2011

Does school context matter for the low SES student? Investigating the causal effects of school context on college enrollment

Aaryn Ward
Louisiana State University and Agricultural and Mechanical College

DOES SCHOOL CONTEXT MATTER FOR THE LOW SES STUDENT? INVESTIGATING THE CAUSAL EFFECTS OF SCHOOL CONTEXT ON COLLEGE ENROLLMENT*

A Dissertation

Submitted to the Graduate Faculty of
the Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Sociology

by Aaryn Ward
B.A., Texas A&M University, 2000
M.A., Louisiana State University, 2004
August, 2011

ACKNOWLEDGEMENTS

First, and foremost, I would like to acknowledge and thank Susan Dumais. Not only have you been my advisor, but you have been a mentor, teacher, cheerleader, and friend. Thank you for your continual help and guidance in completing projects, grant proposals, and cover letters. I could not have asked for a better graduate student-advisor experience.

I would like to thank Mike Grimes, Mark Schafer, and Tim Slack. Thank you for serving on my committee as a graduate student. You have all provided valuable advice, support, and mentorship throughout each step and milestone.

I would like to thank Steve Morgan from Cornell University. Thank you for taking the time to help me better understand the process of causal modeling. The statistical and conceptual advice you gave in the beginning stages of this project was invaluable.

I would like to thank the American Educational Research Association for their financial support of this project. I would also like to thank AERA for their financial support to attend two conferences about data and causal modeling. These conferences provided learning experiences that were vital to the success of this project.

I would like to thank my parents. You have been my biggest supporters since I have decided to pursue graduate school and I am grateful for your consistent assistance and support.

Finally, I would like to thank Adam. Thank you for being patient with me while I complete this project. Thank you for cheering me on and celebrating with me every step of the way.

*This research was supported by a grant from the American Educational Research Association which receives funds for its "AERA Grants Program" from the National Science Foundation and the National Center for Education Statistics of the Institute of Education Sciences (U.S.

Department of Education) under NSF Grant #DRL-0634035. Opinions reflect those of the author and do not necessarily reflect those of the granting agencies.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

This dissertation focuses on school context and the whether or not "good schools" matter for low SES students. Existing research and theory do not provide consistent expectations regarding the performance of low SES students in middle/high SES school environments. To untangle the relationship among socioeconomic background, the school setting, and educational outcomes, I use a large, longitudinal, nationally-representative dataset, The Education Longitudinal Survey of 2002 (ELS:2002) to analyze enrollment in postsecondary institutions, institutional selectivity, and future educational expectations. Models use weighted regression with causal effect estimators to assess a potential causal effect of "good schools" for low SES students. While analyses using a composite SES measure (education, occupation, and income) do not show a significant causal effect of middle/high SES schools on low SES students' college enrollment, models utilizing parents' education as a measure for social class show "good schools" to have a significant causal effect on level of postsecondary education attempted for students from lower class backgrounds. A causal effect for "good schools" also emerges when looking at the selectivity of four year postsecondary institutions.

CHAPTER 1: INTRODUCTION

A college education is becoming increasingly important in today's society. Past research has documented the persistence of stratifying factors, such as socioeconomic status, in limiting educational access to specific groups in society. In this study, I follow in this research tradition, focusing on a set of students in somewhat unique circumstances-- low SES students who attend schools with a higher SES student body.

My dissertation will focus on how school context affects students' educational opportunities. This study is important and necessary because existing research and theory do not provide consistent expectations regarding the performance of low SES students in higher SES school environments. To untangle the relationship among socioeconomic background, the school setting, and educational outcomes, I will use a large, longitudinal, nationally-representative dataset to analyze college enrollment in postsecondary institutions and institutional selectivity. This dissertation project not only explores whether or not low SES students enroll in college but also the type of college they attend (selective or inclusive).

This research project focuses on the educational outcomes of low SES students who have the opportunity to attend high schools with higher SES students. There has been a long history of literature that has focused on the factors that affect the educational outcomes of disadvantaged students, such as family characteristics, peer networks, and the schools themselves (Alwin and Otto 1977; Astone and Mclanahan 1991; Condron and Rosagno 2003; Downey 1994; Falsey and Haynes; Finn and Rock; Gamoran and Mare; Hearn 1991; Johnson 2006; Lucas 1999; Mayer 2002; Oakes 1985; Parcel and Dufur 2001; Rist 1977; Ryan 2001). I contribute to this research tradition by employing a new statistical technique (Morgan and Todd 2008) to determine the causal effects of "good schools" on students from low-SES backgrounds.

Past literature includes a theoretical discussion, both micro and macro, of the factors affecting education. Micro-level theories focus on the symbolic interactions among students, teachers, and parents. These theories also focus on how individuals perceive and respond to educational settings. Macro-level theories focus on the broader institution of education and how interactions within schools fit into the broader social structure.

Status attainment researchers have developed theoretical models focusing on the factors affecting educational and occupational outcomes. These various models look at the effects of education, ethnic background, community size, migration, and family background on occupational attainment. Overall, the most important conclusion of status attainment research is the importance of family background. While mediating factors such as peer influence, academic achievement, and educational and occupational aspirations have all been found to have significant effects on occupational attainment, and all of these factors are linked back to family background. Status attainment research shows that family background has an effect on occupational attainment, even if the effect is indirect and mediated through other sources.

