# MATERNAL EDUCATION, FAMILY STRUCTURE, AND THE DIVERGING DESTINIES OF CHILDREN

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Maternal Education, Family Structure, and the Diverging Destinies of Children

Abstract:

Building on McLanahan's (2004) "diverging destinies" model, this study highlights the interconnection of mothers' family structure and educational pathways in shaping children's achievement trajectories. Investigation draws on data from the NICHD Study of Early Child Care and Youth Development ($n$ = 1,308) and a longitudinal mediated moderation model that considers how such linkages connect through parental investments during two key developmental stages that center around children's transition into elementary school. Results reveal that socioeconomic differences in children's achievement were driven mainly by the congruence between nonmarital fertility/family structure instability and lower levels of maternal education. The connection between stable marriage to the biological father and higher levels of maternal education, on the other hand, did not widen such differences. These linkages had the greatest influence on mothers' parenting during the period leading up to the start of formal schooling. Implications for the diverging destinies phenomenon are discussed.

The past several decades have witnessed dramatic changes in women's lives, including the historic rise in women's educational attainment, the movement of women into the labor market, delays in union formation and childbearing, and the increase in non-marital fertility and divorce (Buchmann and DiPrete 2006; England, Garcia-Beaulieu, and Ross 2004; Hamilton, Martin, and Ventura 2010). What is striking about these trends is how they have cohered in ways that have produced profound divides across socioeconomic groups. This phenomenon was perhaps best articulated by McLanahan (2004), who documents how the rise in women's education has occurred alongside greater increases in family income, labor force participation, and age at first birth among women with more education (compared to women with less) and slower increases in nonmarital childbearing rates and divorce. The consequence of this phenomenon is what McLanahan calls "diverging destinies," which reflects the growing disparity in resources available to mothers of different educational backgrounds and unequal developmental and adult status attainment trajectories of their children. This concept has been an important advance in demographic research on families and inequality, yet little attention has been devoted to building on it, empirically and theoretically. One unexplored question is how the different demographic pathways associated with mothers' education *combine* to shape children's status attainment trajectories, and the mechanisms that promote them. This study pursues this goal by focusing on one pathway, in particular: mothers' union formation.

In pursing this question, this study draws on the family structure literature and on research and theory regarding the intergenerational transmission of advantage. These literatures establish why both family structure and maternal education influence socioeconomic differences in child wellbeing, and the various mechanisms that underlie them. Literature on the intergenerational transmission of advantage also serves to highlight the non-economic

dimensions of education and role of parenting in driving this intergenerational cycle. In order to weave these literatures together, I utilize the life course paradigm as an integrative framework for examining the connections among mothers' intersecting demographic pathways (education and marriage), children's academic development, and the parenting mechanisms that bind them together (Elder 1998). The life course framework also helps clarify a number of complexities, including the idea that mothers' marital status and education are dynamic processes—represented in their measurement and conceptualization in this study—and that the parenting mechanisms shaping children's status attainment trajectories may hold more or less significance during certain stages of development (NICHD ECCRN 2005).

To investigate this intergenerational phenomenon, I draw on data from NICHD Study of Early Child Care and Youth Development (SECCYD), a national birth cohort study of children and mothers that offers two advantages unrivaled in other sources of secondary data: quarterly reports of women's union status; and multi-method, multi-observer measures of the parenting mechanisms that convey advantages between parents and children. Focusing on such mechanisms during a key developmental stage (i.e., the transition into formal schooling) when the skills that define children's academic careers take root (Cunha and Heckman 2006, 2007), the results from this study aim to enhance our knowledge of the complex demographic and family-level processes through which children's destinies begin to diverge.

*Family Structure and Child Wellbeing*

Scholars have consistently found a developmental advantage (although sometimes modest) among children living in two-biological-parent married households that is not observed among children in step-parent or cohabiting families (Amato 2005; Artis 2007; Carlson and Corcoran 2001; McLanahan and Sandefur 1994). This pattern points to both marital status and

biological parentage as key to understanding the mechanisms linked to family structure that promote children's wellbeing. The role of selection is discussed later.

Among these mechanisms are financial resources, which are often more abundant in married-biological families due to fathers' wages (perhaps due to household specialization after a marital birth), the pooling of financial resources (which occurs less among cohabiters), and the transfer of wealth that typically flows through marital and biological bonds (Becker 1991; Hao 1996; Oropesa, Landale, and Kenkre 2003; Smock, Manning, and Gupta 1999). Such financial resources help mothers secure material (e.g., books) and social goods (e.g. enriching child care), which bring about well-documented effects on children's learning (NICHD ECCRN 2005). The benefits of marriage among biological parents for children, however, are not simply financial.

Marriage and biological ties also influence the way parents interact with each other. Indeed, children in married-biological families (compared to other family forms) generally have better outcomes, *net* of family income, while children in step-parent families often experience more discord, despite a financial benefit relative to single parent and cohabiting families (Amato 2005; Carlson and Corcoran 2001; Hetherington and Jodi 1994). The social and psychological benefits of this particular status include emotional security and support, integration into a network of kin, and regular communication (Brown 2010; Waite and Gallager 2000). These resources undergird how children are raised (i.e., parented) by facilitating cooperative parenting and engagement; regular exchange of information regarding ideal childrearing practices and needs of their children; division of labor that allows for increased time investments; and decreases in parenting stress that can lead to inconsistent parenting and a lower quality home environment (McLoyd 1998; Sandberg and Hofferth 2001).

Importantly, marital benefits do not arise at once, but accrue over time. Thus, not only do status and biological parentage represent important dimensions of family structure, so does stability (Wu and Martinson 1993). This insight calls attention to how family structure change can dissolve the social and psychological benefits described above, in addition to any financial loss. For example, a residential move, which often accompanies a family structure change, can weaken community ties to family and friends (Astone and McLanahan 1994; McLanahan and Sandefur 1994). This perspective also emphasizes how stressors (e.g., due to ambiguous family roles) and disruptions (e.g., to household routines and organization) introduced by family structure change can have enduring consequences for mothers' parenting efforts (Cavanagh and Huston 2006; Cooper, McLanahan, and Brooks-Gunn 2009). Combining this knowledge with the ideas laid out above, this study views stable marriage to the biological father as the indicator of family structure most relevant to our understanding of how socioeconomic advantages and disadvantages come together in ways that contribute to children's diverging destinies.

*Bringing in Mothers' Education*

Mothers' education is also a key element of children's diverging destinies for several reasons. The most obvious is that women's education is closely associated with the dimensions of family structure highlighted above. More educated mothers are more likely to be married to the biological father at the time of a birth and remain stably married, while mothers with less education are more likely to experience cohabitation, nonmarital childbearing, and instability across both marital and nonmarital unions (Raley and Bumpass 2003; Sweeney and Cancian 2004). As such, the congruence between maternal education and family structure represents one source of inequality in children's lives because education, like stable marriage, conveys a

number of well-documented advantages that *additively* contribute to children's academic development and status attainment (Amato 2005).

