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School Influences on Parents' Educational Expectations

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School Influences on Parents' Educational Expectations

by

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A thesis submitted to the

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The final copy of this thesis has been examined by the signatories, and we find that both the content and the form meet acceptable presentation standards of scholarly work in the above mentioned discipline.

Lawrence, Elizabeth (M.A. Sociology)

School Influences on Parents' Educational Expectations

Thesis directed by Assistant Professor Stefanie Mollborn

This study seeks to determine the social origins of parents' educational expectations for their children and explore how the effects of sociodemographic background characteristics differ across schools. Using data from the Early Childhood Longitudinal Study – Kindergarten (ECLS-K) and a multilevel approach, the results indicate that race, socioeconomic status (SES), child academic abilities, and school composition are all important predictors of parental educational expectations of 8th grade children. Having higher SES, being black or Hispanic, and attending a school with a high percentage of minority students all increase parental expectations.

Furthermore, the positive effect of having higher levels of parental education or household income is weakened by attending a school with a higher level of students coming from a minority racial background. This study demonstrates that school effects extend beyond the child and that researchers should continue to explore family-school interactions.

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INTRODUCTION

Studies have demonstrated two major types of influence on student achievement: family and school. While efforts to address racial and socioeconomic disparities often focus on improving educational institutions, sociological studies continue to show that the family is one significant contributor to educational inequality, if not the most (Coleman et al. 1966; Condron 2009; Downey, von Hippel, and Broh 2004; Downey, von Hippel, and Hughes 2008; Entwisle and Alexander 1992; Entwisle, Alexander, and Olson 1997). Financial resources, parental education, household composition, and stability have been shown to be influential for students, yet, for these factors and others, the influence is varied and complex. For example, there is evidence that schools are responsible for at least some of the disadvantages associated with being black, Hispanic, or from a lower class background, as characteristics of schools lessen family effects (Roscigno 2000). Determining the mechanisms for the influence of race and class on children's educational outcomes is still an important goal for the fields of sociology and education.

Although family and school influences are often treated as separate and competing, these forces combine together to shape student achievement. One way researchers have studied the overlap of families and schools is through looking at parental involvement in the school. Hoover-Dempsey et al. (2005) find that the influence of parent characteristics on parents' decisions to involve themselves in their children's education, such as skills, knowledge, time, and energy, are modified by school responsiveness to these characteristics. While these studies suggest that the family-school interface is important, there is little research on the family-school interaction beyond this one intersection. The studies that have looked at this interaction suggest that these institutional spheres do not independently affect children, as schools and families work together to improve or impair student achievement (Parcel and Dufur 2001). Furthermore, the interactive

effect may differ depending on the characteristics of the school, parents, and child, as each of these levels has social and cultural background characteristics that may change how the other levels are perceived and responded to. Building on the “frog pond effect” showing that the positive effect of schools with high socioeconomic composition varies across students (Crosnoe 2009), this study seeks to determine how school influence on parents may vary across families.

To explore if and how schools affect families, this study will look at factors affecting one way families influence children’s educational outcomes, parents’ educational expectations for their child, or how far in school a parent expects his or her child to go. Parents’ educational expectations are often considered a family factor separate from schools, but showing how schools influence these expectations and have different effects depending on the attributes of the school, family, and child demonstrate a way in which families and schools work together to shape children’s outcomes. A parent’s educational expectation has been documented as a correlate of grades and test scores, both directly and indirectly through children’s own educational aspirations and their beliefs about their academic abilities (Benner and Mistry 2007; Entwisle et al. 1997; Gill and Reynolds 1994; Kaplan, Liu, and Kaplan 2001; Neuenschwander, Mina Vida, and Eccles 2007; Parsons, Adler, and Kaczala 1982; Seginer 1983; Thompson, Alexander, and Entwisle 1988). Parent expectations are also important because they appear to be a mechanism with which parent income and education levels influence student achievement (Davis-Kean 2005).

Though these expectations are significant because of their influence on educational outcomes, they should not be treated in isolation, since they too are socially influenced. School policies, climate, teacher communication, and resources may influence how parents perceive educational opportunities, the value and function of further educational attainment, and the

educational potential of their children. While school characteristics affect children, determining how schools influence parent expectations demonstrates a context for understanding how the impact of schools extends beyond the child.

This study will look at the relationships between family- and school-level factors and parents' educational expectations for their children, focusing on the impact of race and class at these two levels. As I find that schools do have an independent effect on parent expectations, this study demonstrates one way in which families and schools together influence children's educational outcomes. By looking at how racial and SES compositions of schools interact with the race and SES of families, this study also demonstrates that the effects of school characteristics on parental expectations are modified by family traits, extending the literature on family-school interactions.

The Early Childhood Longitudinal Study – Kindergarten (ECLS-K) provides the data for this study. By collecting data at both the individual and school levels, the ECLS-K allows for an analysis of the independent and interactive effects of schools and families. To better isolate the causal effects of school, the longitudinal data available from the ECLS-K allows for an analysis of change in parental expectations as children progress through school. A challenge in looking at school influence is reducing the effect of selection. Families are not randomly assigned to schools, but rather select into communities based on a set of characteristics that are not fully observable. Looking at schools thus may reveal these characteristics that brought a family to a school, rather than the influence of the school itself. Though it is impossible to control for all selection effects, including a baseline of parental expectations prior to schooling rules out the selection effects prior to that starting point and controlling for a variety of child, family, and school level factors more effectively separates school influence from confounding variables.

THEORETICAL FRAMEWORK

As there has not been any research that looks at how schools influence parent expectations, this study brings together and extends the reasoning and findings of literature on parental expectational patterns and school influence on students. Individual race and class has been shown to be important for different levels of parent expectations (Alexander, Entwisle, and Bedinger 1994; Cheng and Starks 2002; Davis-Kean 2005; Solorzano 1992), and similar mechanisms may operate at the school level. In addition, since school racial and SES composition has been shown to be important for student achievement (Caldas and Bankston 1997; Caldas and Bankston 1999; Condrón 2009; Rumberger and Palardy 2005), it is likely that these factors will be important for families. Literature on both parental expectations and school processes are used to inform hypotheses regarding school level influence. To determine how family and school characteristics moderate one another, I employ a perspective similar to the “frog pond” effect to think about how schools may differently affect families.

Greater financial resources and educational levels of parents lead to greater expectations for children’s educational attainment (Davis-Kean 2005; Alexander et al. 1994). Socioeconomic status (SES) provides parents with social, cultural, human, and financial capital that may give parents more confidence in their ability to support higher educational attainment for their children. Parents with higher educational levels and more prestigious jobs who have knowledge and familiarity with educational institutions may be more convinced of their capacity to help their children in furthering their education. Economically disadvantaged parents, on the other hand, are less optimistic about their children’s educational opportunities (Crosnoe, Mistry, and Elder 2002).

However, the patterns between parent expectations and class and race differ, as socioeconomically advantaged parents show higher expectations, while historically disadvantaged racial and ethnic groups also show higher expectations. Studies looking at how parent educational expectations differ by race show inconsistent results, depending on the sample and controls used (Yamamoto and Holloway 2010). While Spera, Wentzel, and Matto (2009) found that racial differences did not hold with other control variables included, other studies have found that, even when controlling for SES, Asian, African American, and Hispanic parents hold higher educational aspirations than whites (Cheng and Starks 2002; Solorzano 1992). These effects are even stronger for immigrant parents of minority status, as Raleigh and Kao (2010) find that black, Hispanic, and Asian children of immigrant parents receive higher expectations. While research often separates Asian students from other non-white students because they show higher levels of achievement, parental expectations for Asians appear similar to blacks and Hispanics, and are thus not theoretically separated in this study.

