

Early Maternal Employment and Children's School Readiness in Contemporary Families

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This study assessed whether previous findings linking early maternal employment to lower cognitive and behavioral skills among children generalized to modern families. Using a representative sample of children born in the United States in 2001 ($N = 10,100$), ordinary least squares regression models weighted with propensity scores assessed links between maternal employment in the 2 years after childbearing and children's school readiness skills at kindergarten. There were neutral associations between maternal employment and children's school readiness, which were not differentiated by maternal time, stress, or wages. However, as nonmaternal household income decreased, maternal employment begun prior to 9 months was linked with higher cognitive skills, while employment begun between 9 and 24 months was linked with lower conduct problems.

Keywords: maternal employment, parental leave, school readiness

The dramatic increase in maternal employment in recent decades has spurred a substantial body of research on mothers' labor force participation and its associations with children's health and well-being. A particular focus has been on women with newborns whose employment rates have rapidly increased from 21% in the labor market in 1968 to over 50% in every year since 1986 (U.S. Census Bureau, 2001). While most industrialized countries have responded to such trends with paid parental leave policies that provide income replacement and job protections, the United States has been significantly more limited in policy expansions, with no federal paid parental leave and a limited federal unpaid parental leave policy (Waldfogel, 2001). Lacking paid leave and job protection options, many new mothers in the United States return to work soon after childbirth, juggling the demands of employment and parenthood. The goal of the current study is to delineate the repercussions of such choices for children's early developmental competencies, with particular attention to differences across diverse families and to potential mechanisms linking early maternal employment and children's school readiness skills. We focus on children's school readiness skills due to their importance in setting children up for trajectories of success (Shonkoff & Phillips, 2000). Essential school readiness capac-

ities include core early literacy and numeracy skills, as well as skills in regulating inappropriate behaviors, attending to learning opportunities, and positively engaging with peers (Entwisle & Alexander, 1993). Entering formal schooling with these early competencies supports the successful transition to schooling, heightens the likelihood of future educational success, and in turn supports positive economic and psychological functioning into adulthood (Heckman, 2000).

Much of the past research on early maternal employment has utilized longitudinal survey studies with children born in the 1980s and early 1990s (e.g., the National Longitudinal Survey of Youth–Child Supplement [NLSY–CS]; the National Institute of Child Health and Human Development [NICHD] Study of Early Child Care and Youth Development [SECCYD]), but little research has examined more recent cohorts of children. On the basis of demographic shifts in the United States and theoretical models from developmental and economic perspectives, we hypothesize that maternal employment may have different implications for children currently than for past cohorts due to women's increased participation in the labor force and heightened responsibility for their families' financial security, more readily available and higher quality child care, changing cultural attitudes about women's work roles, and increased engagement among fathers in childrearing (Hofferth, 1996; Hoffman, 1989; Hoffman & Youngblade, 1999; Sayer, Bianchi, & Robinson, 2004). In response to these cultural and family shifts, children born more recently may experience their mothers' employment differently than children born in earlier decades, with dissimilar repercussions for children's development. Our focus on maternal rather than paternal employment is a reflection of the primary caregiving role of mothers; the high prevalence and relative stability over time of paternal employment (for families with a father in the household), which poses limitations for modeling paternal employment; and prior research showing limited associations between paternal employment and young children's well-being (Ziol-Guest, Dunifon, & Kalil, 2013).

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Background

Social science theories suggest a variety of hypotheses regarding the potential repercussions of maternal employment for young children. Historically, developmental and economic perspectives have suggested that maternal employment may be harmful because it limits mothers' time and energy to devote to parenting, hampers child–parent attachment, increases parental stress, or leads to the use of alternative care settings less supportive for children's development (Becker & Tomes, 1986; Bowlby, 1951). Yet these models also suggest that maternal employment brings economic and social resources to the family, which should benefit children's development. Considering these theoretical frameworks with an eye toward demographic shifts, we argue that changing norms and family behaviors may alter the relative importance of these factors.

The first two mechanisms through which maternal employment is theorized to influence children's development are money and time. An economic viewpoint highlights that engagement in the labor market requires a trade-off between money and time. This model argues that parental employment will increase families' economic resources, which can purchase child-development-enhancing assets and services, but will also decrease time and energy to devote to parenting (Becker & Tomes, 1986). Psychological models from developmental psychology such as attachment theory expand upon this argument, positing that employment may reduce the amount of time and experience that mothers have to build sensitive, responsive parenting skills that are essential to the development of secure attachments (Bowlby, 1951; Chase-Lansdale & Owen, 1987). Less secure child–parent attachments may inhibit exploration, learning, and emotional security that are critical to children's cognitive and socioemotional development (Bowlby, 1951). Early maternal employment may also lead to the use of alternative care settings less supportive for young children's development, particularly during infancy. Child care for infants is limited, expensive, and often of inadequate quality, thus potentially posing a risk to children's development (Clifford et al., 2005; NICHD Early Child Care Research Network, 2001; Shonkoff & Phillips, 2000).

In addition to reducing mothers' time with children, psychological theories and empirical research suggest that early maternal employment could be influential on children's development through the stress invoked in mothers struggling to balance work and family. This argument is particularly salient in the United States where many women have no option but to go back to work soon after childbearing due to limited paid and unpaid leave policies. The demands of balancing work and parenting may lead to heightened stress and depressive symptoms, negatively influencing the quality of parenting and parent–child relationships, and in turn inhibiting healthy child development (Gershoff, 2002; Ispa et al., 2004; McLoyd & Smith, 2002; NICHD Early Child Care Research Network, 1999; Petterson & Albers, 2001; Teti, Gelfand, Messinger, & Isabella, 1995).

Taken together, these theoretical perspectives argue for counteracting mediational processes, suggesting that maternal employment will increase economic resources but also reduce mothers' time devoted to parenting and increase their stress as they balance competing demands. Infants, who have high care demands and who are still building secure child–parent attachments, may be most impacted by mothers' limited time, reduced energy, and

increased stress due to employment, pushing the balance between these competing forces into a net negative effect. A sizable body of empirical evidence supports this supposition. A number of large, longitudinal survey studies of U.S. children have found negative links between maternal employment begun in a child's first 9 or 12 months and children's cognitive and socioemotional development, with neutral associations for maternal employment later in childhood (Baydar & Brooks-Gunn, 1991; Berger, Hill, & Waldfogel, 2005; Blau & Grossberg, 1992; Brooks-Gunn, Han, & Waldfogel, 2002, 2010; Desai, Chase-Lansdale, & Michael, 1989; Han, Waldfogel, & Brooks-Gunn, 2001; Hill, Waldfogel, Brooks-Gunn, & Han, 2005; Ruhm, 2004). For example, assessing a sample of White children from the NICHD Study of Early Child Care, Brooks-Gunn et al. (2002) found that maternal employment begun before the child's 9th month was linked to lower child cognitive skills at 36 months. This pattern continued into the first grade, extending to children's behavioral functioning as well (Brooks-Gunn et al., 2010). Research with a nationally representative sample of mothers, the NLSY-CS, has unearthed similar patterns (Han et al., 2001; Hill et al., 2005).

Less research has directly assessed whether the proposed mediating processes explain this association between early maternal employment and children's reduced cognitive and behavioral skills. Using nonparental child care as a proxy for mothers' time away from parenting, numerous studies have found that accounting for child care type (Baydar & Brooks-Gunn, 1991; Berger, Brooks-Gunn, Paxson, & Waldfogel, 2008; Han et al., 2001) or quality (Brooks-Gunn et al., 2002, 2010) did not substantially alter associations between early maternal employment and children's later functioning, but these studies did not specifically address the role of time in nonparental care settings. Even less research has directly assessed the role of stress or money in explaining associations between maternal employment and children's well-being. One recent study tested maternal depression as a mediator (Brooks-Gunn et al., 2010), finding that maternal depression at the time of children's assessment in the first grade did not explain associations between first-year maternal employment and children's later functioning. This study also tested money as a mediator, similarly finding that maternal income did not mediate associations between early maternal employment and children's functioning.

