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Ariel Leitner-Zieff April 20, 2011

Getting Ahead: The Effects of Parental Education, Income, and Occupation on Children's Skills at Kindergarten Entry

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Abstract

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Many studies have sought to determine the effects that a family's socioeconomic status (SES) can have on a child's educational achievement. However, few studies scrutinize this concept in such a way as to account for the independent effects of parental educational attainment, income, and occupation. In this study I examine the particular mechanisms through which parents' educational attainment, income, and occupation can promote their child's academic success. In examining children's scores on reading and math tests at kindergarten entry, I am able to focus solely on the home and background effects, before the formal schooling system has made an impact. I analyze the effects that parental education, income, and occupation can have on reading and math scores, and account for mediation caused by other intervening variables. My findings suggest that parental education shapes children's skills through parental expectations for educational attainment, the frequency of activities, and parental involvement at school, that parental income matters through activities outside the home, extracurricular activities, and neighborhood safety, and, to a lesser extent, that parental occupation matters through parent's beliefs on the importance of skills, whether they ever spank their children, and whether they implement physical punishment. Finally, I discuss future implications for these findings.

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GETTING AHEAD: THE EFFECTS OF PARENTAL EDUCATION, INCOME, AND OCCUPATION ON CHILDREN'S SKILLS AT KINDERGARTEN ENTRY

It is widely acknowledged that an individual's educational success and position in society more broadly are partially determined by the status of his or her parents. What is not quite as clear, however, is *how* specific aspects of parents' status shape the success of their children. Therefore, this study addresses the following question: Through what mechanisms does a parent's educational attainment, income, and occupation promote their child's academic success?

In contemporary American society, education is stressed as the most consistent and reliable means to achievement. Highly educated parents may be more likely to inculcate essential skill sets, habits, and knowledge, as well as instill values and ideals in their children that will better position them for a more successful future. In the majority of cases, the attainment of a more prestigious job and subsequent high income is dependent on the quality and level of education received, as well as performance in school. Globally, more education is almost always linked to higher earnings across the board, in both developed and underdeveloped nations (Becker 2011). Furthermore, as a whole our society tends to regard those with higher education in a more esteemed manner. However, that is not to say that parents' income and occupation do not have their own independent effects on children. Parents with more financial capital may be more able to provide for their children the tangible and experiential resources that can contribute to their success. Furthermore, parents in certain lines of work may be better equipped to transmit a certain degree of diligence, work ethic, focus, and other skills that

may prove advantageous for their children, in addition to implementing more beneficial parenting practices.

Parents' education, occupation, and income, then, each may shape a child's academic skills in its own unique way. Examining the skills of young children at kindergarten entry presents an ideal way to address these issues, because the formal K-12 school system has not yet had an impact on their skills. For one, as is widely acknowledged, children at this age are "maximally sensitive to home and school influences" (Entwisle and Alexander 1992: 73). In other words, since children at this age have not yet been exposed to the formal schooling environment, the majority of their skills up to this point are the result of their home environments; further, they are at an age at which their skills are developing very rapidly. At this point in their education, school system has not yet significantly aggravated or mitigated any inequalities among children that stemmed from disparate home environments and social backgrounds.

In this paper, I use data from the Early Childhood Longitudinal Study—Kindergarten Cohort (ECLS-K) conducted by the National Center for Education Statistics (under the U.S. Department of Education's Institute of Educational Sciences) to analyze the impact of the socioeconomic status (SES) of parents (measured by their educational attainment, occupation, and income) on the academic skills of their children, through related intervening mechanisms. I argue that education is crucial for influencing parents' educational expectations for their children, as well as increasing parents' participation in advantageous activities with their children and involvement in the school. I also argue that occupation is important in affecting the skills, values, and priorities that will be transmitted to the child, as well as an association to parental practices, perhaps altering

their effort and aspirations. However, without sufficient income the child will not have access to the variety of different resources that are imperative for his or her success. These resources can affect cognitive and intellectual development, as well as physical growth. But income can have even further-reaching implications, in that it likely determines the type of neighborhood in which the child will live; this in turn determines the ways in which all of the environmental and community factors can help or harm a child.

Moreover, research shows that nonschool factors are just as important as school, if not more important, in determining a child's academic accomplishments. It is true that the school is responsible for a great deal of the child's socialization and educational preparation. However, most of the cognitive inequality between children grows at a much faster rate during the summer than during the school year (Downey et al. 2004). And given that the majority of a child's time (even during the school year) is not spent at school, the characteristics of their life outside of the school can have a colossal impact. Children carry with them their own personal knowledge, experiences, and values as a base onto which they can build what they learn at school, and without this basic foundation they may be left behind their classmates who arrived better prepared. French Sociologist Pierre Bourdieu argued that, "the action of the educational system can attain full effectiveness only to the extent that it bears upon individuals who have been previously granted a certain familiarity with the world of art by their family upbringing" (Bourdieu 1975: 493). Thus, even with a quality school environment, a child with an unstable home life who arrives at the school under-prepared will not flourish and prosper

to his or her full potential. The school system only functions to "reinforce and consecrate by its sanctions the initial inequalities" (Bourdieu 1975: 493).

I begin this paper with an overview of the existing research on how nonschool factors (particularly the parents' education, income, and occupation) impact the child's academic achievement, which will lead to my hypotheses. I then describe the data and methods used in my analysis, followed by a discussion of the results of the analysis. Finally, I will draw conclusions about the results, and discuss the implications, and possibilities for future research.

LITERATURE REVIEW

Before turning to how parents' education, income, and occupation each matter independently, it is important to consider the general point that socioeconomic disparities in children's environments outside of the school system can, and often do, lead to unequal skill sets and subsequently lead to unequal performances in school. This concept is based on the general theoretical perspectives of conflict theories, which suggest that the inequalities between groups in society lead to competition and conflict between groups and individuals in society.

Status Conflict Theory explains that status groups are the basic units of society, defined as associational groups that share and participate in common cultures. Randall Collins describes this Weberian concept of the status group as made up of three different categories: culture (including race, ethnicity, religion, and other types of social, institutionalized organizations), power position, and economic situation. In society, there is competition both between and within status groups for the advantage in all parts of society. Status in society can, and often is, palpably marked by credentials; those at the

top of the ladder create downward pressure within the hierarchy in order to maintain their positions at the top. According to this theory, there are strong links between social class origin and occupational attainment. And given that occupational attainment is at least partially contingent upon educational achievement, it follows that educational achievement should be somewhat dependent on social class origin as well. Thus, the inequalities that exist help to shape what parents can or cannot pass down to their children.

In 2002, Valerie E. Lee and David T. Burkam conducted a study in which they examined how nonschool factors create a wide array of inequalities and disparities before kindergarten. They describe the ways in which a number of environmental factors can impact a child's success in school (Lee and Burkam 2002).

A child's social background (for example their race and ethnicity, or their SES) is associated with other aspects of their home life, and these characteristics may influence his or her academic achievement. Lee and Burkam organize these factors into five main categories. First is children's demographic background, characterized by their age and gender, whether they come from a non-English speaking home, and whether they are repeating kindergarten. Second is their home demographics, including whether they live in a single-parent home, the number of siblings they have, residential mobility, and the type of community in which they live. Third is the educational expectations and experiences, primarily determined by the level of education their parents expect them to reach, and the type of care or preschool experience they had (for example, with relatives, a childcare center, Head Start, or at home with a parent). Fourth is activities in the home, looking at variables such as television, books and media, whether there is a computer,

and the frequency that the child plays and reads. Finally, they look at outside activities that include cultural visits, participation in organized athletics or clubs, and lessons. Some factors that may not seem as though they would be directly correlated to academic achievement had significant impacts; for example, computers proved to be the strongest link to academic achievement beyond social background or family demographics (Lee and Burkam 2002). Furthermore, another study stresses the importance of life experiences (for example cultural visits) so that children can relate their experiences in school to the real world, and are able to connect concrete ideas to abstract concepts (Wright et al. 2000).