Furthermore, it does appear that minority children themselves have higher educational expectations than their white peers (Mickelson 1990; Solorzano 1992), which may be influenced by similar factors to parental expectations. This research suggests that minority children and parents believe in the importance of education to upward mobility, but do not necessarily identify the challenges to educational achievement or “the material realities in which education may or may not lead to social mobility” (Mickelson 1990:46). These challenges or realities may be obscured to minority parents because historical racism has prevented parents from becoming familiar or knowledgeable about the institution of education, and groups that have not experienced such racism may have greater resources in navigating institutions, resulting in higher parental expectations for minority status individuals (Alexander et al. 1994).

It should be noted that parents' high educational expectations, while positively correlated with later outcomes, are not a sufficient condition for high educational attainment. Though children with minority race backgrounds have higher levels of parental expectations, the correlation of higher expectations with higher achievement may be smaller for minority students (Cheng and Starks 2002). See Alexander et al. (1994) for mechanisms explaining more or less accurate expectations of student performance. See Mickelson (1990) for a description of different types of aspirations, which may lead to different levels of accuracy of these aspirations among racial groups, and Downey, Ainsworth, and Qian (2009) for a response challenging Mickelson's (1990) argument and findings.

Thus, the patterns of parent expectations depend on whether one looks at race or class, and indicate that determinants of parents' expectations differ across social groups. However, parents' expectations may also be influenced by the school their child attends, though this effect may be complicated by the selection of children into different schools. Literature on school influences on children's educational achievement show that school-level characteristics have proven to be one of the strongest predictors of academic achievement, and though these effects may be due to selection, they persist beyond controls for students' background (Coleman et al. 1966; Rumberger, and Palardy 2005). Though socioeconomic composition of the school may reflect school resources that influence academic performance (Greenwald, Hedges, and Laine 1996), it is also independently influential on student achievement (Caldas and Bankston 1997; Caldas and Bankston 1999; Rumberger and Palardy 2005). The socioeconomic composition of the school may influence students through a range of mechanisms, including school policies, opportunities, or social and educational norms. Rumberger and Palardy (2005) identify teacher expectations, amount of homework, number of advanced courses taken, and student reports of

feeling unsafe as mechanisms explaining the effect of school SES. The racial composition of schools has also been shown to influence students' educational outcomes, with students attending schools with high percentages of minority students demonstrating educational disadvantages (Caldas and Bankston 1997; Condron 2009). However, separating the effects of SES and racial composition can be difficult, as the two are likely confounded. Rumberger and Palardy (2005) find that it is SES composition that matters, while Caldas and Bankston (1997) and Condron (2009) find that racial composition is more important. These findings indicate that schools of different SES and racial composition have influential characteristics, which likely have implications beyond student achievement.

Applying the same thinking to the outcome of parent educational expectations, the racial and SES composition of a school may indicate different policies, opportunities or norms that influence parents' attitudes toward education and their child's achievement. Schools may influence parents' educational expectations through providing important information to parents about navigating the institution of education and the aptitude of a child in different arenas, as well as through setting a school culture that communicates educational values and beliefs to parents. Schools with higher SES composition have higher achievement levels, and will likely have greater commitment, resources, and structural advantages for further educational attainment, which could raise parents' expectations of their children. Conversely, schools with lower SES composition and lower achievement levels will likely have less dedication and practices that support attainment of higher educational levels.

As individuals of Asian, Hispanic, and African American background have higher parental expectations, I also expect that schools with high concentrations of students of minority background will have higher expectations which persist after SES composition controls. Schools

with high levels of minority students have more optimistic attitudes toward educational attainment and achievement, which may be due to the concentration of higher aspirations of minority students or because parents and students interact with these schools such that school feedback is not accurately communicated (Goldsmith 2004). In a school with high concentrations of minority students, perhaps these students and their parents set a climate of high expectations without attention to the challenges to these expectations. Parents and students may become more aware of the structural obstacles to furthering educational attainment in a school with many white students who may be viewed as competition or who may share their knowledge of educational institutions.

In addition, students and parents may be differentially influenced by school characteristics. Prior research has indicated a “frog pond effect” in schools, that just as frogs feel bigger in a smaller pond, students compare themselves to others in the local context of the school (Crosnoe 2009). This effect shows that being a low-income student in a school of high SES composition can have detrimental effects, both in educational achievement and in psycho-social effects (Crosnoe 2009). Though some may assume that schools of higher SES composition may be better for all students, the frog-pond effect suggests that school influence is more complex than it appears and is highly dependent on the interaction between school and student characteristics.

Extending the frog pond effect to parents’ educational expectations, attending a school of higher SES composition or higher percentages of minority students may not raise expectations for all students, but rather depend on the characteristics of that student or parent. The positive effect of attending a school with higher SES composition may not be as strong for parents of a lower SES background, as these parents may compare their children with others who have

additional advantages. On the other hand, the expectational advantages associated with attending a school with high percentages of minority students may be weakened by a higher SES background, as these parents may be able to identify the structural constraints and be less influenced by an overall climate of high, but potentially unrealistic, expectations. Looking at how the effects of school composition differ by the background of parents shows how schools and families interact in their influence on children's achievement.

AIMS

Given the above considerations in predicting parent expectations, the first aim of the study is to identify the influence of racial and SES characteristics of the family and school on parental expectations. Second, this study interacts school and family factors to explain how school influence differs across families of different socioeconomic background to produce different expectational levels. These aims are captured in the following hypotheses:

Hypothesis 1: Families with a racial minority background or of high SES will show higher levels of parental expectations.

Hypothesis 2: Schools with higher SES and higher levels of minority students will show higher levels of parental expectations.

Hypothesis 3: Higher school level SES will strengthen the effect of family SES background and weaken the effect of coming from a racial minority background.

Hypothesis 4: Higher percentages of racial minorities in a school will weaken the effect of higher family SES background and strengthen the effect of coming from a racial minority background.

To better isolate the effect of school, I will look at parent expectations in the spring of 8th grade controlling for expectations reported in 5th grade, since including this earlier level of

expectations better controls for selection effects. From these analyses, I find that family and school characteristics are independently influential on parent expectations, and that a higher percentage of racial minorities in a school weakens the effect of family SES background.

Looking at the outcome just prior to high school provides insight into an important developmental time, as academic tracks have not yet been firmly fixed, but student trajectories are beginning to diverge. Middle school is a time of transition, when students experience greater social comparison, competition, and emphasis on ability, compared with elementary school (Eccles, Midgley, and Adler 1984). Furthermore, by the end of middle school, students have had time to demonstrate their academic abilities and parents have received feedback from the school regarding their children's abilities (Seginer 1983).

While this study focuses on the influence of family- and school-level SES and race/ethnicity on parental expectations, it is important to control for the characteristics and educational potential of the child, as I want to capture the parents' mindset, rather than the students' performance or abilities. Though parents may interpret children's academic performances differently, there is a general relationship between this performance and a parent's expectations (Yamamoto and Holloway 2010). A child's educational potential is based on several components, and parents may base their evaluations on different skills, such as cognitive abilities, problem-solving skills, or creativity (Raty, Snellman, and Vainikainen 1999). Grades received in school are also associated with parent expectations, though the effect appears to be modified by parent perception of grades, as the relationship between expectations and actual attainment is strongest for parents who accurately recall their child's grades (Alexander et al. 1994).