The theoretical models and empirical research discussed above have assessed whether time, stress, or money may mediate effects of early maternal employment, finding very little evidence to support these hypotheses. Here we argue that this framework largely ignores the role of individual differences. That is, working mothers earn different salaries, spend differing amounts of time on work versus parenting, and experience this balance with diverse psychological repercussions (Coley, Lohman, Votruba-Drzal, Pittman, & Chase-Lansdale, 2007; Hoffman & Youngblade, 1999; Parcel & Menaghan, 1997; Raver, 2003). This framework suggests that time, stress, and money may serve as important *moderators* of links between early maternal employment and child well-being. In families in which mothers return to work soon after childbirth but manage to protect their time with their child, gain a sense of satisfaction from combining work and parenting rather than increased stress, or who contribute more financially to their families, we hypothesize that early maternal employment may predict improved rather than diminished functioning among children. In

contrast, early maternal employment that carries a greater time or stress cost, or that contributes less financial resources to the family, may be detrimental for children.

Much of the existing research supports this hypothesis with regard to time, finding that full-time maternal employment in the 9–12 months after childbirth is more strongly linked to decreased child cognitive and behavioral skills than part-time early employment (Brooks-Gunn et al., 2002). Early research in the field of maternal employment identified the moderating role of maternal preferences, finding that mothers' desire to work moderated links between employment and children's well-being (e.g., DeMeis, Hock, & McBride, 1986). We know of no recent research that has tested interactions between early maternal employment and mothers' stress or earnings, but work with low-income samples provides some support. One recent study of poor and near-poor families found that maternal employment in the first 9 months after childbirth predicted enhanced socioemotional functioning in children at age 7 (Coley & Lombardi, 2013; see also Berger et al., 2008). Although this work did not directly test the moderating role of maternal earnings, it suggests that early maternal employment may be more beneficial in families in which mothers' earnings contribute more to total family income. Similarly, other work with low-income samples has found employment to be associated with improved rather than worsened maternal stress (Coley et al., 2007; Raver, 2003).

In short, theoretical models and empirical results suggest that there may be both positive and negative influences for children emanating from early maternal employment. We also argue that the relative strength of these influences may have shifted over time as social norms and family behaviors changed. For example, research has shown that even with rising employment rates, women's time spent directly interacting with children has not shifted dramatically (Bianchi, 2000; Bianchi & Robinson, 1997), suggesting that working women are finding ways to limit the time tax of employment. There has been notable growth in the availability of child care and greater attention to the quality of such care, and recent research suggests that nonparental care for infants and toddlers does not pose a substantial threat to healthy child development (Coley, Votruba-Drzal, Miller, & Koury, 2013; Votruba-Drzal, Coley, Koury, & Miller, 2013). Similarly, married fathers are playing a larger role in caring for children (Sayer et al., 2004), and support for maternal employment has grown, with companies gaining skills in accommodating the needs of new mothers (Cunningham, 2008). These shifts suggest that the stresses of balancing work and parenting for new mothers may have declined and the psychological benefits of employment increased (although there is little direct evidence of this). In relation to economic forces, with declining male wage rates, decreases in the social safety net, and increasing proportions of single mother families, more and more women are serving as primary wage earners and raising children with limited financial resources outside of what they earn themselves (Haskins, 2006; Redd, Karver, Murphey, Moore, & Knewstubb, 2011). These shifts may have increased the relative benefits of women's wages to their family's financial stability and hence their children's development. Together, these arguments suggest that the forces leading to negative effects of early maternal employment may have declined, while the forces leading to beneficial effects may have risen, altering the balance in countervailing forces and ultimately limiting overall effects on children.

Existing empirical research that has found a negative link between early and high-intensity maternal employment and children's later development has been drawn from two large-scale longitudinal surveys of U.S. children: the NLSY-CS, comprising children born between 1982 and 1993, and the NICHD SECCYD, comprising children born in 1991 (Baydar & Brooks-Gunn, 1991; Berger et al., 2005; Blau & Grossberg, 1992; Brooks-Gunn et al., 2002, 2010; Desai et al., 1989; Han et al., 2001; Hill et al., 2005). These samples are not representative of children in the United States today in that they contain small percentages of the most rapidly growing populations in the United States, such as Latinos and Asians; exclude important subpopulations (such as non-English speakers); and focus on children born 2–3 decades ago (G. J. Duncan & Gibson, 2000; Moore et al., 1999). Furthermore, much of the prior research has used limited statistical techniques to address selection bias. Selection factors are an important consideration, given that the same characteristics of mothers that may lead them into employment may also be related to their parenting skills and family contexts and thus to child outcomes (Berger et al., 2008; Heckman, 1978); failing to adequately attend to such factors will bias measured associations between maternal employment behaviors and child functioning. In sum, limitations of the samples and methodology used in prior research raise questions about the generalizability of existing findings to current families and children.

The Present Study

The current study sought to address gaps in prior literature by assessing associations between early maternal employment and children's school readiness in a nationally representative sample of children born in the United States in 2001. Using robust statistical methods to address selection bias, three sets of analyses assessed associations between (a) the timing of early maternal employment; (b) the mediating roles of time, stress, and money; (c) and the moderating roles of these factors with children's cognitive and behavioral school readiness skills at kindergarten. Results will provide important new information regarding the implications of early maternal employment in contemporary U.S. families.

Method

Sample

Data for this article were drawn from the Early Childhood Longitudinal Study, Birth Cohort (ECLS-B), a longitudinal, multithird study of a nationally representative cohort of approximately 10,700¹ children born in the United States in 2001 (Flanagan & West, 2004). Births were sampled from 96 core primary sampling units, which were geographic regions consisting of counties or groups of counties. Children who died or were adopted prior to the age of 9 months were excluded from the sample, as were children born to mothers younger than 15 years of age. The ECLS-B collected four waves of data on the birth cohort at 9 months (Wave 1), 2 years (Wave 2), 4 years (Wave 3), and

¹ ECLS-B secure data rules require that all *N*s be rounded to the nearest 50.

kindergarten entry (Wave 4 or Wave 5).² The response rate for the initial 9-month wave of data was 74%; this is consistent with response rates from other large national surveys, and an evaluation of respondents and nonrespondents has found very small differences that would be unlikely to result in nonresponse bias (Bethel, Green, Nord, Kalton, & West, 2005). From the baseline 9-month sample, the response rates for the 2-year, 4-year, and 5-year waves of data were 93%, 91%, and 92%, respectively. The analytic sample consisted of all children from the Wave 1 sample with survey weights and whose biological mother was the survey respondent at Wave 1 (98% of the sample), resulting in an analytic sample of 10,100 children. Within the analytic sample there was a moderate amount of missing data due to attrition and item nonresponse ranging from 0% (child sex, twin, mother age) to 32% (mother employment status Wave 4/5, which was the highest due to attrition by the Waves 4 and 5 data collection). Missing data were imputed in Stata 12 (Royston, 2004, 2005) with multiple imputation by chained equations to create 10 complete data sets. All analyses were weighted with jackknife replicate weights that adjust for sampling procedures, nonresponse, and differential attrition and properly adjust standard errors, making results generalizable to children born in the United States in 2001.