Within the schools, teachers and principals have certain set expectations for a child's school readiness upon entering the school system as well. One study lists a child's school readiness as defined by their physical well being, curiosity and approach to learning, social and emotional development, language use, cognition, and general knowledge (Wright et al. 2000). All of these skills and capabilities are a result of either family socialization (which can be affected by their parents' education, income, and occupation) and access to resources, or of environmental influences. The study also flags neighborhoods characterized by unemployment, a lack of affordable housing, a large number of teenage mothers, few health care providers, and large minority populations as less amenable to equipping a child to enter the school system (Wright et al. 2000).

Parents' attitudes can also have an important impact on their children's achievement. Indeed, children tend to do better when their parents believe they are better or smarter than other children (Alexander et al. 1998). Another study stresses the importance of parents understanding that they themselves are educators of their children;

they play an imperative role in shaping their children for their academic futures before they even begin school (Wright et al. 2000). Yet another study found that fathers' values for their children are connected to their values for themselves. In this study, researchers examined fathers from different classes (using an index based on education and occupational prestige), defined as "aggregates of individuals who occupy broadly similar positions in a hierarchy of power, privilege, and prestige" (Kohn and Schooler 1969: 660). They found that the higher the father's class, the more value they placed on characteristics relating to self-direction, consideration, interest in how and why things happen, responsibility, and self-control. Fathers from lower classes, on the other hand, concentrated more on conformity, competence, manners, neatness, cleanliness, being a good student, honesty, and disobedience (Kohn and Schooler 1969).

SES has frequently been touted as one of the main predictors or determinants of success. Typically, SES is measured by combining information on parents' education, occupation, and income into a single index. Lee and Burkam's (2002) study implements this concept as one of the main focal points in its examination of achievement gaps along the lines of SES and race. The study empirically shows that a child's SES is directly linked to their cognitive status, subsequently linking it to their academic success. In fact, they cite SES as the best explanation for achievement gaps between whites, blacks, Hispanics, and people from other ethnic groups, followed by home activities. Furthermore, they state that those children from households with low socioeconomic status are twice as likely to have to repeat kindergarten (Lee and Burkam 2002). Another study connects SES with a child's aspirations and motivation, finding that the social

support a child receives in his or her environment (from family, peers, and teachers) can augment their career aspirations (Berzin 2010).

However, examining the general concept of SES may not provide enough information to truly understand its connection to a child's academic success. In fact, in *Inequality by Design* (Fischer et al. 1996), one of the authors' biggest criticisms of Herrnstein and Murray's *Bell Curve* theory is that they created an index for parents' SES that combined education, occupation, and income into a single measure. In assuming that each of these factors is equally weighted, Herrnstein and Murray relinquish the possibility of identifying the effects of any of these three factors independently, where they consequently "underestimate the importance of parental home environment" (Fischer et al. 1996: 77). Hence, it is imperative to further unpack the notion of SES by examining the underpinnings of this concept, measured by parents' level of education, income, and occupation as factors that each carry their own independent implication for the future of the children.

EDUCATION

Parents' education can have an important impact on their children in terms of the knowledge and values that they are able to pass down. With more education, the likelihood that parents will be able to support their children academically both in terms of standards and encouragement, and in substantive help and guidance, increases. Parents with more education will likely have stronger beliefs in the importance of school and a good education, and presumably this would encourage them to be more involved in their child's school.

Furthermore, children are at an advantage when they have parents whom they can view as role models. Children weigh the costs and benefits of their own education, basing their personal aspirations on parental influences. Aside from SES, children are highly impressionable by "mechanisms related to parental income, parental education, parental employment, high expectations around education, and the provision of academic experiences" (Berzin 2010, 113). Presumably, parents with higher levels of education should have higher expectations for their children, impacting children's academic endeavors.

Numerous studies have focused on separate effects of the impact of fathers' education or mothers' education, as opposed to the effects of parents' education in general. Fathers' expectations for their children are often based upon their own experiences. Fathers' education proved to be a pivotal element in the shaping of their values for their children by providing "the intellectual flexibility and breadth of perspective that are essential for self-directed values and orientation; lack of education must seriously interfere with men's ability to be self-directed" (Kohn and Schooler 1969: 676). For example, more educated men working at more complexly organized jobs were more tolerant of nonconformity and valued traits such as self-direction (Kohn and Schooler 1969).

On the other hand, mothers' education was also found to be a significant predictor for the child's academic achievement early in school (Smith et al. 1997). Another study found that children of mothers with a higher level of education had fewer internalizing and externalizing behavioral functioning problems for both white and black children (Chase-Lansdale et al. 1997).

In *Inequality by Design*, the authors argue that the advent of new technology in recent years has changed the face of the economy such that there is now more computerization and more exportation of labor overseas in this period of "deindustrialization" (Fischer et al. 1996). University of Massachusetts economist Barry Bluestone argues that given the structure of today's economy, the market now rewards education and skill more than before. Due to deindustrialization, unskilled workers no longer play such a prominent role in our economy and educated workers are now much more valuable. The authors argue that this emphasis on the importance of educated workers today leads to an increase in inequalities in earnings in many Western nations (Fischer et al. 1996). Similarly, Randall Collins argues for the increasing importance of education in this age of "technocracy," where technological advances have spurred a shift from ascription to achievement (Collins 1979). Using this logic, it seems that education may be the strongest link to economic fortune, and parental education might be a crucial step in mitigating achievement gaps between children by paving the way towards a future of both higher levels of education as well as more widespread education.

INCOME

Income is another integral component of a child's home life in that it determines the resources (both tangible and intangible) to which he or she will have access. While parents' education and occupation undoubtedly influence the child in invaluable ways in terms of the transmission of values, standards, and skill sets, without enough income (or wealth), parents are unable to provide the material and experiential resources pivotal to a child's success.

The five factors associated with home life outside of the school that influence academic achievement descried by Lee and Burkam (listed earlier) are either directly or indirectly dependent on income (Lee and Burkam 2002). Home activities (television, books, computer, games, etc.) and outside activities (cultural visits, clubs, lessons, etc.) all cost money, and without sufficient income, parents will not be able to provide their child with all of these resources. This study also found that the likelihood of children having center-based care increases with their parents' SES (Lee and Burkam 2002). Presumably, a child's cognitive and social skills will begin to develop more fully in a childcare center than by simply staying in the home or being cared for by a relative.

Likewise, a study on children's school readiness included physical well being amongst other qualities that are important for a child before entering the educational arena (Wright et al. 2000). Without proper nourishment (which also costs money) or a safe and stable neighborhood and home environment, physical-well being is unlikely. Further, this study emphasizes the importance of the child having the ability to relate the school world to real life experiences, and these experiences are augmented by the activities listed by Lee and Burkam. A child's aptness to connect what they learn in school to experiences in the outside world is important in developing the ability to relate concrete and abstract ideas, thus clearly providing evidence for the importance of certain types of activities, such as organized extracurricular activities or outings with family or friends.

The children from poverty-stricken environments are also highly disadvantaged by the environmental stressors surrounding them. They have to face more "material hardship" and often live in more dangerous communities; one study suggests that this

may affect their ability to respond positively to good parenting, or if the child does not view their parents as capable of providing the necessities, they may view their parent with less authority and respect (Hanson et al. 1997). Even with good parenting practices, growing up in an impoverished environment can still take its toll on the child, particularly with a single parent: "the results suggest that economic hardship reduces the benefits of good parenting practices for children in one-parent households" (Hanson et al. 1997: 219).

