

MOTHERS' EMPLOYMENT AND EDUCATIONAL ATTAINMENT, PARENTING, AND CHILDREN'S  
ACADEMIC TRAJECTORIES

PAA Abstract  
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### *Introduction*

Education grants mothers access to high-status segments of the labor market that provide them with resources (e.g., high wages, flexible schedules) that support optimal parent and help them promote their children's successful passage through the educational system (Mayer 1997; Menaghan and Parcel 1995). At the same time, these high status jobs also often demand mothers work long hours or return to work shortly after giving birth (Stone 2007), which can have negative consequences for mothers' parenting and children's achievement (Nomaguchi 2006; Waldfogel, Han, and Brooks-Gunn 2002). Thus, whether the employment-related returns to maternal education ultimately enhance or diminish mothers' parenting and widen—given that maternal education is also closely linked to high-quality parenting and children's achievement (Magnuson 2007)—or narrow socioeconomic gaps in children's achievement remain unclear. To this end, this study investigates whether mothers' employment histories (e.g., timing of mothers' entrance into/out of work and part-time/full-time work status) modify (in size and direction) the effect of maternal education on parenting and, through parenting, on children's early academic outcomes.

### *Background*

Over the past several decades, the growth in mothers' labor force participation has been greatest among college educated women (Chinhui and Murphy 1997; Cohen and Bianchi 1999). This convergence between mothers' education and employment has complex implications for socioeconomic gaps in children's early achievement because the effects of employment on the parenting behaviors that influence children's achievement are neither unequivocally positive nor negative, often depend on the timing of mothers entrance into the labor market, and may be moderated by the number of hours mothers work or the type of job she has (e.g. professional, clerical) (Blau and Grossberg 1992; Parcel and Menaghan 1990; Raver 2003; Vandell and Ramanan 1992). Therefore, whether mothers' employment strengthens or weakens the link between mothers' educational attainment and children's achievement, and widens or narrows gaps in children's achievement, depends on the quality and quantity of mothers' employment.

On one hand, education grants employed women access to higher-status segments of the labor market, which provides mothers with resources, such as flexibility to participate in school activities or wages to invest in learning materials (Menaghan and Parcel 1995), to promote children's achievement (Kalmijn 1994). These jobs also provide opportunities for self-directed, complex work that can be emotionally and cognitively rewarding and can shape mothers' values surrounding learning, influencing both parenting behaviors and the academic aspirations of their children (Davis-Kean 2005; Menaghan 1991). Lower-status jobs available to less educated mothers can be unstable, routine, and require mothers to work evenings or weekends, leading to increases in psychological distress, reductions in parenting quality (Menaghan and Parcel 1995; Raver 2003), and decrements in children's learning (Parcel and Menaghan 1994).

Alternately, high status jobs can be demanding on mothers' time, making it difficult to consistently manage children's academic careers (Stone 2007). On average, greater hours spent working are associated with fewer pro-academic parenting behaviors (e.g., fewer positive mother-child interactions, less reading) (Nomaguchi 2006), although these effects may be nonlinear. Parcel and Menaghan (1990) find that part-time employment is associated with greater levels of children's verbal skills, whereas full-time employment leads to reductions in

children's verbal skills, and Muller (1995) shows that part-time work (versus full-time) is associated with more parental involvement in school. The overall effect of work hours may also vary by maternal educational. Less advantaged women working longer hours, often in more menial jobs, may become more distressed as they struggle to find adequate child care or time to complete routine caregiving tasks (Edin and Lein 1997; Zaslow et al. 1998), negatively affecting parenting. More advantaged women can leverage their earnings to reduce their domestic burden through outsourcing or securing reliable child care (Treas and de Ruijter 2008). However, Raver (2002) finds that less advantaged women working longer hours have less depression, and Brooks-Gunn and colleagues (2002) shows the most advantaged children suffer the greatest reductions in the quality of the home learning environment when their mothers work long hours.

Lastly, mothers with higher levels of education are more likely to be consistently employed following the birth of a child whereas mothers with less education are more likely to be consistently unemployed or have low levels of intermittent employment (Hynes and Clarkberg 2005). These patterns can also have long-term consequences on children's learning. Several studies report negative effects of mothers' employment during the first year following a birth on children's cognitive skills that last into elementary school (Blau and Grossberg 1992; Waldfogel, Han, and Brooks-Gunn 2002), although these effects are generally offset by the positive effects of employment during the second and third years (Blau and Grossberg 1992; Waldfogel, Han, and Brooks-Gunn 2002). Studies that consider the effects of employment on child outcomes, therefore, need to consider the full trajectory of mothers' employment.

All-in-all, prior research paints a complex picture of the effects of maternal employment on the link between maternal education, parenting, and children's achievement. Several studies also find no effects of employment on children's academic outcomes (Brooks-Gunn et al. 2002; Nomaguchi 2006). This may be because researchers typically consider maternal income and labor force status simultaneously, are often unable to properly model potential confounds, such as mothers' cognitive ability, depression, or quality of child care, and do not consider both the qualitative and quantitative aspects of maternal employment. This study aims to clarify the extent to which maternal employment conditions the link between maternal education, parenting, and children's achievement by measuring mothers' trajectories of employment and teasing apart the effects of timing into and out of the labor market, part-time or full-time work, occupational status, nonstandard schedules, and maternal wages.