The ECLS-B data offer important strengths for the purposes of this research. The data are nationally representative of children born in 2001, and hence present a generalizable sample of young children. Data were collected in a multitude of languages (with translators used for languages other than English or Spanish), thus not excluding the noteworthy populations of non-English speakers in the United States. Moreover, the sample is large, with children from families across the income distribution from very low income to economically advantaged. In addition to the strengths of the sampling, the ECLS-B contains very strong measurement. Children's development was assessed with reliable and well-validated instruments. Helping to reduce analytic concerns over shared method variance, data were collected from two nonparental sources: direct assessments and teacher reports.

Measures

Maternal employment. At Wave 1, when children averaged 9 months of age, mothers reported the age of their child in months when they first entered employment after childbirth and the intensity (hours per week) of their employment. At Wave 2, when children averaged 24 months of age, mothers indicated whether they were currently working and their employment intensity. These data were used to create three mutually exclusive categories: first entry into employment before 9 months; first entry into employment between 9 and 24 months; and nonemployed, that is, no report of employment before 24 months. These categories capture employment during the first 2 years after childbirth, which is comparable to the periods studied in prior literature that have varied from 9 or 12 months (Berger et al., 2008; Brooks-Gunn et al., 2002; Coley & Lombardi, 2013) to the first 2, 3, or 4 years (Baydar & Brooks-Gunn, 1991; Coley & Lombardi, 2013; Desai et al., 1989; Han et al., 2001; Hill et al., 2005). A limitation of our employment measure is that it may be incorrectly classifying mothers who entered employment after 9 months and exited before 24 months as being nonemployed in the first 2 years.

Children's school readiness. Children's cognitive skills at kindergarten entry were measured with direct assessments. The assessments were developed specifically for the ECLS-B, comprising items drawn from well-validated standardized instruments including the Peabody Picture Vocabulary Test-Third Edition (Dunn & Dunn, 1997), the PreLAS 2000 (S. E. Duncan & DeAvila, 1998), the Preschool Comprehensive Test of Phonological & Print Processing (Lonigan, Wagner, Torgesen, & Rashotte, 2002), and the Test of Early Mathematics Ability-Third Edition (Ginsburg & Baroody, 2003). The early reading assessment ($\alpha = .92$) consisted of 74 items that measured early reading and language skills, including letter knowledge, word recognition, print conventions, and phonological awareness. The math assessment ($\alpha = .92$) consisted of 58 items focused on number sense, properties, operations, and probability. Analyses utilized the item response theory scores calculated by the ECLS-B for these assessments.

Behavioral functioning at kindergarten entry was assessed via teacher reports on items drawn from the Preschool and Kindergarten Behavior Scales-Second Edition (Merrell, 2003), the Social Skills Rating Scales (Gresham, Elliott, & Black, 1987), and items created specifically for the ECLS-B and the Family and Child Experiences Study. Teachers rated the frequency of the child's engagement in behaviors on 5-point scales (*never to very often*). Factor analyses of teacher reports led to the construction of three measures. A composite of conduct problems assessed children's impulsive, disruptive, and aggressive behaviors (seven items; $\alpha_{4-5} = .92$). A composite of attention skills assessed children's attention, independence, task completion, and eagerness to learn (six items; $\alpha_{4-5} = .89$). A composite of prosocial skills assessed children's ability to make friends, acceptance of others, and sharing behaviors (six items; $\alpha_{4-5} = .87$).

Covariates. Numerous child characteristics were incorporated as covariates including age at Wave 1 and age at assessment (both in months), gender, and an indicator for children who entered kindergarten at Wave 5. Child low birthweight status was represented with an indicator of whether the child was born with low (less than 2,500 g) birthweight. An indicator noted whether the focal child was from a multiple birth. Child race/ethnicity was categorized as non-Hispanic White (reference), non-Hispanic African American, Hispanic, Asian, American Indian, and multiracial. Native Hawaiian or other Pacific Islanders were combined with American Indian or Alaska natives. In addition to the demographic characteristics, children's behavioral functioning was measured at Wave 1 with a measure of temperament with mother and observer reports on items from the Infant/Toddler Symptom Checklist (DeGangi, Poisson, Sickel, & Wiener, 1995) and the Bayley Scales of Infant Development (BSID-II; Bayley, 1993). Fifteen items assessing children's self-regulation, attention, adaptability, and social engagement were standardized and averaged ($\alpha = .70$), with higher scores indicating more adaptability, engagement, and regulation. Cognitive ability was assessed at Wave 1 with the Bayley Short Form-Research Edition ($\alpha = .80$), an adaptation of the BSID-II (Bayley, 1993) that measures diverse

² Not all children had entered kindergarten at the time of assessment at Wave 4. Accordingly, the ECLS-B reassessed those children the following year to capture their development at the start of kindergarten.

domains of cognitive development including exploration of objects, early problem solving, and preverbal communication (Flanagan & West, 2004). Item response theory scores were calculated to provide an estimate of each child's performance had they been administered the entire BSID-II (Bayley, 1993).

Several maternal and household characteristics were also included as covariates, including Wave 1 measures of maternal age and maternal education, categorized as less than high school, high school (omitted), some college, and a college or graduate degree. Two aspects of maternal employment status were included in the models: an indicator designating mothers that were employed during the year before the child was born and an indicator designating mothers' employment status at the wave of child assessments. A dichotomous variable indicated whether the primary language of the household was non-English at Wave 1. Several time-varying characteristics were measured at each wave of data collection (Waves 1, 2, 3, and 4/5) and aggregated over time by averaging for continuous variables and categorizing for categorical variables. Household income, excluding the mother's income from employment, was measured in units of 10,000 and averaged over all of the waves. Family structure covariates included maternal marital status, measured with indicators of whether respondent was consistently married over the study period or married at some waves (versus never married across the waves); whether the mother was cohabitating at any wave; the number of nonpartner adults in the household; and three measures of other children in the household: the number of siblings at Wave 1, an indicator for a new child born by Wave 2, and an indicator for a new child born between Wave 2 and Wave 4/5. Two dichotomous variables indicated whether the mother received welfare at some or all of the study waves (versus at no waves). Finally, paternal employment was assessed with two dichotomous variables indicating a working partner in the household at some or all of the study waves (versus at no waves).

Process variables. This study examined three constructs theorized to explain the associations between early maternal employment and children's outcomes: time, stress, and money. Time was assessed with two sets of measures. First, mothers' time in employment was categorized as part time (<30 hr) or full time (≥ 30 hr per week) at the first report of employment. Second, a continuous measure of children's weekly hours in child care at Wave 2, measured in units of 10s, was used to assess parents' time away from children. Maternal stress was measured with a modified version of the Center for Epidemiologic Studies Depression Scale (Radloff, 1977) at Wave 1 (this measure was not assessed at Wave 2). Finally, money also was measured in two ways. Mothers' employment wages, measured in \$10,000 units per year, were assessed at Wave 2. We also considered mothers' nonemployment sources of income using the nonmaternal household income, averaged over Waves 1 through 4/5.

Analytic Approach

The primary goal of the analyses was to assess how early maternal employment was associated with children's school readiness skills. This question was assessed with a series of ordinary least squares regression models predicting children's functioning at kindergarten entry from the timing of mothers' entry into employment after childbirth. A concern for the present study was

selection bias, that is, that maternal or family characteristics associated with selection into employment, rather than maternal employment per se, may explain associations with children's school readiness skills. To address this significant concern, we conducted three sets of models incorporating numerous techniques to address potential selection bias.