The neighborhood in which a child is reared will undoubtedly help shape their perception of the world around them. One study describes five different ways in which it might affect his or her development (Chase-Lansdale et al. 1997). The neighborhood resources approach looks at public and private community resources, the competition approach asserts that competition will arise in the presence of scare resources, the collective socialization approach maintains that monitoring, supervising, and role modeling take place not only within the family but in the neighborhood and community as well, the contagion approach states that peer behavior has an immense influence on the child, and finally the relative deprivation approach states that both the child and their family members will evaluate the state of their own situation in relation to those surrounding them. Each of these theories takes on a slightly different approach, but all demonstrate the different modes in which a child's environment outside of the school can be predictive or indicative of their performance in school. This study also found there to be a connection between impoverished neighborhoods and children's lower intellectual functioning (Chase-Lansdale et al. 1997).

Studies also find an association between children's poverty status and their average scores on math and reading tests. In looking at math and reading test scores, one study found that children living in persistent poverty (for a duration of over four years) in particular, had even lower scores. Children living in continuous poverty had IQ scores that were an average of nine points lower than children whose families were never poor, while children whose families were living in poverty for only a few years had IQ scores an average of only four points lower (Smith et al. 1997). A number of studies show that factors related to a child's resources and environment do really have repercussions on the child's academic status. As previously stated, children from low socioeconomic status households are twice as likely to repeat kindergarten (Lee and Burkam 2002).

Furthermore, another study used direct observation in the classroom to show economically advantaged children to display more signs of boredom than disadvantaged children (Stipek and Ryan 1997). This implies that the economically advantaged children entered the classroom setting better prepared and equipped to take on the school system. Finally, one study found a direct correlation between the family's income and the child's performance on the PPVT-R or PIAT standardized tests. They showed that the degree of poverty affected the level of detriment to the child's scores: children between three and six living below 50% of the poverty line scored an average of ten points lower than children who were "near-poor," and children who were between seven and eight scored seven to nine points lower. Middle income children between five and six scored 4.2 points higher than near-poor children, displaying a hierarchical organization of scores according to family income (Smith et al. 1997).

Furthermore, poverty status not only affects test scores, but it tends to influence parenting practices as well. While economic resources do not have strong effects on parenting directly, the literature points to some general parenting trends correlated with financial status (Hanson et al. 1997). In general, low income is associated with more punitive practices. Furthermore, being in debt reduces mothers' and fathers' activities with their children, and increased negative responses towards them. However, this study explains that children thrive in homes with more parental warmth and involvement, a moderate level of parental control, and punishment that is consistent, but not hostile. Another study explores how parental practices vary across different classes (Lareau 2002). Where middle class parents focus on organized leisure activities and are more open to reasoning with their children, working class parents allow more room for "natural growth," and thus will provide just the basic necessities so that the children can thrive on their own. They intervene less in the child's life, and as a result these children have more emergent daily activities, rather than planned activities as with middle class children. There are fundamental differences between middle class and working class children in their daily life, familial interactions, and language and conversations (Lareau 2002).

It is clear that income is crucial in parents' ability to provide the necessary resources for their children. A lack of sufficient family income can lead to innumerable detrimental effects such as lower levels of physical development, cognitive functioning, academic achievement, self-esteem, social development, and self-control. When the poverty is persistent, these problems can be amplified (Smith et al. 1997). Additionally, given that wealth is often inherited, if these children come from low socioeconomic status backgrounds, they are likely to be worse off down the line by not inheriting the same

base of wealth as those who come from better off families, contributing to a vicious cycle proving difficult to break.

OCCUPATION

Parents' occupation is significant in that it can impact the values and lifestyle that they transmit to their children, which may have far-reaching implications for the child's aspirations and subsequent success. Having a working mother has positive ramifications to the child, regardless of whether male or female. One study in particular had a number of significant findings with respect to a working mother's impression on her children (Selkow 1984). First, daughters of working women generally have higher vocational aspirations for themselves. Secondly, both male and female students with working mothers are less likely to adhere to gender stereotypes in their job aspirations. Thirdly, the kindergarteners and first graders in this study with working mothers provided more occupational choices when asked than their counterparts. Moreover, girls whose mothers had less stereotypically feminine careers often likewise chose less feminine careers. Finally, the majority of the children in the study did not choose the exact same occupation as their parents (Selkow 1984). This signals the significance a mother's occupation can have for her child, not simply because they want to follow directly in her footsteps, but because she will be viewed as a role model and a positive influence to their goals and aspirations. In school, this may teach children to take initiative, and may encourage them to excel in areas that might defy gender stereotypes. For example, where mathematics and sciences are often seen as male-dominated academic realms, young girls with mothers who do not have the typical female jobs might be more encouraged to excel in these areas.

Numerous studies also examined the effects of the father's occupation on the child's values and aspirations. In "Occupations, Role Characteristics, and Intergenerational Transfers" the authors discuss the three aspects of the fathers' work that is transmitted to their sons and reflected in their vocational aspirations: work autonomy, characteristic rewards of the job, and functions of work activities (Spenner 1981). Usually, there can be seen a reproduction of SES from the father's occupation to his son's early career choices, primarily in the complexity of the occupation. Influences from the father may be seen even earlier, in the child's performance in school. For example, a child with more autonomy will likely stand out more than a student who is more reliant on the teacher for guidance.

Similarly, it has been found that father's occupations can affect their desires for the skills possessed by their sons. Men in higher status or professional jobs are more concerned with intrinsic characteristics for their sons (freedom, chance to use their abilities, etc.), while fathers in lower class or labor jobs are more concerned with extrinsic characteristics (pay, fringe benefits, supervisor, co-workers, hours, security, pressure, whether the work is tiring, etc.) (Kohn and Schooler 1969). The study invoked the concept of complexity of work, and listed three characteristics of work that are indicative of self-direction: how closely the men are supervised, whether their work requires initiative, thought, and independent judgment, and whether there is room for applying a variety of approaches to the task at hand. Men working at "complexly organized" jobs valued for their children intrinsic qualities and self-direction, were tolerant of nonconformity, were not self-deprecatory, and were more receptive to change (Kohn and Schooler 1969). Men who do not put as great an emphasis on conformity or

obedience for their children are likely less inclined to employ harsh forms of punishment on their children. Spaeth argues that when parents are exposed to more complex environments they themselves are better able to cope with complexity; this increases their parenting skills and their knowledge, in turn augmenting the cognitive socialization of their children (Spenner 1981).

On the other hand, high rates of male joblessness can have harmful effects for children. Areas with high rates of male joblessness are plagued by social disorganization, an absence of role models, and a lack of routine, primarily affecting African American children (Chase-Lansdale et al. 1997). This can lead to a sort of intergenerational transmission of poverty, and these children will not have an equal chance to realize their goals and achieve high status jobs because they will lack the necessary skill sets and values. This type of transmission (or lack thereof) invokes Neo-Marxist and conflict theories, as the transmission is dependent on positions in society and, in a sense, may be viewed as ownership through occupation.

KINDERGARTEN ENTRY

It is important to examine young children at the kindergarten entry level, before the school system has made an impact on them. Before entering the school system, we can be certain that they have only been influenced by external factors such as their families, neighborhoods, and communities; thus, by looking at children right at kindergarten entry, we can easily focus on the influences of nonschool factors. Somewhat surprisingly, there is more variance in reading gains during the summer than during the school year (Downey et al. 2004). Therefore, it logically follows that achievement gaps would be highest at the start of a new year, so we may more easily see differences between children

of different classes or races. And not only are gaps highest at the start of a new year, but a great deal of variability exists among kindergarten-entry aged children in general. These children are highly impressionable, and have very high cognitive growth rates (Downey et al. 2004). It should also be noted that there tends to be higher variability among children during transition stages (Alexander et al. 1988).

