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When Does Time Matter? Maternal Employment, Children's Time With Parents, and Child Development

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Abstract

This study tests the two assumptions underlying popularly held notions that maternal employment negatively affects children because it reduces time spent with parents: (1) that maternal employment reduces children's time with parents, and (2) that time with parents affects child outcomes. We analyze children's time-diary data from the Child Development Supplement of the Panel Study of Income Dynamics and use child fixed-effects and IV estimations to account for unobserved heterogeneity. We find that working mothers trade quantity of time for better "quality" of time. On average, maternal work has no effect on time in activities that positively influence children's development, but it reduces time in types of activities that may be detrimental to children's development. Stratification by mothers' education reveals that although all children, regardless of mother's education, benefit from spending educational and structured time with their mothers, mothers who are high school graduates have the greatest difficulty balancing work and childcare. We find some evidence that fathers compensate for maternal employment by increasing types of activities that can foster child development as well as types of activities that may be detrimental. Overall, we find that the effects of maternal employment are ambiguous because (1) employment does not necessarily reduce children's time with parents, and (2) not all types of parental time benefit child development.

Keywords

Maternal employment; Parental time; Child development

Introduction

The second half of the twentieth century has seen the unprecedented entry of women with children into the labor market. This phenomenon has led social critics and politicians to voice concern about the potential negative consequences that this change may have on children. Academics have also sought to tackle this issue. Overall, the extensive literature

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demonstrates that maternal employment has a detrimental effect on children's cognitive development when it occurs during children's first year of life (Baum 2003; Baydar and Brooks-Gunn 1991; Bernal 2008; Hill et al. 2005; James-Burdumy 2005; Ruhm 2004; Waldfogel et al. 2002). The effects of later maternal employment are less conclusive, but negative effects have been found for children's cognitive outcomes (Bogenschneider and Steinberg 1994; Ruhm 2008) and educational attainment (Baum 2003; Ermisch and Francesconi 2001).

Underlying both the popular and scholarly debate are the assumptions that (1) maternal work reduces the amount of time children spend with their parents, and (2) time spent together positively influences child development. Scholars, ranging from sociologists (Coleman 1988; Presser 1989; Waite 1995) to psychologists (Belsky 2001) to economists (James-Burdumy 2005; Ruhm 2004), have postulated that parental time represents a main causal mechanism linking maternal employment to child outcomes. These sentiments are echoed in popular books, such as *Mommy Wars* (Steiner 2007) and *Life's Work: Confessions of an Unbalanced Mom* (Belkin 2003), that give voice to the anxieties that still plague many working women about decisions to work outside the home as well as the potential consequences these decisions may have for their children.

To what extent do empirical findings offer credence to these fears? Although we know that working women spend less total time with children than their nonworking counterparts (Bianchi et al. 2006; Fox et al. 2013; Sayer et al. 2004), it is far from clear that these differences translate into worse child outcomes for several reasons. First, parents can mitigate the potential deleterious effects of maternal employment by trading quantity of time for higher “quality” of time. Second, not all types of shared time together necessarily yield better child outcomes. Even if maternal work reduces time in the most favorable types of activities, its overall effect may be negligible if it also reduces time in activities that are the least favorable for children. Finally, fathers may partially offset the loss of maternal time by increasing their involvement.

In this study, we consider two questions that persist despite the existing literature: (1) does maternal employment affect the time children spend with their parents?; and (2) how does parental time affect child development? To examine these questions, we analyze time-diary data from the Child Development Supplement of the Panel Study of Income Dynamics (PSID-CDS) and extend the literature in the following ways. First, we consider both the total quantity of shared time and the different types of activities that children undertake with their parents. Doing so allows us to determine whether working women trade quantity for higher quality of time and whether certain types of activities yield more favorable child outcomes. Second, we consider whether resident fathers help compensate for maternal employment by spending more time with children. Third, we examine how the relationship between work and parental time, on one hand, and parental time and child outcomes, on the other, varies by mothers’ education. This stratification is important because the educational credentials parents possess largely determine the type and degree of work conflicts with childcare. We also stratify the analysis by child's age in order to determine whether estimated relationships differ when children are not yet of school age versus when they are. Finally, we employ

individual fixed-effect and instrumental variable regressions to better address issues of selection bias.

Background

Maternal Employment and Children's Time With Parents

To date, much of what is known about the relationship between maternal employment and maternal time with children is based on descriptive studies. An important finding highlighted by these studies is that although maternal employment reduces the amount of time parents dedicate to their children, parents have also responded in important ways to prevent work from interfering with childcare (Bryant and Zick 1996; Gershuny and Robinson 1988; Sandberg and Hofferth 2001; Sayer et al. 2004). For example, working mothers compensate for their labor market activities by sacrificing aspects of their personal and domestic life—such as sleep, leisure, and housekeeping—so that they can spend time with their children (Bianchi et al. 2006). Another important way that working women can mitigate the potential deleterious effects of maternal employment on children is by protecting time that involves direct engagement with children and sacrificing time that only peripherally involves children. In other words, they may trade quantity for quality of childcare time. For example, Nock and Kingston (1988) found that much of the time that stay-at-home mothers spend with children occurs while mothers are cooking, cleaning, or housekeeping. Differences in time dedicated to activities such as playing, reading, and doing homework by maternal employment status among women with young children amount to less than an hour per day. There are no significant differences among women with older children.

Despite the rich knowledge that the existing studies offer, our understanding of the causal impact of maternal employment on maternal time is still limited. A variety of factors simultaneously determine decisions regarding how much time one dedicates to work and how much time one dedicates to children. These factors may include measurable characteristics (such as mother's education and family income) as well as unmeasured characteristics (such as mother's preferences or attitudes toward family and career). For example, a family-oriented woman might choose to stay at home to spend more time with her child. Alternatively, a career-oriented woman who chooses to work may spend less total time with her child but, at the same time, may reallocate her schedule to devote more time on activities that can foster child development and less time on types of activities that may be less effective at fostering child development. We are aware of only one study that has explicitly attempted to establish a causal relationship between work and maternal time (Cawley and Liu 2007). Using local labor market conditions as instruments for maternal employment, this study found that working mothers spend less total time and educational time with their children than nonworking mothers. However, this study is limited because it did not consider educational differences in how maternal employment relates to parental time, the potential compensatory effects of fathers' time, and the effects of either parents' time on child outcomes.

Another way that dual-earner families can mitigate loss of maternal time is if fathers increase their involvement with children. Fathers have become increasingly involved in the daily care of children, especially fathers in two-parent households (Cabrera et al. 2000;

Sayer et al. 2004; Yeung et al. 2001). Some studies have suggested that their involvement may partially offset the negative effects of maternal work on maternal time with children (Craig and Mullan 2011; Raley et al. 2012; Sandberg and Hofferth 2001), whereas others have suggested that maternal work has no effect on father's time with children (Yeung et al. 2001). Complicating these findings, however, is again the issue of unmeasured characteristics that might simultaneously determine maternal labor market decisions and fathers' involvement with children. For example, men who have more egalitarian preferences toward childcare responsibilities may be more likely to marry career-oriented women. Because prior studies have not accounted for this source of bias, we do not know whether observed differences in the amount of time husbands of working and nonworking spouses dedicate to childcare is due to maternal employment or is an artifact of nonrandom selection into marriages.

