

¹³ 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).

¹⁴ Importantly, recall that 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. In all results, job changes that are driven by maternal concerns for child care or the general well-being of the child are not considered in our measure of job instability; they are classified as voluntary job mobility.

¹⁵ A standard deviation increase in the average *growth* rate of behavior problems is equivalent to roughly .20 of a standard deviation increase in the average *level* of behavior problem indices we measure. The much larger effect sizes of the results from the change models capture the average effects on the *growth* rate of these problem behaviors, while these effects translate to smaller changes in the *levels* of these behaviors.

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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: coded "1" if the child exhibited disruptive and/or disobedient behavior problems in school sometimes or often; "0" otherwise.

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)						Job Stability _(t-1,t)	Job Instability _(t-1,t)	Job Mobility _(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)				
<i>Child Outcome:</i>									
BPI--total score (in STD units)	0.13	-0.03	-0.01	0.20**	-0.09	-0.24***	0.19	-0.15	
BPI--externalizing (in STD units)	0.08	-0.09*	0.03	0.13**	-0.06	-0.23***	0.16	-0.06	
BPI--internalizing (in STD units)	0.18	-0.07	-0.01	0.10**	-0.08	-0.17***	0.33	-0.05	
Disruptive in school	0.28	0.33*	0.37	0.34	0.36	0.36***	0.41	0.36	
School absenteeism problem	0.22	0.19	0.19	0.22**	0.19	0.15***	0.24	0.16	

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

* indicates difference in mean of child outcome between part-time and full-time work is significant at the 10% level

** indicates difference in mean of child outcome between regular and fluctuating hours is significant at the 10% level

*** indicates difference in mean of child outcome between job stability and job instability is significant at the 10% level

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)	0.03	0.23	0.28	0.22	0.27	0.26	0.24	0.30
<i>Income Sources and Material Hardship:</i>								
Family Income-to-Needs ratio _{t-1,t}	0.84	1.05	1.29	1.12	1.22	1.36	1.10	1.34
Maternal Earnings _{t-1,t}	0.02	0.49	0.96	0.68	0.80	1.09	0.52	1.11
Received Welfare _{t-1,t}	0.71	0.50	0.28	0.42	0.35	0.21	0.35	0.19
Food Insufficiency Index _{t-1,t}	0.29	0.23	0.18	0.23	0.19	0.18	0.21	0.17
<i>Residential Mobility/Instability vars:</i>								
Moved _{t-1,t}	0.38	0.41	0.46	0.43	0.44	0.36	0.51	0.41
Evicted _{t-1,t}	0.08	0.09	0.07	0.09	0.07	0.03	0.12	0.05
Neighborhood Disadvantage (crime) _{wI}	0.55	0.48	0.54	0.55	0.50	0.50	0.53	0.49
<i>Parental characteristics:</i>								
Parental Stress Index _t	22.29	21.68	22.01	21.82	21.90	22.05	21.90	22.03
Stressful Life Events Index _{wI}	2.09	2.16	2.25	2.34	2.18	2.10	2.32	2.11
Social Support Index _{wI}	4.27	4.35	4.32	4.22	4.36	4.42	4.28	4.39
White	0.44	0.51	0.40	0.40	0.46	0.47	0.43	0.44
Black	0.56	0.49	0.60	0.60	0.54	0.53	0.57	0.56
<i>Maternal Education</i>								
HS Dropout	0.41	0.27	0.24	0.28	0.24	0.18	0.30	0.18
HS grad _t	0.34	0.38	0.39	0.38	0.39	0.39	0.40	0.35
Some college _t	0.25	0.36	0.37	0.34	0.37	0.42	0.30	0.46
Home Literacy Environment Index _{wI}	2.91	3.13	3.25	3.21	3.20	3.29	3.10	3.26
Never Married Mom _{wI}	0.58	0.58	0.64	0.60	0.62	0.62	0.64	0.58
Father Involvement Index _{wI}	10.05	9.68	9.54	9.91	9.49	9.88	9.33	9.72
Harsh Parenting Index _{wI}	13.39	14.33	14.42	14.42	14.37	14.34	14.44	14.48
Mother's alcohol or drug use problem _{wI}	0.19	0.23	0.21	0.23	0.21	0.20	0.24	0.19
Mother's physical health problem _{wI}	0.37	0.17	0.16	0.20	0.15	0.14	0.19	0.14
Mother's probable diagnosis major depression _{wI}	0.30	0.22	0.21	0.24	0.21	0.18	0.24	0.21