Furthermore, at kindergarten entry the school system has not yet had any negative, discouraging psychological effects on the children, which research has shown can reduce their aspirations. One study found that all children had high expectations for themselves at the beginning of the school year, irrespective of social class, race, or other ascribed characteristics (Stipek and Ryan 1997). It is important for students to do well at the beginning of their schooling experience, as the reputation they acquire for themselves at the beginning of formal schooling can have a long lasting impact, with implications for success later in school and life in general (Alexander et al. 1988).

SCHOOL ENVIRONMENT

While the school environment is not directly related to the effects that parents' education, income, and occupation have on their children, it can certainly augment or mitigate disparities that already exist at entry level. Even though education is a guaranteed right for all children in this country, there are huge discrepancies in the quality of the schools in terms of the teachers and faculty, the available resources, and the environment. Additionally, the population of the school can impact the experiences of the individual students. For example, the SES of the general school population can have an effect on the teaching styles as well as the expectations and goals that are set for the students (Downey et al. 2004). Moreover, residential segregation leads to de facto segregation in

the schools, which in turn leads to differential resources and quality of education for different minority groups (Fischer et al. 1996). Inequities that have plagued this nation for centuries persist not only in the neighborhood, but consequently in the school system as well. In sum, pre-kindergarten inequalities in children's skills hold important implications for subsequent learning environments as children progress through school.

HYPOTHESES

I hypothesize that each of the three factors (parental education, income, occupation) will matter through related mediating variables. In other words, I expect that some of the impact that the key independent variables (education, income, and occupation) appear to have on the dependent variables (reading and math scores) can actually be explained by intervening variables that influence the dependent variables.

Education will matter primarily through the values and expectations held by more highly educated parents. I expect that parents with more education will recognize the importance of taking the time to participate in activities at home with their children that can help foster cognitive skills and intellectual growth. Further, parents who themselves have directly experienced the importance of schooling may feel more compelled to get involved in their child's school in one way or another, which not only shows their commitment to helping their child attain a good education, but also models for the child putting an emphasis on education and school-related activities. Finally, I believe that parents with more education will set high expectations for the educational attainment of their children. Whether a child feels encouragement from his or her surrounding environment can impact his or her attitude and subsequently the effort that he or she will exert in the academic arena.

I expect parents' income to matter through the activities in which the child is able to participate, as well as through the neighborhood environment. Higher income will allow the parents to take their children on excursions outside of the home, thus providing their child with more of the cultural capital that is implicitly called for in successful learning in the classroom. Additionally, parents with sufficient income can finance their child in participating in extracurricular activities, fostering more social skills, exposing them to new activities and skill sets, and also increasing cultural capital. Finally, income is directly related to the neighborhood in which a child grows up. In a neighborhood characterized by crime, violence, anomie, social disorganization, drug abuse, or other properties of an impoverished neighborhood, a child may experience detrimental psychological effects or other instabilities that may inhibit their academic success. I expect to find positive relationships between income, the frequency and variety of activities, neighborhood safety, and skills. Conversely, I expect to see negative relationships between poverty status and these variables.

Finally, I predict that occupation and occupational prestige will matter through the emphasis on certain skills as well as the parenting practices. Based on the existing literature, it seems that parents in certain lines of work are more likely to emphasize the importance of their children possessing certain qualities, skills, or abilities. Parents in the professional occupations may endorse more skills related to independent thought while parents in labor-related fields are more likely to promote basic skills and characteristics such as the ability to follow directions, so I expect that professional parents will place less emphasis on the importance of basic skills than will laborers or unemployed parents. Furthermore, I believe that professional parents are likely to implement different

parenting practices, particularly regarding punitive practices, than laborers or unemployed parents. There should be a negative relationship between professional parents and whether they spank their children or implement physical punishment.

DATA AND METHODS

In this paper I use data collected in the Early Childhood Longitudinal Study—Kindergarten Cohort beginning in 1998-99 (ECLS-K). This longitudinal study collected a wide variety of information about more than 20,000 children during their progression from kindergarten through eighth grade, looking at family, school, community, and individual factors. Children in the study represent a national sample of kindergarteners from both public and private schools, covering a diverse array of racial and socioeconomic backgrounds. The information was collected by trained evaluators who assessed children in the schools, and collected information from their parents over the telephone. The dataset on this kindergarten class contains data gathered in the fall and the spring. Although the majority of the data I utilized in my analysis was from the fall, closer to the time of the children's entry into the school system, I used measurements from the spring when the necessary data were not available during the fall.

Descriptive information of all of the variables can be found in Table 1. My dependent variables include *reading skills* and *math skills*. *Reading skills* measures the student's skills on a test assessing what ECLS describes as basic skills, including, "print familiarity, letter recognition, beginning and ending sounds, recognition of common words (sight vocabulary), and decoding" (U.S. Department of Education: 2001). This measure ranges from 10.08 to 69.66, with a mean score of 22.36. *Math skills* measures "conceptual knowledge, procedural knowledge, and problem solving within specific

content strands" (ECLS). This measure ranges from 6.65 to 59.82, with a mean score of 19.42.

My key independent variables measure the key factors of socioeconomic status that I am examining (education, income, and occupation). I measure education through categories that are mutually exclusive and exhaustive, and separate for mothers and fathers. Each parent is categorized as either having reached a level of *high school or less*, *some college*, a *bachelor's degree*, or a *doctorate degree*, and each of these variables are coded 1 for those who fall into that particular category and 0 for all others.

Income was measured on a continuous scale, which did not require any recoding into new categories. I also used a variable to measure poverty status, which divides the children into two categories: either above or below the poverty threshold (coded 0 and 1 respectively).

In the dataset, parents' occupations were broken down into numerous fairly specific categories. In order to test my hypotheses, I used these categories to create my own measurements, dividing the listed occupations into either the *professional* category, the *laborer* category, or the *no work* category, which includes parents who are unemployed. As with my educational measurements, I have separate categories for the mother and father, and each variable is coded 1 for those who fall into that category and 0 for all others. Mother's and father's *occupational prestige* were measured on a continuous scale, which I did not change.

For the majority of the mediating variables, I created an index to measure a concept based on singular variables in the original dataset. To measure concepts related to education I first created the *frequency of activities* index, composed of how often the

child does chores, the parents play a game with the child, the parents teach the child about nature, the parents build things with the child, the parents play sports with the child, the child looks at picture books outside of school, and the child reads outside of school. The variables are all coded 1 through 4, measuring how many times per week each of these activities takes place. The scale ranges from 9 to 36, and the alpha for this index is .721, indicating fairly high inter-item reliability. *Parental involvement at school* includes seven dichotomous variables measuring whether or not parents participated in the following: attended an open house, attended a PTA meeting, attended a school event, attended a parental advisory group, attended a parent-teacher conference, acted as a school volunteer, and participated in fundraising. This index has a scale ranging from 0 to 7, with an alpha of .594. Although this does not indicate strong inter-item reliability, this index can still function to measure parental involvement in the school. *Parental expectations for educational attainment* is only one variable, coded 1 through 6, asking parents the degree that they expect their child to attain (1=to receive less than high school diploma, 2=to graduate from high school, 3=to attend two ore more years of college, 4=to finish a 4-or-5-year college degree, 5=to earn a master's degree or equivalent, 6=to get PH.D., MD, or other higher degree).