DATA

The Early Childhood Longitudinal Study, Kindergarten Cohort (ECLS-K), a longitudinal nationally representative study conducted by the U.S. Department of Education provides the data for this study (Tourangeau et al. 2009). The ECLS-K began in 1998 with a nationally representative sample of kindergartners and followed them over seven waves, with the last wave administered in 2007, when most of the students were in eighth grade. Each wave includes information from surveys given to students, their parents, teachers, and school administrators, as well as information obtained from direct assessments of the students' academic skills. This study will look at influences on parent expectations of children in wave 7, or the 8th grade wave. Besides race and sex, which are collected at the start of the survey, and certain indicators from wave 6, which are identified as 5th grade variables, all other independent variables come from the 8th grade wave. As discussed above, the outcome thus represents the end of middle school, while certain indicators from the spring of 5th grade indicate variables prior to starting middle school.

Though the study began with a sample of over 20,000 kindergartners, due to attrition and missingness, there are 8,776 cases that have the outcome variable in the 8th grade wave. Students missing on any of the variables included in these analyses were listwise deleted, including students who were home-schooled, resulting in a final sample of 7,382. The level 2 sample consists of 2,170 schools with an average of 3.4 students per school. Compared to the starting sample in kindergarten, the sample included in these analyses is more female, more white, and of higher SES background. However, controlling for these factors should minimize the sample bias.

The outcome variable, parental expectations, asked the parent how far he or she expects his or her child to go in school in the last wave of data, when most students are in 8th grade. These categories are recoded to a continuous variable representing the equivalent number of

years of schooling for each category. This indicator was collected during the parent interview, which was completed by the child's mother for most observations. However, the interview could have also been completed by another household member, with priority being given in the following order: the respondent from a previous round, the child's mother, other parent or guardian, or other adult household member (Tourangeau et al. 2009). To better get at the effect of school, a baseline of parental expectations from before the start of middle school is also included. Parent expectations from the spring of 5th grade are coded identically to the outcome variable. When the 5th grade report was missing, expectations from the spring of 3rd grade are substituted, with a total of 126 observations filled in.

Child level characteristics include basic controls, such as gender, English as their home language, and disability status, as well as variables representing academic performance. From the dataset's constructed variable for gender, a dummy variable is created, with 1=female and 0=male. At the start of the survey, in Kindergarten, parents were asked about the home language of the child. From this question, a dummy is created with 1=English as home language, 0=home language is not English. To represent disability status, the 8th grade composite variable indicates whether the parent reports that his or her child had a disability diagnosed by a professional. These disabilities include the child's ability to pay attention, learn, participate in activities, communicate, behave and relate to adults, hear and understand speech, and see. Children with any of these disabilities are coded 1, and with none of these disabilities are coded 0.

To represent a child's aptitude for doing well in school, I use a scale score of locus of control, an overall measure of the students' grades as reported by the parents, and measurements of the children's performances on math and reading assessment. Locus of control, a trait that has been shown important to educational and occupational success, indicates the extent to which

children believe they can control the events that will affect him or her (Wang et al. 1999). The 8th grade child interview asked students the degree to which they agree or disagree with eight different statements, which are combined to create a scale. Each of these items in the scale is standardized separately and the responses were averaged with an alpha of .75 (Tourangeau et al. 2009). Parents' reports of student grades during the 8th grade parent interview are also included to reflect a parent's perception of his or her child's ability. Though these values generally reflect how well the student is doing in school, the inaccuracy or accuracy of the reporting of these values also demonstrates parental perceptions (Alexander et al. 1994). Parents report their children's grades by choosing the letter category that best reflects the grades they receive across classes and these categories are coded in ascending order, with F's=1, D's=2, etc. To capture academic aptitude, math and reading scores are also included. To better establish causal ordering for 8th grade expectations, 5th grade scores are used. The math and reading assessments were implemented with item response theory (IRT) procedures that look at patterns of right and wrong answers to determine the child's ability most accurately. Since this study is not concerned with gains or losses in learning over time, analyses use standardized T-scores that represent the student's performance in reference to the population as a whole. These scores capture how students rank relative to their same-grade peers, a relevant indicator for this study. Students missing their spring of 5th grade scores are filled in with T-scores from spring of 3rd grade. A total of 150 reading and 147 math scores are filled in.

To capture SES of the parent, total household income and highest education level achieved by a parent from the 8th grade wave are included. Total household income, as reported by the parent and imputed when possible by ECLS-K, fell into one of thirteen categories, which is recoded to the midpoint of each category, with \$2,500 and \$250,000 standing in for the lowest

and highest categories, respectively. As income is not normally distributed, the log of income was then taken to allow for a linear relationship with the outcome variable. The highest education level of either parent reflects an ordered set of nine categories, from 8th grade or below to doctorate or other professional degree, that were recoded to reflect the equivalent number of years. The constructed variable used to create this indicator also includes values imputed by ECLS-K.

Though there may be different racial backgrounds in a family, this study uses the race of the child to capture family racial background. Taken from a composite variable created by the ECLS-K, the race of the child is represented in mutually exclusive categories of white, black, Hispanic, Asian, and other race, with white used as the reference category. Children of Hispanic ethnicity are coded as Hispanic, regardless of other categories that may have been reported. Children with more than one racial background are included in the other race category.

To capture the characteristics of the school that might affect parents, variables include SES and racial composition of the school's students. To represent SES, a categorical variable is created that captures the percentage of students receiving free and reduced price lunch, a recognized measure of how many children of low SES a school serves. Because this percentage is not available for private schools, one of the categories represents private schools. The other categories represent the percentages for public school divided roughly into thirds: 0-33%, 33-66%, and 66-100%. The percentage included data that was imputed by the Department of Education either using data from previous waves of the study, or, if that was not available, using a hot-deck methodology (Tourangeau et al. 2009). The category of 0-33% students receiving free or reduced price lunch is the reference group for the other two percentage categories and for private schools. The percentage of non-white or minority students is used to represent the racial

composition of the school. This continuous variable is taken from the composite variable that was based on the sum of percentages for all non-white racial categories given by the principal, and filled in with information obtained from the Common Core of Data or Private School Universe Survey (Tourangeau et al. 2009).¹

METHODS

To conduct the analyses, I use a hierarchical regression model with a maximum likelihood estimator. Since the assumption of ordinary least squares (OLS) regression would be violated by the similarity of students who attend the same school, a hierarchical model is used that allows parameters to vary for both the individual level, or students, and the aggregate level, or school, producing a model that considers the similarity between students who attend the same school. This multilevel model also allows for cross-level interactions between individual and school level variables, which will demonstrate how the effects of race, class and family characteristics differ across schools. The ICC is .16, indicating that 16% of the variance across students in parental expectations is due to variance across schools, supporting the suitability of a multilevel approach.

A series of hierarchical models using random intercepts to allow the constant to vary across schools is used to predict 8th grade parental expectations and test the first two hypotheses. The first model uses only child predictors as independent variables to establish a starting point. Family-level variables, a baseline of parental expectations from 5th grade, and school level variables are then added sequentially. To test the third and fourth hypotheses, hierarchical models incorporate random slopes and cross-level interactions in addition to random intercepts. The first model allows individual race to vary and interacts this variable with the percentage of

minority students in the school. The second and third models allow parent education to vary, and separately include interactions between parent education and percent minority students and school SES composition categories. Similarly, the fourth and fifth models allow household income to vary and interact this variable with the same school characteristics. Because of the numerous categories that would be necessary to include, interactions between individual race and school SES composition are not included.

Comparing results from hierarchical models, ordinary least squares (OLS) regression models, and regression models using jackknife bootstrapping methods to account for complex survey design indicate similar findings across model approaches. The size and significance of the variables of interest do not change across the models, and thus to best control for factors at the individual and school levels and avoid making assumptions to apply probability weights, strata, and clustering to both levels, I employ hierarchical models without jackknife bootstrapping methods.