Note: **Bold** typeface indicates difference in mean of child outcome between part-time and full-time work is significant at the 10% level

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

	Dependent variables--Child Outcomes $_t$:				
	Behavior Problem Index $_t$	OLS		Probit Models (Marginal Effects)	
		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 $_t$ (ref cat: Job Stability)	-0.09** (0.04)	-0.02** (0.01)	-0.02* (0.01)	-0.00 (0.00)	-0.00 (0.00)
Cumulative yrs of Job Instability $w_{0,t}$	0.55*** (0.16)	0.13** (0.05)	0.20*** (0.06)	0.04*** (0.01)	0.04*** (0.01)
Cumulative yrs of Vol Job Mobility $w_{0,t}$	0.06 (0.23)	-0.01 (0.07)	0.01 (0.09)	0.00 (0.02)	-0.04 (0.02)
Cumulative yrs of Full-time Work $w_{0,t}$	0.11 (0.13)	0.01 (0.04)	0.03 (0.05)	0.01 (0.01)	0.00 (0.01)
Cumulative yrs of Fluctuating Work Hours $w_{0,t}$	0.30* (0.18)	0.09* (0.06)	0.06 (0.07)	-0.01 (0.02)	0.02* (0.01)
Child-year observations	1,572	2,256	2,249	2,115	1,068
Number of children	520	575	575	564	456

Robust Standard errors in parentheses (clustered on child).

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

Note: All models include controls for child age, gender, race, maternal age, maternal education, home literacy environment scale, family structure, and father involvement in child rearing. These effects are suppressed in the table to conserve space.

Note: In these analyses, the coefficient on “years of work experience” represents mothers working and experiencing job stability, relative to those who did not work. The coefficients on cumulative years of job instability and voluntary job mobility are in reference to job stability. So, for example, the coefficient on “cumulative years of job instability” indicates the change in children’s behavior associated with an additional year of work experience in an unstable job relative to that work experience in a stable job. To understand the influence on children of the movement from non-work to a year of work experience in an unstable job, one would sum the coefficients on “years of work experience” and “cumulative years of job instability”. Because nearly all mothers worked at some point over the past year, 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.

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

	First-Difference Models				
	Dependent variables-- Δ Child Outcomes $_{i,t,t}$:				
	Δ Behavior Problem Index $_{i,t,t}$	Δ Externalizing Scale $_{i,t,t}$	Δ Internalizing Scale $_{i,t,t}$	Δ Prob(Disruptive in School) $_{i,t,t}$	Δ Prob(School Absenteeism) $_{i,t,t}$
(1)	(2)	(3)	(4)	(5)	
<i>Maternal Employment-related variables:</i>					
Worked $_{i,t,t}$ (ref cat: Job Stability)	-0.43* (0.29)	-0.22** (0.09)	-0.12 (0.10)	-0.01 (0.04)	-0.08 (0.06)
Worked $_{i,t,t}$ * Job Instability $_{i,t,t}$	0.50* (0.27)	0.13* (0.07)	0.23*** (0.09)	0.00 (0.03)	0.03 (0.04)
Worked $_{i,t,t}$ * Vol Job Mobility $_{i,t,t}$	0.45* (0.27)	0.03 (0.09)	0.13 (0.10)	0.05 (0.04)	0.00 (0.04)
Δ Full-time work hours $_{i,t,t}$	-0.02 (0.22)	0.12* (0.07)	0.00 (0.08)	0.02 (0.03)	0.03 (0.04)
Δ Fluctuating work hours $_{i,t,t}$	0.45* (0.23)	0.11* (0.07)	0.16** (0.08)	-0.03 (0.03)	0.03 (0.05)
Child-year observations	1,047	1,666	1,656	1,478	744
# of Children	457	524	523	497	408

Robust standard errors in parentheses (clustered on child)

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

Note: All models include controls for changes in child age, maternal education, home literacy environment scale, family structure, father involvement in child rearing, and number of months between waves. These effects are suppressed in the table to conserve space.