These advantages include opportunities within the labor market that yield economic resources and allow for greater parental investment (Becker 1991). Yet, as with marriage, they also include benefits that extend beyond income (Mirowksy and Ross 2002). Education also engenders knowledge about how the educational system works and strategies that support children's learning opportunities (Crosnoe and Kalil 2010); socializes mothers to adopt values that heighten expectations of their children's educational achievements and active management of their academic development (Davis-Kean 2005; 2004); and enhances individual capacities (e.g., critical thinking skills, efficaciousness) that help mothers interact with teachers and schools and organize family life in ways that accomplish their child rearing-goals (Kalil, Ryan, and Corey 2011; Oreopoulos and Salvanes 2009; Sayer, Gauthier, and Furstenberg 2004). These skills and resources translate into more optimal parenting behaviors across a range of domains, including more sensitive, responsive, and stimulating mother-child interactions (Bornstein and Bradley 2003; Hart and Risley 1995), greater levels of parental management and advocacy (Lareau 1989), and more time investments in children (Bianchi and Robinson 1997).

Such education-related benefits may also work in a different way. Specifically, maternal education may moderate the significance of family structure for the mechanisms described above, especially parenting. This idea is underscored by research on the intergenerational transmission of advantage, which explains how the psychosocial advantages of parental education help promote the parenting mechanisms that facilitate children's learning, above and beyond any associated economic benefit, or despite economic challenge (Augustine, Cavanagh, and Crosnoe 2009; Carneiro, Meghir, and Parey 2007; Oreopolous, Page, and Stevens 2004).

This complexity is also present in the diverging destinies model, although not clearly teased out. In general, the model suggests the cumulative advantages associated with higher levels of maternal education and marital stability to the biological father, on one hand, and the cumulative disadvantages associated with lower levels of maternal education and other family forms, on the other. Yet, it does not articulate how mothers' education may moderate (in either direction) the impact of family structure for children's development; for example, what marital stability among women with less education might mean for child wellbeing. This study addresses these various possibilities, guided by the conceptual model and hypotheses described below.

*Study Conceptual Framework*

The conceptual model of this study (see Figure 1) is that children's diverging destinies are shaped by the interplay among mothers' education and associated demographic pathways (in this study, family structure), which intertwine to shape maternal parenting and children's early achievement trajectories. Family income is also considered within this process, and accounted for methodologically, but is not central to the conceptual model presented here.

[Insert Figure 1 about Here]

Following the life course framework, this study takes a longitudinal approach to studying education and marriage by conceptualizing them as trajectories. Education is represented by mothers' years of schooling. This view of education also follows the social psychological view of schooling emphasized above, which stresses the incremental returns associated with each year in the system, rather than degrees (Mirowksy and Ross 2003; Schinttker 2004). Marital histories are defined by status, biological parentage, and stability, and are captured across two distinct domains of child development: the period before children begin school (between birth and age 4

½) (see Cavanagh and Huston 2008 regarding the significance of family structure during this period) and immediately following the transition into formal schooling (first grade).

The importance of these developmental periods is highlighted by the life course principle of timing (i.e., when an experience occurs determines its developmental significance) and related emphasis on transition points (e.g., as potential deflectors of life course trajectories). This study centers around the transition into elementary school, when small group differences in learning skills quickly compound and the divergence of children's destinies is first observed (Pianta, Cox, and Snow 2007; Alexander and Entwisle 1988). Children's achievement is measured across the school transition into fifth grade. Parenting is examined at two critical periods when learning is most sensitive to such inputs (Cunha and Heckman 2006, 2007; NICHD ECCRN 2005): (1) age 4 ½ and the start of kindergarten, and (2) spring of first grade. These time points also capture the periods immediately before and after the start of formal schooling—regarded as first grade, when all children are in school full-day (see Alexander and Entwisle 1988)—and align with the measurement of family structure mentioned above.

Finally, the specific parenting behaviors under investigation are those linked to children's learning, as highlighted by an interdisciplinary literature including social and cultural capital frameworks in sociology (Coleman 1988), investment perspectives in economics (Foster 2002), and family process and systems perspectives in developmental psychology (McLoyd 1998). These are: the quality of the *home environment* (e.g., exposure to books, learning activities, and structured learning opportunities like lessons); mothers' *stimulation* of child's cognitive development (e.g., use parent-child communication styles that foster children's problem solving skills, complex language skills); *maternal sensitivity* (e.g., providing encouragement, positive feedback on tasks), *school involvement* (e.g., communication with teachers); and *expectations*

reflected in mothers' attitudes about children's behavior and approach to managing children's educational careers (Davis-Kean 2005; Hart and Risley 1995; Hoff-Ginsberg and Tardiff 1995; Kohl, Lengua, and McMahon 2000; Lareau 2004; Taylor, Clayton, and Rowley 2004).

*Hypotheses*

The hypotheses for this study draw on a cumulative advantage / disadvantage perspective (see DiPrete and Eirich 2005 for a full explanation of this theory and application). This perspective suggests three possibilities. The first is that the benefits of marriage, on one hand, and maternal education on the other will accumulate over time in ways that compound differences in children's outcomes. This viewpoint suggests that the impact of stable marriage to the biological father and maternal education on parenting and child achievement are additive and the statistical interaction between them nonsignificant.

The cumulative advantage perspective, however, also suggests the possibility that the non-economic resources that accrue through education could enhance the benefits associated with marital stability. For example, more educated women may hold an advantage in the marriage market that allows them to find an ideally matched marital partner and achieve greater marital satisfaction and higher quality parenting (Oppenheimer 1988; Glenn 1990). This viewpoint suggests a positive interaction between stable marriage to the biological father and maternal education, where the returns to marriage are magnified at higher levels of education.

The cumulative disadvantage (DiPrete and Eirich 2005) perspective looks at the flip side of this issue by considering that family structure instability and non-marriage may be more consequential to the parenting of women with less education. For women with more education, on the other hand, the associated psychosocial benefits may help mothers buffer against family structure circumstances that can negatively impact their parenting efforts and children's

achievement (Augustine and Crosnoe 2010). This viewpoint suggests a negative interaction between stable marriage to the biological father and maternal education, or alternatively, a positive interaction between family structure instability/non-marriage and maternal education. Such findings, which are based on the same model but use different reference groups, suggest that the negative impact of alternative family structures and instability are greater for women with less education than they are for women with more education.

## METHODS

### *Data*

The NICHD Study of Early Child Care and Youth Development (SECCYD) is a national birth cohort study of 1,364 children in ten U.S. cities that span urban, suburban, and rural communities and are geographically and economically diverse. These cities include: Little Rock, AR; Irvine, CA; Lawrence, KS; Boston, MA; Philadelphia, PA; Pittsburgh, PA; Charlottesville, VA; Morganton, NC; Seattle, WA; and Madison, WI. Recruitment for the study began in 1991, when 8,986 women were visited in hospitals during selected sampling periods shortly after giving birth. Of these women, 5,265 met were eligible for the study (mother was at least 18 years old and conversant in English, infant was a singleton and healthy, family was not planning to move soon) and agreed to be contacted after returning from the hospital. When infants were one month old, 1,364 families were enrolled in the study (58% of those contacted).

The original purpose of the SECCYD was to understand the developmental significance of early child care, but it is highly valuable for investigating the aims of this study. It contains prospective information on family structure and change collected four times a year –a feature unmatched in larger datasets; multi-method, multi-observer information on parenting; repeated measures of children's achievement based on a highly valid assessment; and measures of

children's early skill formation and mothers' personality and cognition to account for selection into marriage and higher education. The analytical sample for this study began with the 1,364 children originally enrolled in the study, but excluded 56 who lived with an alternative primary caregiver before fifth grade, resulting in a final analytical sample of 1,308 children. Missing data estimation techniques, explained shortly, allow all cases in this subsample to be retained.