Status attainment studies highlight the different significant factors that affect student achievement and outcomes. However, since it is not feasible to change a family's SES, researchers have looked at other ways that low-SES students may be able to succeed educationally. In 1976, the Gautreaux housing desegregation lawsuit initiated a court ordered project that funded low income Black families in Chicago to move into higher income Section 8 housing throughout various Chicago metropolitan areas. For those participants who moved to suburbs, mothers noted suburban schools had higher standards and a work load more demanding than the schools students attended before the move initiated by the Geautreaux experiment. Mothers also reported that suburban teachers provided more assistance to their children and

responded better to their needs when comparing their experiences to previous city teachers. Finally, students reported having a more positive attitude towards school and seemed to react positively to the increased standards imposed upon them in the suburban school setting (Rosenbaum, Lulieke and Rubinowitz 1988). Because city schools may have lower standards for education and achievement (Kaufman and Rosenbaum 1992), the implication is that the longer one waits to integrate a student into a suburban or higher income school, the more academically disadvantaged the student will be compared to other students. Parents may choose to move to high SES neighborhoods because of the perceived advantages that high SES schools can give their children. These good schools give children advantages by putting them in an environment where they are surrounded by other children from privileged class and race backgrounds. These schools can be private schools or schools in higher SES neighborhoods.. Whether or not these schools have a positive effect on educational achievement and outcomes is the focus of this research study.

The literature on school SES and student achievement is extensive. However, there are some gaps in the literature that need to be addressed. First, research has not taken full advantage of the richness of longitudinal, nationally-representative data in terms of tracking the educational trajectory of students, specifically low SES students in higher SES school settings. Overall, existing literature considers several factors that may contribute to a low SES student's positive educational outcomes. In this research project I focus on the factors which contribute to "good schools": parental motivators and individual level SES. This research makes the assumption that a "good school" is a high SES school enriched with the added resources and beneficial peer networks that are commonly associated with the high SES school setting. Parents who have high expectations for their children, have high levels of education, and are highly involved in their

children's education are typically associated with students who attend high SES schools (Johnson 2006). Similarly, students who come from high SES backgrounds, have high levels of academic expectations, and high levels of achievement are also more likely to be found in the high SES schools.

Selection effects are another issue that is not fully addressed in existing literature, specifically studies which focus on the research questions of low SES students in higher SES schools. Many of these existing studies make the assumption, both statistically and theoretically, that these students are randomly assigned to these schools and this is not often the case. Any "effect" of the higher SES school may thus be due to selection factors such as highly involved parents, rather than an effect of the school context itself. Studies that do involve random assignment, such as the Gautreaux experiment, are limited to one geographic location and cannot be generalized to the national student population. In many of the existing quantitative studies, students were not randomly assigned to the schools they attend but families made a specific effort to enroll their child in the "good school". If parents move their family to a high SES neighborhood for the advantages of the schools, than we cannot make the assumption that the child was randomly assigned to the school. However, commonly used modeling techniques, such as hierarchical linear modeling and regression modeling make this assumption when looking at these research questions. In this dissertation I use a form of causal modeling which addresses this specific issue of selection effect. Weighted regression with causal effect estimators creates weights for students so that each student will have an equal propensity to attend a low SES or high SES school. When the weights are applied, the model operates under the assumption that students are randomly assigned to schools; this process is similar to a simulation of a true experiment where individuals are randomly assigned to groups.

Research has looked at the college enrollment of low SES students and found that low SES students are more likely to attend a community college than a four year institution and that community college students are significantly less likely to obtain a bachelors degree (Monkturner 1995). However, this relationship may change for students who are able to take advantage of the resources of a higher SES school. This dissertation will fill in this important gap by exploring further through causal models the type of college low SES students attend (a highly selective four year institution, moderately selective four year institution, and inclusive four year institution). Focusing on college selectivity will stratify those who attend highly selective school's from those who attend inclusive schools. Because college GPA data is not yet available for the dataset used for this research project, this is the best measure available for measuring achievement beyond college enrollment.

This project starts (in Chapter 2) with an examination of the literature on factors affecting students' educational outcomes. I begin with a discussion of status attainment research. This leads to a discussion of the importance of family background, family involvement in school, and resources in the home. I then discuss other school factors such as school inequality and school SES. I also consider the factors in schools that contribute to student educational outcomes. These factors include school resources and peer networks. The section on school resources focuses on issues such as tracking and funding. There is also considerable literature on peer network influence. This section focuses on peer network influence in the specific context of school engagement, motivation, and educational outcomes. College access is discussed within the context of students make the choice of postsecondary education and how school resources can affect college choice for students. The section on literature is summarized with a discussion on gaps in literature, and how this project fills in some of these gaps. Chapter three describes the

methods, dataset, and specific variables that I use in my analysis. Chapter four is an experimental data analysis of Education Longitudinal Survey of 2006, a causal analysis of schools. In this data analysis, I look at the specific situation of low SES students who attend higher SES schools to assess a potential causal effect of schools. In chapter five, I take a further descriptive look at the data and discuss the results of the causal effects analysis. In chapter six, I provide conclusions, discuss the limitations of my study, and provide directions for future research.

CHAPTER 2: LITERATURE

In the sociology of education, there has been a focus on the various individual or causal factors that lead students to achieve various educational outcomes. A criticism of the literature is that the overwhelming focus on these individual factors has led to a decreasing focus on theory. While theory may not be directly discussed in existing literature, educational outcomes can be studied under a classical theoretical tradition, specifically micro and macro traditions that focus on the unequal distribution of resources and achievement. These theoretical traditions will be discussed first, followed by a discussion of early status attainment research, and I will then go into more detail about the specific factors affecting educational outcomes for low SES students.

Theory

Both macro (functional, conflict, reproduction) and micro level (symbolic interaction) theories have been applied to school systems in order to understand the issues affecting education.