To measure concepts related to income I first created an index for *activities outside of the home*, using five variables coded 0 or 1, depending on whether parents have taken their child to visit the library, a play, a concert or show, a museum, a zoo or an aquarium, or a sporting event. This index ranges from 0 to 5, with an alpha of .452. I created a second index for *extracurricular activities*, using nine dichotomously-coded variables, measuring whether the child participates in the following activities: dance

lessons, athletic events, organized clubs, music lessons, drama classes, art lessons, organized performing, craft classes, or non-English language instruction. This index ranges from 0 to 9, with another moderate alpha of .560. Finally for income, I measured *neighborhood safety* with an index created from six variables coded 1 through 3, based on parents' reports of how safe it is to play outside, as well as how big of a problem there is of drug transaction and use, burglary and robbery, violent crime, vacant houses, and garbage and litter on the street. This index ranges from 5 to 15, with an alpha of .707.

Finally, to measure occupation-related factors I first created an index measuring parent's *beliefs on the importance of skills* using five variables coded 1 (not important) through 5 (essential) regarding how important it is that the child counts, shares, draws, can remain calm, knows the letters, and communicates well. This scale ranges from 7 to 28 with a fairly strong alpha of .766. Next, I used a variable in the dataset measuring the frequency with which parents purportedly spank their child, and recoded this into a new, dichotomous variable measuring whether parents *ever spank* their child. Finally, I created a variable measuring whether parents *implement physical punishment*, which includes two variables based on parents' reports of how they would react if their child was acting up. If they report that they would spank the child or hit the child back, they were coded 1, but if they would not respond physically they were coded 0.

The control variables include *Male*, which is a dichotomous variable, where females are coded 0 and males are coded 1. Race in the dataset was divided into a variety of different categories, which I used to create five dichotomous variables. For the variable *White*, if the student is white he or she is coded 1 and if they are anything else he

or she is coded 0. *Black, Hispanic, Asian,* and *Other*, are all coded in the same way. *Age* is a continuous measure of the child's age in months.

In order to test my hypotheses, I followed a model of mediation analysis. According to this model, the independent variable affects the dependent variable through another intervening variable. In other words, the independent variable affects the mediating variable, which then in turn affects the dependent variable:

$$X \rightarrow M \rightarrow Y$$

There is evidence of mediation if there is a relationship between the independent variable (X) and the dependent variable (Y), a relationship between the independent variable (X) and the mediating variable (M), and a relationship between the mediating variable (M) and the dependent variable (Y). The process works in a way such that the "X variable is hypothesized to help predict and explain variability in the mediator M, which in turn is anticipated to help predict and explain variability in Y" (Iacobucci 2008: 2).

Given my research question of the independent effects of parental education, income, and occupation respectively on the achievement of their children on reading and math tests at kindergarten entry, I employed theories from existing literature to identify which factors of a child's social background and life outside of the school may function as intervening variables. In an effort to identify how education, income, and occupation impact a child's achievement, I ran ordinary least squares (OLS) regressions, correlations, or t-tests (means comparisons) with key independent variables and mediating variables in order to establish a relationship. I then ran OLS regressions first with the key independent and control variables. Finally, I added in the mediators in order to test for differences in math and reading scores when including these intervening

variables into the model. I expected that the coefficients for my key independent variables in this model with the mediators included would decrease, as the mediators explain away some of the difference that originally appeared to be attributed to the key independent variables.

RESULTS

Education

All mediating variables that I predicted to be related to education (*frequency of activities, parental involvement at school, and parental expectations for educational attainment*) have positive relationships with educational attainment, for both mothers and fathers. I present my analyses in Table 2. This provides evidence of a relationship between the key independent variables (X) and the mediating variables (M). Furthermore, each of the coefficients indicates a significant relationship at the $p<.001$ level for a two-tailed test. The most dramatic change appears for the *frequency of activities* related to mother's education, where the unstandardized coefficient jumps from 1.105 for students whose mothers completed *some college* (vs. high school or less) to 1.931 for students with mothers who have a *doctorate degree* (vs. high school or less).

The regression comparing reading and math scores using a model that first included just the key independent variables and the control variables, and then including the mediating variables, generally showed patterns in the expected direction (see Table 3). That the coefficients increase with each level of educational attainment in Models 1 and 3 establishes that there is a relationship between the key independent variables (X) and the dependent variables (Y). However, the advantages in reading and math scores that appear to be caused by mother's education decrease significantly when accounting

for *frequency of activities, parental involvement at school*, and *parental expectations for educational attainment*. For example, when not controlling for these three mediating variables, students whose mother has a *doctorate degree* have a coefficient of 7.101 for math scores, but once these intervening variables are included this coefficient drops to 5.708. While there is little or no effect for the *frequency of activities*, the coefficient for *parental involvement at school* is .579 in both reading and math, and is .860 and .664 in reading and math respectively for *parental expectations for educational attainment*.

Father's education shows a similar pattern. Here, the largest decrease is seen with students whose father has a *doctorate degree* in their reading scores, which decreases from 8.260 to 6.804 when controlling for the mediating variables. The effects of *frequency of activities* is also very close to zero for both reading and math. The coefficient for *parental involvement at school is* .545 for reading and .609 for math, and for *parental expectations for educational attainment* it is .962 for reading and .772 for math. This suggests that the children whose parents are more involved and have higher educational expectations for them have more reading and math skills than children whose parents are less involved and may not push or encourage their children to the same extent. Overall, the evidence in Table 3 supports my hypotheses regarding parental education's effects.

Income

As expected, there are positive correlations between *income* and *activities outside of the home* (r=.189)*, extracurricular activities* (r=.271), and *neighborhood safety* (r=.178) (see Table 4). While none of them are particularly strong, they are all statistically significant at the $p<.001$ level. The strongest correlation is between income and extracurricular

activities, at .271. This evidence reveals advantages that high-income children have over low-income children. To measure the effects of poverty status, I compared the means for each of the mediating variables between students *below the poverty threshold* and students above the poverty threshold. Each mean is significantly higher for students above the poverty threshold. For example, the neighborhood safety mean is 13.610 for students living in poverty, but 14.452 for those above the threshold. Again, higher-income children are advantaged along these lines.

For the final analyses of income's effects on skills I first included *income, below poverty threshold*, and all control variables, and in the next model I included the mediators (*activities outside of the home, extracurricular activities,* and *neighborhood safety*) (see Table 5). When controlling for the mediators, the effects of income decreased very slightly (from .031 to .023 for reading and from .027 to .020 for math). The effects for living *below the poverty threshold* also decreased when controlling for the mediators; the coefficients decreased from -2.924 to -2.668 for reading and from -2.475 to -2.229 for math. The effects of all mediating variables for income are positive and statistically significant. The coefficient for *activities outside of the home* is .198 in reading and .259 in math. For *extracurricular activities* the coefficient is 1.067 in reading and .908 in math, and for *neighborhood safety* it is .200 in reading and .190 in math. This indicated that children who live in better neighborhoods and who have access to more activities outside of school (particularly organized extracurricular activities) have more skills than children who might live in more destitute neighborhoods and whose families cannot afford their involvement in many activities. These analyses, like those in Table 3, support my hypotheses.

Occupation

To examine the relationship between *occupational prestige* and *parent's beliefs on the importance of skills* I ran a correlation using both mother's and father's occupational prestige (see Table 6). For each, I found a significant, negative relationship (-.094 for mother's and -.077 for father's). This suggests that parents with higher-prestige occupations place less importance on these skills for their children compared to parents with lower-prestige occupations. To test the relationship between parent's beliefs on the importance of skills and my occupational categories, I ran a regression (see Table 7). For mother's occupation, I found a significant, negative relationship for both *no work* (vs. laborer) and *professional* (vs. laborer), although it was stronger for professional mothers. For fathers, although both relationships were significant, there was a positive relationship between desires for skills and fathers who do not work, and a negative relationship for fathers who are *professionals*.