Because parental education largely shape the types of work-family conflicts faced by most families, it is important to consider educational differences in the effect of maternal employment on maternal time (Bianchi 2011; Williams and Boushey 2010). The type of work-family dilemmas faced by college-educated parents is characterized by efforts to balance well-paying but highly demanding jobs with childcare responsibilities. Yet, despite the demands of their jobs, many of these families can afford to hire nannies, babysitters, and housekeepers who offer extra help if familial support is not available. College graduates are also more likely to hold jobs that offer the most flexibility to care for children during times of sickness or school holidays by offering paid vacation and sick days (Galinsky et al. 2011). Therefore, we might expect highly educated women to be the most capable of successfully minimizing the potentially negative effects associated with maternal employment. In contrast, the problems faced by the least-skilled families (i.e., those without high school diplomas) involve raising children in single-parent households while facing poor job prospects, persistent unemployment, and employment in types of jobs that offer the least flexibility and benefits (Williams and Boushey 2010). Perhaps caught in the middle are parents who graduated from high school but did not attend college. They often earn too much to qualify for government-subsidized childcare programs, such as Head Start, but not enough to afford higher-quality care (Williams and Boushey 2010). These types of families are often (1) dual-earner families, with couples working different shifts to reduce childcare costs, or (2) single-parent households in which parents work full-time and rely on a patchwork of childcare arrangements that combines low-quality center-based care, care provided by relatives, and other types of informal care (Bianchi 2011). We might expect to see strong negative effects of maternal employment on children among these types of families.

Children's Time With Parents and Child Outcomes

The theories in sociology, developmental psychology, and economics tell us that parental time plays a central role in child development. Along with financial and material investments, the time parents spend with children is seen as an input into the production of human capital (Becker 1991). In early childhood, developmental theories emphasize that time spent with a consistent and responsive caregiver is necessary for infants to establish secure attachment (Belsky 2001; Brazelton 1986; Vaughn et al. 1980). It is widely theorized

that through the time children spend with their parents, meaningful emotional bonds are established (Amato and Rivera 1999; Conger et al. 2002), and parents' knowledge and skills (Linver et al. 2002; Yeung et al. 2002) as well as the attitudes and expectations that are conductive to future success (Davis-Kean 2005) are imparted to their children.

Yet, surprisingly few studies have used time-diary measures to test these theories. The few that exist offer less-conclusive results than the theories would predict. For instance, studies analyzing mothers' time diaries from the NICHD Study of Early Childcare and Youth Development have found no significant associations between mothers' time with children and a range of early indicators of child development (i.e., measured between ages 7 and 36 months), such as attachment security or cognitive and emotional development (Booth et al. 2002; Cox et al. 1992; Huston and Rosenkrantz Aronson 2005). Studies focusing on older children (i.e., age 3 or older) have also found mixed effects of maternal time. Bernal et al. (2011), using household data from Colombia, found that quantity of time has a positive effect on children's cognitive outcomes but has a negative effect on socioemotional outcomes. The one exception is educational time, which positively predicts socioemotional outcomes. Fiorini and Keane (forthcoming) analyzed time-use diaries from the Longitudinal Study of Australian Children, the Australian counterpart to the PSID-CDS in the United States. Their goal was to rank the relative importance of children's time use in various activities with respect to its effect on children's cognitive and noncognitive outcomes. They found that children's time engaged in educational activities—particularly, educational time with parents—has a positive effect on children's cognitive development. Children's socioemotional development, however, seems insensitive to parental time. Combined, these two studies highlight a similar point: the type of activities performed together may matter more than the total time spent together.

It is not difficult to understand why quantity of engagement in tasks that directly influence academic performance—such as reading to young children and doing homework together—have a positive effect on children's cognitive development. Engagement in activities that are not explicitly educational but that require high levels of verbal exchange and critical involvement from both parent and child may also improve child outcomes. For example, prior studies have demonstrated that frequency of exposure to adult speech that is specifically directed to children positively influences language growth in children as young as 18 months (Hurtado et al. 2008; Shneidman and Goldin-Meadow 2012; Weisleder and Fernald 2013). Adult speech that is not specifically directed to children, however, has no effect on child outcomes. In light of these findings, one might speculate that child development is positively influenced by time engaged in activities that offer opportunities for meaningful and complex verbal exchanges and by time spent engaged in tasks that require critical thinking. Such activities may include playing together, doing arts and crafts, and engagement in musical activities. Additionally, we might expect that activities that require little to no direct verbal interaction or critical engagement to yield no positive effects. Such activities include the time children spend watching television or playing video games. In fact, prolonged time spent in these types of activities may be detrimental if they displace participation in activities that positively foster development (Koolstra et al. 1996).

None of the aforementioned studies explicitly considered the role of fathers.[1] Fathers' time, however, is speculated to exert the same direct influence on children as mothers' time (Pleck 2010). The literature shows that aspects of paternal involvement—such as paternal accessibility, emotional investment, and responsibility—positively correlate with children's cognitive and behavioral outcomes, net of maternal involvement and family income (Amato and Rejac 1994; Amato and Rivera 1999; Harris et al. 1998; McLanahan and Sandefur 1994). However, less empirical support exists for the effect of fathers' time with children (Lamb 2010). In fact, we know of no large-scale study that examines the effect of paternal time, using direct measures of children's time with fathers, on child outcomes.

Additionally, educational differences in the relationship between parental time and child outcomes are rarely considered in spite of the well-established literature that demonstrates educational disparities in parenting practices. For example, better-educated parents are more verbally engaged with their children (Hart and Risley 1995), provide more cognitive stimulation at home (Davis-Kean 2005; Linver et al. 2002; Yeung et al. 2002), and have higher academic expectations for their children (Davis-Kean 2005). Thus, children may have more to gain (and more to lose) from (not) spending time with better-educated mothers. In contrast, the time children spend with less-educated mothers may be more conflictive. The stress induced by socioeconomic disadvantage is known to create harsh and inconsistent parenting (McLoyd 1998). Less-educated parents are also more likely to hold jobs that accrue lower prestige, offer lower pay and fewer benefits, are more unstable, and expose workers to greater physical hazards and psychological stress (Felfe and Hsin 2012; Han 2005; Johnson et al. 2012; Raver 2003), all of which are factors that are known to negatively correlate with child development. Thus, we expect to see either no significant association between the time children spend with the least-educated parents or a negative association.

Data

Sample

The Panel Study of Income Dynamics (PSID) is a longitudinal study of a nationally representative sample of individuals and families in the United States, with oversamples of low-income and immigrant families. Starting in 1997, the PSID conducted the Child Development Supplement (CDS) in order to collect data on child outcomes. A unique aspect of the PSID-CDS is its time-use module. Detailed information on children's time use was collected for up to two children within each family. Like other time-use surveys, information was collected on the type of activity performed and the amount of time spent on each activity over the duration of two specified 24-hour periods (a random weekday and a random weekend day). Unlike other time-use surveys, activities are reported from the perspective of the child and not of the parent.[2] As such, we can obtain information on the amount of time

[1] Fiorini and Keane (forthcoming) implicitly considered fathers by examining children's time with both parents. However, because they did not distinguish between children's time with fathers and with mothers, their analysis could not determine whether fathers' time has effects that are independent of mothers'.

[2] Relative to parent-based time diaries, child-based time diaries are less able to capture less-direct aspects of parental time investments, such as parents' time managing and organizing children's activities. However, child-based time measures may be better at capturing children's experience of parental time, which may be more relevant to understanding how time affects child outcomes.

each child spends with his/her mother and father during a 24-hour period.[3] Children's time diaries are typically completed by mothers alone or mothers alongside their children.

In 1997, approximately 2,600 children between the ages of 0 and 12 completed time diaries. Our analysis is restricted to children who completed both weekend and weekday 1997 and 2002 time diaries (N = 3,420; individuals = 1,710). In addition, we keep only children with nonmissing values for all four assessments of child outcomes (i.e., letter-word, applied problem, positive behavior, and behavioral problems scores) in 2002 (N = 3,234; individuals = 1,617). In order to preserve our sample size, we follow Schlomer et al. (2010) and impute missing values on all covariates, including the 1997 test scores,[4] using multiple imputations by chained equations.[5]

In our analysis of children's time with fathers, we restrict our sample to only children who reside with both parents (N = 2,254; individuals = 1,127). This decision is motivated by research that shows that nonresident fathers and other father figures—such as stepfathers, relatives (such as uncles and grandfathers), and nonrelatives (e.g., mothers' boyfriends)—play varied social roles in children's lives (Furstenberg 1988). Time-diary estimates of children's time with nonresident fathers are also less reliable because mothers cannot reliably know how children spend time with nonresident fathers when they are not present.