Note: In these analyses, the coefficient on “worked” represents mothers working and experiencing job stability between waves, relative to those who did not work. As with the OLS models, the coefficients on job instability are in reference to those who worked and had job stability. So, for example, the coefficient on “worked*job instability” indicates the change in children’s behavior associated with movement from a stable job to an unstable job between waves. To understand the influence on children of the movement from non-work to an unstable job, one would sum the coefficients on “worked” and “worked*job instability”. Because nearly all mothers worked at some point over the past year, 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.

Table 5. The Longer-run Impacts of Maternal Employment Patterns on Child Well-Being: WES 1997-2003

	Dependent variables-- Δ Child Outcomes $_{WJ,W5}$:						
	Behavior Problem Index $_{W5}$	Externalizing Scale $_{W5}$	Internalizing Scale $_{W5}$	Prob(Disruptive in School) $_{W5}$	Prob(School Absenteeism) $_{W5}$	Prob(Ever Repeated a Grade) $_{W3-W5}$	Prob(Ever Placed in Special Ed) $_{W3-W5}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Maternal Employment-related variables:</i>							
Δ # of Months Worked $_{W1,W5}$	0.02 (0.03)	0.01 (0.04)	0.01 (0.03)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Δ #of Invol. Job-to-Nonemployment Transitions $_{W1,W5}$	0.80** (0.40)	0.89* (0.54)	1.13*** (0.38)	0.10** (0.05)	0.01 (0.03)	0.01 (0.03)	0.02 (0.02)
Δ #of Vol. Job-to-Nonemployment Transitions $_{W1,W5}$	0.36* (0.20)	0.45* (0.26)	0.32* (0.19)	0.04* (0.02)	0.02 (0.01)	0.03** (0.01)	0.01 (0.01)
Δ #of Vol. Job-to-Job Transitions $_{W1,W5}$	-0.01 (0.27)	-0.06 (0.36)	0.18 (0.26)	-0.04 (0.03)	-0.01 (0.02)	-0.02 (0.02)	-0.02 (0.02)
Δ Full-time work hours $_{W1,W5}$	1.10** (0.43)	1.00* (0.57)	0.73* (0.40)	0.04 (0.05)	0.03 (0.03)	0.06* (0.04)	0.06* (0.03)
Δ Full-time work hours $_{W1,W5}$ *Reading/Writing/Computer Use	-0.91 (0.67)	-0.49 (0.90)	-0.06 (0.64)	-0.07 (0.08)	-0.10** (0.05)	-0.05 (0.05)	-0.03 (0.04)
Δ # of Yrs spent wking Fluctuating Hours $_{W1,W5}$	0.58** (0.28)	0.62* (0.37)	0.62** (0.27)	-0.01 (0.03)	0.06*** (0.02)	0.04* (0.02)	0.03* (0.02)
Two-year average transition probability (cond'l on not occurring in prior periods)	--	--	--	--	--	0.1254	0.1381
# of Children	280	278	278	298	360	332	338

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.10

Note: All models include controls for wave 1 of child outcome, as well as for gender, child age, and changes in maternal education, home literacy environment scale, family structure, father involvement in child rearing, and whether worked between waves. These effects are suppressed in the table to conserve space.