I then ran means comparisons for punitive practices (*ever spank* and *implement physical punishment*) between mothers and fathers who are professional versus those who are laborers (see Table 8). As expected, *professional* parents are less likely to spank their children or implement physical punishment than parents who are *laborers*. Finally, I ran means comparisons for *occupational prestige* for mothers and fathers, comparing means for whether or not they spank their children and implement physical punishment (see Table 9). Again as expected, I found that both mothers and fathers who do not spank their children and do not implement physical punishment had higher mean occupational prestige scores.

Turning now to regressions of reading and math skills on my occupational categories and mediators, mother's occupation shows a significant increase in the coefficients for both reading and math scores from mothers who do *not work* (vs. laborers) to mothers who are *professionals* (vs. laborers), providing evidence for a relationship between X and Y (see Table 10). The coefficients for *parent's beliefs on importance of skills* are .348 and .206 for reading and math respectively. The effects of *ever spank* and *implement physical punishment* are both significant and negative. For *ever spank*, the coefficient for reading is -1.018 and that for math is -1.143, and for *implement physical punishment*, the coefficient is -.678 in reading and -.398 in math. This signifies that children of mothers who spank them and employ other forms of physical punishment have fewer skills than children whose mothers apply other forms of punishment, and also that children of mothers who put more of an emphasis on skills do slightly better. When accounting for the mediating variables, the coefficient decreases only slightly for students' scores in reading and math for students of professional mothers, and actually increases slightly for students with mothers who do not work (from 1.245 to 1.397).

Coefficients also increase when fathers are *professionals* (as opposed to not working). Again, once we control for the mediating variables, the effects of father's occupation decrease slightly. The most significant decrease is for fathers who do not work, where the coefficient for math scores decreases from -1.407 to -1.291.

In Table 11, I regress children's skills on parents' occupational prestige. *Mother's occupational prestige* has a positive effect on both reading and math skills in Models 1 and 3. Its effect though, increases by .002 in reading when accounting for

mediators, while it decreases by .002 in math. Finally, *father's occupational prestige* also has a positive effect on skills in Models 1 and 3. Its effects decrease only slightly when I include the mediators. Overall, my analyses show less mediation of parental occupation effects compared to my analyses of education and income.

DISCUSSION AND CONCLUSION

Overall, the results support my hypotheses. All of the mediating variables that I expected to be related to education (*parental expectations for educational attainment, parental involvement at school,* and *frequency of activities)* had positive relationships to mothers' and fathers' educational attainment. The effects of parental education are, in fact, mediated by *parental expectations for educational attainment*, *parental involvement at school*, and *frequency of activities*. This is true for both mothers and fathers. More highly educated parents are more involved at home and at school, and have higher expectations for their children's educational attainment, which helps explain why children of highly educated parents have higher reading and math scores than children whose parents have less education.

The results for income were less dramatic but still informative. Again, there was a positive correlation between income and *activities outside the home, extracurricular activities,* and *neighborhood safety*. When examining how these mediating variables impact achievement scores, the results indicated that, in particular, students who participated in more *extracurricular activities* had higher reading and math scores than those who participated in fewer; *activities outside the home* and *neighborhood safety* also had positive correlations with reading and math scores.

Finally, although the results for occupation were the least dramatic, they did offer some support of my hypothesis. I first established that parents with higher occupational prestige and professional parents placed less value on their children learning basic skills, and they were also less likely to *ever spank* or *implement physical punishment* on their children. The results also showed that there is a very slight positive relationship between *parent's beliefs on importance of skills* and reading and math scores, as well as a more drastic negative relationship between *ever spank* and *implement physical punishment* with reading and math scores.

There were a number of limitations in this study, mainly resulting from the ECLS-K dataset and the existing literature on this topic. Given that I used secondary data analysis and did not collect my own data, I was restricted to the data that were available in the ECLS-K dataset. I tried to focus only on data collected in the fall (closer to the students' entry into the school system), but when such data were not available I had to use data collected in the spring. For example, *parental involvement at school* likely takes place after the students have taken the reading and math exams. However, the degree of a parent's involvement in his or her child's school is surely indicative of other related parenting practices that could have impacted the child prior to the tests.

Moreover, the majority of the available existing literature discusses either SES as one combined index, or focuses on only education, income, or occupation; it is difficult to find literature that discusses the effects of these discrete variables as independent entities, rather than indexed. Furthermore, the literature related to parental education and income covered a diverse array of topics and ramifications for the children's educational

achievement; however, the literature related to parental occupation generally only discussed its relation to skill sets or values and expectations.

Despite these limitations with the data and existing research, this study helps to explain the ways in which parental education, income, and occupation shape the academic achievement of their children. Not only does it demonstrate the impact that each of these factors can have on students' success, but it shows the mechanisms through which each of these factors can and do have an impact. It is not just that one parent had more schooling than another, for example, but that they might have different values or recognize the importance of certain practices or activities as a result of this schooling. Thus, this study looks deeper into *why* and *how* parental education, income, and occupation can have positive implications on a child.

This study is useful for informing parents of the types of values, activities, and other aspects of a young child's life that are more likely to prime and prepare that child for success in the classroom. Furthermore, as it identifies the specific nonschool processes from which children can benefit and gain an advantage in school, this study has implications for the types of community-based programs that may be important in helping to improve all children's skills. In particular, pre-school programs can cater to children who do not have the benefit of parents who are highly educated, have high incomes, or professional or prestigious occupations. This could help ensure that low-SES children will not be as disadvantaged when they reach the classroom. For example, Head Start, which was started during Lyndon B. Johnson's Great Society in an effort to eradicate poverty and eliminate racial injustices, aims to provide education, health, and nutrition to low-income, young children, and their families. Programs such as these that

serve children through education and integration into the community may provide the vital boost necessary for these children's success in the classroom.

It is important to further explore related topics in order to mitigate inequalities in the classroom resulting from factors outside of the classroom. One possibility might be the exploration of pre-school programs that can help inculcate young children with important skill sets, values, norms, and cultural capital that might diminish their disadvantage relative to children whose parents rank higher in education, income, and occupation. For example, perhaps investigating whether a program that allows children from low-income backgrounds to participate in organized activities, or provides opportunities for cultural visits might provide some of the same benefits that children who come from higher-income homes have. Other important research might include a deeper look into the intervening variables for each of these three factors; perhaps looking at more mediators and more specifically, which particular elements matter, rather than creating indexes to measure general concepts.

In the end, I find that children whose parents have attained higher levels of education, have higher incomes, and are in certain occupations reap specific benefits that are in their favor and put them at an advantage once they reach the classroom. Parents with each of these advantages are able to provide for their children certain tangible and experiential benefits that boost their children's skills and thus position them to more easily navigate the school system. Knowing the specific ways in which these processes operate, we might be able to aid children who were not born into this advantage, minimizing the disparate levels of achievement in the classroom and subsequently

inhibiting the existing vicious cycle of the intergenerational transmission of privilege and advantage.