Micro-level theories focus on the interactions between students and teachers, and/or teachers and parents. Additionally, these theories focus on how individuals perceive and respond to educational settings. Symbolic Interaction theorists make the assumption that individuals socially construct their lives based on their current environments (Schubert 2006). The social reality in which people situate themselves is based on interactions between people and the symbols that frame the interactions. For example, teachers and administrators may track students into ability groups, and students will learn based on interactions between students and teacher if they are in a "good" or "bad" group. This can "frame" the student's perception of self and, thus, impact motivation and achievement (Rist 1977). Symbolic interaction theory also focuses on the inequalities between students that surface such as clothes and languages patterns. Since lower

class students are not able to purchase desired clothing or fashionable status symbols, they are at a disadvantage compared to other students who can afford these necessities for school popularity. Similarly, higher class students have different language and speech patterns that set them apart (Ballentine and Spade 2008; Bernstein 1971).

According to George Mead and Charles Cooley (2006), students develop a sense of self through their interactions with others. Through these interactions, students learn how they are different based on social class, status, and individual experiences within school. Labeling theory stems from symbolic interaction theory and seeks to understand how students self-fulfill the labels placed on them by teachers. Specifically, the process of labeling students by tracking (academic/vocational) and ability groups has produced and reproduced inequalities in the classroom. Disadvantaged students are more likely to be placed in lower ability groups that do not always reflect actual abilities. As a result, these students are found to have lower levels of achievement and school expectations (Sadovnik 2004).

Macro-level theories focus on the broader institution of education and how interactions within schools fit into the broader social structure of society. Functional theory seeks to understand the purpose of education in society. Emile Durkheim (1956) was a leading functionalist theorist who said that a major purpose of school was to promote unity and social cohesion among students. According to this theory, unity and social cohesion are achieved through moral values and moral order that is instilled in the educational system. Additionally, schools teach students the rules and social skills necessary to be effective citizens in society. Other functionalists, such as Talcott Parsons (1963), saw the role of education as preparing individuals for a role in a larger society. Teachers play the role of helping students transition from classroom to their larger role in a democratic society.

With regard to inequality, functionalists argue that inequality is functional for society. Certain jobs require the most skilled and educationally advanced while other careers require less education. Achievement in school is based on merit, not on status, so that it becomes functional for educational and occupational outcomes to be merit-based (Ballentine and Spade 2008). From this perspective, schools are a part of the larger social structure in which students who put forth more effort and who have more talent are rewarded, not just with merit in school, but also with higher level occupations outside of school that offer more prestige and income (Davis and Moore 1945).

Conflict theorists challenge the functionalist idea that schools reward students based solely on merit. Conflict theorists argue that inequality results from one's position in the social structure, not just merit. Conflict theorists believe that schools perpetuate inequality by privileging some students over others. The foundation of conflict theory starts with Karl Marx (1971) who writes about the "haves" and the "have nots" that existed in capitalism. The "haves" are the privileged group and control access to important resources like power, wealth, material goods, and access to elite schools. The "have nots" are in a constant struggle with those who control these resources to gain access to these resources in society. Marx argued that schools create and perpetuate inequality by teaching students an ideology that serves the power elite (Bowles and Gintis 1976). This ideology is a "false consciousness" and tells students that their achievements are merit-based and their shortcomings are based on a lack of ability and personal shortcomings. Slowly, through the beliefs of this false consciousness, students begin to accept their lower position in society and find the higher positions of their peers legitimated (Apple 1996).

Social reproduction theory stems from conflict theory and states that schools not only perpetuate, but actually increase, inequality. According to this perspective, schools are a larger part of the overall social structure that seeks to perpetuate the existing capitalist system. Within this system, there are two groups, the elite and the workers. Workers fulfill an important function in society and schools exist to teach certain individuals the skills and resources necessary to be workers in the capitalist system. Social reproduction theorists also maintain that schools teach students under the ideology of a "false consciousness" so that students who leave school with the skills to be a worker believe that the system is fair and that their relative achievements are merit-based (Ballentine and Spade 2008).

Max Weber extended Marx's theory arguing that inequality is sustained in not just class, but also power and status. Weber focused on the relationships of power between groups and how differences of status create a structure of inequality in society (Weber 1958). The power in society is distributed among different groups of people; the individuals who have the most power are dominant in society and their interests are what influence and shape the educational system.

Conflict theorists argue that the differences between students are not based on merit or achievement, but are a result of schools serving the needs of the dominant groups in society. Major factors that contribute to this achievement gap are teacher expectations and tracking. Lower income students often have language skills, speak in a dialect, or have an overall appearance that appears to be different and from higher income students. As a result, teacher expectations for these students tend to be lower and they are often placed or tracked in less challenging classes. Additionally, there is debate among conflict theorists about the differential funding among schools and how school funding between low SES schools and higher SES schools contributes to inequality in the overall social structure (Rist 1970).

Other concepts related to the idea of social reproduction are social capital and cultural capital. Developed by James Coleman (1988), social capital refers to the social resources that students bring to school that aid in the development of social networks. These social networks are important; students can use these contacts for connection to larger groups, they help with achievement, and they can provide opportunities such as the development of social capital. This concept has been used to explain the reproduction of social class. It is through social capital that privileged students have better access to elite schools. Their connections may include members on admissions committees or alumni. Pierre Bourdieu (1977) is a theorist who discusses both social capital and cultural capital. According to Bourdieu, social capital is often used to produce or reproduce inequality; individuals who have social capital often gain access to powerful positions in society through direct and indirect social networks.

Pierre Bourdieu (1977) discusses cultural capital as cultural patterns, such as language patterns and experiences that provide knowledge of upper class culture. These experiences include such things as visits to museums or extra curricular activities in art or music. Students who have cultural capital are able to take advantages gained at home and school and convert those advantages to educational and economic privileges (Lareau 1989). Cultural capital theory states that all individuals have cultural capital. However, dominant and privileged groups in society have higher levels of cultural capital, or types of cultural capital that are most valued in schools, and parents of children in these dominant groups will subtly pass along these privileges to students. For example, parents who are more familiar with the school system know how to navigate school processes. These parents are likely to pass along to their children the right "language" to speak in front of teachers. This is a form of cultural capital; it is a language

pattern, that when applied in the school setting can gain advantage from teachers and school administrators (Bourdieu and Passeron 1977).