**Appendix Table A1. Descriptive Statistics of
WES Mothers and Children, 1997-2003**

<i>Maternal Work Patterns</i>	
<i>Avg Job Transition Pattern</i>	
<i>b/w Most Recent Job of Successive Waves:</i>	
Job Stability	0.31
Voluntary Job Mobility	0.22
Job Instability	0.47
Ever Fired/Laid-off _(W1-W5)	0.35
Full-time job	0.53
Fluctuating work hours	0.21
<i>Mothers' Characteristics</i>	
Maternal age	30 years
White	0.44
Black	0.56
HS Dropout	0.28
HS grad _t	0.38
Some college _t	0.35
Married	0.12
Cohabiting	0.19
Single	0.66
Grandmother Resides in Household	0.14
Child's Biological Father in Household	0.07
Father Involvement Index _{WI} (range:4-16)	9.67
Home Literacy Environment Index _{WI} (range:0-4)	3.15
<i>Child Characteristics</i>	
Boy	0.50
Girl	0.50
Child Age	7 years
<i>Child Outcomes</i>	
Externalizing behavior problem index	4.69
Internalizing behavior problem index	6.05
Total behavior problem index	16.85
Incidence of involvement in school-related probs:	
Disruptive problems in school _t	0.34
School absenteeism problem _t	0.20
<i>Ever throughout survey</i>	
Disruptive problems in school	0.68
School absenteeism problem	0.47
Repeated a grade	0.26
Placed in special ed	0.20
Repeated a grade OR Placed in special ed	0.37

Appendix Table A2. The Effects of Maternal Employment Patterns on Child Well-Being: All Behavior Problems, WES 1997-2003