*Study Measures*

*Family Structure.* Family structure was assessed by quarterly maternal reports of household members and their relationship to one another. From these reports, two dichotomous measures of *family structure trajectory*, capturing the period from birth to 54 months (from 17 reports) and from 54 months to first grade (from six reports), sorted mothers into two groups: stably married to the biological father during the period; and all other family forms. Although this second group contains significant family structure heterogeneity, more refined measures were not possible due to small cell sizes, which when interacted with maternal education, were especially problematic. Cell sizes for selected subgroups for the birth to 54 months period include: divorced from biological father ($n$ = 135), stably single ($n$ = 57), stably cohabiting ($n$ = 32). Categorizing family structure pathways among those that were single ($n$ = 79) or cohabiting ($n$ = 53) at birth, but had also experienced family structure change, leads to especially small groups since the majority of these families experienced multiple transitions.

To check the robustness of the findings to this coding scheme, sensitivity tests were conducted that limited the sample to families married to the biological father at the time of birth; compared those that experienced a family structure transition to those that did not; and considered the impact of multiple family structure transitions. For the purpose of this study, these

tests provided support for the original two category measure. Differences among subgroups, however, are certainly recognized.

*Maternal education.* During the 1 month interview, mothers reported the total number of years of education they received and highest level of degree attainment. In most cases, the value of maternal education directly corresponded with the number of years mothers spent in school. Exceptions include mothers with multiple postgraduate degrees (assigned a value of 21), those with some college education or vocational degree (14), and those with a GED (12). Unfortunately, accounting for increases in maternal education since the child's birth was not possible because of documented problems with these reports. At the same time, few women in this sample reported additional schooling, although mothers were also older (mean = 28.22) and skewed toward middle class (e.g., 40 % college educated).

*Parenting.* The different parenting mechanisms are captured by several measures. The first captures children in their homes and the quality of the *home environment*, measured at 54 months by the H.O.M.E. inventory. This inventory is based on both maternal reports collected during face-to-face interviews (e.g., on the types of toys and games available, use of structured activities like museum visits) and observer ratings of language/academic stimulation and the physical home environment. Scores range from 18-55 ($\alpha$ = .82).

*Mothers' involvement in children's school* is measured at the start of kindergarten and at first grade. For the kindergarten measure, teachers assessed the extent to which (1 = *not often*, 3 = *most of the time*) mothers engaged in six forms of contact with schools (e.g., school visits, involvement in classroom activities). Responses were summed (6-18, $\alpha$ = .66). For the first grade measure, teachers assess the degree to which mothers' engage in various aspects of school

involvement and exhibited behaviors that encourage learning (1 = *never* or *not at all*, 5 = *more than once a week* or *very interested*). Again, scores were summed (1.24-4.19, $\alpha = .90$).

At 54 months and first grade, mother-child interactions were evaluated during 15-minute videotaped structured interactions designed to evaluate the age-appropriate qualities of mothers' behavior and the parent-child relationship. Response categories ranging from 1 to 7 are summed to create the *Maternal Stimulation* Composite, based on two ratings of parents' stimulation of cognitive development and quality of help, and the *Maternal Sensitivity* Composite, based on three ratings (supportive presence, hostility [reversed], and respect for autonomy). Scores both measures range from 18-42 ($\alpha = .91$).

*Maternal expectations* were assessed at 54 months and first grade by two instruments. At 54 mothers responded to questions regarding their demands for child behaviors (e.g., prosocial, independence,) associated with children's learning (Raver 2002). Responses were summed to form a Mature Behaviors composite measure with scores ranging from 78-181 ($\alpha = .89$). At first grade, mothers completed the Parental Modernity Scale (Schaefer and Edgerton 1985), a 30-item measure of parental beliefs that reflects attitudes toward parental management and schooling, as documented by Lareau (2004).

*Child achievement.* In first, third, and fifth grade, children took two subtests of the Woodcock-Johnson Psycho-Educational Battery-Revised (WJ-R), a comprehensive battery assessing academic skills (Woodcock, McGrew and Mather 2001). Applied Problems is a test of simple *math* problems and calculations ($\alpha = .80$-$.83$). Letter-Word Identification is a test of *reading* identification ($\alpha = .88$-$.92$). The subtests are comprised of individual items arranged in order of difficulty, with the easiest item presented first and most difficult items last. Each item was administered until the study child's operating range was established. Raw scores sum the

number of correct responses plus 1 for every item below the child's minimum operating level. They were then converted to W scores, a special transformation of the Rasch ability scale that contain mathematical properties (e.g., equal interval units) well suited for analytic models of academic growth. The W scores for each subtest are centered on a value of 500, the approximate average performance of beginning fifth-grade students.

*Children's characteristics*. To account for children's intellectual and social development to influence both parenting and children's own subsequent learning, models control for early measures of children's cognitive and psychosocial skills. Cognition is measured at 36 months by the Bracken Basic Concepts test, a set of individually administered subtests that assess cognitive ability (Bracken 1984). Scores for all subtests are summed to create a composite measure that ranged from 0 – 61 ($\alpha$ = .93). Psychosocial development is measured by mothers' reports at 1 and 6 months of their children's temperament (1 - 4), by the 15 month assessment of children's attachment (0 = *secure*, 1 = *not secure*) based on the Strange Situation inventory, and reports of behavioral problems based on the 24 month Child Behavior Check List (range = 30-100). Other confounds include child gender (0 = *male*, 1 = *female*), birth order (0 = *higher order birth*, 1= *first birth*), and race (dummy variables for *White*, *Black*, and *Other*).

*Other maternal characteristics.* Several measures are also included to account for background characteristics that may select mothers into stable marital unions and higher education and influence parenting. Depression was measured at 6, 15, 24, 36, and 54 months using a questionnaire developed from the Center of Epidemiologic Studies – Depression Scale. Responses were summed to create a scale ranging from 0-60 ($\alpha$ =.90-.91). Scores 16 or higher were coded "1" for depression during that assessment period and summed to create an index of depression history. Two personality measures, extraversion and agreeableness, were measured at

6 months by subscales of the "Self Scale," taken from the NEO Personality Inventory ($\alpha$ = .74 and .75). The Peabody Picture Vocabulary Test–Revised (PPVT-R), an individually administered test of hearing vocabulary for persons 2 ½ to 40 (standardized to a mean of 100, *SD* = 15), accounts for hereditable cognitive skills. Other maternal controls include age, and employment status (measured at 54 months/first grade using dummy measures for *not-working*, *part-time*, and *full-time* and a summary measure for time in the work force from 1st – 5th grade).

*Father education.* Another set of potential confounds are fathers' education (coded as *1 = college degree or higher*, *0 = no college degree*). Controlling for such paternal characteristics accounts for fathers' influence on children's achievement and unobserved inherited characteristics among children associated with fathers' school persistence. A full examination of fathers' education, an important piece of the diverging destinies model given assortative mating trends, is beyond the scope of this study.

*Additional academic factors*. To account for the contribution of formal instruction to learning trajectories, models will include first, third, and fifth grade measures of total classroom quality derived from the Classroom Observation System (COS) (averaged across the three time points). The total quality composite at all three time points represented the sum of three ratings of teacher behavior (e.g., sensitivity/responsivity) and four ratings of classroom organization and climate (e.g., classroom management) ($\alpha$ = .76 at third grade, .89 at third and fifth grade).