Additionally, schools perpetuate inequality through tracking. The different curricula that are taught in the different level courses create a system where students receive different amounts of cultural capital based on the academic level of the courses in which they are placed. Additionally, whereas test scores and achievement should be the deciding factors that determine course placement, cultural capital theorists assert that the amount of cultural capital a student already has plays a significant role in course placement. Researchers have found that, as early as elementary school, students were tracked in groups that had similar dress and language patterns, two factors indicating a student's level of cultural capital (Rist 1977). Family SES has also been a significant factor determining course placement; lower SES students are more likely to be tracked in lower classes where they learn basic skills compared to upper class students who are more likely to learn in upper level courses skills such as creativity and decision making (Lucas 1999). Overall, cultural capital theory and research has reinforced the idea that schools exist to perpetuate and reproduce inequality. Students who have more cultural capital not only gain more cultural capital while in school, but these students also gain more education. The increase in cultural capital and education may help to explain the higher educational and career trajectory of higher SES students.

Overall, both micro- and macro-level theories have been instrumental in explaining the educational processes that affect the pathways for both low SES and high SES students. Micro-level theories highlight the important of interactions between students and teachers, students, and parents for the development of self. It is through these interactions that students develop educational motivations, aspirations, and expectations. Macro-level theories focus on the

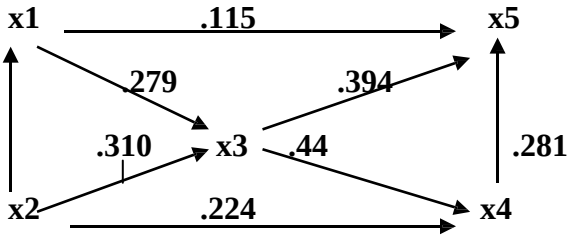
significant roles schools serve in the reproduction of inequality in society. The discussion of interactions and inequality both highlight the importance of family background. Family background plays a significant role in the subsequent interactions between teacher and student, the courses a student is tracked into, and the levels of social and cultural capital attained. Even though micro- and macro-level theories highlight the importance of family background, it's often referred to as something that is immutable. However, putting a student from a disadvantaged family into an environment with other students from successful family backgrounds might prove beneficial--that is a primary focus of this current study. Status attainment research focuses on the factors affecting educational and occupational attainment. These models often start with family background, including father's education and occupational status as a significant factor affecting educational and occupational attainment. While these models also show the importance of family background, they also highlight mediating factors that can lead to positive educational and occupational outcomes for students.

Status Attainment Research

Status attainment research was originated by Peter Blau and Otis Duncan (1965). This research used the Current Population Survey collected in March 1962 as part of the US Census to see the effects of education, ethnic background, community size, migration, and family background on occupational attainment (Blau and Duncan 1965). The basic causal model of occupational attainment proposed by Blau and Duncan started with father's educational and occupational status, followed by son's education, son's first job, and finally son's occupation (measured by occupational prestige) in 1962.

The regression analyses showed a high correlation between father's SES and son's SES; this positive correlation of .38 was mediated largely through education. This means that a son's

chances in the labor market are highly dependent on his level of education, but the level of education attained by the son is often a result of father's SES. Blau and Duncan (1965) also noted the relationship between race and occupational attainment. Whites had higher returns on education than blacks; Blau and Duncan argued this could result in blacks having a lesser desire to acquire education and pursue jobs in the labor market. Size of family also affected occupational attainment; individuals who came from large families with many siblings had less success in the labor market than those who came from smaller families. Younger siblings who had more of a chance to take advantage of familial resources also had better chances in the labor market and achieved higher levels of occupational attainment (Blau and Duncan 1965). Blau and Duncan presented an early path model, specifically for males, on occupational attainment. This path model showed the importance of fathers' educational and occupational attainment on the subsequent educational attainment and job prestige of his son. The implication of this is that status is affected by both ascribed factors (family background) and achieved factors (educational attainment). Regardless of the educational attainment of son's however, family background played a significant role in overall occupational attainment and job prestige of son.

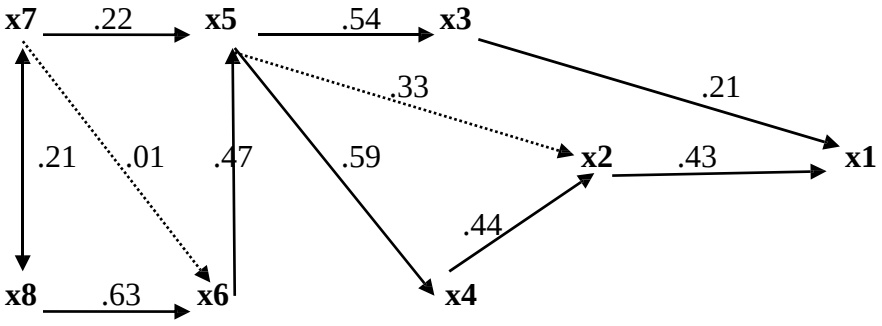


x1- Father's Occupation
x2- Father's Education
x3- Son's Education
x4- Son's First Occupation (Prestige)
x5- Son's Occupation in 1962 (Prestige)

Figure 1. Status Attainment Path Model with Paths and Coefficients (Blau and Duncan 1965)