Parental Time

Children's time diaries were obtained for two specified 24-hour periods: one random weekday and one random weekend day in 1997, and again in 2002. Using these diaries, we can obtain estimates of the average hours per week children spent with their mothers and fathers in 1997 and 2002.[6] In addition to estimates of total time, we can distinguish between specific types of children's activities with their parents. In particular, we obtain estimates of the average hours per week children spent with their parents in three types of activities. First, like Bernal et al. (2011) and Fiorini and Keane (forthcoming), we examine *educationally oriented activities*. Second, we consider time in *structured activities*, or activities that may not be explicitly educational but offer children high levels of active engagement and verbal exchange with their parents. Third, we consider time in *unstructured activities*, or activities that do not require active engagement or verbal exchange between children and parents. More specifically, the activities that are included in each of these three categories are as follows:[7]

[3]Time-diary reports also offer information on children's time with nonparental care providers such as grandparents, other relatives, and babysitters. However, because time diaries are typically completed by mothers, children's time with nonparental care providers will rely on mothers' reports of children's time when mothers are not present. These reports will not be reliable.

[4]Cognitive tests were not administered to children younger than 3 years in 1997 (N = 430). So, in nearly all cases, those having missing 1997 test scores were children younger than 3 years in 1997. In robustness checks, we exclude these children from the analysis, and our results do not substantively change.

[5]We also estimate our models using mean substitution and listwise deletion of missing values. These results do not substantively differ from the presented results.

[6]Time measures were constructed by multiplying weekday time estimates by 5 and weekend day estimates by 2.

[7]A detailed description of the coding schemes of the activities is available from the authors on request. Following Yeung et al. (2001), we also examine other activities not discussed in the text. Specifically, we examine time with parents performing *personal care, household activities*, and *other unspecified activities*. These categories were not included in the main analysis for several reasons. First, they are reflected in total time. Second, we are unaware of theories that argue that these types of activities should matter for children's cognitive and behavioral outcomes, the outcomes we focus on in this study. Third, in analyses not shown here but available upon request, our findings show that these activities are not significantly correlated to maternal work hours nor are they significantly related to children's outcomes.

1. Educational activities, which include time spent studying, doing homework, and reading or being read to.
2. Structured activities, which include organized leisure activities (e.g., arts and crafts, music and theater), classes for leisure (e.g., music, art, and dance lessons), playing sports.
3. Unstructured activities, which include watching television, listening to music, and unspecified leisure activities (e.g., activities reported as “doing nothing” and “wasted time”).

Note that about 80 % of time-use diaries were completed by mothers alone or by mothers along with their children. Our estimates of children's time with mothers as well as with fathers, therefore, typically rely on mothers’ reports. Fathers’ time is thus likely to be reported with greater noise, if not systematically underreported.

Maternal Employment

Information about maternal employment is taken from the main questionnaires of the PSID in 1997 and 2002. Household heads and their partners were asked to report the total weekly work hours on all main jobs in the last year.[8] Based on these reports, we construct a continuous measure of maternal work hours, which indicates the average weekly hours worked.[9] Results from Table 9 in the appendix show that 78 % of mothers spent some hours working outside the home and that their average weekly work hours total approximately 27 hours.

Child Outcomes

We measure children's cognitive outcomes using subtests of the Woodcock Johnson Revised Test of Achievement (WJ-R). The WJ-R is a well-established test of cognitive ability and was developed for respondents from ages 2 to 90 years. The tests were designed to provide normative scores that show the target person's cognitive abilities in relation to the national average for the person's age. We rely on two subtests. The Letter-Word Identification test is used to assess verbal skills by testing for symbolic learning (matching pictures with words) and reading and word-identification skills. The Applied Problems test assesses analytical skills by measuring ability to solve practical math problems (Hofferth et al. 1997).

To analyze children's behavioral development we rely on two alternative measures: the Behavior Problem Index (BPI) and the Positive Behavioral Scale (PBS). In doing so, we capture both positive and negative aspects of children's behavioral development (Hofferth et al. 1997). The BPI captures negative aspects of children's behavioral development and refers to the incidence and severity of behavioral problems among children. It is constructed using the primary caregiver's answers to a set of questions referring to externalizing or aggressive

[8]Having information on work hours over the last year avoids the problem of basing our analysis on work hours observed in one particular week and thus erroneously on a too low or too high value. Thus, we can circumvent a potential problem arising from variation in work hours over the year.

[9]In analysis not shown here but available on request, we also estimate all models using a dichotomous measure indicating maternal labor market participation. The results are not substantively different from the findings presented when we use continuous measures of maternal work hours.

behaviors and to internalizing behavior or sad and withdrawn behaviors (Hofferth et al. 1997). Higher scores imply greater levels of behavioral problems. In contrast, the PBS measures positive aspects of children's behavioral development, such as self-esteem, social competence, and persistence. Like the BPI, the PBS also relies on the primary caregivers' answers to a questionnaire (Polit 1998). Higher scores imply fewer behavioral problems. Behavioral assessments are age-adjusted and thus assess children's development in comparison with their age cohort. Both behavioral measures display high internal validity: Cronbach's alpha is .90 for BPI and .82 for PBS. For the sake of comparability and ease of interpretation, we standardize all our assessment outcomes to have a mean of 0 and a variance of 1.

Covariates of Time Use and Child Outcomes

We control for the standard set of child and family characteristics used in the child development literature (Baum 2003; Baydar and Brooks-Gunn 1991; Bernal 2008; Hill et al. 2005; Ruhm 2004; Waldfogel et al. 2002), including children's gender, age, race, birth weight, and child's initial health status. Maternal characteristics include education, verbal skills, and age at the child's birth. Father's characteristics include age at the child's birth, education, and employment status. Logged total household income captures the material resources available to the household. In addition, we consider household composition by controlling for single motherhood and number of siblings. Finally, we also consider children's neighborhoods by including measures of neighborhood safety. Instrumental variables include county-level measures of maternal unemployment rates and county-level measures of the income distribution. Descriptive statistics are presented in Table 9 in the appendix.

Empirical Approach

We test two assumptions. The first assumption speculates that maternal employment affects the quantity and types of activities children spend with parents. The second assumption speculates that children's time spent with parents affects children's developmental outcomes. To test the first assumption, we adopt two strategies: (1) individual fixed-effects (FE) models and (2) linear instrumental variable (IV) regressions. The FE approach allows us to address time-invariant unobserved confounders. The IV approach allows us to additionally address time-varying unobserved confounders. To test the second assumption, we can employ only FE regressions. We cannot use IV estimations to test our second assumption because we lack suitable instruments for children's time with parents in regressions estimating its effect on child outcomes. We estimate all models separately for mothers' time and fathers' time and cluster at the family level. Additionally, we estimate models stratified by children's age and mothers' education. In the following sections, we discuss the empirical approaches in detail.[10]

[10]We also estimate OLS regressions to test the two assumptions. However, given issues of selection bias inherent in OLS estimations and space limitations, we present results only from FE and IV regressions. OLS results are available upon request.