The first model was estimated with ordinary least squares regression with a limited selection of covariates known to be associated with selection into employment from prior research (e.g., Hill et al., 2005) and seen as exogenous to postchildbirth maternal employment (including the Wave 1 measures of child age, gender, race, number of siblings, low birthweight status, and twin status; non-English-speaking household, child age, and kindergarten status at the outcome wave; mother's age, education, work status in the year prior to the child's birth; time-varying measures of mothers' marital status, cohabitation status, and the number of nonpartner adults in the household from Waves 1 through 4/5), as shown in Equation 1:

$$\text{Child Outcomes}_{s,4/5i} = B_0 + B_1 \text{Maternal Employment}_i + B_2 \text{Maternal}_{1-4/5i} + B_3 \text{Child}_{1-4/5i} + \varepsilon_i. \quad (1)$$

Due to the potential influence of selection bias from child and parent characteristics that were measured concurrently or following the time of employment, a larger set of child and parent characteristics was included in the next analytic model. These included additional parent characteristics (employment status at Wave 4/5) and time-varying variables assessing parent and family characteristics from Waves 1 through 4/5 (additional childbearing, nonmaternal household income, partner employment status, and welfare receipt). In addition, the second set of models included lags for child functioning, incorporating the measures of child infant cognitive skills (for cognitive outcomes) or temperament (for behavioral outcomes), helping to control for unmeasured, time-invariant factors that had a consistent effect on children's functioning (Cain, 1975). This more comprehensive set of covariates further reduces the risk of omitted variable bias; however, it is also important to note that they also increase the risk of overcontrolling.

While the covariates included in the second model represent a more thorough set of factors shown in prior research to be associated with selection into employment (e.g., Hill et al., 2005), even the most comprehensive set of covariates leaves open the potential for omitted variable bias (G. J. Duncan, Magnuson, & Ludwig, 2004). As a final modeling technique to address selection bias, we incorporated propensity score weighting (PSW) in the third set of models (Imbens, 2000; Rosenbaum & Rubin, 1984). Propensity score techniques restructure correlational data to mimic randomized experimental data where a treatment group and control group are equated on observed, preexisting characteristics (Rosenbaum & Rubin, 1983). Although adjusting for the propensity to be in the "treatment" group has been shown to remove a substantial portion of selection bias in nonexperimental research (see, e.g., Leon & Hedeker, 2007), it is important to note that propensity score techniques cannot control for unobserved factors, the influence of which may even be magnified by matching on observables (Pearl, 2009).

PSW techniques were incorporated via the three-step procedure described by Imbens (2000). The first step involved estimating the

propensity of mothers to be in each employment group, conducted with multinomial logistic regression models as a function of all observed pretreatment covariates (including the Wave 1 measures of child gender, race, number of siblings, low birthweight status, and twin status as well as non-English-speaking household and mother's age, education, and work status in the year prior to the child's birth). Second, propensity score weights were created by taking the inverse of the child's conditional probability of receiving the early maternal employment treatment that the child actually received (Imbens, 2000). Third, regression models predicting kindergarten school readiness skills were run, weighted with the early maternal employment treatment-specific propensity score weights multiplied by the sample weights, to generate the average treatment effect of maternal employment. As an added protection against bias, the full set of covariates included in the second set of models were included here as well.

After the first set of models assessing associations between the timing of maternal employment and children's school readiness skills, several other sets of analyses were estimated to address the role of maternal time, stress, and income. All subsequent models were estimated with propensity score weights and included the full set of covariates and lagged child functioning variables. To assess support for the theoretical suppositions that maternal time, stress, and money would serve as mediating processes linking early maternal employment to child functioning, we reran models predicting child functioning including the measures of time (children's weekly hours in nonparental care), stress (maternal depressive symptoms), and money (maternal earnings). The final set of models assessed whether maternal time, stress, and money acted as moderators rather than mediators of early maternal employment. The first of these models assessed the role of time by splitting each of the early employed groups into separate part-time and full-time groups. The resultant five categories of employment were analyzed via the three-step PSW technique described above. Additional moderation models tested interactions between maternal employment and centered, continuous measures of children's hours in nonparental child care, mothers' depressive symptoms, mothers' wages, and nonmaternal household income.

Results

Descriptive Results

Table 1 presents descriptive statistics for the sample. Just under one third (31%) of mothers reported no employment in the 2 years following the focal child's birth, while 58% of mothers were first employed prior to the child's 9th month, and 11% were first employed between 9 and 24 months. These numbers are similar to those reported in national employment statistics from the same year, supporting the validity of our measures: In 2001, the Bureau of Labor Statistics found that 55% of mothers with a child under the age of 1 were employed and 66% of mothers with a child under the age of 2 were employed, while 34% of mothers with children under the age of 2 were not employed (Bureau of Labor Statistics, 2003). Regarding employment intensity in our sample, 20% of mothers worked part time and 48% full time.

Table 1 presents the sample descriptives for the different employment patterns: nonemployed, first employed before 9 months after childbirth, and first employed between 9 and 24 months after

childbirth. Significant differences between the employment groups are designated with matched subscripts. Numerous differences in mother and family characteristics emerged between employment groups, generally suggesting that mothers who entered employment by 9 months after childbirth were more advantaged with healthier children and more human and financial capital. This suggests the importance of selection factors in understanding early maternal employment.

Differences on the process variables between each of the employment groups also suggested that these constructs may be important in understanding the implications of early maternal employment for children and families, although not all of these patterns support the theoretical models discussed above. As expected, children of employed mothers spent more hours in child care than children of nonemployed mothers. Contrary to theoretical arguments, maternal depression was lowest among children of mothers employed before 9 months. Income from maternal employment was higher among both groups of employed mothers, while household income from nonmaternal work sources was lower in both employed groups than among families with nonemployed mothers. Approximately 3% of nonemployed mothers had some income from employment at Wave 2, presumably due to paid maternal leave or residual income from prior employment.

Maternal Employment Timing: Predicting Child Functioning While Addressing Potential Selection Bias Using Covariates and Propensity Scores

The first analytic model (Model 1 in Table 2) included a limited selection of covariates known to be associated with selection into employment from prior research (e.g., Hill et al., 2005) and seen as exogenous to postchildbirth maternal employment. Results in the first two rows of Table 2 indicate that early maternal employment showed few significant associations with children's functioning at kindergarten entry with the exception of children's conduct skills. Children of mothers who entered employment between 9 and 24 months received higher reports of conduct problems from teachers than their peers whose mothers entered employment earlier or did not report any employment. Both of these differences were very small in size, representing 0.08 and 0.07 standard deviation units, respectively. No significant associations emerged in relation to children's reading, math, attention, or prosocial skills.

The second analytic model (Model 2 in Table 2) included a larger set of child and parent characteristics as well as lags for child functioning. The additional covariates did little to change the overall pattern of results. There were no significant associations between early maternal employment and children's later reading, math, attention, or prosocial skills. The relationship between early employment and children's later conduct skills was slightly weakened with entrance into employment between 9 and 24 months linked with children's higher conduct problems in comparison to earlier employment ($SD = 0.08$), but not in comparison to nonemployment.