*Family income*. An income-to-needs ratio was calculated at 1 month, 54 months, first, third, and fifth grade by dividing maternal reports of all sources of household income by the federal poverty threshold for that family size. For the 1 month measure, average income-to-needs ratios of less than 1.85 designate children as having experienced poverty and controls for impact of early poverty to interfere with children's cognitive development (Duncan et al. 2011).

Additionally, 54 month/first grade measures and a summary measure of average earning from first-fifth grade, while endogenous to both family structure and maternal education, were entered into the model here to account for its role as an observed confound and its association with unmeasured confounds (Mayer 1997). Notably, these income measures did little to affect model results and were not significant.

*Analysis Plan*

The analytical model mirrors the conceptual model depicted in Figure 1. It integrates path analysis with a latent growth curve of child achievement. Parenting, the mediator between maternal marital status/education and child achievement, is estimated by two latent factors that capture parental investments during the school transition. The first factor measures parenting right before the transition into formal schooling, when children are 54 months old and beginning kindergarten. The second measures parenting at the start of formal schooling: first grade. Incorporating latent constructs of parenting, rather than each individual measure, better accounts for the contribution of each measure, allows for more precise modeling of measurement error, and is a more parsimonious modeling strategy (Bollen 1989). Child achievement, the outcome, is estimated by a latent trajectory. This trajectory is a line that best fits the time-specific measures of achievement (first, third, fifth grade) through two latent factors—an intercept (first achievement) and slope (change in achievement from first-fifth grade) (Bollen and Curran 2005). Because changes are not functionally equivalent for Letter Word and Applied Problems score, latent trajectories for reading and math skills are modeled separately.

In building the model, the two parenting factors were regressed on maternal education and marriage, the intercept is regressed on both parenting factors, and the slope is regressed on the parenting factor measured at first grade. Indicators of marriage that parallel the early

childhood period (up through 54 months) are entered as predictors of the 54 month/kindergarten parenting factor. Measures that capture the school transition (between 54 months and first grade) are modeled as predictors of the first grade parenting factor. A covariance between the two parenting factors captures the correlation between them. Lastly, the slope is regressed on the intercept, which accounts for unobserved heterogeneity in children's initial achievement and unmeasured factors confounded with their slopes (see Mirowsky and Ross 2007; Seltzer, Choi, and Thum 2003). This strategy does not address, however, unmeasured heterogeneity in the intercept. Thus, an extensive set of covariates are employed as predictors of both the parenting and children's achievement factors. Controls for classroom quality and markers of subsequent family structure change were only regressed on the slope.

Next, interactions between mothers' education and family structure were entered into the model. Statistically significant interactions suggest the link between marriage and parenting varies by women's education. Graphing the significant interactions at different values of education (e.g., 12, 16 years) provides insights into the pattern of this association. To determine whether this pattern extended to children's achievement, the conditional indirect effect was calculated based on the following formula (Preacher, Rucker, and Hayes 2007):

$$f\,(\Theta|W) = b_1\,(\,\hat{a}_1 + \hat{a}_3 W).$$

This formula generates a point estimate, where $W$ represents different values of education, $a_1$ represents the marriage parameter, $a_3$ represents the interaction term, and $b_1$ represents the association between the mediator (parenting) and the dependent variables (the factors of achievement). For example, this formula will calculate an estimate of the indirect association between marriage and achievement in cases where the mother has twelve years of schooling. The

statistical significance of this point estimate is determined by the product of the coefficient method based and delta method standard errors (MacKinnon, Fairchild, and Fritz 2007).

All models were estimated in Mplus (Muthen and Muthen 2004), which employs full information maximum likelihood (FIML) to correct for nonresponse and attrition (Allison 2001). Post hoc examination of missing data patterns indicated that the assumptions of FIML (data was missing at random [MAR]) were generally met (Bollen and Curran 2005). Quality of models and overall "fit" were evaluated by the comparative fit index (CFI) and root mean square error of approximation (RMSEA). The CFI ranges from 0 to 1. Values over .90 generally indicate acceptable levels of model fit. RMSEA values of less than .07 indicate good model fit.

## RESULTS

The descriptive results in Table 1 (provided for all study variables) paint a familiar picture. Women with more schooling are more likely to be married to their child's biological father at the time of birth and to remain stably married. Among women with a post-secondary degree (16 years of schooling), fewer than 7 % were unmarried at the time of birth, and less than 10 % experienced a family structure change. Conversely, women with fewer years of schooling were more likely to be unmarried at the time of birth. Among women with less than twelve years of schooling, only 38% percent were married at the time of birth. This was true for 63% of the women in the sample with high school degrees. Women with less education were also more likely to experience a change in family structure, including those married at the time of birth.

[Insert Table 1 about Here]

These descriptive statistics support a well-established phenomenon, where the advantages associated with higher education and marriage to go hand in hand for U.S. women. What this study adds is a consideration of how these two demographic processes intersect to shape family

life and children's early achievement. Before doing so, however, it is important to explain the measurement model, which informed the proper functional form for estimating children's achievement trajectories and validity of the parenting factors.

*Measurement Models*

*Growth Curves*. First, a pair of unconditional growth curve models was fit, one for children's reading development, the other children's math development. This step determines whether children vary significantly in their initial reading and math skills and the rates at which these skills grow. For these models, the first two slope factor loadings were set to 0 and 2. The third factor loading was freed as an efficient means of capturing the deceleration between time 2 and 3 that was between 40 percent and 46 percent the rate of change between time 1 and 2. Results revealed that the average child began school with a score of 452.86 on the Letter Word subtest, and increased this score at a rate of 20 points per year between first and fifth grade. The significant variance estimates for these factors (460.81, $p < .001$ for intercept; 21.05, $p < .001$ for slope) indicated that children in the sample varied substantially around these means. Results for Applied Problems revealed that the average child began school with a score of 470.23, and increased this score at a rate of 14 points per year between first and fifth grade. The significant variance estimate of the intercept (146.49, $p < .001$) indicated that children's initial math scores varied substantially around the mean (442.50), but the negative slope variance suggested there was no individual variation in the rates at which children's math scores change. Subsequent analyses of children's math development constrained the slope factor to equal 0 and focus on explaining how the focal variables in this study predict variation in the math intercept.

An additional finding from the unconditional growth curve model of children's reading skills—the negative covariance between the intercept and slope (-63.19, $p < .001$)—warrants

explanation. This finding indicates that children who began school with more developed reading skills had less steep upward learning curves once school began, while children with fewer reading skills posted greater gains once formal instruction began. This pattern has been reported in other studies (Downey, von Hippel, and Broh 2004; Kowaleski-Jones and Duncan 1999; NICHD ECCRN 2005). Point estimates, however, reveal that children who begin school with fewer reading skills still do not ever fully catch up with their more school-ready peers. Thus, exploring factors that predict variation in the intercept is just as important as identifying the factors that predict variation in the slope. This is also true for children's math scores, which begin at significantly different levels, but develop at a steady rate.