Estimating the Effect of Maternal Employment on Children's Time With Parents

The basic equation representing the relationship between maternal work hours and mothers' and fathers' time looks as follows:

$$T_{it}=\beta_0+\beta_1 W_{it}+\beta_2 \mathbf{X}_{it}+\gamma_i+\varepsilon_{it}, \quad (1)$$

where T_{it} measures the hours per week that each mother (or father) spends with child i at time t. W_{it} stands for the weekly hours that the mother of child i works at time t. $\mathbf{X}_{it}$ captures characteristics of children, parents, families and their neighborhood that might simultaneously influence parents' employment decisions and time allocation. Notice that $\mathbf{X}_{it}$ represents only observable/measurable background characteristics. γ_i captures unobserved, time-invariant characteristics of the parents or the child that might influence parental time decisions, such as family or career orientation. ε_{it} represents unobserved, time-varying parental or child characteristics, such as unexpected leaps in the child's development or changes in mothers' attitude toward family or work.

If we could control for all confounding characteristics, the coefficient resulting from an ordinary least squares (OLS) estimation of Eq. (1) would provide consistent estimates for the impact of maternal work hours on parental time devoted to their children. Yet, if available controls do not fully capture unobservable/unmeasured confounding variables, the resulting estimates from OLS estimations are biased. The longitudinal nature of our data allows us to partially tackle this issue using FE estimation. This approach allows us to eliminate potential sources of bias resulting from all unobserved time-invariant characteristics, γ_i, such as mothers' work attitudes or parenting skills. The FE method, however, does not help us to eliminate the influence of time-varying unobserved characteristics that may in turn affect children's time with parents, such as unexpected changes in mothers' career plans. To address this concern, we estimate IV regressions. The underlying intuition here is to find a variable that strongly correlates with the independent variable of interest but has no direct effect on the dependent variable. Hence, in our specific case, a plausible instrument must fulfill two conditions: (1) correlate strongly with maternal employment, and (2) have no direct effect on parental time spent with their children except via maternal employment. If a variable meets these two conditions, it is considered a suitable instrument.

Following previous studies (Baum 2003; James-Burdumy 2005; Cawley and Liu 2007), we use local labor market characteristics, such as the county-level female unemployment rate and the income distribution in the county, as instruments for maternal employment. In doing so, we implicitly make the following assumptions: (1) local labor market characteristics strongly affect maternal employment decisions, and (2) all the effect of local labor market characteristics on parental time works through maternal employment decisions only.

The first assumption is straightforward to test. We estimate the first-stage regression in which maternal employment is the dependent variable and the independent variables include the instrumental variables and all controls used in the main regression.[11] We test for the joint significance of the instruments on the dependent variable in order to gauge the strength

[11]Results of the first-stage regressions are available upon request.

of the instruments. An *F* statistic of 5 or higher is generally seen as an indicator of an acceptably strong instrument (Stock and Yogo 2005).

The *F* statistics for our instruments when using the full sample of children pass this test of strength (*F* statistics = 16.35). However, when stratifying by mother's education, our instruments are less precisely estimated. For our sample of college graduates, *F* statistics remain above 10. For high school dropouts and high school graduates, the strength is lower but still within an acceptable range (*F* statistics are approximately 6 in both cases). The *F* statistic for those with some college education (3.44) is below the acceptable threshold. For this group, we therefore do not present results using IV.

The universal problem with using IV is that there is no definitive method of testing the second assumption (i.e., whether the effect of local labor market characteristics on parental time works entirely through maternal employment decisions). It is left to the researcher to make a convincing case that the instruments have no direct effect on the dependent variable of interest. In our case, we must make the claim that the main channel through which local labor market conditions affect parental time is through maternal labor market conditions. Thus, we must argue that net of our control variables, local labor market characteristics have no direct effect on parental time except via maternal employment. One way that local employment opportunities might have a direct effect on parental time is through fathers' employment status (i.e., poor labor market conditions result in fathers being unemployed, and thereby affecting parents' time use). Another way that local employment opportunities as well as the local income distribution may have a direct effect on parental time is through their effect on neighborhood safety. Nevertheless, as discussed in the previous section, our rich set of covariates includes both fathers' employment status and neighborhood safety.

Estimating the Effect of Time With Parents on Child Development

The relationship between children's time with parents and their development can be expressed as follows:

$$CD_{it}=\delta_0+\delta_1 T_{it}+\delta_2 \mathbf{X}_{it}+\mu_i+\nu_{it}, \quad (2)$$

where CD_{it} represents child *i*'s development, and T_{it} is parental time investments in child *i*. The parameter to be identified is thus δ_1. Again, the identification of the effect of time investments on child development is challenged by the fact that there are not only observable factors, but also unobservable time-constant and time-varying factors—μ_i and ν_{it}, respectively—that simultaneously determine parental time and child development.

As before, our strategy is to employ FE regressions. This approach allows us to eliminate potential sources of bias resulting from all unobserved time-constant characteristics, μ_i, such as child's innate ability or mother's parenting skills.

Ideally, we would also like to employ IV regressions. We explored several potential instruments for parental time with children, such as local public transportation options, commuting time, and characteristics of grandparents. Unfortunately, all were weak instruments (i.e., all have *F* statistics less than 5). For this reason, we rely on results based on

FE regression only with the recognition that our estimates may be biased because of time-varying confounding factors. The direction of the bias, however, is *a priori* unclear. In the case of unobserved confounders related to child development, our estimates might represent a lower bound (parents may compensate for developmental lags of their children). In the case of unobserved confounders related to parents' work and family orientation, however, our estimates might well represent an upper bound.

Results

Descriptive Analysis: Children's Time With Parents by Maternal Employment and Mother's Education

Table 1 presents the mean time children spend with mothers and fathers by maternal employment and mother's education for the pooled sample. Focusing on children's time with mothers by maternal employment in panel A, we observe two notable findings. First, there are no significant differences in the total amount of time children spend with mothers who do not work versus mothers who work part-time (<35 hours per week). Children with mothers who work full-time (≥35 hours per week), however, do spend significantly less time with their mothers. Specifically, weekly time spent with children is about 38.0 hours for full-time working mothers, about 45.5 hours for part-time working mothers, and about 46.8 hours for mothers who do not work. Second, although mothers who work full-time spend less time with children, this loss of time is mainly due to reductions in unstructured activities rather than to reductions in educational and structured activities. For example, children with full-time working mothers spend about 3.6 hours per week in educational activities, but children with part-time working mothers and with stay-at-home mothers spend 3.9 hours and 4.4 hours per week in educational activities, respectively. Although the difference between children with full-time working mothers and children with mothers who do not work is significant at the 95 % confidence level, there is no significant difference in educational time between children with full-time working mothers and children with part-time working mothers. In contrast, children with full-time working mothers spend 3.2 fewer hours per week engaged in unstructured activities with mothers than children with nonworking mothers (14.7 vs. 17.9 hours per week) and 3.0 fewer hours than children with part-time working mothers (14.7 vs. 17.7 hours per week). Both differences are significant at the 95 % confidence level. Overall, this picture is consistent with the findings of Nock and Kingston (1988) and highlights that full-time working mothers find ways to protect their time with children—particularly time in activities that may be the most stimulating for children.

In panel B, we observe children's time with fathers by maternal employment. The results show that children spend substantially less time with fathers than with mothers. The results also offer weak descriptive evidence that fathers compensate for maternal employment by increasing the time they spend with mothers. Overall, the findings show that children with working mothers (both part-time and full-time) spend about 25 hours per week with fathers, but children with nonworking mothers spend slightly less time with their fathers (i.e., 24.4 hours per week).

Panels C and D present the average hours per week that children spend with mothers and fathers, respectively, by mother's education. For both time with mothers and time with

fathers, we observe an educational gradient in the type of activities that children perform with their parents. Children with college-educated mothers spend significantly (at the 95 % confidence level) more time engaged in educational and structured activities with both their mothers and their fathers relative to children with less-educated mothers. For example, college-educated mothers and their partners spend 4.9 hours and 2.5 hours per week, respectively, engaged in educational activities with their children; by comparison, mothers with less than high school diploma and their partners spend only 3.3 hours and 1.7 hours per week in educational activities, respectively. In the same vein, children of college-educated mothers spend significantly (at the 95 % confidence level) less time engaged in unstructured activities with both mothers and fathers relative to children of mothers without college education (14.4 hours and 9.9 hours per week versus 18.5 hours and 10.5 hours per week, respectively).