The final analytic model that assessed the timing of early maternal employment incorporated PSW techniques. These models (Model 3 of Table 2) echoed the results of the first two sets of models, indicating that early maternal employment had few significant associations with children's functioning at kindergarten entry. As before, no significant associations emerged in relation to

Table 1
 Maternal Employment and Demographic Characteristics of the Sample ($N = 10,100$)

Variable	Full sample ($N = 10,100$)	Nonemployment ($n = 3,200$)	First employed before 9 months ($n = 5,850$)	First employed between 9 and 24 months ($n = 1,050$)
Employment timing ^a				
Never employed	31.63			
First employed before 9 months	57.83			
First employed between 9 and 24 months	10.54			
Process variables				
Intensity of first employment ^a				
Part time	20.18		16.12	4.06
Full time	48.18		41.70	6.48
Child care hours Wave 2 (10s)	2.58 (4.16)	1.45 _{ab} (4.21)	3.08 _a (3.89)	3.25 _b (4.52)
Maternal depression Wave 1	7.75 (11.11)	8.21 _a (11.06)	7.32 _{ab} (10.80)	8.74 _b (11.60)
Maternal wages Wave 2 (\$10,000s)	3.23 (6.15)	1.60 _{ab} (5.52)	3.89 _a (6.07)	4.49 _b (7.05)
Nonmother household income average Waves 1–4/5 (\$10,000s)	3.24 (3.27)	4.00 _{ab} (3.85)	2.92 _a (3.44)	2.68 _b (2.84)
Employment history covariates				
Employed year before birth ^a	73.30	41.96 _{ab}	89.50 _{ac}	59.53 _{bc}
Employed at Wave 4/5 ^a	52.06	31.95 _{ab}	62.93 _{ac}	52.76 _{bc}
Child characteristics				
Age of child Wave 1 (in months)	10.47 (3.01)	10.45 (3.06)	10.46 (2.93)	10.59 (3.20)
Age of child Wave 4/5 (in months)	75.08 (9.19)	75.16 (9.35)	74.91 (9.11)	75.73 (9.11)
Boy ^a	51.14	50.86	50.93	53.11
Child was low birthweight ^a	1.28	1.57 _a	1.00 _{ab}	1.94 _b
Twin ^a	2.92	3.58 _a	2.46 _{ab}	3.46 _b
Race ^a				
White	53.54	50.89 _a	54.83 _a	51.78
Hispanic	25.51	30.64 _{ab}	22.62 _a	25.90 _b
African American	13.73	10.67 _{ab}	16.00 _a	15.42 _b
Other (combined multirace, Asian, Native American)	7.22	7.49	7.17	6.68
Adaptive temperament W1	0.06 (0.49)	0.03 _a (0.51)	0.08 _{ab} (0.48)	0.02 _b (0.51)
BSF–R mental score Wave 1	50.23 (14.96)	49.74 _a	50.60 _{ab}	49.66 _b
Kindergarten assessment Wave 5 ^a	37.15	37.22	37.02	37.72
Maternal characteristics				
Age of mother (in years)	28.21 (6.39)	28.29 _a (6.55)	28.35 _b (6.25)	27.18 _{ab} (6.50)
Education ^a				
Less than high school	19.58	28.29 _a	13.99 _{ab}	24.08 _b
High school graduate or GED	29.59	27.50 _a	29.59 _b	35.94 _{ab}
Some college or associate degree	26.55	22.51 _a	29.38 _{ab}	23.14 _b
Bachelor's or graduate degree	24.28	21.70 _{ab}	27.04 _{ac}	16.84 _{bc}
Non-English-speaking household ^a	36.37	44.61 _{ab}	31.83 _a	36.52 _b
Married all waves ^a	58.77	64.61 _{ab}	56.78 _{ac}	52.11 _{bc}
Married some waves ^a	17.34	13.48 _{ab}	18.91 _a	20.34 _b
Never married ^a	23.89	21.91 _a	24.31	27.56 _a
Cohabitation any waves ^a	5.36	4.43 _a	5.40 _b	7.92 _{ab}
Number of nonpartner adults in household Waves 1–4/5	0.41 (0.77)	0.40 _a (0.75)	0.41 _b (0.72)	0.49 _{ab} (0.76)
Number of siblings Wave 1	0.99 (1.15)	1.17 _{ab} (1.22)	0.88 _{ac} (1.07)	1.05 _{bc} (1.25)
New sibling Wave 2 ^a	19.52	23.87 _{ab}	17.65 _b	16.70 _a
New sibling Wave 3–4/5 ^a	49.27	49.04	49.46	48.95
Welfare all waves ^a	1.17	2.12 _a	0.62 _a	1.40
Welfare some waves ^a	15.65	18.35 _a	13.28 _{ab}	20.53 _b
No welfare ^a	83.18	79.53 _a	86.09 _{ab}	78.07 _b
Working partner all waves ^a	52.37	57.69 _{ab}	51.16 _{ac}	42.97 _{bc}
Working partner some waves ^a	35.44	32.04 _{ab}	36.08 _{bc}	42.19 _{ac}
No working partner ^a	12.19	10.27 _{ab}	12.76 _a	14.84 _b
Child characteristics Wave 4/5				
Reading skills	0.09 (14.93)	43.38 _a (15.44)	45.62 _{ab} (14.49)	43.40 _b (15.01)
Math skills	44.58 (10.69)	43.81 _a (11.03)	45.19 _{ab} (10.35)	43.56 _b (10.89)
Conduct problems	3.61 (1.64)	3.61 _a (1.65)	3.57 _b (1.64)	3.82 _{ab} (1.60)
Attentional skills	4.50 (0.79)	4.53 (0.78)	4.49 (0.79)	4.51 (0.84)
Prosocial skills	4.49 (0.77)	4.51 (0.77)	4.47 (0.77)	4.52 (0.77)

Note. Within each row, subscripts denote differences at the $p < .05$ level between the different employment patterns: never employed, first employed by 9 months, and first employed between 9 and 24 months. N s rounded to nearest 50 according to Early Childhood Longitudinal Study reporting requirements. Percentages may not add up to 100 due to rounding. Standard deviations are shown in parentheses. BSF–R = Bayley Short Form–Research Edition; GED = General Educational Development tests.

^a Proportions.

Table 2

Influence of Employment Timing After Birth on the Development of School Readiness Skills at Kindergarten (N = 10,100)