*Parenting Factors*. The latent measure of parenting at 54 months/kindergarten is based on four indicators: maternal sensitivity, maternal stimulation, maternal involvement with her child's schooling at kindergarten, and the quality of the home learning environment. This model fit the data satisfactorily, with $\chi 2 = .42$, $df = 1$, $p < .52$; $CFI = 1.00$; $RMSEA = .00$. Standardized factor loadings ranged from .48 to .74, and all were statistically significant at the minimum probability level of .001. The initial run of this model included a 54 month measure of maternal expectations for child behavior, but this measure, which had an unacceptably low factor loading of .08, was removed from the model. For the structural models, this measure of behavioral expectations will be considered as a potential independent predictor of the intercept and slope.

The latent measure of first grade parenting is also based on four indicators: maternal sensitivity, maternal stimulation, maternal involvement with her child's schooling at first grade, and mother's child rearing beliefs. Again, the model fit the data satisfactorily, with $\chi 2 = .42$, $df = 1$, $p < .52$; $CFI = 1.00$; $RMSEA = .00$. Standardized factor loadings for this model ranged from .44 to .82 and were all statistically significant at the minimum probability level of .001. Next, the

two factors were entered together into one measurement model, and model fit was reassessed (Anderson and Gerbing 1998). Combining these two factors into one model required some respecification, with covariances among variables likely to contain correlated measurement error (e.g., maternal stimulation at 54 months and first grade) added. This measurement model displayed acceptable levels of model fit ($\chi 2 = 92.54$, $df = 14$, $p < .001$; $CFI = .97$; $RMSEA = .07$. Standardized and unstandardized factor loadings for the final model are presented in Table 2.

[Insert Table 2 about Here]

*Estimating the Association between Parenting and Achievement*

The next step was to estimate the association between the parenting measures and achievement factors. The results from this modeling step are not shown, although they are nearly identical to those in Table 3. Parenting measures included the two latent factors described above and measure of mother's expectations of her child's behavior. The 54 month/kindergarten parenting factor predicted the intercept. The first grade parenting factor predicted the intercept and slope. A covariance between the latent parenting factors was included to account for the correlation among them. The covariates, continuous measure of maternal education, and summary measure of classroom quality were entered as predictors of children's learning trajectories. As noted, models were estimated separately for children's reading and math skills.

For children's reading skills, results revealed that parenting before children begin school was significantly associated with children's reading intercepts ($b = .49$, $SE = .18$, $p < .001$) while first grade parenting was significantly associated with children's reading slopes ($b = .19$ $SE = .05$, $p < .001$). Maternal expectations of child behavior was significantly associated with reading intercepts ($b = .11$, $SE = .04$, $p < .01$), although this measure was subsequently dropped from the following analyses because, as later modeling steps revealed, it did not form a meaningful link in

the analytic model. For children's math trajectories, parenting before the start of school was significantly associated with children's math intercepts ($b$ = .59, $SE$ = .18, $p$ < .001). Maternal expectations of children's behavior were not a statistically significant predictor. For both models, maternal education was not directly associated with any of the learning factors.

As for the covariates, few were significantly associated with children's reading or math trajectories. Not surprisingly, children's cognitive skills were significantly associated with their reading and math intercepts while mothers' cognitive skills were significantly associated with the reading slope and math intercept. In addition, females had higher math scores at the start of school and greater improvements in reading achievement across elementary school. Black children (versus Whites) began school with fewer math skills. Maternal employment (both full and part-time) was associated with greater math skills at the start of school. One unexpected finding is that maternal age was negatively associated with children's learning skills.

*Adding Predictors of Parenting*

Building toward the full model, a path connecting maternal education and a path connecting family structure to the parenting factors were added to the model connecting the parenting factors to the child learning factors described above, accounting for the full set of covariates. Again, the results from this full model are also not shown because they are highly similar to those produced by the fully interacted model (Table 3), except for the main effects of education and family structure. Importantly, this structural model explained a moderate to large portion of the variance in children's reading intercepts ($R^2$ = .33), slopes ($R^2$ = .51) and math intercepts ($R^2$ = .48) and a large portion of the variance in the latent measures of parenting ($R^2$ = .66 for early parenting, $R^2$ = .70 for first grade parenting).

The results from these models reveal that mothers with more education engaged in more academically enriching parenting at both time points ($B$ = .20, $SE$ = .03, $p$ < .001; $B$ = .26, $SE$ = .01, $p$ < .001), as do mothers who are stably married to the biological father between birth and 54 months versus other family forms ($B$ = .14, $SE$ = .03, $p$ <. 001), and to a lesser extent, between 54 months and first grade ($B$ = .05, $SE$ = .03, $p$ < .07). In addition, results reveal mothers who are Black or another ethnic background, have a history of depression, poor around the child's birth, or live in a home with greater numbers of children engage in the parenting behaviors captured by the latent factor less often. Mothers who are pro-social (agreeable, outgoing), older, and have male children engage the parenting behaviors captured by the latent factors more often. Both mothers' and children's cognitive scores were significantly positively associated with the parenting measures. Note, side analyses using multi-group based modeling based on a categorical measure of maternal education (results available upon request) revealed a linear pattern of results, providing further support for the continuous measure used here.

*Moderated Mediation*

The next step is to interact the family structure measures with mothers' education. Interacting these family structure variables with maternal education yields statistically significant negative interactions (see Table 3). Notably, the strength and magnitude of the interaction coefficient was greater for the birth-54 month family structure measure ($B$ = -.61, $SE$ = .20, $p$ < .001) than it was for the 54 month-first grade measure ($B$ = -.39, $SE$ = .18, $p$ < .05). Graphing the interactions at different values of schooling (Figures 1 and 2) suggests two interpretations. One—consistent with the cumulative disadvantage hypothesis—is that other family forms, compared to stable marriage to the biological father, were associated with less parental investment for women with less education compared to women with more education. The second

is that stable marriage to the biological father, compared to other family forms, helped narrow the observed maternal education differences in parenting (although not completely). This latter interpretation is explored in more detail in the discussion section. In line with both interpretations, and the ensuing explanation, it appears that family structure of any type did not have a large influence on the parenting of women with more years of schooling.

[Insert Table 3 about Here]

[Insert Figures 1 – 2 about Here]

What this pattern ultimately means for children is assessed by calculating the indirect effect, which provides an estimate of the association between family structure and child achievement, via parenting, at different values of maternal schooling. These estimates appear in Table 4 and reveal that, for women with college degrees, neither marriage nor other family forms across the early childhood stage of development has significant positive or negative implications for their children's math or reading skills at the start of school (i.e., the intercept). Among women without college degrees, stable marriage to the biological father was significantly associated with increases in children's achievement intercepts, which decreased as women's time in the educational system increased. Flipping the reference group also suggests that for women without college degrees, other family forms were significantly associated with decreases in children's achievement. This pattern held true for children's reading slopes, however, family structure during the period between 54 months and first grade was not a significant predictor of achievement for children whose mothers had some college education.

[Insert Table 4 about Here]

*Sensitivity Analyses*

A final step is to test the sensitivity of the findings above to the measurement of family structure. First, the sample was limited to families where the mother was married the biological father at the birth. Comparing those who divorced to those who did not revealed results similar to those reported above, although the interaction between family structure and education did not significantly predict first grade parenting. What this test reveals is that the findings above are not driven primarily by women who were unmarried at the time of birth. A second test used a measure of family structure stability/instability that grouped women that were stably cohabiting or single with stably married mothers, thus distinguishing them from women who had experienced a family structure disruption. This model produced nearly identical findings. These two groups, however, were very small (and given the interaction with maternal education, could not be coded into separate categories). Thus, the similarity to the findings above is not surprising. A count measure of family structure change (dummy coded as no change, one change, or two changes) was also used. There was no significant difference between one and two changes for parenting. Sample size restrictions limited sensitivity analyses beyond these tests.