RESULTS

Table 1 displays the descriptive statistics for the independent and dependent variables. The sample is mostly English speaking, white, and whose parents have more than a high school education. Most parents expect their child to go to college, as the overall population has a mean of 16.2, which averages out to an expectation of education just beyond a bachelor's degree. The table also shows the means and standard errors of two subpopulations, those below or those at and above having the expectation of completing college. Most of the child, family, and school variables indicate a significant difference across these two subpopulations. A notable exception is the school variable capturing the racial composition of the school.

Table 1

Figures 1a and 1b display the distributions of parents' expectations across different school characteristics, without any controls but accounting for complex sampling design. Unsurprisingly, the average expectational level is higher among private than public schools. However, it appears that the relationship between school SES and expectations is U-shaped: expectations do not decrease across schools as their SES levels decrease, since the lowest average expectational levels are in schools with 33-66% of students receiving free or reduced lunch. Looking at the distribution of expectations across school racial composition indicates that the relationship is nearly linear: the highest and lowest levels of parent expectations are found in schools with the highest and lowest levels of minority students, respectively. However, these differences may be due to the selection of students with different levels of parental expectations into these schools. Controlling for student and family associations with these expectations and controlling for baseline parental expectations will better reveal whether these patterns are causally influenced by schools.

Figures 1a and 1b

Table 2 displays the results showing the effects of families and schools on 8th grade parental expectations. Model 1 indicates that the characteristics of children are influential on parents' educational expectations. Parents have higher expectations for female children, and having a disability lowers expectations, consistent with the findings of other studies (Raleigh and Kao 2010). The higher expectations for female students also confirm what we know about gender differences in education, as girls show advantages in social skills, classroom behavior, and orientation to learning, which can be seen in others' assessments of their educational potential (Buchmann, DiPrete, and McDaniel 2008). Those with English as a home language

have expectations that are 1.05 years lower than non-native speakers, demonstrating similar findings to Raleigh and Kao (2010) that show consistently higher parental educational expectations for immigrant parents. Parents' reporting of students' grades in 8th grade appears to be quite influential, as each increase in letter grade results in .62 years increase in parent's expectations. Reading and math scores and locus of control scale also demonstrate a positive statistically significant relationship with parental expectations.

Table 2

The second model adds in family background race and SES characteristics. Race and SES appear to influence parent expectations as these variables are significant and there is improved model fit with a reduced Bayesian Information Criterion (BIC) and a greater proportional reduction in prediction error (PRE) of 17.1%. In addition, the effects of the child variables are weakened with the addition of family background, as the coefficients decrease from Model 1 to 2, with the exception of female, which appears to have been suppressed in Model 1. This suppression effect may be due to the effect of female differing across racial or SES groups. Being nonwhite raises expectations when controlling for other variables, as black, Hispanic, and other race all have positive and statistically significant relationships with the outcome variable. However, parental expectations for Asians are not statistically different from non-Hispanic whites in the multivariate framework, which is likely due to the child level controls for academic ability and the smaller sample size of this group. Though the bivariate relationship in Table 1 indicates that blacks are disproportionately represented among those with lower parental expectations, controlling for SES and child characteristics indicates that being black is associated with a one year increase in expectations. Being Hispanic also has a strong effect of over three-

quarters of a year increase. Consistent with other literature, parents' having higher income and educational attainment are also associated with greater expectations.

The third model in Table 2 includes the baseline measure, parents' expectations in the spring of fifth grade. As expected, the inclusion of this control improves the fit of the model and dampens the effects of the other variables. The effects of both income and parent education have roughly been halved and now show a more moderate relationship to the outcome. However, the coefficients for family and child variables remain significant, indicating these characteristics affect changes in parental expectations in middle school.

The last model incorporates level 2 variables representing school composition. The model indicates a better fit than the previous, with an improved BIC and greater PRE. For the most part, the child and family coefficients are similar to the previous model. Adding in school characteristics does not reduce the effect of family SES, as parent education stays the same and the income coefficient increases, indicating that schools are not a mechanism for family SES to influence parental expectations. However, the results suggest that schools may be a mechanism for the influence of individual level race, as the influence of family-level racial categories is reduced. In addition, speaking English as one's home language is now positively associated with the outcome, indicating that this factor is intimately tied with school characteristics. The coefficients of the school variables demonstrate that private schools have slightly higher levels of parental educational expectations. Schools with higher percentages of minorities have higher levels of parent educational expectations, as moving from the minimum to the maximum of this variable is equivalent to a half year increase. Schools with 33-66% and more than 66% of students receiving free and reduced price lunch are not statistically different from schools serving 0-33% students receiving free and reduced price lunch.

Table 3 displays the models incorporating random slopes and cross-level interactions to test how family-level race and SES vary across school SES and racial composition. The first model indicates that the effects of being black, Hispanic, or Asian vary greatly across schools. The random effects of Model 1 show that the variances around the slopes of the racial categories are fairly large, and the variance around the intercept is nearly zero, showing that this model is capturing most of the between school variation. The interaction terms demonstrate how the effect of race varies according to the percentage of minority students served by the school. While black and Asian are not significant, the Hispanic term shows the positive effect of being in a school with a higher percentage of minority students is strengthened for Hispanic, compared to non-Hispanic white, students.

Table 3

The second model allows parent education to vary across schools. The results suggest that the effect of the parent's educational attainment does depend on the school of the student, as the BIC is lower and the PRE is higher than that of the same model without random slopes or interaction terms (Table 2 Model 4). The negative interaction coefficient is also significant, indicating that the positive effect of having parents with higher educational levels is weakened by attending a school with a high concentration of minority students.

The third model in Table 3 demonstrates that the influence of household income also varies according to school characteristics. Compared to the same model without letting income vary (Table 2 Model 4), the BIC and PRE indicate improved model fit. The negative and statistically significant interaction term demonstrates that, like parent educational attainment, the positive effect of parental income is weakened for those attending schools with more minority students. Figure 2 illustrates these interaction effects between school racial composition and

parent education and family income, holding all other variables at the mean. For those with the lowest parent education or family income, the percentage of minority students is important, as those attending schools with the highest percentage of minority students have parental expectations of a year or more than those attending schools with the lowest percentage of minority students. For those with the highest parent education or family income, school racial composition appears to be inconsequential, as the parental expectations are about equivalent for these students.

Figure 2

Models 4 and 5 in Table 3 show that school-level SES is less influential and does not vary according to family-level SES. Though the BIC is improved for these models compared to the model without any interaction terms, this is likely due to letting the effect of parent education or income vary across schools, rather than the cross-level interaction between these variables and school SES composition categories. Only one of these terms is significant, which shows that the positive effect of household income is decreased for those attending schools with high numbers of students receiving free or reduced lunch.

DISCUSSION AND CONCLUSION

The results show that family- and school-level SES and race are all independently influential on parents' educational expectations, suggesting that studies should not consider parents' expectations as an unconnected independent variable and that family influence on students should not be considered independently of schools. Hypothesis 1 is verified, as being black or Hispanic, having higher parental educational attainment, and reporting greater household income do appear to be associated with higher expectations when controlling for other variables.

However, the hypothesis is disproved for individuals with Asian or other racial background, as the higher parental expectational levels do not hold for these groups with the inclusion of child, family, and school covariates. Hypothesis 2 has mixed findings, as racial composition and attending a private school have a significant effect on parental expectations, but SES composition does not show an effect. Interestingly, the findings from the multivariate analyses differ from the comparisons in Table 1, which indicate that the distribution of high and low parental expectations differ across school SES, but not percentages of racial minority students. As private schools do show an effect, the non-significant effects of the other school SES categories may be due to the simplistic operationalization of SES through students receiving a free or reduced price lunch. However, as other studies have found that racial composition is more important than SES, these findings appear to show support that race is more important than class in school level effects.