A second model of educational and occupational attainment was proposed by Sewell, Haller, and Porter (1969). This path model followed the tradition of the Blau and Duncan model, but extended the model with some additional causal agents. The criticism of Sewell, Haller, and Porter was that the original Blau and Duncan (1965) model only included two variables describing early stratification (father's education and father's occupation) and lacked other indicators of early life chances (Sewell et. al, 1969). This proposed causal sequence to this new model starts with parents' SES and includes individuals' own mental ability. This is believed to have a causal effect on individuals' performance in school. The next step in the path model is the influence of significant others. This is believed to have a causal effect on levels of educational and occupational aspiration which is the final causal agent before educational and occupational attainment (Sewell et. al, 1969). Their final model also showed the significant effects of SES. SES was causally linked to levels of occupational and educational aspirations. Level of occupational aspiration was directly causally related to occupational attainment; level of educational aspiration was causally related to educational attainment which was then causally related to occupational attainment. This model is similar to the Blau and Duncan model in that it highlights the significant effects of family background for affecting aspirations and attainment. This path model expands on the Blau and Duncan model by specifying the importance of individual mental ability and the influence of significant others on aspiration and attainment. Sewell, Haller, and Porter used longitudinal data to establish causal effects of time order between the time students were seniors and then seven years post-high school. Through the analysis of this longitudinal data, Sewell, Haller and Portes noted the major effects of significant others and how the influence of significant others on attainment is mediated by its effects on levels of educational and occupational aspirations. Once formed, significant others can have a strong

influence in motivating others to succeed and to form high aspirations for success and this can be an important mediating factor for subsequent high levels of educational and occupational attainment (Sewell et. al, 1969). However, reinforcing the influence and importance of family SES, the path coefficients of the model show direct causal paths of SES affecting both mental ability and significant others' influence. This shows that both factors are related to family background and are not independent influences for educational and occupational attainment.



x1- occupational attainment
x2- educational attainment
x3- level of occupational aspiration
x4- level of educational aspiration
x5- significant others' influence
x6- academic performance
x7- socioeconomic status
x8- mental ability

*Model does not include path levels of unmeasured factors.

Figure 2. Occupational Attainment: Path Coefficients of Antecedents of Educational and Occupational Attainment Levels* (Sewell, et al 1969)

This path model by Sewell, Haller, and Porter was later extended to look at the pathway to achievement for individuals coming from diverse residential backgrounds. Sewell, Haller and Ohlendorf criticized the previous model for its limitations in its applicability for youth with different residential and socioeconomic backgrounds (Sewell, Haller and Ohlendorf 1970). The original data collected and used by Sewell, et. al (1969) specified residential background based on size of community. Residential backgrounds varied from farm, village, small city, medium city, and large city. Revising the path model to include additional residential communities

showed similar results to the original path models by Sewell et. al (1969). Values of coefficients between causal agents were similar to coefficients for path models for boys in farm communities only. Where their models differed was the importance placed on academic performance in school. Sewell, Haller, and Ohlendorf hypothesized that academic performance had causal influence not only on significant others' influence, but also on aspirations and attainment. These additional paths caused a reduction in the influence of significant others' in the overall model for all residential samples. The conclusion was that the influence of others may have been less important than previously thought (Sewell, Haller, and Ohlendorf 1970).

Sewell and Hauser were analyzing data collected from Wisconsin schools in 1957 during the same time Blau and Duncan were analyzing the Current Population survey in 1962. These data from Wisconsin schools surveyed seniors about social, economic, and psychological factors and how these related to educational and occupational aspirations and achievement. Information was also collected on post high school graduation plans for seniors and the influence of teacher, parents, and friends on these plans (Sewell and Hauser 1972). The status attainment models based on these data sought to explain the educational and occupational attainment process. These models highlighted the importance of socioeconomic origins for education and occupational attainment; Sewell and Hauser refer to these as "status inheritance" effects. The effect of father's occupation on son's occupation and family income on son's earnings reflect these status inheritance effects; they are causally related and not mediated by any social psychological factors (such as influence and encouragement of parents, teachers, friends, and spouse) (Sewell and Hauser 1972).

The most important conclusion of status attainment research is the importance of family background. While mediating factors such as significant others' influence, academic

performance, and educational and occupational aspirations have all been found to have significant effects on occupational attainment, all of these factors are linked back to family SES. Status attainment research shows that family background has an effect on occupational attainment, even if the effect is indirect and mediated through other sources. The goal of this research is to examine the effects of schools on educational outcomes. While schools will not completely negate the effects of family background, they may mediate its effects.

Alongside status attainment research is another research tradition that focused on additional factors affecting achievement besides family. Two researchers who focus on these additional factors are James Coleman (1966) and Christopher Jencks (1972). James Coleman and Christopher Jencks took a different approach to status attainment, focusing on the influences aside from family background such as school that might affect achievement and occupational outcomes. Much of their analysis focused and highlighted the achievement gaps that exist within the educational system.

James Coleman was one of the most important sociologists of education in the 20th century. The first Coleman Report was commissioned in response to a perceived lack of educational opportunities for individuals of certain races, religions, or national origins as revealed in the Civil Rights Act of 1964. This study, also known as the "Coleman Report" was commissioned by the United States Department of Health, Education and Welfare in 1966. The purpose of this study was for researchers to assess whether or not children of different racial or ethnic backgrounds had equal educational opportunities and outcomes. The report, *Equality of Educational Opportunity*, found that most children attended segregated schools, and that schools attended by white students had far better resources than schools attended by black students. Furthermore, Coleman found an achievement gap between white and black students and this

achievement gap grew larger with each academic year. Affecting this achievement gap were not only school resources, but also family background, social composition of the school, students' expectations of the future, and the verbal skills of the teachers (Ravitch 1993).