Regression Results

Maternal Employment, Time With Mothers, and Child Outcomes—Table 2 presents results from models estimating the effect of maternal employment on children's time with mothers. Columns 1–4 present results from FE models, and columns 5—8 present results from IV regressions. Both FE and IV estimates show that although maternal employment is negatively associated with the total time children spend with mothers, reductions in total time are mainly the result of reductions in unstructured activities: working full-time (≥35 hours per week) reduces total maternal time by 4.4 hours per week according to the FE estimations and by 10.1 hours per week according to the IV estimates. Similarly, full-time work reduces unstructured activities by 2.6 hours per week according to FE estimates and by 6.0 hours per week according to IV estimates. There is no significant relationship between maternal employment and the amount of time children spend with mothers engaged in educational and structured activities.

Table 3 presents the results of FE regressions estimating the effect of children's time with mothers on various cognitive and sociobehavioral outcomes. In line with previous studies (e.g., Bernal et al. 2013), we find a negative relationship between total time and all child outcomes. Specifically, total time is negatively associated with letter-word scores, applied problem-solving scores, and positive behavior. The results also show a positive association between total time and behavioral problems. Disaggregating total time helps one make sense of these results. Much of the negative association between total time and child outcomes is driven by the negative effect of unstructured time. Specifically, we see that unstructured time has a small, negative association with letter-word scores (−0.005 standard deviation (SD)) and applied problem-solving scores (−0.006 SD). Unstructured time also reduces positive behavior and increases behavioral problems, but these relationships are not significant. In contrast, the time children spend with mothers in educational and structured activities correlate positively with child outcomes. Educational time is positively associated with both measures of children's cognitive ability (0.014 SD) as well as with children's positive behavior (0.022 SD). Structured time is positively associated with the measure of positive behavior (0.016 SD).

The estimated positive effects of both educational and structured time are noticeably larger than the negative effects of unstructured time. For example, although an hour spent with mothers on educational activities is associated with a 0.014 SD *increase* in applied problem-solving scores, an hour spent on unstructured activities is associated with a 0.006 SD *decline* in applied problem-solving scores. This means that an hour dedicated to educational activities can offset the negative effects of 2.33 hours of unstructured time (= 0.014 / 0.006).

Overall, the results are consistent with the claim that working mothers trade quantity of time for higher quality of time. Specifically, working women protect the types of childcare activities that are the most beneficial for children. Together, the results show that concerns about the negative effects of maternal employment via its effect on time are likely to be overstated. In fact, maternal employment may even have unexpected benefits in that it reduces the amount of time spent in activities that yield the least amount of benefits for child development—or, better said, that are even detrimental for child development. When comparing the effect of maternal employment on child outcomes between stay-at-home mothers and mothers who work full-time, we see that the reduction in unstructured time resulting from full-time employment amounts to an improvement in children's cognitive development of 0.03 to 0.04 SD (40 hours per week × −0.151 × −0.005 or −0.006). To put the magnitude of these effects in context, the overall correlations between maternal education (a widely acknowledged predictor of children's development) and both letter-word and applied problem-solving scores in our sample is about 0.3 SD. Hence, our effects are approximately one-tenth of a well-established determinant of children's cognitive outcomes.

Do Effects Vary With Children's Age?—Because the childcare demands of younger children place distinct burdens on families, we expect heterogeneous effects by children's age. We stratify our analyses into two groups: children younger than 6 years, and children 6 years and older. Table 4 presents results of the effect of maternal employment on maternal time stratified by children's age. Table 5 presents results of the effect of maternal time on child outcomes stratified by children's age.[12]

Both FE and IV results in Table 4 show significant effects of maternal employment but only among younger children. For younger children, maternal employment reduces total time; again, though, this reduction does not come out of educational or structured time but instead comes mainly from unstructured time. The IV results reveal a stronger impact of maternal employment on childcare activities than the FE results and suggest a reduction in total maternal time if mothers work full-time by 19.4 hours per week (40 hours per week × −0.486). Of this amount, 9.4 hours (40 hours per week × −0.236) are due to reductions in unstructured activities. For older children, employment does not significantly influence the time children spend with mothers.

Results in Table 5 show that educational and unstructured time have stronger effects on younger children than on older children. For younger children, educational time has beneficial effects on all measures of cognitive outcomes and behavioral outcomes, but

[12]We conduct supplementary analysis to determine whether regression coefficients significantly differed by age strata for results presented in Tables 4 and 5. Our results show that the effects are significantly different between age groups.

unstructured time has deleterious effects on both cognitive outcomes and seems to reduce positive behaviors. For older children, educational time is positively associated with cognitive outcomes but has no significant effect on behavioral outcomes. Structured activities, however, significantly increase positive behavioral outcomes and reduce negative behavioral outcomes. One potential positive effect of unstructured time for older children is that it relates positively to children's behavior.

In sum, the unexpected benefit of maternal employment in reducing potentially detrimental activities is present only for younger children. Specifically, full-time work (vs. not working) may lead to a 0.08 to 0.09 SD increase in cognitive outcomes because of its reduction of unstructured activities (40 hours per week × −0.236 × −0.008 or −0.010). To again put these estimates in context, these estimated effects are about one-quarter of the correlation between mother's education and children's cognitive outcomes.

Do Effects Vary With Mothers'Education?—In this section, we discuss whether results vary with respect to maternal education. We stratify our estimations of the effect of maternal employment on maternal childcare time by mothers' education in both FE and IV estimations.[13] As discussed earlier, IV results for children with mothers with some college education (i.e., 12–15 years of postsecondary schooling) are not presented because instruments are weak for this group.

The results in Table 6 show that children of mothers with intermediate levels of education—high school graduates and some college—are the most negatively affected by maternal employment. IV estimates for children of high school graduates reveal that maternal employment is negatively associated with total time, structured time, and unstructured time. FE estimates for children of mothers with some postsecondary schooling reveal similar findings.

For children of college graduate mothers, we find that maternal employment is generally uncorrelated with maternal time. The one exception is that we observe a negative relationship between maternal employment and educational time in FE results but not in IV results. This negative association is likely due to persisting omitted variable bias in the FE regressions. Specifically, the omission of controls for children's previous development may explain this finding because better-educated parents are more likely to compensate for children who are perceived to lag behind in terms of their cognitive development by devoting more educational time to such children relative to children who are perceived to be developing normally (Hsin 2012). The highly educated may also be more likely to reduce work hours in an effort to devote more time to compensate for perceived ability differences in children. Therefore, when differences in the speed of children's cognitive development are not accounted for, one may obtain spurious associations between maternal work hours and maternal time among the highly educated. Indeed, results based on the IV regressions, which can address this type of bias, do not reveal any significant negative effects of maternal employment on time with children among the highly educated.

[13]Supplementary analysis confirmed that regression coefficients by mother's education were significantly different from one another.

For children of the least educated, both FE and IV estimates show few significant effects of maternal employment. The small sample size (N = 368; individuals = 159) may account for why we cannot detect significant effects for this group of children.

Overall, our results are consistent with prior studies showing that highly educated women are the most capable of preventing work from interfering with childcare responsibilities, whereas less-educated women have greater difficulty balancing work and family life (Bianchi 2011; Williams and Boushey 2010). In particular, less-educated women when working full-time spend 16.3 fewer hours per week (40 hours per week × 0.408) on childcare, which is mostly due to a reduction in unstructured activities (8.3 hours per week, 40 hours per week × 0.208) but also to a reduction in structured activities (2.4 hours per week).