The results, for the most part, refute Hypothesis 3, as it does not appear that school SES changes the effects of family SES or race. There appears to be some frog pond effect, but a different effect than that identified by Crosnoe (2009), as he found that low-income students fared worse in high SES schools, whereas I find that high-income students fare worse in low SES schools. However, Crosnoe's focus on educational achievement and psychosocial outcomes may be more related to competition and social comparison than parent expectations, which may be more influenced by school climate. For parent expectations, private schools and schools with mid-range SES composition do not appear to change the effect of family income, compared with public schools with higher SES composition. Hypothesis 4 is also partly supported, as the effects of parent education and family income vary across school racial compositions, though race does not. However, race still stands out as particularly important, as the variance of the slopes of

black, Hispanic, and Asian are quite large, indicating that there is important heterogeneity in the parents' expectations of black, Hispanic, and Asian students that should be further explored. While the effects of parent education and household income do not vary as much as race, the improved model fit and significant interaction terms support the importance of school-level factors and multilevel models in understanding the patterns and causes of heterogeneity in parental educational expectations. The findings of these models also show that while the percentage of minority students has an overall positive relationship with parent expectations, this effect is weakened for parents with higher levels of education or income. As both attending schools with more minority students and having higher SES background lead to higher parent expectations, but work in opposition to one another, there appear to be multiple distinct mechanisms leading to these expectations. Future studies should look at a broader set of school characteristics to better capture the mechanisms for schools' influence on parents.

Furthermore, it appears that middle school influences parents, as the influence of family and child variables persisted when baseline expectations from 5th grade were added in to the model. Similar models predicting 5th grade expectations controlling for baseline kindergarten expectations show similar family and child influences, but smaller school effects and no significant interactions (See Appendices A and B). These results further point to middle school as an influential interval on parent expectations. Since elementary schools are less competitive (Eccles et al. 1984), the effects of school and family race and SES may be less entangled. The findings therefore suggest that school effects vary depending on the developmental time period, and future research will need to distinguish between these effects and better determine how schools influence children differently across the life course.

While the study indicates the importance of variety and variability of factors underlying parents' educational expectations, further research will be needed to disentangle these relationships and their influence on educational outcomes. Parent expectations have been shown to predict later educational outcomes, but this relationship is complicated by a variety of other factors also affecting educational achievement and attainment and there is evidence that the relationship itself differs across social groups (Alexander et al. 1994; Cheng and Starks 2002). Furthermore, the models rely on a simplistic understanding of parental expectations that only considers the level of education the parent expects, rather than incorporating the intensity or the extent to which they are communicated. Another important consideration is methodologically addressing the endogeneity of studies looking at parental expectations, as educational outcomes are both a cause and effect of expectations (Seginer 1983). While this study attempted to control for educational outcomes and separate some effects temporally, future studies may be able to better model the causal loop that exists between parent expectations and other factors.

Despite these limitations, this study suggests that parents' expectations for their children's educational attainment is an important but complex mechanism for understanding how families influence educational outcomes and how school influence extends beyond the child. Furthermore, this study builds on the findings of other studies to show that understanding how families and schools interact and work together will provide insight into the independent effects of these institutions as well as their combined influence on children (Crosnoe 2009; Parcel and Dufur 2001; Roscigno 2000).

END NOTES

¹ Variance inflation factor tests were run on all of the variables, and no multicollinearity issues were detected.

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Table 1. Descriptive statistics for children, family, and school variables in 5th and 8th grade waves of the ECLS-K

	Overall Population		Low parental expectations (<16 yrs)		High parental expectations (16 yrs+)		Means of high vs. low exp
	Mean	SE	Mean	SE	Mean	SE	
Parents' Expectations in 8th Grade	16.20	2.09					
<u>Child</u>							
Female	0.49	0.01	0.42	0.02	0.52	0.01	***
Has a disability	0.17	0.01	0.28	0.02	0.14	0.01	***
English home language	0.88	0.01	0.91	0.01	0.87	0.01	***
Student grades	4.24	0.02	3.70	0.04	4.42	0.02	***
5th grade reading IRT score	51.11	0.24	53.78.7	0.53	52.91	0.26	***
5th grade math IRT score	51.27	0.27	3.2-77.6	0.46	52.89	0.29	***
Scale of locus of control	-0.01	0.01	-2.5-1.29	0.03	0.06	0.01	***
<u>Family</u>							
Race							
Nonhispanic white	0.60	0.02	0.59	0.02	0.60	0.02	
Nonhispanic black	0.16	0.01	0.21	0.02	0.15	0.01	***
Hispanic	0.18	0.01	0.14	0.02	0.19	0.01	**
Nonhispanic Asian	0.03	0.00	0.01	0.00	0.03	0.00	**
Other race	0.04	0.01	0.04	0.01	0.04	0.01	
Logged total household income	10.83	0.03	7.8-12.4	0.04	10.97	0.03	***
Highest parent educational level	14.45	0.06	8-20	0.09	14.90	0.07	***
Parent expectations in 5th grade	16.00	0.06	14.40	0.10	16.50	0.06	***
<u>School</u>							
SES composition							
0-33% Free and reduced price lunch	0.36	0.02	0.31	0.02	0.37	0.02	**
33-66% Free and reduced price lunch	0.32	0.02	0.37	0.03	0.30	0.02	***
66-100% Free and reduced price lunch	0.22	0.02	0.27	0.03	0.21	0.02	**
Private school	0.11	0.01	0.05	0.01	0.12	0.01	***
% minority	38.98	1.25	5-87.5	2.00	39.20	1.16	

Source: Early Childhood Longitudinal Study, Kindergarten Class 1998-1999 (ECLS-K)

Notes: Statistics account for complex survey design using a paired jackknife replication method. N=7382

Table 2. Hierarchical linear model predicting parents' expected educational attainment of their 8th grade children

	Model 1		Model 2		Model 3		Model 4		
	b	z	b	z	b	z	b	z	
Fixed Effects									
Intercept	16.330 ***	581.60	16.291 ***	644.31	16.273 ***	730.94	16.264 ***	735.41	
<i>Child</i>									
Female	0.187 ***	4.14	0.215 ***	4.89	0.134 **	3.34	0.133 **	3.34	
5th grade reading IRT scores	0.025 ***	7.32	0.019 ***	5.43	0.007 *	2.31	0.008 *	2.53	
5th grade math IRT scores	0.019 ***	5.39	0.018 ***	5.07	0.008 *	2.38	0.008 *	2.41	
Disability	-0.235 ***	-3.68	-0.226 ***	-3.60	-0.163 **	-2.87	-0.154 **	-2.71	
English as home language	-1.052 ***	-14.89	-1.042 ***	-12.33	-0.675 ***	-8.76	0.122 ***	3.63	
Scale of locus of control	0.211 ***	5.60	0.165 ***	4.47	0.119 ***	3.55	0.479 ***	16.36	
Parent's report of student grades	0.622 ***	18.96	0.584 ***	18.12	0.479 ***	16.32	-0.611 ***	-7.88	
<i>Family</i>									
Race (white)									
Black			0.998 ***	11.94	0.560 ***	7.36	0.368 ***	4.48	
Hispanic			0.786 ***	10.44	0.513 ***	7.50	0.349 ***	4.80	
Asian			0.138	1.22	-0.103	-1.01	-0.196	-1.90	
Other			0.340 **	3.22	0.231 *	2.43	0.105	1.08	
Logged total household income			0.219 ***	6.64	0.126 ***	4.22	0.135 ***	4.41	
Highest parent education level			0.124 ***	11.74	0.059 ***	6.06	0.059 ***	6.04	
Parent expectations in 5th grade					0.428 ***	39.80	0.423 ***	39.36	
<i>School</i>									
SES composition (0-33% free & red lunch)									
33-66% Free and reduced lunch							-0.029	-0.50	
66%+ Free and reduced lunch							0.020	0.26	
Private school							0.164 *	2.53	
% minority							0.006 ***	5.82	
Random Effects									
Variance around intercept	Est	SE	Est	SE	Est	SE	Est	SE	
	0.419	0.050	0.236	0.039	0.152	0.030	0.145	0.029	
PRE	0.151		0.171		0.309		0.312		
BIC	30127		29751		28327		28315		