Overall, the Coleman Report showed that while school factors, such as the degree of racial integration were an important factor, student family background and SES emerged as the more important factors determining student achievement. The Coleman Report suggested that integration was expected to have the most positive effect on black students in terms of lowering the achievement gap between white and black students. However, in terms of policy, it takes more than school resources and school composition to raise the achievement levels of black students; massive reform efforts needed be directed towards the black family and community as well in order to improve the self concept of these children (Ravitch 1993). A recent reanalysis of the Coleman data uses HLM models to measure the school level effects (school composition and school resources) independently of individual background. These models show that after controlling for family background, 40% of the variation in reading achievement is explained by school characteristics such as the school SES and racial composition of school. Additionally, within school variation on achievement is explained by tracking and teacher bias where teachers seemed to favor middle class students (Borman and Dowling 2010). The implication of this is that schools matter in explaining student achievement. If family background is held constant, the significant effect of schools is highlighted. Not only can the right school have a positive effect on student achievement, but the right classes and teachers within a school have an effect as well. This reinforces the mediating effect that schools can have over family background for low SES students. The Coleman Report found that both school and family mattered for student

achievement; researchers after Coleman continued to focus on both school resources and family background as the major influences behind student academic achievement.

Christopher Jencks also studied inequality, school context, and achievement gaps between students. He began his research at the same time the Coleman Report was released. Jencks collaborated with other researchers to do a reanalysis of Coleman's report, *Equality of Educational Opportunity*; Jencks believed the data required more extensive exploration in order to justify the policy suggestions put forth. This led to Jencks' research on schooling and educational equality (Jencks, et al 1972). Jencks' study, *Inequality,* is a reassessment of the Coleman Report. According to Jencks, regardless of the equal opportunity afforded to children in schools, parents still played an important role in passing along opportunity and advantages to children. Because society is competitive, certain parents will have more resources and pass along those advantages and success to children while other parents will have fewer advantages and those shortcomings will inevitably be passed along to children as well. Unless society either completely eliminates ties between parents and children, or creates a society where equality of opportunity is afforded at both the educational level and at the societal level, inequality among parents guarantees that there will be some level of inequality among children as well (Jencks, et al 1972). Jencks argues for the strong effect of family over schools and its role for the intergenerational transmission of class.

In regards to school equality, Jencks argues that schools should be judged by their short-term effects. He claims that the differences between schools, such as school resources, have shown to have trivial long term effects when comparing adult outcomes. Jencks also shows how a school's SES composition can have a modest impact on cognitive development, an impact that is more significant and convincing in his viewpoint than the importance of school expenditures

on cognitive development and later achievement (Jencks, et al 1972). The more important relationship is the relationship between the achievement level of lower class students and the socioeconomic status level of the school. This relationship is the most significant when the lower class students are a minority of the student body. The significance of this finding is that school social class composition can have an important impact on achievement, independent of family background. However, with regard to peer networks, where one might expect middle class students with high expectations for college enrollment to have a positive impact on working class students, Jencks did not discover this in his findings. While working class students may have middle class students in their network of friends, working class students are still likely to rank lower in academic achievement and may find the higher levels of achievement and standards of their middle class friends discouraging rather than encouraging. So, while lower class students may achieve at higher levels overall in the higher SES schools, they may still achieve at lower rates compared to their higher SES peers. (Jencks, et al 1972).

Finally, Jencks argues that schools are segregated by academic achievement. This implies that children with low levels of achievement are more likely to attend schools where other students also achieve at lower levels; this is largely due to economic and racial segregation where there is a high correlation between low achieving students and poverty. This is because parents who come from a higher socioeconomic status are more likely to concentrate in areas where schools have a better reputation and a higher achieving student body. The positive effect of family explains the higher achievement levels of higher SES students; parents from higher SES backgrounds are more likely to be involved in school and to help with homework which can lead to higher achievement levels (Jencks, et al 1972).

It can be argued that Jencks writes from a conflict perspective in stating that schools exist to perpetuate and legitimate inequality. Jencks argues that because of inequalities at home and differential treatment in school, there will be a difference in characteristics between the student who enrolls in college and the student who drops out. Because of this, Jencks asserts that the manifest function of schools is to label and stratify students; the latent function is to socialize and change students. This concept is conceptualized as the black-white test score gap in later research by Jencks and Phillips (1998). In acknowledging the achievement gap between blacks and whites, Jencks and Phillips attribute not only differences in home environment and parental education, but also school quality, teacher perceptions, teacher expectations, and teacher behaviors (Jencks and Phillips 1998). Because of inequalities at home, teachers recognize the differences that exist between students and alter their expectations and behaviors as a result of the perceived differences and inequalities between students. Another factor in schools that exists to perpetuate the inequalities among students is tracking. Students are often measured with standardized tests for ability and then placed in subject specific courses. Tracking studies find that lower class students are less likely to be placed in college prep curriculum courses, even in socioeconomically diverse schools (Lucas 1999). Tracking is another factor that has been found to reinforce existing inequalities in students (Gamoran and Mare 1989).

The Coleman and Jencks studies are often included among status attainment research (Wenglinsky 1997). The assumption among status attainment researchers is that the SES background of the student makes a bigger difference for student achievement than school characteristics such as school SES or school resources. When student SES is taken in account, then school characteristics such as student teacher ratio or teacher experience tend to be only weakly associated with academic achievement (Wenglinsky 1997). However, as discussed by

Jencks, in a situation where a low SES student has the opportunity to attend a higher SES school, the family background disadvantage can be mediated by the advantages posed in the higher SES school setting.

Status attainment research, starting with the path models of Blau and Duncan and extending to the research of Sewell, Haller, Hauser, and Ohlendorf look at the relationship between fathers' SES and sons' educational and occupational attainment. There is a significant relationship between fathers' level of education and occupational prestige and the educational and occupational prestige attained by their sons. This causal relationship is mediated by sons' mental ability, level of education received by son, influence of significant others, and aspirations for educational and occupational attainment. The path model by Sewell, Haller, and Portes is effective in predicting and explaining educational attainment. The path model also shows the relationship between educational attainment and early occupational status attainment. These studies show the importance of family SES; beyond the influence of mediating factors such as aspirations or influence, family SES has significant effects on educational and occupational attainment. Coleman and Jencks show how schools can perpetuate inequality; nonetheless, family background is still often the more significant predictor of SES. This reaffirms what many of the path models find; there seems to be a significant relationship between family SES and student achievement, educational attainment, and occupational attainment. Additionally, as Jencks argues, there also seems to be a significant relationship between school SES and student background, especially when lower SES students are a minority of a higher SES student body. This reaffirms the need to continue research in schools, especially if schools have the potential through student body characteristics to mediate the effects of family background.