Variable	Reading skills	Math skills	Conduct problems	Attentional skills	Prosocial skills
Model 1					
First employed before 9 months	0.50 (0.55)	0.20 (0.37)	-0.01 _a (0.04)	-0.03 (0.02)	-0.03 (0.02)
First employed between 9 and 24 months	0.24 (0.75)	-0.04 (0.50)	0.12 _a (0.06)*	-0.02 (0.03)	-0.01 (0.03)
<i>F</i> of model	46.54**	57.93**	277.06**	148.20**	168.62**
<i>R</i> ²	.19	.22	.42	.28	.29
Model 2					
First employed before 9 months	0.72 (0.56)	0.34 (0.38)	-0.02 _a (0.04)	-0.01 (0.02)	-0.03 (0.02)
First employed between 9 and 24 months	0.46 (0.74)	0.10 (0.49)	0.11 _a (0.06)†	0.00 (0.03)	0.00 (0.03)
<i>F</i> of model	37.37**	48.68**	190.34**	104.63**	117.76**
<i>R</i> ²	.22	.26	.39	.27	.27
Model 3					
Timing of first employment					
First employed before 9 months	0.75 (0.57)	0.44 (0.39)	-0.06 _a (0.05)	-0.03 (0.02)	-0.04 (0.02)†
First employed between 9 and 24 months	0.42 (0.79)	0.05 (0.54)	0.09 _a (0.07)	-0.01 (0.04)	-0.01 (0.03)
Employment history covariates					
Mother employed before birth	0.47 (0.66)	0.59 (0.45)	-0.06 (0.05)	0.00 (0.03)	-0.02 (0.02)
Mother employed Wave 4/5	0.75 (0.67)	0.67 (0.49)	-0.1 (0.05)†	0.00 (0.03)	0.00 (0.03)
Child covariates					
Age of child Wave 1 (in months)	0.22 (0.16)	0.11 (0.10)	-0.03 (0.01)*	-0.01 (0.01)	-0.01 (0.01)
Age of child Wave 4/5 (in months)	0.29 (0.05)**	0.24 (0.03)**	0.11 (0.00)**	0.04 (0.00)**	0.04 (0.00)**
Boy	-2.45 (0.64)**	-0.64 (0.50)	0.25 (0.05)**	-0.16 (0.03)**	-0.10 (0.02)**
Low birthweight	-3.97 (0.83)**	-4.49 (0.55)**	-0.01 (0.05)	-0.16 (0.03)**	-0.09 (0.03)**
Twin	-0.63 (0.67)	-1.14 (0.46)*	-0.11 (0.06)†	-0.03 (0.03)	-0.05 (0.03)
Black	0.96 (0.89)	-1.73 (0.67)*	0.26 (0.07)**	0.12 (0.04)**	0.12 (0.04)**
Hispanic	-0.82 (1.03)	-2.10 (0.69)**	0.02 (0.07)	0.03 (0.04)	0.03 (0.03)
Asian	6.37 (1.12)**	3.02 (0.76)**	0.03 (0.10)	0.06 (0.05)	-0.01 (0.04)
Native American	-1.55 (1.22)	-1.95 (1.03)†	-0.13 (0.18)	0.09 (0.08)	-0.01 (0.06)
Multirace	1.98 (1.55)	0.43 (0.90)	0.10 (0.10)	0.05 (0.05)	0.07 (0.05)
Temperament			0.09 (0.05)	0.07 (0.03)*	0.06 (0.02)*
BSF-R mental score	0.09 (0.03)**	0.10 (0.02)**			
Kind assessment Wave 5	2.59 (0.84)**	1.63 (0.61)*	-0.44 (0.05)**	-0.09 (0.02)**	-0.10 (0.02)**
Mother/family covariates					
Age of mother	0.01 (0.06)	-0.01 (0.04)	0.00 (0.01)	0.00 (0.00)	0.00 (0.00)
Less than high school	-2.70 (0.80)**	-1.87 (0.55)**	0.04 (0.06)	0.00 (0.03)	0.01 (0.03)
Some college	2.73 (0.79)**	1.89 (0.54)**	0.11 (0.07)†	0.03 (0.04)	0.05 (0.03)
College/graduate degree	5.89 (1.02)**	3.86 (0.75)**	0.07 (0.08)	0.06 (0.04)	0.06 (0.04)
Non-English-speaking household	-0.77 (0.95)	-0.08 (0.67)	-0.05 (0.08)	0.06 (0.04)	0.03 (0.04)
Nonmother income (in \$10,000s) average Waves 1-4/5	0.77 (0.12)**	0.58 (0.09)**	-0.04 (0.01)**	0.01 (0.01)*	0.00 (0.01)
Married all waves	1.86 (1.01)†	0.46 (0.82)	-0.03 (0.08)	0.00 (0.04)	0.01 (0.04)
Married some waves	0.40 (1.02)	-0.50 (0.74)	0.12 (0.08)	0.05 (0.04)	0.03 (0.04)
Cohabitation any waves	0.16 (1.18)	-0.39 (0.81)	0.16 (0.11)	-0.02 (0.06)	-0.03 (0.06)
Number of nonpartner adults in household Waves 1-4/5	-0.61 (0.52)	-0.39 (0.39)	0.03 (0.03)	0.01 (0.01)	0.00 (0.01)
Number of siblings Wave 1	-1.35 (0.31)**	-0.40 (0.20)*	-0.01 (0.02)	0.01 (0.01)	0.00 (0.01)
New sibling Wave 2	-1.44 (0.75)†	-1.27 (0.49)**	-0.09 (0.06)	0.05 (0.03)	0.04 (0.03)
New sibling Waves 3-4/5	-1.89 (0.66)**	-1.57 (0.41)**	-0.04 (0.06)	0.05 (0.03)	0.01 (0.03)
Welfare all waves	-3.72 (2.77)	-1.15 (1.63)	-0.03 (0.16)	-0.09 (0.10)	-0.16 (0.11)
Welfare some waves	-2.05 (0.90)*	-1.53 (0.73)*	0.02 (0.06)	-0.08 (0.04)*	-0.04 (0.03)
Working partner all waves	0.03 (1.20)	0.11 (0.85)	0.09 (0.10)	0.14 (0.05)**	0.14 (0.05)**
Working partner some waves	0.55 (1.02)	0.41 (0.74)	0.03 (0.08)	0.08 (0.05)†	0.11 (0.04)**
<i>F</i> of model	24.17**	28.82**	122.15**	67.07**	79.42**
<i>R</i> ²	.23	.25	.38	.27	.28

Note. Employed groups are compared to the omitted category of no employment. Within each column, groups that shared subscript letters are different from each other at the $p < .05$ level. All models were estimated with ordinary least squares regression. Model 3 was weighted with propensity score weights. Model 1 controlled for the Wave 1 value of child age, gender, race, low birthweight, twin, and number of siblings; the Wave 1 value of maternal age, education, employment in year prior to child's birth, and non-English-speaking household; child age Wave 4/5; kindergarten status Wave 5; and Wave 1-4/5 measures of mothers' marital status, cohabitation status, and the number of nonpartner adults in the household. Models 2 and 3 controlled for the covariates listed in Model 3. Standard errors are shown in parentheses. BSF-R = Bayley Short Form-Research Edition.

† $p < .10$. * $p < .05$. ** $p < .01$.

children's reading and math skills or attention and prosocial skills. Children whose mothers were employed between 9 and 24 months received higher reports of conduct problems from teachers than their peers whose mothers entered employment before 9 months, although the difference was very small in size ($SD = 0.09$) and neither group was significantly different from children of nonemployed mothers.

Moderation by Race/Ethnicity

Prior to turning to the main mediating and moderating models of interest, we explored whether the present results differed from past findings due to differences in the makeup of the sample. Much of the past research has studied samples of only or primarily European American ancestry (Baydar & Brooks-Gunn, 1991; Berger et al., 2005; Blau & Grossberg, 1992; Brooks-Gunn et al., 2002, 2010; Desai et al., 1989; Han et al., 2001; Hill et al., 2005; Ruhm, 2004), with some indication that prior negative associations between early maternal employment and child functioning were not shared by other racial and ethnic groups such as African Americans (Berger et al., 2008; Coley & Lombardi, 2013). Thus, we assessed whether links between maternal employment and child functioning in the ECLS-B differed for children across racial and ethnic groups by testing interactions between the employment and race/ethnicity variables. Results (available upon request) showed no significant patterns to suggest that early maternal employment was differentially associated with children's school readiness skills across racial and ethnic groups.

Maternal Time, Stress, and Money as Mediating Processes

The next set of models assessed support for the theoretical suppositions that maternal time, stress, and money would serve as mediating processes linking early maternal employment to child functioning; results are shown in the top panel of Table 3 (Model 1). Neither children's hours in nonparental care, maternal depressive symptoms, nor maternal earnings were significant predictors of children's cognitive or behavioral skills, nor did their inclusion significantly alter the limited associations between early maternal employment and child functioning, indicating a lack of mediation (results were similar when mediators were included one at a time).

Maternal Time, Stress, and Money as Moderators of Early Employment

The third set of models assessed whether maternal time, stress, and money acted as moderators rather than mediators of early maternal employment, altering the directionality or strength of associations with children's school readiness skills. The first of these models assessed the role of time by delineating hours of employment, with the argument that full-time employment demands more time away from parenting than part-time employment. Results, presented in the second panel of Table 3 (Model 2), show a limited and somewhat contradictory role of time, with no evidence that early maternal employment with greater hours is detrimental to child functioning. Rather, results found that part-time employment begun between 9 and 24 months after childbirth drove the association with children's conduct problems, with children of

such mothers receiving higher teacher reports of conduct problems than children of mothers first employed full time during the same period as well as those of earlier employed mothers and nonemployed mothers. These differences were small, ranging from 0.18 to 0.22 standard deviation units. In addition, this model found that children of mothers employed part time prior to their 9th month showed lower prosocial behaviors at kindergarten than children of nonemployed mothers. A second set of moderation models tested interactions between maternal employment and children's hours in nonparental child care. Results, seen in Model 3 of Table 3, found no significant interactions. Together, these results provide no evidence that greater time devoted to employment or away from childrearing strengthens negative associations with children's functioning.