Source: Early Childhood Longitudinal Study, Kindergarten Class 1998-1999 (ECLS-K)

*p<.05, **p<.01, ***p<.001

Notes: Reference groups are in parentheses. Fixed effect coefficients are unstandardized. All variables are centered to the mean of the sample. Covariance was allowed between random intercepts and slopes. N=7382

Table 3. Hierarchical linear model predicting parents' expected educational attainment of their 8th grade children, with random slopes and cross-level interactions

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	z	b	z	b	z	b	z	b	z
Fixed Effects										
Intercept	16.255 ***	783.76	16.268 ***	732.45	16.269 ***	715.29	16.269 ***	726.94	16.272 ***	709.90
Female	0.147 ***	3.80	0.128 **	3.28	0.139 ***	3.57	0.129 **	3.30	0.138 ***	3.54
5th grade reading IRT score	0.009 **	2.80	0.009 **	2.95	0.009 **	2.88	0.009 **	2.87	0.009 **	2.82
5th grade math IRT score	0.008 *	2.57	0.006 *	2.08	0.008 *	2.58	0.007 *	2.13	0.008 *	2.56
Disability	-0.160 **	-2.90	-0.171 **	-3.06	-0.167 **	-2.99	-0.174 **	-3.12	-0.171 **	-3.06
Scale of locus of control	0.110 **	3.35	0.120 ***	3.64	0.125 ***	3.80	0.120 ***	3.63	0.126 ***	3.83
Parent's report of student grades	0.468 ***	16.37	0.474 ***	16.28	0.455 ***	15.66	0.475 ***	16.30	0.457 ***	15.72
English as home language	-0.481 ***	-5.70	-0.534 ***	-6.83	-0.529 ***	-6.78	-0.555	-7.12	-0.556 ***	-7.13
Race (white)										
Black	0.512 ***	3.98	0.400 ***	4.86	0.388 ***	4.60	0.414 ***	5.03	0.415 ***	4.93
Hispanic	0.288 **	2.75	0.277 ***	3.85	0.326 ***	4.56	0.290 ***	4.03	0.335 ***	4.69
Asian	0.053	0.26	-0.097	-0.96	-0.079	-0.78	-0.119	-1.18	-0.101	-1.00
Other	0.105		0.103	1.07	0.070	0.72	0.109	1.13	0.073	0.75
Logged total household income	0.140 ***	4.40	0.135 ***	4.47	0.145 ***	4.15	0.134 ***	4.43	0.131 ***	3.75
Highest parent education level	0.063 ***	6.62	0.061 ***	5.77	0.061 ***	6.35	0.059 ***	5.53	0.061 ***	6.34
Parent expectations in 5th grade	0.427 ***	40.31	0.423 ***	39.75	0.423 ***	39.67	0.424 ***	39.89	0.425 ***	39.82
SES composition (0-33% free & red lunch)										
33-66% Free and reduced lunch	0.008	0.00	-0.004	-0.07	0.016	0.28	0.002	0.03	0.038	0.62
66%+ Free and reduced lunch	0.010	0.32	0.027	0.34	0.001	0.02	0.065	0.81	0.055	0.66
Private school	0.189 **	3.29	0.158 **	2.75	0.149 **	2.62	0.183 *	2.58	0.202 **	2.68
% minority	0.005 ***	5.77	0.005 ***	5.50	0.005 ***	5.43	0.005 ***	4.94	0.005 ***	4.61
Black*% minority	0.000	-0.02								
Hispanic*% minority	0.009 **	3.24								
Asian*% minority	-0.002	-0.54								
Other race*% minority	0.004	1.13								
Parent ed*% minority			-0.001 ***	-3.52						
Logged income*% minority					-0.004 ***	-4.41				
Parent ed*33-66% free and red lunch							-0.017	-0.76		
Parent ed*66%+ free and red lunch							-0.028	-1.07		
Parent ed*private school							-0.013	-0.52		
Income*33-66% free and red lunch									-0.093	-1.24
Income*66%+ free and red lunch									-0.199 *	-2.39
Income*private school									-0.096	-1.06
Random Effects										
	Est	SE	Est	SE	Est	SE	Est	SE	Est	SE
Variance around intercept	0.000	0.000	0.160	0.026	0.199	0.028	0.163	0.027	0.200	0.028
Variance around slope of Black	1.140	0.233								
Variance around slope of Hispanic	1.829	0.218								
Variance around slope of Asian	1.059	0.270								
Variance around slope of Other race	0.370	0.179								
Variance around slope of parent ed			0.021	0.003			0.022	0.003		
Variance around slope of income					0.248	0.036			0.257	0.037
PRE	0.382		0.356		0.367		0.356		0.366	
BIC	28146		28157		28129		28186		28160	

Source: Early Childhood Longitudinal Study, Kindergarten Class 1998-1999 (ECLS-K)

*p<.05, **p<.01, ***p<.001

Notes: Reference groups are in parentheses. Fixed effect coefficients are unstandardized. All variables are centered to the mean of the sample. Covariance was allowed between random intercepts and slopes. N=7382

Figure 1a. Years of child's expected educational attainment, by % of students receiving free or reduced price lunch