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Table 1. Descriptive Statistics

Variable	Min.	Max.	Mean	St. Dev.
Dependent Variables				
Reading skills	10.08	69.66	22.36	8.57
Math skills	6.65	59.82	19.42	7.37
Key Independent Variables				
Mother's ed. high school or less	0.00	1.00	.45	
Mother's ed. some college	0.00	1.00	.32	
Mother's ed. bachelor's degree	0.00	1.00	.15	
Mother's ed. doctorate	0.00	1.00	.08	
Father's ed. high school or less	0.00	1.00	.45	
Father's ed. some college	0.00	1.00	.26	
Father's ed. bachelor's degree	0.00	1.00	.17	
Father's ed. doctorate degree	0.00	1.00	.12	
Mother's occ. no work	0.00	1.00	.30	
Mother's occ. laborer	0.00	1.00	.51	
Mother's occ. professional	0.00	1.00	.19	
Father's occ. no work	0.00	1.00	.26	
Father's occ. laborer	0.00	1.00	.53	
Father's occ. professional	0.00	1.00	.21	
Mother's occupational prestige	29.60	77.50	43.43	11.16
Father's occupational prestige	29.60	77.50	43.17	10.98
Income	0.00	1000.00	53.04	56.40
Below poverty threshold	0.00	1.00	.19	
Mediating Variables				
Frequency of activities	9.00	36.00	24.99	4.46
Parental involvement at school	0.00	7.00	3.75	1.65
Activities outside of the home	0.00	5.00	2.06	1.36
Extracurricular activities	0.00	9.00	1.23	1.36
Neighborhood safety	5.00	15.00	14.28	1.33
Parental expectations for educational attainment	1.00	6.00	4.10	1.12
Parent's beliefs on importance of skills	7.00	28.00	21.45	2.49
Ever spank children	0.00	1.00	.27	
Implement physical punishment	0.00	1.00	.22	
Control Variables				

Male	0.00	1.00	.51	
White	0.00	1.00	.55	
Black	0.00	1.00	.15	
Hispanic	0.00	1.00	.18	
Asian	0.00	1.00	.07	
Other	0.00	1.00	.05	
Age	54.00	79.00	68.41	4.35

Table 2: Regressions of Mediating Variables on Parent's Education

Independent Variables	Frequency of Activities	Parental involvement at school	Parental expectations for educational attainment
Mother's Education			
Some college (vs. HS or less)	1.105***	.842***	.286***
	(.077)	(.026)	(.019)
Bachelor's degree (vs. HS or less)	1.490***	1.361***	.516***
	(.097)	(.033)	(.024)
Doctorate (vs. HS or less)	1.931***	1.376***	.857***
	(.126)	(.043)	(.031)
Intercept	24.246	3.161	3.857
R^2	.025	.116	.054
N	17,730	18,548	17,692
Father's Education			
Some college (vs. HS or less)	1.041***	.668***	.194***
	(.089)	(.030)	(.022)
Bachelor's degree (vs. HS or less)	1.363***	1.108***	.422***
	(.103)	(.035)	(.025)
Doctorate (vs. HS or less)	1.775***	1.204***	.724***
	(.116)	(.040)	(.028)
Intercept	24.361	3.403	3.906
R^2	.024	.095	.051
N	14,441	15,218	14,406

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 3: Regression for Education—Reading and Math Scores by Parent's Education, Mediators, and Control Variables

	Reading		Math	
	Model 1	Model 2	Model 3	Model 4
Mother's education				
Some college (vs. HS or less)	2.925*** (.141)	2.192*** (.154)	2.618*** (.113)	1.952*** (.122)
Bachelor's degree (vs. HS or less)	6.260*** (.181)	4.944*** (.198)	5.484*** (.146)	4.340*** (.158)
Doctorate (vs. HS or less)	8.493*** (.233)	6.905*** (.252)	7.101*** (.189)	5.708*** (.202)
Frequency of activities		.000 (.015)		.009 (.012)
Parental involvement at school		.579*** (.043)		.579*** (.034)
Parental expectations for educational attainment		.860*** (.063)		.664*** (.049)
Male	-1.479*** (.122)	-1.430*** (.128)	-.228 (.097)	-.107 (.101)
Race/Ethnicity				
Black (vs. white)	1.931*** (.175)	-1.643*** (.192)	-3.100*** (.143)	-2.778*** (.155)
Hispanic (vs. white)	-2.078*** (.186)	-2.166*** (.201)	-3.281*** (.135)	-3.246*** (.147)
Asian (vs. white)	2.369*** (.291)	2.640*** (.329)	1.108*** (.238)	1.193*** (.266)
Other (vs. white)	-2.012*** (.265)	-1.606*** (.285)	-2.355*** (.217)	-2.049*** (.231)
Age	.339*** (.014)	.356*** (.015)	.410*** (.011)	.422*** (.012)
Intercept	-2.099	-8.349	-9.512	-14.981
R^2	.179	.196	.254	.274
N	16,589	14,997	17,532	15,792
Father's education				
Some college (vs. HS or less)	2.718*** (.172)	2.143*** (.183)	2.425*** (.138)	1.800*** (.145)
Bachelor's degree (vs. HS or less)	5.749*** (.199)	4.741*** (.214)	4.810*** (.161)	3.795*** (.171)
Doctorate (vs. HS or less)	8.260*** (.226)	6.804*** (.245)	6.866*** (.183)	5.536*** (.196)
Frequency of activities		-.005 (.018)		.002 (.014)
Parental involvement at		.545***		.609***

school		(.050)		(.039)
Parental expectations		.962***		.772***
for educational		(.073)		(.057)
attainment				
Male	-1.521***	-1.468***	-.158	-.049
	(.140)	(.145)	(.111)	(.115)
Race/Ethnicity				
Black (vs. white)	-1.090***	-1.052***	-2.498***	-2.358***
	(.246)	(.263)	(.201)	(.212)
Hispanic (vs. white)	-1.882***	-2.026***	-3.296***	-3.316***
	(.213)	(.229)	(.153)	(.166)
Asian (vs. white)	2.020***	2.285***	.729**	.879**
	(.313)	.351	(.256)	(.284)
Other (vs. white)	-1.575***	-1.230***	-2.024***	-1.718***
	(.310)	(.330)	(.254)	(.267)
Age	.355***	.375***	.425***	.437***
	(.016)	(.017)	(.013)	(.013)
Intercept	-2.880	-9.660	-10.243	-16.174
R^2	.171	.190	.239	.263
N	13,435	12,361	14,208	13,019

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 4: Correlations and Means Comparisons: Income, Poverty, and Mediating Variables

	Activities outside of the home	Extracurricular activities	Neighborhood safety
Correlations			
Income	.189***	.271***	.178***
N	18,894	18,896	18,800
Means comparisons			
Below poverty threshold	1.561	.633	13.610
Above poverty threshold	2.183***	1.385***	14.452***
N	18,894	18,896	18,800

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 5: Regression for Income—Reading and Math Scores by Income, Poverty, Mediators, and Controls

	Reading		Math	
Variables	Model 1	Model 2	Model 3	Model 4
Income	.031***	.023***	.027***	.020***
	(.001)	(.001)	(.001)	(.001)
Below poverty threshold	-2.924***	-2.668***	-2.475***	-2.229***
	(.180)	(.186)	(.138)	(.142)
Activities outside of the home		.198***		.259***
		(.049)		(.039)
Extracurricular activities		1.067***		.908***
		(.050)		(.040)
Neighborhood safety		.200***		.190***
		(.053)		(.039)
Male	-1.480***	-.950***	-.225*	.251*
	(.123)	(.128)	(.098)	(.101)
Race/ethnicity				
Black (vs. white)	-1.427***	-.797***	-2.641***	-2.115***
	(.183)	(.192)	(.148)	(.155)
Hispanic (vs. white)	-2.307***	-1.739***	-3.393***	-2.693***
	(.188)	(.195)	(.137)	(.143)
Asian (vs. white)	3.344***	3.745***	1.935***	2.271***
	(.295)	(.308)	(.241)	(.251)
Other (vs. white)	-1.785***	-1.465***	-2.171***	-1.892***
	(.268)	(.278)	(.219)	(.226)
Age	.341***	.343***	.411***	.411***
	(.041)	(.015)	(.011)	(.012)
Intercept	-.842	-5.560	-8.380	-12.760
R^2	.145	.177	.225	.260
N	16,856	15,765	17,806	16,622