With the conclusion of early status attainment studies, I will now discuss literature focused specifically on the aspects believed to affect academic achievement. Some of this more current literature follows the tradition of status attainment literature and examines the effects of family background on academic achievement. Other research, following the tradition of Coleman and Jencks, focuses on the relationship between school quality and achievement. Within school quality literature, more specific studies look at peer networks and school resources, two factors that not only vary according to school quality but are also believed to affect student outcomes.

Family Background

Early status attainment models (Sewell et al 1969) highlighted the significant influence of family background on all factors influencing student achievement. This early finding on strong family influence brings about the question: can individuals, specifically low SES students, escape their family background? Research in this area has focused on family has looked at the effect on family composition, parental expectations, and home resources on student outcomes.

Studies have found that family composition is related to academic achievement. Students who come from two parent families tend to perform better in school than those who come from single parent families and stepfamilies (Downey 1994; Lee 1993). One cause for this relationship is the fact that children in single parent families are more likely to live in low income households (Pong 1997). The Census reports that single parent families, headed by a mother, are the fastest growing family type in the United States, and the most common family type for African American children under 18 (U.S. Census 2002). The poverty rate for children in single parent female headed households is five times the poverty rate for married couple families with children (O'Hare 1996). Controlling for income accounts for about half the differences in achievement (test scores, grades, college enrollment, college graduation) between children in single parent

and two parent families (McLanahan and Sandefur 1994). Other distinct characteristics of single parent families make up the other differences in achievement. For example, often due to time constraints, single parents tend to have a low degree of involvement in school and outside of school. Outside of school, single parents spend less time monitoring school work and tend to have lower educational aspirations and expectations for children (Astone and McLanahan 1991). In school, parents tend to spend less time attending school meetings, volunteering in school, and participating in parent-teacher meetings (Pong 1997). When students attend schools where a majority of students come from single parent families as well, achievement suffers. This can also be an effect of SES. The high correlation between low SES and single parent families indicates that students who attend schools where the majority of students are from single parent families are essentially also attending a school where the majority of students are also low SES (Pong 1997). The lack of resources and low teacher expectations at these schools can produce students with lower standardized test scores and academic outcomes (Willms 1992).

Studies have also examined the importance of parental social capital on the educational achievement of children. Social capital in this context is defined by the resources that parents gain through social ties (Lin 2001; Portes 1998; Coleman 1988). Some studies focus on how these parental networks vary based on social class; specifically, these studies focus on how parental networks secure educational advantages for children and how differences in parental networks affect these educational outcomes (Horvat et al 2003). For example, social capital is found to be linked to lower dropout rates for families that come from higher SES backgrounds (McNeal 1999). Social capital differs by social class; middle classes often have different social networks when compared to those in lower social classes. Social networks of middle class families are rooted in informal networks between educators and other professionals while social

networks of lower class families are rooted in kinship groups, family members, and extended family. Middle class parents also are more likely to form networks with other parents of students whom they meet and sustain through children's out of school activities (Horvat et al 2003). Because of the nature of these ties, it has been argued that middle class families have more resources at hand when it comes to dealing with issues at school, such as advocating for better teachers, school programs, and solving school issues, than lower class parents. This is because middle class parents can work together with members of their social networks to advocate for change when lower class parents tend to solve problems individually (Horvat et al 2003). Low SES parents, who are often single parents, may not have the ability or knowledge to know how to solve school issues in the same manner that higher SES parents can. If low SES students are attending high SES schools, low SES parents may have the unique opportunity to network among high SES parents. In this manner, social networks can help mediate some of the disadvantages of family background; low SES parents in a higher SES school may have more success advocating for students because of the knowledge learned by interacting with higher SES parents. However, it may be more difficult for the low SES parent to make these networks. Work schedules and the unfamiliarity with making these networks are both potential barriers to the formation of these important network ties.

In the tradition of Jencks, et al. (1979) and Duncan (1994), one of the primary ways that parents influence the education of children is by providing an environment that cultivates academic achievement. It has been argued that parents can create a home environment through the use of material resources that in turn fosters academic motivation and achievement (Teachman 1987). These resources include newspapers, books, encyclopedias, and a place for students to study. Parents who themselves have high levels of education are more aware of the

environment necessary for educational success and may have a better understanding of what items are necessary to have at home in order for children to achieve at high levels academically. Parents who have high levels of education are also more likely to communicate high academic expectations to their children, communicate with teachers, have a better understanding of educational processes, and help children with schoolwork (Parcel and Dufur 2001).

Research has asked the question of whether individuals can escape their family background. While the low SES family is often seen as most disadvantaged, certain factors within the family besides income are beneficial for student achievement and educational outcomes. Family composition, parental education, the resources a family provides, and social networks of a family have all been linked to gains in academic achievement. Having high levels of education, a home with resources to encourage and harbor academic success, and high parental expectations can all lead to higher levels of academic achievement in students. Furthermore, parents who use their social networking skills to build relationships with educators also gain positive benefits for students over parents who choose to solve problems individually. Looking at the research collectively, there seems to be a correlation between low SES families and a lack of resources, low levels of parental education, lack of parental social capital, and high rates of single parent families. From a neo-Weberian perspective, family backgrounds can lead to different life chances; not every student has the same opportunity to achieve the same advantages in school or life because of family composition, resources, and networks. This early unequal distribution of life chances can lead to many low SES students who live in family environments that are unsuccessful at cultivating academic motivation or achievement. However, family effectiveness, while a significant factor in academic achievement (Coleman 1966) is not the only significant factor. Literature has also focused on school SES.