An additional set of models tested the role of maternal stress by including interactions between maternal employment timing and mothers' depressive symptoms. Results (Model 4 of Table 2) found no significant interactions, suggesting that even when mothers reported significant distress, early maternal employment was not associated with poorer school readiness skills for children.

The third set of models assessed the role of money. First, interactions between maternal employment and mothers' wages were assessed. Results, presented in Model 5 of Table 3, found no significant moderation role for mothers' wages. Another way to test the role of money is to ask whether maternal employment is differentially associated with children's functioning depending upon the other monetary resources available in the household. To address this issue, a final set of interactions used the measure of nonmaternal household income in interaction with early maternal employment. Two patterns emerged in the results, presented in the bottom panel of Table 3 (Model 6). In relation to children's cognitive skills, significant interactions indicated that maternal employment before 9 months was less advantageous for children's reading and math skills as household income increased. The association between early maternal employment and children's cognitive skills was neutral at the mean level of income (shown by the main effect of employment prior to 9 months), suggesting a positive association for lower income families and a negative association for upper income families. For behavioral skills, results found that employment between 9 and 24 months was associated with greater conduct problems as household income increased.

Discussion

A substantial body of research on maternal employment and children's development using large, longitudinal survey data sets has pointed to one relatively consistent finding: that maternal employment begun early in infancy appears to pose a threat to children's development (Baydar & Brooks-Gunn, 1991; Berger et al., 2005; Blau & Grossberg, 1992; Brooks-Gunn et al., 2002, 2010; Desai et al., 1989; Han et al., 2001; Hill et al., 2005; Ruhm, 2004). Little research has addressed this question within more recent cohorts of children. This gap is notable given that recent decades have seen dramatic increases in maternal employment among mothers with young children coupled with more readily available and higher quality child care, increased engagement of fathers in childrearing, changing cultural attitudes about women's work roles, and heightened importance for women's wages in family economic stability (Hofferth, 1996; Hoffman, 1989; Hoff-

Table 3
Influence of Employment Timing After Birth on the Development of School Readiness Skills at Kindergarten (N = 10,100)

Variable	Reading skills	Math skills	Conduct problems	Attentional skills	Prosocial skills
Model 1					
First employed before 9 months	0.69 (0.57)	0.36 (0.39)	-0.06 (0.05)	-0.04 (0.02)	-0.04 (0.02) [†]
First employed between 9 and 24 months	0.29 (0.78)	-0.06 (0.55)	0.08 (0.07)	-0.03 (0.04)	-0.02 (0.03)
Child care hours Wave 2	-0.05 (0.14)	0.03 (0.11)	0.01 (0.01)	0.00 (0.01)	-0.00 (0.00)
Maternal wages Wave 2	0.07 (0.09)	0.02 (0.07)	-0.00 (0.01)	0.01 (0.00)	0.00 (0.00)
Maternal depression Wave 1	0.00 (0.03)	0.01 (0.02)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
F of model	22.18**	26.70**	114.20**	62.45**	73.86**
R ²	.23	.26	.38	.27	.28
Model 2					
First employed before 9 months part time	0.12 (0.74)	-0.23 (0.55)	-0.04 _a (0.06)	-0.02 (0.03)	-0.06 (0.03)*
First employed before 9 months full time	1.05 (0.65)	0.77 (0.42) [†]	-0.07 _b (0.05)	-0.03 (0.02)	-0.03 (0.02)
First employed between 9 and 24 months part time	0.34 (1.15)	-0.22 (0.83)	0.29 _{abc} (0.11)**	0.03 (0.06)	0.04 (0.05)
First employed between 9 and 24 months full time	0.49 (1.00)	0.27 (0.62)	-0.04 _c (0.07)	-0.04 (0.04)	-0.05 (0.04)
F of model	22.90**	27.48**	114.41**	62.98**	74.41**
R ²	.23	.25	.38	.27	.28
Model 3					
Main effects					
First employed before 9 months	0.73 (0.59)	0.41 (0.40)	-0.07 (0.05)	-0.04 (0.02)	-0.04 (0.02) [†]
First employed between 9 and 24 months	0.39 (0.78)	0.00 (0.55)	0.08 (0.07)	-0.02 (0.04)	-0.01 (0.03)
Child care hours Wave 2	0.01 (0.14)	0.01 (0.09)	0.01 (0.01) [†]	0.00 (0.00)	0.00 (0.00)
Interactions					
First Employed Before 9 Months × Child Care Hours Wave 2	0.02 (0.15)	0.04 (0.11)	0.00 (0.01)	0.00 (0.00)	0.00 (0.00) [†]
First Employed Between 9 and 24 Months × Child Care Hours Wave 2	0.00 (0.21)	0.07 (0.13)	-0.02 (0.01)	-0.00 (0.00)	-0.00 (0.00)
F of model	22.29**	26.58**	111.53**	62.22**	73.46**
R ²	.23	.26	.38	.27	.28
Model 4					
Main effects					
First employed before 9 months	0.78 (0.57)	0.45 (0.40)	-0.05 (0.05)	-0.02 (0.02)	-0.04 (0.02) [†]
First employed between 9 and 24 months	0.44 (0.78)	0.07 (0.53)	0.09 (0.07)	-0.01 (0.04)	-0.01 (0.03)
Maternal depression Wave 1	-0.02 (0.04)	0.00 (0.03)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Interactions					
First Employed Before 9 Months × Maternal Depression Wave 1	0.03 (0.05)	0.01 (0.04)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
First Employed Between 9 and 24 Months × Maternal Depression Wave 1	0.04 (0.07)	0.03 (0.05)	0.00 (0.01)	0.00 (0.00)	0.00 (0.00)
F of model	22.49**	26.66**	114.14**	62.10**	73.62**
R ²	.23	.25	.38	.27	.28
Model 5					
Main effects					
First employed before 9 months	0.70 (0.59)	0.42 (0.41)	-0.07 (0.05)	-0.03 (0.02)	-0.04 (0.02) [†]
First employed between 9 and 24 months	0.29 (0.78)	0.00 (0.55)	0.09 (0.07)	-0.02 (0.04)	-0.02 (0.03)
Maternal wages Wave 2	0.03 (0.10)	0.01 (0.06)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Interactions					
First Employed Before 9 Months × Maternal Wages Wave 2	0.00 (0.11)	0.04 (0.07)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
First Employed Between 9 and 24 Months × Maternal Wages Wave 2	0.05 (0.13)	0.03 (0.09)	-0.01 (0.01)	0.00 (0.00)	0.00 (0.00)
F of model	22.72**	27.23**	113.65**	61.39**	72.29**
R ²	.23	.25	.38	.27	.28
Model 6					
Main effects					
First employed before 9 months	0.65 (0.57)	0.44 (0.38)	-0.07 (0.05)	-0.03 (0.02)	-0.04 (0.02)*
First employed between 9 and 24 months	0.49 (0.79)	0.11 (0.54)	0.09 (0.07)	-0.01 (0.04)	-0.01 (0.03)
Nonmother household income Waves 1-4/5	0.86 (0.15)**	0.68 (0.10)**	-0.06 (0.01)**	0.01 (0.01)	-0.00 (0.01)
Interactions					
Employed Before 9 Months × Nonmother Household Income Wave 1-4/5	-0.39 (0.17)*	-0.22 (0.10)*	0.00 (0.01)	0.00 (0.01)	-0.00 (0.01)
First Employed Between 9 and 24 Months × Nonmother Household Income Waves 1-4/5	0.01 (0.26)	-0.13 (0.18)	0.05 (0.02)*	0.02 (0.01) [†]	0.01 (0.01)
F of model	24.88**	31.15**	120.88**	63.46**	75.20**
R ²	.24	.25	.38	.27	.28

Note. Employed groups are compared to the omitted category of no employment. Within each column, groups that shared subscript letters are different from each other at the $p < .05$ level. All models were estimated with ordinary least squares regression and weighted with propensity score weights. All analyses controlled for the Wave 1 value of child age, gender, race, low birthweight status, lag of the dependent variable, number of siblings, and twin status as well as new siblings Wave 2, new siblings Wave 3-4/5, entering kindergarten at Wave 5, and child age at assessment. All models also controlled for the Wave 1 value of mother age, education, and non-English-speaking household as well as averages over Waves 1-4/5 of the average number of nonpartner adults living in the household, cohabitation, marital status, welfare recipient status, working partner status, and household annual income not including mother's income. Standard errors are shown in parentheses.