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 6: Correlation of Occupational Prestige and Mediating Variables

Independent Variables	Parent's beliefs on importance of skills	N
Mother's occupational prestige	-.094***	11,879
Father's occupational prestige	-.077***	13,271

*p<.05 **p<.001 ***p<.005 (two-tailed tests)

Table 7: Regression of Occupation and Mediating Variables

Independent Variables	Parent's beliefs on importance of skills
Mother's occupation	
No work (vs. laborer)	-.211***
	(.043)
Professional (vs. laborer)	-.504***
	(.050)
Intercept	21.612
R^2	.006
N	17,940
Father's occupation	
No work (vs. laborer)	.205***
	(.045)
Professional (vs. laborer)	-.420***
	(.048)
Intercept	21.487
R^2	.007
N	17,860

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 8: Means Comparisons for Occupation and Mediating Variables

Independent variables	Ever spank	Implement physical punishment
Mother's occupation		
Not professional	.284	.251
Professional	.212***	.155***
N	11,772	11,727
Father's occupation		
Not professional	.267	.211
Professional	.193***	.135***
N	12,558	12,515

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 9: Means Comparisons for Occupational Prestige and Mediating Variables

Mediating variables	Mother's occupational prestige	Father's occupational prestige
Ever spank children		
No	44.073***	43.744***
Yes	42.400	41.997
N	12,439	13,995
Implement physical punishment		
No	44.159***	43.761***
Yes	41.880	41.409
N	12,389	13,937

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 10: Regression for Occupation—Reading and Math Scores by Parent's Occupation, Mediators, and Controls

	Reading		Math	
Variables	Model 1	Model 2	Model 3	Model 4
Mother's occupation				
No work (vs. labor)	1.245***	1.397***	.590***	.692***
	(.151)	(.158)	(.119)	(.124)
Professional (vs. labor)	3.973***	3.943***	3.327***	3.234***
	(.169)	(.174)	(.138)	(.142)
Parent's beliefs on importance of skills		.348***		.206***
		(.027)		(.021)
Ever spank		-1.081***		-1.143***
		(.154)		(.123)
Implement physical punishment		-.678***		-.398**
		(.169)		(.135)
Male	-1.439***	-1.344***	-.173	-.050
	(.128)	(.133)	(.102)	(.106)
Race/ethnicity				
Black (vs. white)	-2.739***	-2.682***	-3.843***	-3.748***
	(.184)	(.201)	(.151)	(.165)
Hispanic (vs. white)	-2.980***	-3.006***	-4.320***	-4.301***
	(.196)	(.204)	(.141)	(.147)
Asian (vs. white)	3.513***	3.649***	1.947***	1.993***
	(.316)	(.339)	(.259)	(.278)
Other (vs. white)	-2.535***	-2.369***	-2.895***	-2.795***
	(.280)	(.295)	(.230)	(.242)
Age	.326***	.327***	.400***	.402***
	(.015)	(.016)	(.012)	(.012)
Intercept	.621	-6.415	-7.079	-11.211
R^2	.107	.121	.182	.190
N	16,276	15,132	17,162	15,932
Father's occupation				
No work (vs. labor)	-1.716***	-1.628***	-1.407***	-1.291***
	(.162)	(.170)	(.128)	(.135)
Professional (vs. labor)	4.378***	4.340***	3.783***	3.724***
	(.162)	(.166)	(.131)	(.135)
Parent's beliefs on importance of skills		.355***		.215***
		(.026)		(.021)
Ever spank		-.923***		-1.033***
		(.153)		(.121)
Implement physical punishment		-.612***		-.333*
		(.167)		(.134)
Male	-1.495***	-1.413***	-.218	-.103
	(.127)	(.132)	(.101)	(.105)

Race/ethnicity				
Black (vs. white)	-1.667***	-1.726***	-2.891***	-2.911***
	(.193)	(.210)	(.158)	(.171)
Hispanic (vs. white)	-2.497***	-2.583***	-3.876***	-3.902***
	(.195)	(.203)	(.140)	.146)
Asian (vs. white)	3.218***	3.346***	1.700***	1.748***
	(.312)	(.335)	(.256)	(.274)
Other (vs. white)	-1.989***	-1.884***	-2.434***	-2.391***
	(.278)	(.292)	(.227)	(.239)
Age	.328***	.328***	.400***	.401***
	(.015)	(.015)	(.012)	(.012)
Intercept	.930	-6.216	-6.888	-11.196
R^2	.134	.146	.208	.215
N	16,217	15,076	17,086	15,860

*p<.05 **p<.01 ***p<.001 (two-tailed tests)

Table 11: Regression for Occupational Prestige—Reading and Math Scores by Occupational Prestige, Mediators, and Controls

	Reading		Math	
Variables	Model 1	Model 2	Model 3	Model 4
Mother's occupational prestige	.173*** (.007)	.175*** (.007)	.145*** (.005)	.143*** (.006)
Parent's beliefs on importance of skills		.367*** (.031)		.221*** (.025)
Ever spank		-1.106*** (.182)		-1.160*** (.146)
Implement physical punishment		-.518** (.197)		-.294 (.159)
Male	-1.541*** (.149)	-1.381*** (.157)	-.344** (.120)	-.174 (.126)
Race/ethnicity				
Black (vs. white)	-1.973*** (.209)	-1.953*** (.233)	-3.332*** (.171)	-3.248*** (.190)
Hispanic (vs. white)	-2.463*** (.229)	-2.492*** (.244)	-3.715*** (.171)	-3.677*** (.183)
Asian (vs. white)	2.632*** (.366)	2.714*** (.402)	1.438*** (.300)	1.376*** (.328)
Other (vs. white)	-2.316*** (.329)	-2.071*** (.353)	-2.527*** (.270)	-2.351*** (.289)
Age	.330*** (.017)	.331*** (.018)	.407*** (.014)	.407*** (.015)
Intercept	-6.089	-13.721	-12.962	-17.244
R^2	.121	.135	.194	.201
N	11,373	10,367	11,774	10,701
Father's occupational prestige	.192*** (.007)	.191*** (.007)	.160*** (.006)	.158*** (.006)
Parent's beliefs on importance of skills		.367*** (.031)		.228*** (.025)
Ever spank		-.982*** (.186)		-1.070*** (.147)
Implement physical punishment		-.775*** (.206)		-.500** (.164)
Male	-1.540*** (.151)	-1.432*** (.158)	-.147 (.120)	-.009 (.125)
Race/ethnicity				
Black (vs. white)	-1.256*** (.276)	-1.222*** (.300)	-2.700*** (.225)	-2.619*** (.244)
Hispanic (vs. white)	-2.420*** (.231)	-2.388*** (.244)	-3.918*** (.164)	-3.853*** (.174)
Asian (vs. white)	3.028***	3.395***	1.435***	1.562***

	(.335)	(.371)	(.273)	(.303)
Other (vs. white)	-1.329***	-1.178***	-1.818***	-1.793***
	(.346)	(.367)	(.283)	(.299)
Age	.357***	.357***	.432***	.430***
	(.018)	(.018)	(.014)	(.015)
Intercept	-8.320	-15.591	-15.066	-19.289
R^2	.121	.133	.191	.197
N	12,383	11,420	13,076	12,015