We also considered how the relationship between maternal time and child outcomes varies by mother's education. To do this, we conducted FE regressions of maternal time on our four child outcome variables stratified by mother's education. Overall, the results tended to show larger, positive effects of educational and structured time on children's cognitive and behavioral outcomes for children of college-educated mothers than children of less-educated mothers. The results also tended to show larger negative effects of unstructured time on child outcomes for better-educated women than for less-educated women. However, when we compared regression coefficients across educational strata and tested for statistical significance, we found that none were significantly different from each other at 95 % or 90 % confidence levels. Thus, contrary to our expectation, the findings suggest no significant heterogeneous effects of maternal time on child outcomes by mother's education.[14] Overall, our results show that all children, independently of the educational background of their mother, benefit from spending time with their mothers in educational and structured time and that unstructured time is associated with small negative effects.

Maternal Employment, Children's Time With Fathers, and Child Outcomes— Finally, we consider the question of whether fathers compensate for maternal employment by spending more time with children. Table 7 presents estimates of the effect of maternal employment on children's time with fathers from FE and IVestimation. In this analysis, the sample is restricted to children who live with resident fathers. FE estimates suggest no significant relation between maternal work hours and the total amount of time fathers spend with children. IV estimates, however, offer evidence suggesting that fathers do compensate for maternal employment by spending more time with children in structured and unstructured activities: fathers spend, on average, 1.4 more hours per week in structured activities and 4.2 more hours per week in unstructured activities when their wives do not work full-time.

We additionally present results that address the question of how children's time with fathers relates to child outcomes in Table 8. Overall, the results show few significant correlations between time with fathers and outcomes. Educational time is positively associated with

[14]Because the findings for the different educational strata are not significantly different from each other, we do not present the estimates. They are available upon request.

cognitive outcomes and sociobehavioral outcomes, but the estimates are not statistically significant. Structured time is positively and significantly correlated with letter-word scores. Unstructured time is negatively correlated with cognitive outcomes and positive behavior and positively correlated with behavioral problems, but only the correlation between unstructured time and positive behavior is statistically significant.

Overall, the results for fathers parallel our findings for mothers, but the findings are less significant. This may be because children's time with fathers is reported with greater measurement error than reports of children's time with mothers, given that time diaries are mostly filled out by mothers. As a result, we are less able to detect statistically significant effects even when true effects exist.

The overall picture thus suggests that fathers take on more childcare responsibilities when mothers work. Importantly, the increase in childcare activities undertaken by fathers involves both structured and unstructured activities. Although we cannot exclude a detrimental effect of the latter on children's development, we show that the former exerts a positive influence on children's cognitive development. As a result, maternal employment may have unintended effects that can lead to both positive and negative consequences for children's development by increasing children's time with fathers in beneficial activities as well as time in potentially detrimental activities.[15]

Discussion and Conclusion

It is commonly assumed in the debate surrounding the consequences of maternal employment for children's development that reductions in parental time investments in children are the main causal mechanisms through which maternal employment affects children. For this to be true, the following two assumptions must hold: (1) maternal work reduces the amount of time children spend with parents, and (2) the time children spend with parents matters for their development. We test these two assumptions underlying the claim that maternal employment is detrimental mainly because it robs children of valuable time with parents.

Our study contributes to the literature on the consequences of maternal employment by addressing a related set of questions that has previously been examined only separately by various studies analyzing different data sets, considering different settings, focusing on different age groups of children, and using mostly estimation techniques that do not address unobserved heterogeneity. Our study analyzes children's time-diary data from the PSID-CDS, which allows us to distinguish between the various types of activities that children engage in with their parents and to consider whether working mothers trade total quantity of time for better quality of time. Additionally, we stratify our analysis by child's age and mother's education in order to assess differential effects of employment on time, on one hand, and differential effects of time on child outcomes, on the other. We explicitly consider the role of fathers in compensating for a potential loss of maternal time because of maternal

[15]We also conducted analyses of children's time with fathers stratified by mothers' education, finding some evidence that the effect of maternal employment on fathers' time is strongest among college graduate mothers. The single categories, however, exhibit too few observations to permit reliable IV estimations.

employment. Finally, we employ both FE and IV methods to better address unobserved heterogeneity.

In testing the first assumption (i.e., that maternal employment reduces the amount of time children spend with parents), we find that working mothers trade quantity of time for better quality of time. Maternal employment reduces the amount of time children spend with mothers largely by reducing the amount of shared time in unstructured activities, activities that require the least amount of verbal exchange, and direct engagement from both mothers and children. Specifically, children with full-time working mothers spend about six fewer hours per week in unstructured activities than children with stay-at-home mothers. These differences are the most pronounced for children younger than 6 years, who spend nearly nine fewer hours per week in unstructured activities with their mothers than children of stay-at-home mothers. Importantly, we find no significant effect of maternal employment on the amount of time children spend with mothers in educational and structured activities—activities that require greater direct verbal exchanges and involvement.

In testing the second assumption (i.e., time spent with parents affects child outcomes positively), we find that the very types of activities that working mothers try to protect from the competing demands of employment are the types of activities that most positively correlate with child development. For example, both educational and structured activities positively predict cognitive and behavioral development. One potentially unintended consequence of maternal employment is that it reduces time in activities that may be detrimental to child development (i.e., unstructured activities). The magnitudes of these effects are not trivial. We find that the reduction in unstructured time resulting from working full-time versus not working outside the home leads to an improvement in children's cognitive outcomes of 0.03 to 0.04 SD. For children younger than 6 years, these effects are even larger—between 0.08 and 0.09 SD. These estimates amount to one-tenth (for the overall sample) and one-quarter (for the sample of preschool children) of the correlations between mother's education—a widely acknowledged determinant of child outcomes—and children's cognitive outcomes.

Stratifying our analysis by mothers' education yields additional insights. The good news for highly educated mothers is that their work hours have no significant effect on their time with children. The bad news is for children of mothers at the middle and bottom of the educational distribution. For children of women with a high school diploma but not a college degree, maternal work significantly reduces the total time children can spend with their mothers by reducing the amount of time in both unstructured and structured activities. Specifically, each additional hour of employment reduces time with children in structured activities by 0.06 hours per week. In other words, children of high school graduates who work full-time spend about 2.4 fewer hours per week (= 0.06 × 40) with their mothers in structured activities than children of high school graduates who do not work. This difference translates into about a 0.04 SD (= 2.4 × 0.016) reduction in positive behavior scores. Although the overall magnitude of the estimated effect of employment on child outcomes is relatively small, women with a high school diploma but no postsecondary schooling account for approximately one-third of the female work force and have come to characterize families of the working poor (Bureau of Labor Statistics 2014). Our findings thus suggest that

children in these types of families may be the most vulnerable to the demands that maternal employment exerts on work–life balance.

Our analysis of children's time with fathers also offers some insights. We offer new evidence of a causal relation between maternal work hours and fathers' time with children. Specifically, we find that children with working mothers spend more time with fathers in both structured and unstructured activities than children with nonworking mothers. Yet, we find no significant effect of maternal employment on father's overall time or father's time in educational activities with children. Analogous to our findings for mothers, our results show that time spent with fathers in unstructured activities is detrimental for behavioral outcomes. Unlike our findings for mothers, few of the relationships between educational and structured time with fathers were statistically significant even though estimated coefficients suggest a positive effect.

Some caveats should be noted. Our study relies on time-diary reports conducted on a random weekday and a random weekend day to construct estimates of the average amount of time children spend with their mothers and fathers during a representative week. Studies show that time-diary estimates are more reliable and less subject to social desirability bias than retrospective self-reports of time use (Hofferth 2006; Juster 1985). However, time-diary measures of activities that are performed infrequently or irregularly are less precisely measured than activities that are performed more routinely. In these cases, we face an increase in the likelihood of accepting the null hypothesis that our estimated results are not significant when, in fact, there are real effects. This issue is likely to be more problematic for measures of children's time with fathers because children spend less time with fathers and the activities that they perform with fathers may be less regular. This reason may explain why our results for fathers' time are less statistically significant than our results for mothers' time.