Behavior Problem Index t	Dependent variables--Child Outcomes t :				
	OLS			Probit Models (Marginal Effects)	
	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 t (ref cat: Job Stability)	-0.08** (0.04)	-0.02** (0.01)	-0.02 (0.01)	-0.00 (0.00)	-0.00 (0.00)
Cumulative yrs of Job Instability $w_{0,t}$	0.45*** (0.15)	0.08* (0.05)	0.15** (0.06)	0.03** (0.02)	0.03** (0.01)
Cumulative yrs of Vol Job Mobility $w_{0,t}$	0.05 (0.21)	0.01 (0.07)	-0.01 (0.09)	-0.01 (0.02)	-0.02 (0.02)
Cumulative yrs of Full-time Work $w_{0,t}$	-0.01 (0.12)	-0.03 (0.04)	-0.02 (0.05)	-0.01 (0.01)	0.01 (0.01)
Cumulative yrs of Fluctuating Work Hours $w_{0,t}$	0.21 (0.17)	0.09* (0.05)	0.04 (0.07)	-0.01 (0.02)	0.02* (0.01)
Cumulative yrs Used Paid Child Care $w_{0,t}$	0.37** (0.17)	0.04 (0.06)	0.17** (0.07)	0.03 (0.02)	-0.04** (0.02)
<i>Income Sources and Material Hardship:</i>					
Net Family Income $t-1,t$	-0.39** (0.16)	-0.08 (0.06)	-0.19*** (0.06)	-0.01 (0.02)	-0.02 (0.02)
Maternal Labor Earnings $t-1,t$	0.34* (0.20)	0.18*** (0.07)	0.06 (0.08)	0.05* (0.02)	-0.00 (0.03)
Received Welfare $t-1,t$	0.74*** (0.26)	0.30*** (0.09)	0.15 (0.10)	-0.01 (0.03)	0.04 (0.04)
Food Insecurity Index $t-1,t$	1.19*** (0.32)	0.27*** (0.10)	0.55*** (0.13)	0.02 (0.04)	0.04 (0.04)
<i>Residential Mobility/Instability vars:</i>					
Moved $t-1,t$	0.06 (0.23)	0.07 (0.08)	-0.01 (0.09)	0.04 (0.03)	-0.08*** (0.03)
Moved $t-1,t$ *Evicted $t-1,t$	0.24 (0.42)	0.23 (0.15)	0.11 (0.17)	-0.04 (0.05)	0.06 (0.05)
Neighborhood Disadvantage (crime) w_t	0.46* (0.27)	0.21** (0.09)	0.01 (0.10)	0.01 (0.03)	-0.03 (0.03)
<i>Parental characteristics:</i>					
Parental Stress Index t	0.10*** (0.03)	0.02** (0.01)	0.03*** (0.01)	0.01*** (0.00)	-0.00 (0.00)
Stressful Life Events Index w_t	0.04 (0.10)	0.04 (0.03)	-0.01 (0.04)	-0.01 (0.01)	0.01 (0.01)
Social Support Index w_t	-0.09 (0.15)	-0.02 (0.05)	-0.09 (0.06)	0.00 (0.01)	-0.00 (0.01)
Maternal age t	0.03 (0.03)	0.01 (0.01)	0.01 (0.01)	0.00 (0.00)	0.00 (0.00)
Black (ref cat: White)	-0.88*** (0.30)	-0.11 (0.10)	-0.46*** (0.11)	0.06* (0.03)	-0.02 (0.03)
Maternal Education (ref cat: HS Dropout)					
HS grad t	-0.08 (0.36)	-0.14 (0.12)	0.11 (0.13)	-0.03 (0.04)	-0.04 (0.03)
Some college t	-0.14 (0.38)	-0.30** (0.12)	0.19 (0.14)	-0.00 (0.04)	-0.10*** (0.04)
Home Literacy Environment Index w_t	0.00 (0.14)	-0.01 (0.05)	0.03 (0.05)	0.02 (0.02)	-0.01 (0.01)