[†] $p < .10$. * $p < .05$. ** $p < .01$.

man & Youngblade, 1999; Sayer et al., 2004). In response to these demographic and cultural shifts, we hypothesized that children born more recently may experience their mothers' employment differently than children born in earlier decades, with different implications for children's development.

Using a nationally representative sample of children born in the United States in 2001 and rigorous statistical methods to help adjust for selection bias, the current study found few associations between maternal employment begun in the first 2 years after childbirth and children's cognitive or behavioral school readiness

skills in kindergarten. No significant associations emerged in relation to children's reading and math skills, and in fact, the coefficients for both employment groups were positive, further strengthening the conclusion that early employment poses no risks for children's cognitive skills development. The findings for behavioral skills were less conclusive with children of mothers entering employment very shortly after childbirth exhibiting lower conduct problems than peers whose mothers entered employment later; however, this difference was very small, and the overall pattern of results suggested few links between early maternal employment and behavioral skills at kindergarten. Because these findings differed from those in prior literature and the present sample is more diverse than some of the samples used in earlier literature, we tested whether associations varied across racial and ethnic groups. We found no evidence to suggest this to be the case.

On the basis of theory and prior literature suggesting that maternal time, stress, and money may explain links between early maternal employment and children's outcomes or alter the directionality of the associations, we examined each construct as a mediator and a moderator. We did not find consistent or reliable evidence of mediation or moderation for maternal time, stress, or money (measured as mothers' earnings). That is, these three processes neither explained nor altered associations between early maternal employment and children's school readiness skills as hypothesized. In one exception, part-time early maternal employment showed small links to detrimental behaviors in kindergarten (heightened conduct problem behaviors in relation to part-time employment begun between 9 and 24 months, and lower prosocial behaviors in response to part-time employment begun prior to 9 months after childbirth) in comparison to full-time employment. These results ran counter to expectations and were inconsistent in relation to the timing of early maternal employment, limiting conclusions to be drawn from these sporadic patterns.

One additional pattern emerged supporting the hypothesis regarding the role of money, attending to the availability of sources of household income beyond maternal wages. Estimating nonmaternal household income as a moderator revealed that maternal employment before 9 months was more advantageous for children's later reading and math skills in families with limited alternative income sources, and less advantageous in families with greater alternative resources, with neutral associations at the mean level of income. Similarly, employment between 9 and 24 months was associated with enhanced behavioral functioning (lower conduct problems) as family income decreased. In sum, these results provide limited evidence for the importance of money as a moderator, suggesting that early maternal employment is associated with enhanced child functioning when fewer alternative monetary resources are available in the family and with decreased child functioning in the opposing scenario.

The majority of mothers in this sample began work prior to 9 months after childbirth, which is not surprising given the short and limited parental leave policies available to most mothers in the United States. Overall, these results suggest that that this early employment poses few risks for children's development. However, the results also support theories from economics that posit that maternal employment brings economic resources that may enhance well-being in some families. For families with little household income from nonmaternal sources, such as paternal income or cash benefits, the added income benefits may outweigh any det-

rimonial aspects of maternal work. But for families with greater economic resources, the added income from maternal work may give children little added benefits.

The results of this study differ from those of prior literature that have found a fairly consistent negative link between maternal employment begun in a child's first year of life and later child cognitive and socioemotional development, particularly for middle-class and White children (Baydar & Brooks-Gunn, 1991; Berger et al., 2005; Blau & Grossberg, 1992; Brooks-Gunn et al., 2002, 2010; Desai et al., 1989; Han et al., 2001; Hill et al., 2005; Ruhm, 2004). These results have held even for studies that have used similarly rigorous methods with correlational data, such as structural equation modeling (Brooks-Gunn et al., 2010) or propensity score matching (Hill et al., 2005). One possible explanation for the neutral findings of the current study is that the implications of early maternal employment for children have changed, driven by greater public acceptance of mothers' work, greater paternal engagement in caregiving, and other unmeasured factors. It is also possible that the statistical techniques used in this study did a more thorough job of reducing the role of selection factors. Bivariate associations between employment timing and child and mother characteristics revealed numerous differences, suggesting the importance of selection factors. Although it was not possible to control for all possible biasing factors, these analyses included a rich array of child, maternal, and family characteristics that might predispose mothers into employment patterns, including low birthweight, mothers' education and previous employment, and the availability of alternative sources of support from other sources of household income and welfare. Furthermore, these analyses were weighted by mothers' propensity to be employed, further reducing the role of selection factors. Although it is not possible to rule out the chance that the results may still be biased by unmeasured heterogeneity, the pattern of results suggests that early maternal employment poses few risks to children's school readiness skills for families with moderate amounts of nonmaternal household income, while being linked with small beneficial associations for children from families with lower nonmaternal household incomes and small detrimental associations for children from families with higher nonmaternal household incomes.

Conclusions and Implications

In interpreting the significance and implications of the results from this study, it is essential to first acknowledge the limitations. Our measures of employment may have incorrectly classified mothers who entered employment after 9 months and exited before 24 months as nonemployed. It is also important to note that the employment variables only measured mothers' first job following childbirth and did not address mothers' full employment histories and the consistency of mothers' employment over the course of the study; nor did they address other factors such as employment satisfaction or quality. However, similarity between patterns of employment revealed in these data and patterns from the Bureau of Labor Statistics support the validity of our measures. In relation to testing the theoretical models, the measure of maternal stress was particularly weak, measuring symptoms of depression rather than work-family strain, and it was not measured at Wave 2. More globally, although the statistical models controlled for a range of measured characteristic of children, mothers, and families that

might predispose women into employment patterns and also affect child functioning, the models were nonetheless correlational.

In the context of these cautions, the findings from the present study suggest that early movements into employment following childbirth may not be associated with developmental risks or benefits for most modern American children. Children from families with limited income from nonmaternal work sources may achieve slight benefits from early maternal employment, whereas children from higher income families may suffer small detriments. For these children, the added benefit of mothers' work income may not outweigh other psychological or social costs of early maternal employment. As seen in the descriptive findings from this study, early maternal employment is a norm in contemporary U.S. culture and an important contributor to both families' economies and the national economy. The majority of contemporary mothers in the United States return to full-time work soon after childbirth. Few mothers enter the labor market after this period, and these early employed mothers are the most likely to remain in the labor market 5 years later, suggesting that employment decisions made in the period immediately after childbirth are pivotal to determining mothers' long-term employment trajectories. While caution is warranted when drawing policy implications from these findings due to their correlational nature, the results from this study suggest that children, particularly those from families with limited nonmaternal economic resources, may benefit from paid maternal leave policies that have been found to encourage mothers' employment continuity after childbearing (Pettit & Hook, 2005; Ruhm, 1998; Waldfogel, 1998) while also providing income replacement.

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