## DISCUSSION

This study's goal was to broaden understanding of how advantages accrue to children in ways that contribute to the reproduction socioeconomic inequality. In this spirit, this study draws on and advances the diverging destinies framework (McLanahan 2004), which highlights how the co-occurrence of different life course pathways linked to mothers' education contribute to a widening gap in family resources. It also applies the life course paradigm and theories on the intergenerational transmission of advantage as the basis for a conceptual model that links

maternal education and family structure to child achievement via parenting and theories on cumulative advantage/disadvantage to inform possible hypotheses about these connections.

In general, findings supported the cumulative disadvantage perspective. The multivariate results suggested that family structure instability and non-marital family structures were more negatively associated with parenting among women with less education than for women at higher levels of schooling, a pattern which extended to children's achievement. For women with more education, on the other hand, the associated psychosocial resources helped buffer against the potentially negative impact of such circumstances. Given that women with less education were also more likely to be unmarried at the time of the focal child's birth and/or experience a family structure change, the results of this study suggest that children's diverging destinies are driven mainly by the congruence between lower levels of maternal education and nonmarital fertility/family structure instability.

These results also revealed that the connection between stable marriage to the biological father and maternal education did not widen—either in additive or multiplicative fashion—socioeconomic differences in parenting and children's learning. Rather, the benefits of marriage were actually greater for women with less education than they were for women with more education. Such a finding suggests the complimentary process to cumulative disadvantage—that of resource substitution (Mirowksy and Ross 2003). This view suggests that because the benefits of marriage for parenting also accrue through maternal education, family structure may have a greater impact for women who have less access to resources overall; i.e., those with less education. For example, the networks of kin and friends associated with marriage might provide less educated mothers with valuable insights into the advocacy strategies that can yield academic

advantages for their children at school and in the classroom (Lareau 1989). This finding presents an important nuance to the diverging destinies concept.

Lastly, all of these patterns were stronger during the period of early childhood. The importance of early childhood for such family-level process has also been reported in other studies (Cavanagh and Huston 2008) and echoes the emphasis placed by scholars and practitioners on this unique phase of child development (NICHD ECCRN 2005).

An important limitation of this study was the inability to present more nuanced measures of mothers' marital trajectories. Although the focus of this study was on the family structure pathway most closely tied to children's wellbeing, stable marriage to the biological father, women at both low and high ranges of the educational spectrum are experiencing increases in family structure variability that go beyond the measures of family structure used here. A larger and more economically diverse sample is necessary to provide such nuance, although such data would not have the depth of detail on family structure and parenting provided by the SECCYD.

A second important issue that was not addressed by this study involved increases in maternal education since the child's birth, which could not be captured because of documented problems with these reports in the SECCYD. Although some strategies for dealing with these problems were available (see Magnuson et al. 2009), few mothers in the SECCYD reported additional schooling. Still, because post-fertility schooling has become an increasingly common trend (MacGregor 2011), this remains an important consideration that should be addressed using data with more variability in mothers' post-fertility schooling.

A third limitation concerns selection. Specifically more advantaged women may possess certain characteristics that allow them to successfully persist in the educational system, enter into a stable marital union with the biological father, and invest in their children's learning. This

study is able to incorporate a wide array of measures that tap different dimension of these characteristics. Yet, unmeasured or unobserved confounds likely remain. There is also the issue that selection into marriage may vary at different levels of educational attainment. Accounting for such selection presents a tremendous challenge to research of this type, for which there is little empirical insight. While the covariates included in this study are likely relevant to such selection processes, causal attributions based on the results of this study will remain limited.

Finally, future research must turn to clarifying how family income enters into the diverging destines framework. Although income was not associated with parenting or child learning in this study, its impact may vary across different subsamples of the population. Future research should also extend the model presented here by bringing in other life course factors evoked in the diverging destinies framework, such as maternal employment, age at first birth, and fathers' education, while considering race/ethnic differences in the effects of parental investments on children's learning, as documented recently by Davis-Kean and Sexton (2009).

In sum, this study helps clarify the complex process of diverging destinies and the interplay of the demographic pathways that contribute to the reproduction of inequality. It does so by pointing to nonmarital fertility and family structure, and its association with less maternal education, as a primary engine. Such findings reveal more broadly how socioeconomic differences in children's life opportunities in the U.S. today are profoundly shaped by the historical changes in women's lives and the convergence between their family structure and educational pathways. At the same time, this study suggest that while family structure of any type is less consequential to women with more education, marriage seems to offset some of the disadvantages associated with fewer years of schooling. Thus, stable marriage to the biological

father does not appear to contribute in the same way to the diverging destinies of children and suggests a new insight for understanding this phenomenon.

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Table 1. Descriptive Statistics for All Study Variables by Maternal Education

| | *Percentages and Means (SE)* | | |
|---|---|---|---|
| | High School or Less | Some College | College or More |
| *Child Characteristics* | | | |
| Gender (female) | 44% | 50% | 50% |
| White | 70 % | 78% | 92% |
| Black | 21% | 16% | 2% |
| Other | 9% | 6% | 6% |
| First order birth | 43% | 43% | 48% |
| Behavioral problems at 24 months | 42.58 | 35.55 | 32.09 |
| | (20.62) | (17.06) | (14.83) |
| Bracken Composite (36 months) | 9.57 | 13.83 | 19.60 |
| | (7.30) | (9.10) | (10.11) |
| Temperament (mean 1 and 6 month scores) | 3.27 | 3.24 | 3.25 |
| | (.44) | (.45) | (.41) |
| Attachment (secure) | .60 | .59 | .66 |
| | (.49) | (.49) | (.47) |
| *Family Characteristics* | | | |
| Number of children in home at 54 months | 2.40 | 2.26 | 2.12 |
| | (1.24) | (.91) | (.79) |
| Number of children in home at first grade | 2.50 | 2.39 | 2.28 |
| | (1.14) | (.96) | (.82) |
| Income-to-needs 54 months | 1.92 | 2.96 | 5.37 |
| | (1.36) | (1.92) | (4.00) |
| Income-to-needs at first grade | 1.98 | 3.32 | 5.73 |
| | (1.32) | (2.24) | (3.45) |
| Father college degree or higher | 8% | 22% | 78% |
| Family poor at child's birth | 45% | 20% | 5% |
| *Mother Characteristics* | | | |
| Mother age at birth | 24.27 | 28.01 | 31.60 |
| | (5.39) | (4.96) | (3.94) |
| Depression history | 1.21 | .82 | .51 |
| | (1.43) | (1.19) | (1.00) |
| Extraversion | 41.44 | 42.49 | 43.35 |
| | (5.73) | (5.68) | (5.90) |
| Agreeableness | 44.58 | 46.17 | 47.77 |
| | (5.75) | (5.02) | (4.66) |
| Intelligence (PPVT-R) | 85.75 | 96.92 | 111.00 |
| | (14.29) | (14.27) | (16.56) |
| *Parenting Measures* | | | |
| H.O.M.E. total score | 42.29 | 45.82 | 48.90 |
| | (6.37) | (4.58) | (3.23) |
| Maternal sensitivity 54 months | 15.55 | 16.89 | 18.01 |
| | (3.13) | (2.89) | (2.10) |
| Maternal sensitivity first grade | 15.01 | 16.78 | 18.06 |
| | (3.29) | (2.95) | (2.27) |
| Maternal cognitive stimulation 54 months | 7.82 | 8.88 | 9.96 |
| | (2.37) | (2.49) | (2.12) |
| Maternal cognitive stimulation first grade | 7.23 | 8.95 | 10.26 |
| | (2.51) | (2.42) | (1.99) |
| Behavioral expectations 54 months | 137.26 | 141.04 | 138.79 |
| | (18.65) | (15.28) | (15.26) |
| Parenting philosophy first grade | 6.23 | 7.47 | 8.47 |
| | (1.60) | (1.56) | (1.37) |