Mom Cohabiting w_t (ref cat: Married w_t)	-0.51 (0.57)	0.14 (0.20)	-0.21 (0.20)	0.09 (0.07)	-0.02 (0.05)
Not Cohabiting w_t	-0.05 (0.50)	0.08 (0.17)	-0.04 (0.18)	0.08 (0.06)	0.03 (0.05)
Father Involvement Index w_t	-0.01 (0.03)	-0.01 (0.01)	-0.00 (0.01)	-0.00 (0.00)	-0.00 (0.00)
Grandmother lives in HH w_t	0.72 (0.52)	0.08 (0.16)	0.41* (0.21)	-0.02 (0.07)	-0.05 (0.05)
Harsh Parenting Index w_t	0.27*** (0.09)	0.11*** (0.03)	0.08** (0.03)	0.02* (0.01)	0.00 (0.01)
Mother's alcohol or drug use problem $t-1,t$	0.84** (0.34)	0.17 (0.12)	0.45*** (0.13)	0.04 (0.04)	0.05 (0.04)
Mother's physical health problem $t-1,t$	0.71** (0.34)	0.25** (0.11)	0.14 (0.13)	0.05 (0.04)	0.06 (0.04)
Mother's probable diagnosis major depression $t-1,t$	0.58* (0.31)	0.16 (0.10)	0.22* (0.13)	0.07* (0.04)	0.07* (0.04)
Boy	0.92*** (0.30)	0.23** (0.10)	0.26** (0.11)	0.16*** (0.03)	0.06* (0.03)
Child Age	0.13** (0.06)	-0.02 (0.02)	0.12*** (0.02)	0.02*** (0.01)	-0.00 (0.01)
# of children in HH	-0.12 (0.11)	-0.01 (0.04)	-0.08* (0.04)	-0.02 (0.01)	-0.01 (0.01)
Child-year observations	1,550	1,661	1,656	1,615	1,055
Number of children	515	524	523	513	452

Robust Standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.10

Note: All models include controls for child age, gender, race, maternal age, maternal education, home literacy environment scale, family structure, and father involvement in child rearing. These effects are suppressed in the table to conserve space.

Note: In these analyses, the coefficient on "years of work experience" represents mothers working and experiencing job stability, relative to those who did not work. The coefficients on cumulative years of job instability and voluntary job mobility are in reference to job stability. So, for example, the coefficient on "cumulative years of job instability" indicates the change in children's behavior associated with an additional year of work experience in an unstable job relative to that work experience in a stable job. To understand the influence on children of the movement from non-work to a year of work experience in an unstable job, one would sum the coefficients on "years of work experience" and "cumulative years of job instability". Because nearly all mothers worked at some point over the past year, 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.