Another limitation is that we cannot reliably examine children's time with alternative caregivers, such as care provided by relatives, in-home daycare, or center-based daycare. Mothers typically complete children's time diaries alone or alongside their children. Mothers, however, cannot reliably know how children spend their time when they are not present. As such, we cannot examine whether alternative caregivers beyond the father can compensate for a potential loss in maternal time. We also cannot examine whether better-educated working women relative to their less-educated counterparts are more likely to use higher-quality daycare and whether the children of better-educated working women spend more time in educational and structured activities than the children of the less educated because they are in higher-quality daycare.

Despite these limitations, our article contributes to the literature by offering systematic tests of the two assumptions underlying commonly held claims regarding the relationship among maternal employment, time investments in children, and child outcomes. Overall, the picture that we provide is that much of the widespread concern regarding how work interferes with childcare is unfounded for the very people who seem to be the most vocal about their fears: namely, highly skilled women. That these children are the least likely to be harmed by maternal employment is not surprising, given that these children are already benefitting from

a variety of parental investments, including living in safer neighborhoods with access to better schools (Leventhal and Brooks-Gunn 2003) and attending enrichment activities that supplement formal schooling (Downey et al. 2004; Lareau 2003). The families who are the most vulnerable are families who constitute the working poor or lower middle class. Future studies should therefore concentrate on understanding how this particular segment of the population is affected by maternal employment and the policies that might lessen the cost of maternal employment for them.

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Appendix

Table 9

Weighted descriptive statistics for pooled sample

Variable	Mean	SD
Maternal Work Patterns		
Employed (dummy variable: 0–1)	0.78	0.40
Hours worked per week	26.87	17.01
Maternal Characteristics		
Education (years)	11.72	5.01
Passage comprehension test (*z* scores)	0.01	1.10
Age at birth	27.78	6.58
Paternal Characteristics		
Age	28.31	18.12
Employed (dummy variable: 0–1)	0.71	0.45
Education (years)	13.5	2.4
Child Characteristics		
Child's age in 1997	5.67	3.51
Child's sex	0.50	0.50
Birth weight (ounces)	150	22.9
Bad health in 1997	0.09	0.29
White	0.69	0.46
Black	0.13	0.34
Other	0.19	0.22
Household Characteristics		
Female-headed household	0.26	0.44
Sibship size	2.32	1.03
Log total household income	10.55	1.48
Neighborhood safety (range: 1 = best, 5 = worst)	1.91	1.23
Instrumental Variables (county level)		
Females >16 years old who are unemployed (%)	3	
Females >16 years old who work full-time (%)	31	

Variable	Mean	SD
Household income <$10,000 (%)	10	
Household income $10,000–29,999[a] (%)	24	
Household income $30,000–34,999 (%)	6	
Household income $35,000–59,999[a] (%)	30	
Household income $60,000–99,999[a] (%)	20	
Household income $100,000–124,999 (%)	5	
Household income >$125,000[a] (%)	7	
Number of Individuals	1,617	
Number of Observations	3,234	

[a]Not included as instruments because they were not significantly correlated with maternal employment. They are included in the table for descriptive purposes.

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Table 1

Children's time with mothers and fathers by maternal employment status and mother's education, pooled sample (N = 3,234)

	Total (1)	Educational (2)	Structured (3)	Unstructured (4)
A. Time With Mother by Mother's Employment Status				
Not working	46.806 (19.122)	4.417 (5.637)	2.843 (4.345)	17.921 (12.807)
Part-time	45.470 (19.070)	3.857 (4.817)	2.735 (4.125)	17.684 (12.066)
Full-time	38.042[a,b] (16.435)	3.586[a] (5.020)	2.067[a,b] (3.751)	14.692[a,b] (9.982)
B. Time With Father by Mother's Employment Status				
Not working	24.384 (18.527)	1.857 (3.587)	1.452 (2.828)	10.337 (9.912)
Part-time	25.203 (18.073)	2.043 (4.029)	1.771 (3.205)	10.783 (9.754)
Full-time	24.971 (18.596)	1.981 (4.170)	1.657 (3.608)	10.557 (9.661)
C. Time With Mother by Mother's Education				
<High school	43.379 (19.354)	3.312 (4.654)	2.089 (3.787)	18.525 (12.544)
High school	42.367 (18.420)	3.447 (4.849)	2.241 (4.023)	17.070 (11.706)
Some college	40.689[c] (17.481)	3.910 (4.717)	2.632[c] (4.292)	14.948[c,d] (10.097)
College degree or more	42.219 (17.843)	4.873[c,d,e] (6.119)	2.813[c,d] (3.783)	14.418[c,d] (10.554)
D. Time With Father by Mother's Education				
<High school	21.343 (18.636)	1.723 (3.711)	0.991 (2.301)	10.470 (10.067)
High school	25.640[c] (19.381)	1.777 (3.855)	1.531 (3.282)	11.556 (10.778)
Some college	23.352 (18.346)	1.775 (3.551)	1.864[c] (3.866)	10.172 (9.520)
College degree or more	25.638[c] (17.069)	2.529[c,d,e] (4.688)	1.842[e] (3.148)	9.930[d] (8.407)

Note: Standard errors are shown in parentheses.

[a]Different than not working at $p < .05$.

[b]Different than part-time at $p < .05$.

[c]Different than <high school at $p < .05$.

[d]Different than high school at $p < .05$.

[e]Different than some college at $p < .05$.

Table 2

Effect of maternal work hours on children's time with mothers: Fixed-effect (FE) and instrumental variable (IV) estimations (N = 3,234; individuals = 1,617)

	FE Estimation				IV Estimation			
	Total (1)	**Educ. (2)**	**Struct. (3)**	**Unstruct. (4)**	**Total (5)**	**Educ. (6)**	**Struct. (7)**	**Unstruct. (8)**
Hours per Week Worked	–0.110** (0.036)	–0.009 (0.010)	–0.011 (0.008)	–0.064** (0.022)	–0.252* (0.104)	–0.046 (0.032)	–0.021 (0.025)	–0.151* (0.064)

Notes: Abridged results are presented from separate regressions where the dependent variable is time in specified activities. Fixed-effect regressions control only for variables that vary between 1997 and 2002 (i.e., single parenthood, mothers' and fathers' education, fathers' employment status, total household income, and neighborhood safety). Instrumental variable regressions control for the full set of control variables, shown in Table 9 in the appendix. Instruments used for regressions in columns 5–8 are local labor market conditions, such as the local unemployment rate and the local income distribution. Standard errors are shown in parentheses.

* $p < .05$

** $p < .01$ (two-tailed tests)

Table 3

Effect of time with mothers on child outcomes: Fixed-effect estimations (N = 3,234; individuals = 1,617)

Variables	Letter-Word Score (1)	Applied Problem Solving (2)	Positive Behavior (3)	Behavior Problems (4)
Total	–0.003** (0.001)	–0.004*** (0.001)	–0.006*** (0.001)	0.005*** (0.002)
Education	0.014*** (0.004)	0.014*** (0.004)	0.022*** (0.005)	–0.007 (0.005)
Structured	0.000 (0.005)	–0.004 (0.006)	0.016*** (0.006)	–0.009 (0.006)
Unstructured	–0.005*** (0.002)	–0.006*** (0.002)	–0.002 (0.002)	0.001 (0.002)

Notes: Abridged results are presented from separate individual fixed-effect regressions where the dependent variable is letter-word score, applied problem-solving scores, or positive behavior or behavior problem scores. Controls include only variables that vary between 1997 and 2002 (i.e., single parenthood, mothers' and fathers' education, fathers' employment status, total household income, and neighborhood safety). Standard errors are shown in parentheses.