Table 1 Cont. Descriptive Statistics for All Study Variables by Maternal Education

| | *Percentages and Means (SE)* | | |
|---|---|---|---|
| | High School or Less | Some College | College or More |
| Teacher reported school involvement - K | 14.57 | 15.65 | 16.35 |
| | (2.74) | (2.36) | (1.93) |
| Teacher reported school involvement first grade | 2.67 | 2.88 | 3.19 |
| | (.59) | (.54) | (.42) |
| *Achievement Outcomes* | | | |
| WJ-R Applied Problems 1st grade | 463.43 | 468.33 | 476.34 |
| | (15.34) | (14.35) | (14.26) |
| WJ-R Letter Word 1st grade | 442.87 | 452.10 | 460.10 |
| | (23.91) | (21.78) | (23.22) |
| WJ-R Applied Problems 3rd grade | 491.72 | 493.49 | 502.42 |
| | (16.07) | (17.35) | (9.43) |
| WJ-R Letter Word 3rd grade | 485.08 | 496.21 | 500.61 |
| | (20.52) | (12.05) | (15.61) |
| WJ-R Applied Problems 5th grade | 503.75 | 509.74 | 515.35 |
| | (15.13) | (15.24) | (9.45) |
| WJ-R Letter Word 5th grade | 501.22 | 508.57 | 516.99 |
| | (19.57) | (11.32) | (14.51) |
| *Various Family Structure Variables* [a] | | | |
| Married to Biological Father at 54 months | 42 % | 59 % | 85 % |
| Cohabiting at 54 months | 20 % | 13 % | 5 % |
| Single mother at 54 months | 27 % | 18 % | 9 % |
| Step mother family at 54 months | 9 % | 8 % | 1 % |
| Other type of family structure at 54 months | 3 % | 3 % | 1 % |
| Any family structure change 54 months-1st grade | 18 % | 14 % | 7 % |
| Total family structure changes birth-54 months | 1.06 | .52 | .13 |
| | (1.61) | (1.06) | (.48) |
| Stably married to biological father since birth | 39 % | 65 % | 90 % |
| Stably married to biological father 54 - K | 36 % | 60 % | 85 % |
| *Maternal Employment Variables* [b] | | | |
| Mother employed full-time at 54 months | 55 % | 51 % | 44 % |
| Mother employed part-time at 54 months | 18 % | 18 % | 26 % |
| Mother not employed at 54 moths | 42 % | 32 % | 27 % |
| Mother employed full-time at first grade | 55 % | 54 % | 44 % |
| Mother employed part-time at first grade | 17 % | 17 % | 25 % |
| Mother not employed at first grade | 28 % | 30 % | 31 % |
| *Other variables* | | | |
| Classroom quality summary measure | 33.06 | 34.24 | 35.45 |
| | (3.05) | (2.94) | (2.62) |
| *n* | 427 | 455 | 483 |

Notes: [a] Reported for descriptive purposes, and not all variables used in analysis. [b] Denoted subsample of working mothers.

Table 2. Unstandardized and Standardized Factor Loadings for Final Model

| | Factor Loadings | |
|---|---|---|
| | Unstandardized | Standardized |
| *Parenting Before Elementary School* | | |
| Home environment | 1.00 | .65 |
| Parental involvement in kindergarten | 2.72 | .42 |
| Maternal sensitivity | 4.13 | .61 |
| Maternal stimulation | 3.59 | .60 |
| *Parenting During First Grade* | | |
| Maternal sensitivity | 1.00 | .82 |
| Parental encouragement of schooling | .18 | .44 |
| Maternal stimulation | .91 | .90 |
| Maternal beliefs about parenting and education (r) | .42 | .56 |
| *Correlation between Factor 1 and Factor 2* | | .90 |

*Note*: All parameter estimates significant at $p < .001$. r = reverse coded.

Table 3. Standardized Path Model Parameter Estimates of Full Model Linking Maternal Education, Parenting, and Latent Factors of Children's Achievement Plus Interaction Terms

| | Standardized *B* (*SE*) | | | | |
|---|---|---|---|---|---|
| | Child Achievement | | | Maternal Parenting | |
| | Reading Intercept [1] | Reading Slope [1] | Math Intercept [2] | Parenting Pre-School | Parenting First Grade |
| Maternal Education | .06 | .06 | .05 | .33*** | .36*** |
| | (.05) | (.05) | (.05) | (.06) | (.06) |
| Stable Marriage to bio dad [a] | .19 | .08 | -.06 | .69*** | .40* |
| | (.24) | (.20) | (.06) | (.18) | (.16) |
| Education x Marriage [a] | -.24 | -.05 | .04 | -.61*** | -.39* |
| | (.25) | (.21) | (.05) | (.20) | (.18) |
| Parenting | | | | | |
| Pre-school | .49*** | --- | .59*** | --- | --- |
| | (.18) | | (.18) | | |
| First grade | -.20 | .19*** | -.20 | --- | --- |
| | (.12) | (.05) | (.12) | | |
| Child Characteristics | | | | | |
| Male (female) | .02 | .06* | .16*** | .06*** | .10*** |
| | (.03) | (.03) | (.03) | (.02) | (.13) |
| Black (white) | -.03 | -.08 | -.12** | -.18*** | -.27*** |
| | (.04) | (.04) | (.04) | (.03) | (.03) |
| Other race/ethnicity | .01 | .00 | .05+ | -.09*** | -.11*** |
| | (.03) | (.03) | (.03) | (.03) | (.03) |
| Child cognitive skills | .37*** | .01 | .21*** | .01*** | .09** |
| | (.04) | (.05) | (.04) | (.01) | (.03) |
| Behavior problems | -.04 | .05 | .02 | -.01*** | -.04 |
| | (.04) | (.03) | (.03) | (.01) | (.03) |
| Mother Characteristics | | | | | |
| Mother's age | -.12** | .06 | -.00 | .11*** | .08* |
| | (.04) | (.04) | (.04) | (.03) | (.03) |
| Mother's depression | .02 | .01 | .06+ | -.03** | -.01 |
| | (.04) | (.03) | (.04) | (.10) | (.03) |
| Agreeable personality | .01 | -.07+ | -.02 | .06* | .11*** |
| | (.04) | (.03) | (.03) | (.03) | (.03) |
| Outgoing personality | -.09* | .01 | -.05 | .07** | .01 |
| | (.04) | (.03) | (.03) | (.03) | (.03) |
| Mother PPVT | -.04 | .08* | .14*** | .20*** | .12*** |
| | (.05) | (.04) | (.04) | (.03) | (.13) |
| Part-time employment | .07+ | --- | .08* | .03 | -.01 |
| | (.04) | | (.03) | (.03) | (.03) |
| Full-time employment | .07+ | --- | .09** | -.04 | -.04 |
| | (.04) | | (.04) | (.03) | (.03) |
| Family Characteristics | | | | | |
| Poor at birth | .00 | .00 | .09* | -.14* | -.15* |
| | (.04) | (.04) | (.04) | (.03) | (.49) |
| Father college degree | .00 | -.02 | .05 | .08* | .08* |
| | (.04) | (.04) | (.04) | (.04) | (.03) |
| Income-to-Needs [a] | .02 | -.03 | .02 | .04 | .01 |
| | (.04) | (.04) | (.04) | (.03) | (.03) |
| Children in home [a] | .02 | .03 | .04 | -.03** | -.06* |
| | (.04) | (.03) | (.03) | (.01) | (.03) |