Appendix Table A3. The Effects of Maternal Employment Patterns on Child Well-Being: All Behavior Problems, WES 1997-2003

	First-Difference Models				
	Dependent variables-- Δ Child Outcomes _{<i>i,t</i>} :				
	Δ Behavior Problem Index _{<i>i,t</i>}	Δ Externalizing Scale _{<i>i,t</i>}	Δ Internalizing Scale _{<i>i,t</i>}	Δ Prob(Disruptive in School) _{<i>i,t</i>}	Δ Prob(School Absenteeism) _{<i>i,t</i>}
(1)	(2)	(3)	(4)	(5)	
<i>Maternal Employment-related variables:</i>					
Worked _{<i>i,t</i>}	-0.55*	-0.25**	-0.18*	-0.02	-0.08
(ref cat: Job Stability)	(0.30)	(0.10)	(0.10)	(0.04)	(0.06)
Worked _{<i>i,t</i>} * Job Instability _{<i>i,t</i>}	0.59**	0.13*	0.20**	0.02	0.04
(0.26)	(0.08)	(0.09)	(0.04)	(0.04)	(0.04)
Worked _{<i>i,t</i>} * Vol Job Mobility _{<i>i,t</i>}	0.42	0.02	0.09	0.04	0.03
(0.27)	(0.09)	(0.10)	(0.04)	(0.05)	(0.05)
Δ Full-time work hours _{<i>i,t</i>}	0.07	0.13*	0.04	0.01	0.04
(0.23)	(0.07)	(0.08)	(0.03)	(0.04)	(0.04)
Δ Fluctuating work hours _{<i>i,t</i>}	0.50**	0.12*	0.17**	-0.03	0.03
(0.23)	(0.07)	(0.08)	(0.03)	(0.05)	(0.05)
Used Paid Child Care services _{<i>i,t</i>} (for any child)	0.34	0.04	0.26***	-0.02	-0.07
(0.23)	(0.07)	(0.08)	(0.03)	(0.04)	(0.04)
<i>Income Sources and Material Hardship:</i>					
Δ Net Family Income _{<i>i,t</i>}	-0.17	0.02	-0.20***	-0.01	-0.04
(0.17)	(0.09)	(0.07)	(0.02)	(0.03)	(0.03)
Δ Maternal Labor Earnings _{<i>i,t</i>}	0.34*	0.07	0.15*	0.07**	0.04
(0.20)	(0.06)	(0.08)	(0.03)	(0.03)	(0.03)
Δ Received Welfare _{<i>i,t</i>}	0.30	0.09	0.15*	-0.00	0.12**
(0.25)	(0.08)	(0.08)	(0.04)	(0.05)	(0.05)
Δ Food Insecurity Index _{<i>i,t</i>}	0.94***	0.15*	0.31***	0.00	0.04
(0.29)	(0.08)	(0.10)	(0.04)	(0.04)	(0.04)
<i>Residential Mobility/Instability vars:</i>					
Moved _{<i>i,t</i>}	-0.12	0.02	0.02	0.02	-0.08*
(0.22)	(0.07)	(0.08)	(0.03)	(0.04)	(0.04)
Moved _{<i>i,t</i>} * Evicted _{<i>i,t</i>}	0.75**	0.26*	0.26**	-0.02	0.06
(0.38)	(0.14)	(0.13)	(0.06)	(0.08)	(0.08)
Moved _{<i>i,t</i>} * Became Homeowner _{<i>i,t</i>}	-0.04	0.07	-0.13	-0.09	0.04
(0.38)	(0.12)	(0.14)	(0.06)	(0.05)	(0.05)
Moved _{<i>i,t</i>} * Δ Neighborhood Poverty Rate _{<i>i,t</i>}	-0.47	-0.12	0.17	0.04	0.12
(1.01)	(0.36)	(0.40)	(0.20)	(0.24)	(0.24)
<i>Demographic variables:</i>					
Pregnant _{<i>i,t</i>}	1.18**	0.02	0.56***	0.20***	0.09
(0.55)	(0.16)	(0.19)	(0.07)	(0.11)	(0.11)
Father Involvement Index _{<i>W1</i>}	-0.01	0.00	-0.01	-0.00	-0.01***
(0.02)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Δ Father Involvement Index _{<i>W1,W2</i>}	-0.02	-0.00	-0.02	-0.00	-0.00
(0.04)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)
Δ Grandmother lives in household _{<i>i,t</i>}	1.24*	0.42**	0.16	-0.07	0.09
(0.65)	(0.18)	(0.20)	(0.11)	(0.21)	(0.21)
Δ Cohabiting _{<i>i,t</i>} (ref cat: Married)	0.96**	0.26**	0.27*	-0.09	0.06
(0.40)	(0.13)	(0.16)	(0.06)	(0.08)	(0.08)
Δ Not Cohabiting _{<i>i,t</i>}	0.77*	0.08	0.25*	-0.06	0.03
(0.43)	(0.13)	(0.15)	(0.06)	(0.09)	(0.09)
<i>Maternal Health-related variables:</i>					
Δ Parental stress index _{<i>i,t</i>}	0.14***	0.04***	0.04***	0.01*	0.00
(0.03)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Δ Mother's alcohol or drug use problem _{<i>i,t</i>}	0.72***	0.16	0.31***	0.06	-0.03
(0.27)	(0.10)	(0.10)	(0.04)	(0.06)	(0.06)
Δ Mother's probable diagnosis major depression _{<i>i,t</i>}	-0.10	0.04	0.08	0.01	0.06
(0.25)	(0.08)	(0.10)	(0.04)	(0.05)	(0.05)
Δ Mother's physical health problem _{<i>i,t</i>}	0.34	0.05	0.19*	0.05	0.05
(0.29)	(0.09)	(0.11)	(0.04)	(0.06)	(0.06)
Constant	0.69	0.38***	0.39***	0.15**	0.05
(0.49)	(0.14)	(0.15)	(0.06)	(0.30)	(0.30)
Child-specific fixed effects?			First-difference form		
Child-year observations	1,045	1,663	1,653	1,476	742
# of Children	457	524	523	497	407