### *Data and Sample*

Data for this study come from the NICHD Study of Early Child Care and Youth Development (SECCYD). The SECCYD is a birth cohort study designed to understand the developmental implications of child care, but has since followed children at regular intervals into elementary school up through the 9<sup>th</sup> grade. The families who participated in this study were recruited from hospitals in or near 10 locations: Little Rock, AR; Irvine, CA; Lawrence, KS; Boston, MA; Philadelphia, PA; Pittsburgh, PA; Charlottesville, VA; Morganton, NC; Seattle, WA; and Madison, WI. During selected sampling periods in 1991, 5,265 new mothers met the eligibility criteria for the study (at least 18 years old, conversant in English, with a healthy singleton child, and no plans to move) and agreed to be contacted after their return home from the hospital. A total of 1,364 families were enrolled in the study.

Although not nationally representative, this sample was economically and geographically diverse. The SECCYD also includes repeated measures of children's achievement; repeated measures of mothers' employment characteristics (e.g., hours, wages), and repeated measures of parenting (including observations) across multiple domains, making it well suited to the aims of this study. The analytical sample for this study includes the 1,030 children who participated in the 1<sup>st</sup> grade follow-up and whose mothers were their primary caregivers.

### *Focal Measures*

*Maternal education.* During the 1 month interview, mothers reported the total number of years of education they had received and their highest level of degree attainment. Dummy variables were used to sort mothers into five education groups (less than high school, high school graduate, some college, college graduate, graduate work or degree). Unfortunately, we could not account for increases in maternal education since the child's birth because of documented problems with these reports (see Technical Note 13 on study website). Although some mothers reported additional schooling, few reported additional degree attainment.

*Parenting.* In line with past SECCYD research identifying critical periods of influence (NICHD EECRN, 2005), parenting will be measured immediately before school entry at 54 months and at 1<sup>st</sup> grade. Measures of parenting (at 54 months and 1<sup>st</sup> grade) include observer ratings of maternal sensitivity, mother-child interactions (e.g., stimulation of cognitive development), and the home learning environment (measured by the HOME); mothers' reports of their parenting demands (e.g., on prosocial behavior and maturity), disciplinary strategies, organization of children's lives (e.g., after school activities, play with friends), use of early enrichment activities (e.g., center care), and mothers' involvement in these activities; and teacher/mother reports of mothers' school involvement.

*Employment.* Five elements of maternal employment will be measured longitudinally and contemporaneously (at 54 months and first grade) based on mothers' quarterly reports of their employment. To measure employment longitudinally, mothers will be sorted into five categories that capture typical trajectories, as described by Hynes and Clarkberg (2005). These include continuously employed, continuously unemployed, decreasing employment since the child's birth, increasing employment, and intermittent employment. Following a similar approach, we will also capture trajectories of part-time/full-time employment (e.g., continuously full-time, continuously part-time, switching between full and part-time). History of non-standard schedules will be measured by mother quarterly reports of whether she worked evening or weekends (1= yes, 0 = no) and summed to create an overall count measure. Wages will be measured longitudinally as the average of all reported maternal wages between birth and 54 months. Occupational status will be measured longitudinally by the number of times mothers reported a profession occupation. More refined measures of occupational status will be used in the contemporaneous models (at 54 months and first grade).

*Achievement.* School-based achievement will be assessed across elementary school (1<sup>st</sup> to 5<sup>th</sup> grade) by two subtests of the Woodcock-Johnson Psycho-Educational Battery– Revised (Letter Word for reading and Applied Problems for math), administered during 1<sup>st</sup>, 3<sup>rd</sup>, and 5<sup>th</sup> grade, The Bracken Test of Concepts (administered at 36 months) will control for school readiness.

### *Analytic Strategy*

The baseline model for the analyses will be a path analysis model integrating a latent growth curve model of child achievement. Parent education will be the exogenous predictor, and parenting (at 54 months and 1<sup>st</sup> grade) will be the mediator. For child achievement, the outcome variable, the latent growth curve will include an intercept (achievement measured in 1<sup>st</sup> grade) and slope (change in achievement from 1<sup>st</sup> to 5<sup>th</sup> grade). Next, measures of maternal employment will be entered into the baseline model as main effects and interactions with maternal education. This will test whether different elements of maternal employment are associated with trajectories of achievement, are mediated by parenting, and are conditioned by maternal education.

This model will be estimated in Mplus (Muthen & Muthen 2001). All models include conventional controls (e.g., income, race) as well as controls for theoretically identified observable confounds (e.g., mothers' IQ, mothers mental health, children's earliest recorded cognitive and intellectual skills, children's experiences in child care, paternal wages) that could potentially threaten causal inference. The robustness of findings will be measured by the Impact Threshold for Confounding Variables (ITCV), an index that gauges how powerful unobservable confounds would have to be to negate causal inferences (Frank 2000).

### *Selected Preliminary Results and Next Steps*

The unconditional growth curve model for children's achievement revealed that the average child added 17 points per year to his/her average test score between first grade ( $M = 461.44$  for intercept) and fifth grade ( $M = 17.24$  for slope) and that there was significant variation around the means of the intercept and slope ( $248.8, p < .05$  for achievement intercept; and  $5.17, p < .05$  for achievement slope). Regressing the intercept and slope of achievement on maternal education as well as on the time varying covariates (e.g., family structure) and time invariant covariates (e.g., age at birth) revealed, not surprisingly, that much of this variation is due to maternal education. Children of women with advanced degrees scored about 10 points higher than their peers with high school educated mothers, although they did not differ in their rates of achievement growth. Thus, the children of more educated mothers started off school with a clear academic advantage and then maintained this advantage in stable form over the next few years. Adding different measures of parenting to this model revealed that many (although not all) parenting behaviors mediate the link between maternal education and child achievement. The next step in the analysis involves adding measures of maternal employment as main effects and interactions with maternal education.

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