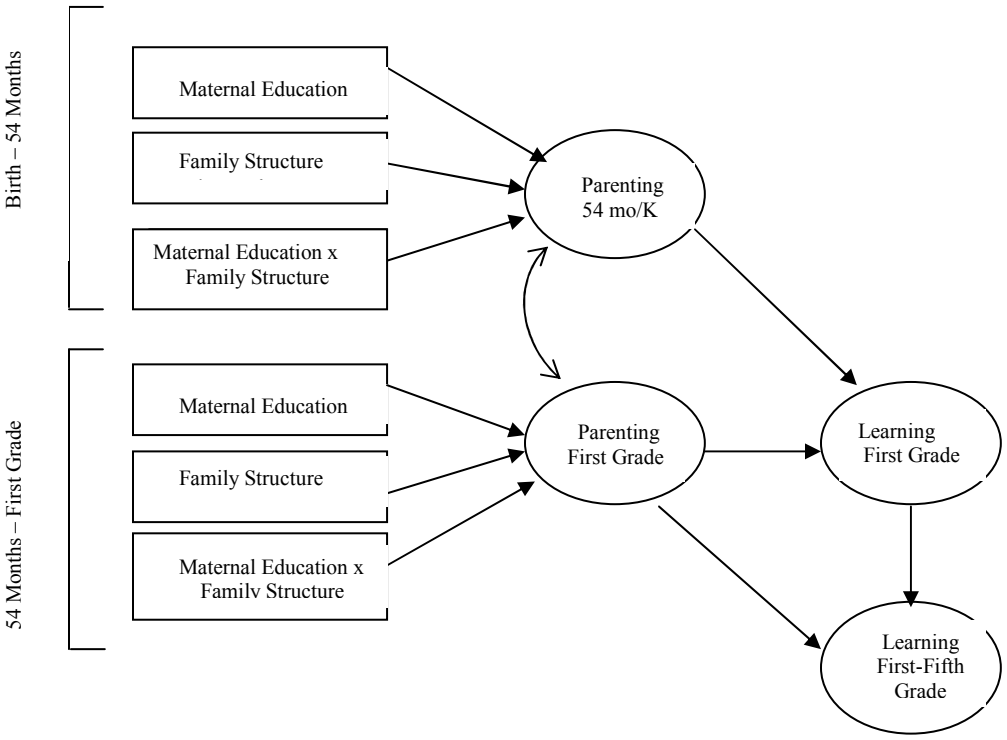
Notes: [a] Variables are time specific. Coefficients for attachment, temperament, classroom quality, and spells in employment not shown. Coefficients for variables predicting maternal parenting for math model (not shown above) are identical to reading model to the hundredth. [1] Model fit statistics: $\chi^2 = 714.79$; $df = 264$; $p = .00$; $CFI = .93$; $RMSEA = .04$. [2] Model fit statistics: $\chi^2 = 713.40$; $df = 230$; $p = .00$; $CFI = .92$; $RMSEA = .04$. + $p < 0.10$. *$p < 0.05$. **$p < 0.01$. *** $p < .001$

Table 4. Point Estimates of Conditional Indirect Effects

| | *b (SE)* | | |
|---|---|---|---|
| | Reading Intercept | Reading Slope | Math Intercept |
| *Marital Stability* | | | |
| Less than high school | 7.01* | .29* | 4.37** |
| | (2.84) | (.14) | (1.42) |
| High school degree | 5.03* | .20* | 3.15** |
| | (2.03) | (.09) | (1.03) |
| Some college | 3.06* | .10 | 1.93** |
| | (1.35) | (.07) | (.73) |
| College degree | 1.08 | .03 | .71 |
| | (1.09) | (.08) | (.66) |
| Post graduate | -.90 | -.09 | -.54 |
| | (1.46) | (.12) | (.87) |

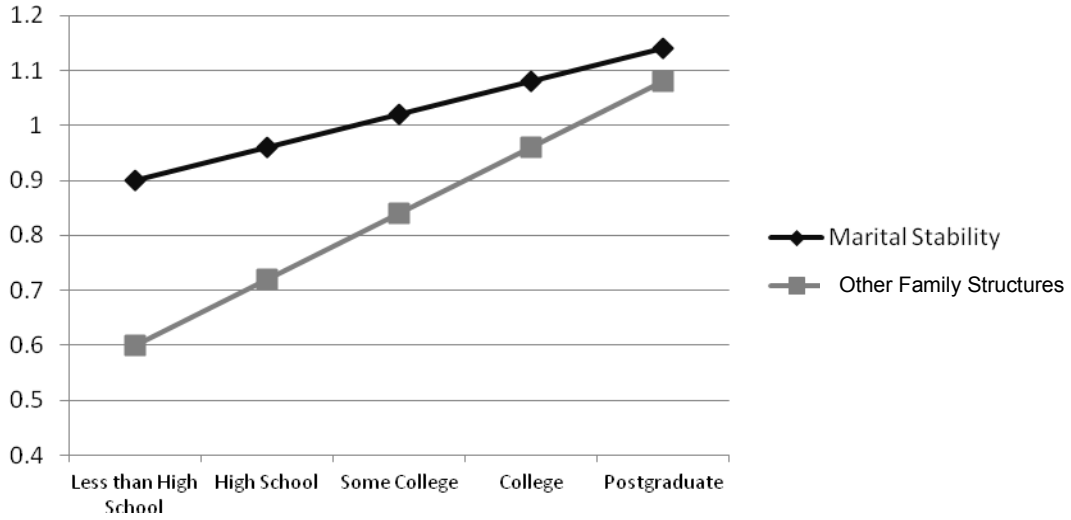
Notes: Point estimates calculated by product of coefficient method.
*$p < 0.05$. **$p < 0.01$. *** $p < .001$

Figure 1. Path Model Depicting Structural Relations among Independent Variables, Parenting, and Achievement




Notes: First grade measure of learning estimated by an intercept factor. First-fifth grade measure of learning estimated by a slope factor. Model represents a reduced conceptual and analytical model, and paths for covariates are not shown, nor are the direct paths between the exogenous variables (i.e., maternal education, family structure) and learning factors.

Graph 1. Marital Stability Birth – 54 Months Predicting First Grade Parenting by Maternal Education



Graph 2. Marital Stability 54 Months – Grade 1 Predicting First Grade Parenting by Maternal Education