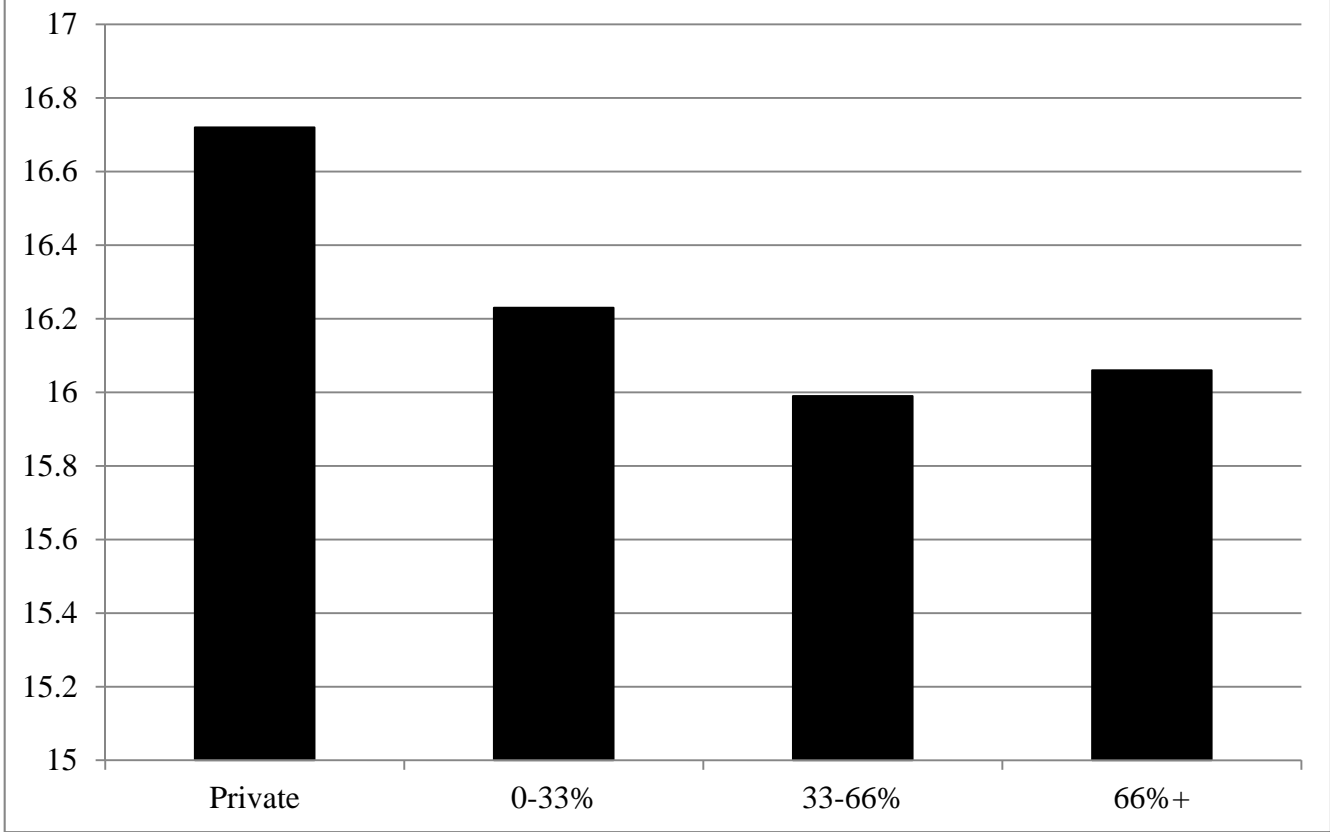


Figure 1b. Years of child's expected educational attainment, by % of minority students in the school

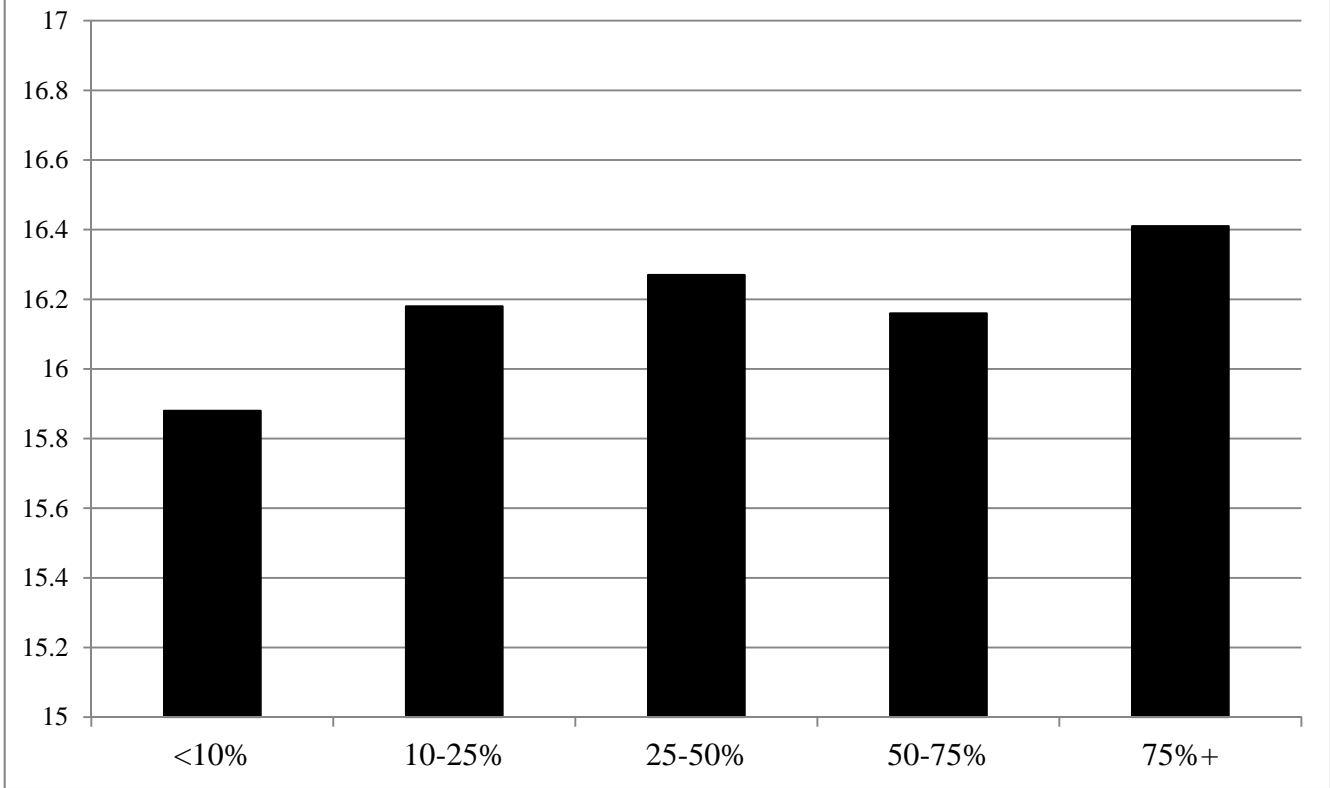
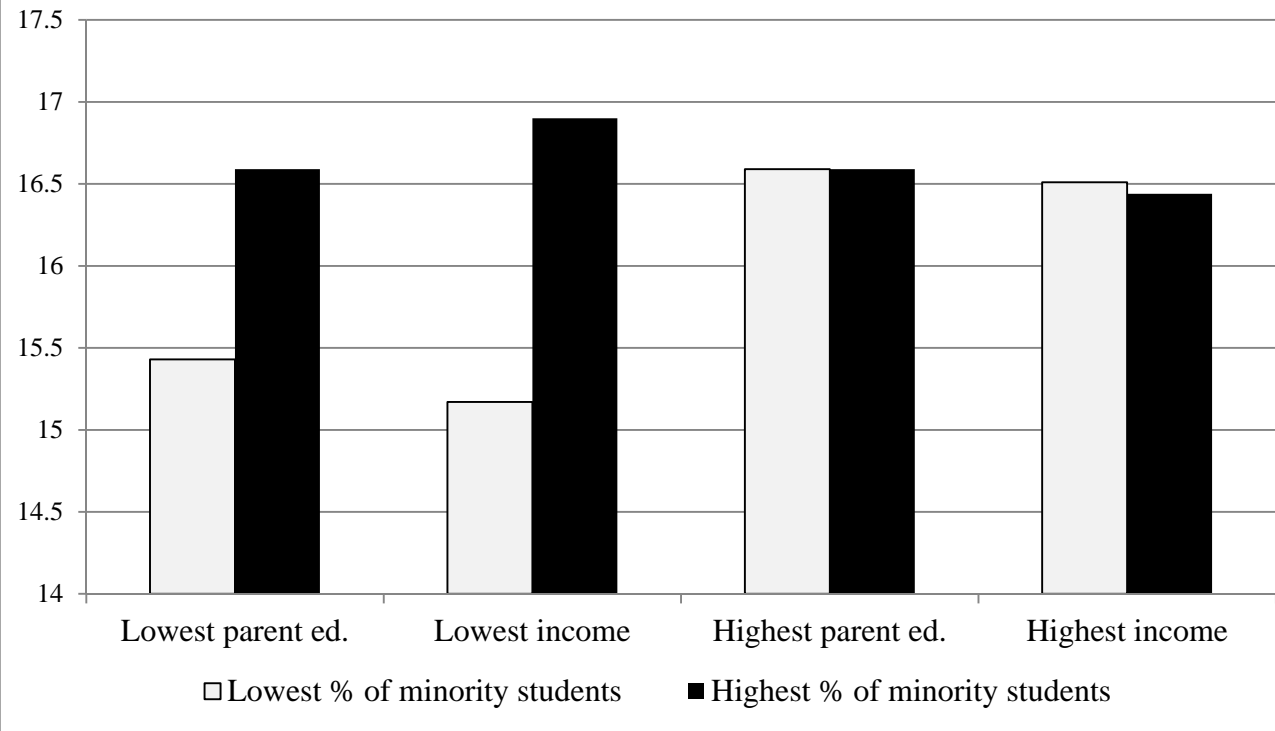