Robust standard errors in parentheses (clustered on child)

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

Note: All models include controls for changes in child age, maternal education, and home literacy environment scale. These effects are suppressed in the table to conserve space.

Appendix Table A4. The Longer-run Impacts of Maternal Employment Patterns on Child Well-Being: WES 1997-2003

Behavior Problem Index _{W5}	Dependent variables--Δ Child Outcomes _{W1,W5} :						
	Externalizing Scale _{W5}	Internalizing Scale _{W5}	Prob(Disruptive in School) ₅	Prob(School Absenteeism) ₅	Prob(Ever Repeated a Grade) _{W1,W5}	Prob(Ever Placed in Special Ed) _{W1,W5}	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Externalizing Behavior sub-scale measure at W1	0.97*** (0.21)	1.54*** (0.25)					
Internalizing Behavior sub-scale measure at W1	0.66** (0.27)		1.17*** (0.24)				
Disruptive in School at W1				0.14* (0.08)			
<i>Maternal Employment-related variables:</i>							
Δ# of Months Worked _{W1,W5}	0.01 (0.03)	-0.01 (0.04)	-0.00 (0.03)	0.00 (0.00)	-0.00 (0.00)	0.00* (0.00)	0.00 (0.00)
Δ#of Invol. Job-to-Nonemployment Transitions _{W1,W5}	1.00** (0.41)	1.25** (0.54)	1.29*** (0.39)	0.12** (0.05)	0.00 (0.03)	0.03 (0.03)	0.03 (0.02)
Δ#of Vol. Job-to-Nonemployment Transitions _{W1,W5}	0.29 (0.20)	0.43 (0.27)	0.21 (0.19)	0.04 (0.02)	0.02 (0.02)	0.05*** (0.02)	0.00 (0.01)
Δ#of Vol. Job-to-Job Transitions _{W1,W5}	0.05 (0.27)	0.04 (0.35)	0.18 (0.26)	-0.03 (0.03)	-0.01 (0.02)	-0.02 (0.02)	-0.03* (0.02)
ΔFull-time work hours _{W1,W5}	0.99** (0.44)	0.89 (0.58)	0.72* (0.42)	0.02 (0.05)	0.03 (0.04)	0.06* (0.04)	0.07** (0.03)
ΔFull-time work hours _{W1,W5} *Reading/Writing/Computer Use	-0.93 (0.68)	-1.00 (0.89)	-0.14 (0.65)	-0.09 (0.08)	-0.09* (0.05)	-0.04 (0.05)	-0.04 (0.04)
Δ# of Yrs spent wking Fluctuating Hours _{W1,W5}	0.72*** (0.27)	0.73** (0.36)	0.72*** (0.27)	-0.02 (0.03)	0.06*** (0.02)	0.04* (0.02)	0.03 (0.02)
Δ# of Yrs Used Paid Child Care serv _{W1,W5} (for any child)	0.32 (0.25)	0.55* (0.33)	0.69*** (0.24)	0.02 (0.03)	-0.02 (0.02)	-0.00 (0.02)	0.06*** (0.01)
<i>Income Sources and Material Hardship:</i>							
Δ Net Family Income _{W1,W5}	-0.22 (0.27)	-0.55 (0.36)	-0.11 (0.26)	-0.03 (0.03)	0.03 (0.02)	0.00 (0.02)	-0.03 (0.02)
Δ Maternal Labor Earnings _{W1,W5}	0.20 (0.38)	0.80 (0.49)	-0.08 (0.36)	0.08* (0.05)	-0.03 (0.03)	-0.01 (0.03)	-0.02 (0.03)
Δ # of Yrs Received Welfare _{W1,W5}	0.40 (0.25)	0.70** (0.33)	0.24 (0.24)	0.02 (0.03)	-0.02 (0.02)	-0.01 (0.02)	-0.00 (0.02)
Δ # of Yrs Food Inefficiency _{W1,W5}	0.69** (0.27)	1.08*** (0.35)	0.53** (0.26)	0.09*** (0.03)	0.02 (0.02)	0.02 (0.02)	0.01 (0.01)
<i>Residential Mobility/Instability vars:</i>							
Moved _{W1,W5}	0.13 (0.23)	0.22 (0.31)	0.23 (0.22)	0.05* (0.03)	-0.00 (0.02)	0.02 (0.02)	-0.01 (0.01)
Moved _{W1,W5} *Evicted _{W1,W5}	-0.32 (0.82)	-1.38 (1.08)	-0.15 (0.79)	-0.11 (0.09)	0.06 (0.07)	-0.06 (0.05)	0.03 (0.05)
Moved _{W1,W5} *BecameHomeowner _{W1,W5}	1.20* (0.61)	2.04** (0.81)	0.75 (0.58)	-0.01 (0.07)	0.00 (0.05)	-0.02 (0.05)	0.01 (0.04)
Moved _{W1,W5} *ΔNeighborhood Poverty Rate _{W1,W5}	-0.39 (2.03)	-1.98 (2.68)	0.24 (1.93)	-0.20 (0.24)	0.23 (0.17)	-0.07 (0.17)	-0.09 (0.12)
<i>Maternal Health-related variables:</i>							
Δ Mother's alcohol or drug use problem _{W1,W5}	-0.05 (0.60)	-0.83 (0.79)	-0.37 (0.58)	0.11 (0.08)	0.01 (0.05)	0.00 (0.05)	0.07* (0.04)
Δ Mother's probable diagnosis major depression _{W1,W5}	1.15** (0.57)	1.27* (0.77)	0.62 (0.54)	0.08 (0.06)	0.06 (0.04)	0.05 (0.04)	-0.07** (0.03)
Δ Mother's physical health problem _{W1,W5}	-0.28 (0.58)	0.72 (0.75)	0.02 (0.55)	0.07 (0.07)	-0.05 (0.04)	0.01 (0.04)	-0.00 (0.03)
Two-year average transition probability (cond' on not occurring in prior periods)	--	--	--	--	--	0.1254	0.1381
# of Children	279	277	277	297	359	331	337

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

Standard errors in parentheses

Note: All models include a constant and controls for gender, child age, and changes in maternal education, home literacy environment scale, family structure, father involvement in child rearing, and whether worked between waves. These effects are suppressed in the table to conserve space.