** $p < .01$

*** $p < .001$ (two-tailed tests)

Table 4

Estimated effect of mothers' work hours on time children spend with mothers (hours/week) by children's age: Fixed-effect (FE) and instrumental variables (IV) estimations

	FE Estimation				IV Estimation			
Variables	**Total (1)**	**Education (2)**	**Structured (3)**	**Unstructured (4)**	**Total (5)**	**Education (6)**	**Structured (7)**	**Unstructured (8)**
Younger Than 6 Years (N = 1,710; individuals = 855)								
Hours per week worked	–0.164** (0.052)	–0.011 (0.011)	–0.015 (0.012)	–0.100** (0.031)	–0.486*** (0.135)	–0.052 (0.033)	–0.057† (0.034)	–0.236** (0.086)
6 Years or Older (N = 1,524; individuals = 762)								
Hours per week worked	–0.056 (0.050)	–0.005 (0.019)	–0.007 (0.011)	–0.026 (0.032)	0.012 (0.154)	–0.045 (0.057)	0.016 (0.035)	–0.074 (0.092)

Notes: Abridged results are presented from separate regressions where the dependent variable corresponds to time in specified activities. Fixed-effect regressions control only for variables that vary between 1997 and 2002 (i.e., single parenthood, mothers' and fathers' education, fathers' employment status, total household income, and neighborhood safety). Instruments used for regressions in columns 5–8 are local labor market conditions, such as the local unemployment rate and the local income distribution. Standard errors are shown in parentheses.

† $p < .10$

** $p < .01$

*** $p < .001$ (two-tailed tests)

Table 5

Estimated effect of time with mothers on child outcomes by child's age: Fixed-effect estimations

Variables	Letter-Word Score (1)	Applied Problem (2)	Positive Behavior (3)	Behavioral Problems (4)
Younger Than 6 Years (N = 1,710; individuals = 855)				
Total	–0.005*** (0.002)	–0.007*** (0.002)	–0.011*** (0.002)	0.009*** (0.002)
Education	0.023*** (0.007)	0.016** (0.008)	0.048*** (0.010)	–0.038*** (0.011)
Structured	–0.002 (0.007)	–0.006 (0.008)	0.010 (0.009)	–0.006 (0.009)
Unstructured	–0.008*** (0.003)	–0.010*** (0.003)	–0.008** (0.004)	0.003 (0.004)
6 Years or Older (N = 1,524; individuals = 762)				
Total	0.002 (0.002)	0.001 (0.002)	0.005*** (0.002)	–0.004** (0.002)
Education	0.008* (0.004)	0.012*** (0.004)	0.003 (0.004)	–0.001 (0.004)
Structured	0.005 (0.007)	0.001 (0.007)	0.028*** (0.007)	–0.015** (0.007)
Unstructured	–0.001 (0.002)	–0.001 (0.002)	0.007*** (0.003)	–0.004 (0.003)

Notes: Abridged results are presented from separate individual fixed-effect regressions where the dependent variable is letter-word score, applied problem-solving scores, or positive behavior or behavior problem scores. Controls include only variables that vary between 1997 and 2002 (i.e., single parenthood, mothers' and fathers' education, fathers' employment status, total household income, and neighborhood safety). Standard errors are shown in parentheses.

* $p < .05$

** $p < .01$

*** $p < .001$ (two-tailed tests)

Table 6

Estimated effect of maternal work hours on total time with mothers and time with mothers in specific activities by mothers' education: Fixed-effect (FE) and instrumental variable (IV) estimations (N = 3,234; individuals = 1,617)

	FE Estimation				IV Estimation			
	Total (1)	**Educ. (2)**	**Struct. (3)**	**Unstruct. (4)**	**Total (5)**	**Educ. (6)**	**Struct. (7)**	**Unstruct. (8)**
Less Than High School (N = 318; individuals = 159)								
Hours per week worked	–0.203	0.061†	0.005	–0.091	0.184	–0.011	0.003	0.196
	(0.135)	(0.037)	(0.028)	(0.088)	(0.207)	(0.063)	(0.041)	(0.124)
High School Graduate (N = 1,020; individuals = 510)								
Hours per week worked	–0.092	0.004	0.000	–0.130**	–0.408*	0.034	–0.060†	–0.208†
	(0.070)	(0.019)	(0.014)	(0.044)	(0.192)	(0.052)	(0.037)	(0.113)
Some College (N = 1,228; individuals = 614)								
Hours per week worked	–0.20*	–0.003	–0.03†	–0.116*	—	—	—	—
	(0.080)	(0.024)	(0.015)	(0.048)	—	—	—	—
College Graduate (N = 668; individuals = 334)								
Hours per week worked	0.040	–0.091**	0.012	0.071	–0.191	–0.013	0.006	–0.088
	(0.105)	(0.034)	(0.022)	(0.058)	(0.133)	(0.059)	(0.031)	(0.081)

Notes: Abridged results are presented from separate regressions where the dependent variable is time in specified activities. Fixed-effect regressions controlling only variables that vary between 1997 and 2002 are included (i.e., single parenthood, mothers' and fathers' education, fathers' employment status, total household income, and neighborhood safety). Instruments used for regressions in columns 5–8 are local labor market conditions, such as the local unemployment rate and the local income distribution. Standard errors are shown in parentheses.

† $p < .10$

* $p < .05$

** $p < .01$ (two-tailed tests)

Table 7

Effect of maternal work hours on children's time with fathers: Fixed-effect (FE) and instrumental variable (IV) estimations (N = 2,254; individuals = 1,127)

	FE Estimation				IV Estimation			
	Total (1)	**Education (2)**	**Structured (3)**	**Unstructured (4)**	**Total (5)**	**Education (6)**	**Structured (7)**	**Unstructured (8)**
Hours per Week Worked	0.004	0.002	–0.006	–0.004	0.133	–0.025	0.035†	0.105†
	(0.032)	(0.007)	(0.006)	(0.018)	(0.102)	(0.022)	(0.019)	(0.054)

Notes: Abridged results are presented from separate regressions where the dependent variable is time in specified activities. Fixed-effect regressions controlling only variables that vary between 1997 and 2002 are included (i.e., single parenthood, mothers' and fathers' education, fathers' employment status, total household income, and neighborhood safety). Instruments used for regressions in columns 5–8 are local labor market conditions, such as the local unemployment rate and the local income distribution. Standard errors are shown in parentheses.

† $p < .10$ (two-tailed tests)

Table 8

Effect of time with fathers on child outcomes: Fixed-effect estimations (N = 2,254; individuals = 1,127)

	Letter-Word Score (1)	Applied Problem (2)	Positive Behavior (3)	Behavior Problems (4)
Total Time	–0.001 (0.002)	–0.002 (0.002)	–0.005*** (0.002)	0.002 (0.002)
Education	0.008 (0.006)	0.003 (0.006)	0.012 (0.007)	–0.009 (0.007)
Structured	0.012† (0.007)	0.008 (0.007)	0.003 (0.008)	–0.003 (0.009)
Unstructured	–0.004 (0.003)	–0.005 (0.003)	–0.006* (0.003)	0.001 (0.003)

Notes: The sample is restricted to children who reside with both parents. Abridged results are presented from separate individual fixed-effect regressions where the dependent variable is letter-word score, applied problem-solving scores, or positive behavior or behavior problem scores. Controls include only variables that vary between 1997 and 2002 (i.e., single parenthood, mothers' and fathers' education, fathers' employment status, total household income, and neighborhood safety). Standard errors are shown in parentheses.

† $p < .10$

* $p < .05$

*** $p < .001$ (two-tailed tests)