Figure 2. Predicted parental expectations, given school racial composition and parent education or income



Appendix A. Hierarchical linear model predicting parents' expected educational attainment of their 5th grade children

	Model 1		Model 2		Model 3		Model 4		Model 5	
	b	z	b	z	b	z	b	z	b	z
Fixed Effects										
Intercept	16.096 ***	624.32	16.078 ***	749.25	16.074 ***	762.59	16.071 ***	823.21	16.071 ***	823.23
<i>Child</i>										
Female	0.249 ***	6.25	0.272 ***	7.06	0.272 ***	7.07	0.247 ***	6.78	0.247 ***	6.78
K reading IRT score	0.028 ***	9.02	0.017 ***	5.69	0.016 ***	5.43	0.013 ***	4.46	0.013 ***	4.45
K math IRT score	0.037 ***	11.60	0.030 ***	9.55	0.030 ***	9.60	0.026 ***	8.72	0.026 ***	8.74
Disability	0.025	0.88	-0.013	-0.46	-0.008	-0.31	-0.006	-0.24	-0.006	-0.24
English as home language	-1.028 ***	-15.25	-0.963 ***	-12.58	-0.916 ***	-11.90	-0.608 ***	-8.27	-0.606 ***	-8.24
<i>Family</i>										
Black			0.805 ***	11.38	0.640 ***	8.17	0.410 ***	5.53	0.406 ***	5.46
Hispanic			0.598 ***	9.17	0.458 ***	6.53	0.223 **	3.34	0.220 **	3.29
Asian			0.670 ***	7.00	0.577 ***	5.90	0.417 ***	4.50	0.415 ***	4.48
Other			0.214 *	2.40	0.105	1.14	0.068	0.79	0.068	0.78
Logged total household income			0.275 ***	9.13	0.268 ***	8.69	0.196 ***	6.70	0.196 ***	6.71
Highest parent education level			0.185 ***	19.34	0.182 ***	18.91	0.127 ***	13.71	0.127 ***	13.69
Two parent household			-0.163 **	-3.09	-0.151 **	-2.87	-0.099 *	-1.99	-0.099 *	-1.97
<i>School</i>										
33-66% Free and reduced lunch					-0.191 **	-3.26	-0.141 *	-2.59	-0.142 **	-2.61
66%+ Free and reduced lunch					-0.071	-0.97	-0.039	-0.57	-0.037	-0.54
Private school					0.136 *	2.21	0.102 +	1.79	0.109 +	1.89
% minority					0.005 ***	4.82	0.003 **	3.24	0.003 **	3.27
Parent expectations in 1st grade							0.299 ***	32.49	0.299 ***	32.48
Changed schools since K									0.033	0.76
Random Effects										
Variance around intercept	0.320		0.036		0.088		0.059		0.059	
Proportional Reduction of Prediction Error										
BIC	38733		38007		37998		37008		37017	

Source: Early Childhood Longitudinal Study, Kindergarten Class 1998-1999 (ECLS-K)

*p<.05, **p<.01, ***p<.001

Notes: Fixed effect coefficients are unstandardized. All variables are centered to the mean of the sample. Covariance was allowed between random intercepts and slopes. N=9330

Appendix B. Hierarchical linear model predicting parents' expected educational attainment of their 5th grade children, with random slopes and cross-level interactions

	Model 1		Model 2		Model 3		Model 4	
	b	z	b	z	b	z	b	z
Fixed Effects								
Intercept	16.074 ***	817.52	16.071 ***	822.95	16.069 ***	826.36	16.070	820.26
Female	0.243 ***	6.71	0.247 ***	6.79	0.244 ***	6.71	0.248 ***	6.80
K reading IRT score	0.013 ***	4.59	0.013 ***	4.48	0.013 ***	4.50	0.013 ***	4.51
K math IRT score	0.025 ***	8.59	0.026 ***	8.63	0.025 ***	8.60	0.026 ***	8.63
Disability	-0.004	-0.17	-0.004	-0.16	-0.001	-0.04	-0.005	-0.19
English as home language	-0.588 ***	-7.72	-0.598 ***	-8.10	-0.598 ***	-8.10	-0.608 ***	-8.24
Black	0.379 **	3.37	0.401 ***	5.38	0.401 ***	5.33	0.407 ***	5.47
Hispanic	0.205 *	2.58	0.214 **	3.20	0.220 **	3.30	0.221 **	3.31
Asian	0.478 ***	4.57	0.424 ***	4.56	0.429 ***	4.64	0.420 ***	4.53
Other	0.084	0.95	0.066	0.76	0.049	0.56	0.069	0.79
Logged total household income	0.195 ***	6.68	0.197 ***	6.73	0.204 ***	6.41	0.197 ***	6.73
Highest parent education level	0.128 ***	13.86	0.127 ***	13.22	0.126 ***	13.54	0.127 ***	13.24
Two parent household	-0.110 *	-2.21	-0.100 *	-2.00	-0.105 *	-2.10	-0.103 *	-2.07
33-66% Free and reduced lunch	-0.127 *	-2.39	-0.131 *	-2.41	-0.129 *	-2.41	-0.139 *	-2.53
66%+ Free and reduced lunch	-0.043	-0.63	-0.037	-0.55	-0.033	-0.50	-0.015	-0.21
Private school	0.103 +	1.83	0.104 +	1.79	0.107 +	1.86	0.107 +	1.72
% minority	0.003 **	3.08	0.003 **	3.09	0.003 **	3.14	0.003 **	3.15
Parent expectations in 1st grade	0.301 ***	32.71	0.298 ***	32.43	0.299 ***	32.48	0.299 ***	32.50
Changed schools since K	0.021	0.48	0.033	0.76	0.030	0.70	0.032	0.74
Black*% minority	0.003	1.09						
Hispanic*% minority	0.002	1.13						
Asian*% minority	-0.002	-0.66						
Parent ed * % minority			0.000	-1.28				
Logged income*% minority					-0.001	-1.39		
Parent ed * 33-66% free and red lunch							0.019	0.90
Parent ed * 66%+ free and red lunch							0.026	1.12
Parent ed * private school							0.003	0.14
Random Effects								
Variance around intercept	0.025	0.018	0.050	0.020	0.034	0.019	0.052	0.020
Variance around slope of Black	0.901	0.208						
Variance around slope of Hispanic	0.597	0.147						
Variance around slope of Asian	0.256	0.180						
Variance around slope of parent ed			0.005	0.003			0.005	0.003
Variance around slope of income					0.095	0.024		
Proportional Reduction of Prediction Error								
BIC	37007		37029		37008		37047	

Source: Early Childhood Longitudinal Study, Kindergarten Class 1998-1999 (ECLS-K)

*p<.05, **p<.01, ***p<.001

Notes: Fixed effect coefficients are unstandardized. All variables are centered to the mean of the sample. Covariance was allowed between random intercepts and slopes. N=9330