School Inequality and School SES

Status attainment studies highlight the different significant factors that affect student achievement and outcomes. There are early studies dating before the Coleman report that focus specifically on the effect of school SES on student achievement. These studies show that students from a low SES background will have higher levels of aspirations and achievement if they attend a school where the student composition is high SES than if they attend a school where the majority of students come from a lower SES background (Wilson 1959). Additionally, increases in school SES are associated with increases in student performance and achievement, regardless of student SES (Perry and McConney 2010).

In 1976, the Gautreaux housing desegregation lawsuit initiated a court ordered project that funded low income Black families in Chicago to move into higher income Section 8 housing throughout various Chicago metropolitan areas. Over 4,000 families were affected by this lawsuit and these families moved to both white suburbs and black urban areas which varied by race and SES (Kaufman and Rosenbaum 1992). These families were studied over twenty years to see the impacts of placing these families to new city and suburban neighborhoods. Studies compare the difference between city and suburban movers to see the difference in school standards and quality between city and suburban schools and how this relates to academic achievement and academic outcomes.

Because city schools may have lower standards for education and achievement (Kaufman and Rosenbaum 1992), the implication is that the longer one waits to integrate a student into a suburban or higher income school, the more academically disadvantaged the student will be compared to other students. This is posed as the Relative Disadvantage Hypothesis (Kaufman and Rosenbaum 1992; Wenglinsky 1997) and argues that once a student moves into a suburban

school, the competitive disadvantage he/she experiences with suburban standards in school will leave them less prepared to enroll in college or compete in the job market. Some individuals struggle in a position of relative deprivation when they have to compete against people in better positions. For a student who comes from a low SES family who attends a high SES school, the competition among peers in the academic setting may become stressful when going up against better prepared students. The end result for low SES students may be lower achievement (Jencks and Mayer 1990). This is because of their low SES status; their background, influence of family and culture may give the low SES students attitudes or behaviors deemed undesirable by the suburban school setting. The low SES students may feel frustrated by increasing academic standards they feel they cannot meet, or racial discrimination may prevent them from being given full access to suburban resources. As a result of this, those who support the relative disadvantage hypothesis predict that those who integrate into higher SES settings will have lower academic achievement success than those who stay in segregated schools; especially for those who integrate in later years.

The Relative Disadvantage hypothesis was tested with Gautreaux participants and no support was found. Students who attended suburban schools benefited from the higher academic standards and grades for these students did not seem to suffer as a result from an urban to suburban move (Kaufman and Rosenbaum 1992).

For those participants who moved to suburbs, mothers noted suburban schools had higher standards and a work load more demanding than the schools students attended before the move initiated by the Geautreaux experiment. Mothers also reported that suburban teachers provided more assistance to their children and responded better to their needs when comparing their experiences to previous city teachers. Finally, students reported having a more positive

attitude towards school and seemed to react positively to the increased standards imposed upon them in the suburban school setting (Rosenbaum, Lulieke and Rubinowitz 1988).

The opposing hypothesis to relative disadvantage is that those who attend high SES schools will benefit from the educational resources and standards presented in suburban schools; there is strong support for this hypothesis. Students will profit from peers and role models in the suburban school setting and thus the academic achievement of low SES students is expected to increase. For participants of the Geautreaux experiment, Kaufman and Rosenbaum did not find support for a relative disadvantage hypothesis. They found that despite possible barriers, such as racial discrimination and feelings of competitive disadvantage, suburban movers fared just as well as city movers in terms of academic achievement and employment and sometimes they fared better (Kaufman and Rosenbaum 1992). Compared with city movers, suburb-movers were more likely to be in high school, in a college high school track, in a four year college, employed, and/or not outside the education and employment systems. Furthermore, compared to students in city schools, those in suburban schools had higher ACT scores, 11^{th} grade reading scores, and graduation rates. Participants of the project themselves attributed "safety" to increases in their achievement; having moved out of urban areas or the "projects" to a safer environment free from gangs and deviant influences allowed students to focus more on school. Secondly, these students noted the change in environment a big factor contributing to increases in achievement. The increase in housing quality and increase in discretionary finances brought about by Section 8 rent supplements brought about increases in motivation for education. The increase in environment, especially at suburban schools translated into increased academic standards, increased teacher quality, higher teacher expectations, and more resources to help students attend college. (Kaufman and Rosenbaum 1992).

Other studies have focused on school quality. These studies focus both on defining "good schools" and the benefits for students who attend "good schools". Researchers have defined and researched the importance of an "academically normative climate", or a school climate which enhances and encourages students' goals towards academic achievement, performance, and leads them towards making college plans (McDill, Rigsby, and Meyers 1969). The most prevalent factor of an academically normative climate is students' enthusiasm for and success in academics. Students have higher levels of achievement in a school climate where the focus is on achievement, competitiveness, and intellectualism. Achievement levels are also higher for individual students when levels of overall social cohesion are higher, which suggests the importance of peer networks (McDill, Rigsby, and Meyers 1969). Schools that have a high academically normative climate tend to harbor an atmosphere where students can formulate peer networks of a certain quality and character. These peer networks tend to be among high SES peers in high SES schools and are found to yield numerous educational benefits (Alwin and Otto 1977). School systems in high SES neighborhoods also place high expectations on students to attend college; this tends to be in response to community and parental pressures. Based on the advantages that can be attained and achieved by attending a high SES schools, students who attend these schools have an advantage in terms of social capital; it is expected that college enrollment would be the highest for those students coming out of high SES schools.

Parents may choose to move to high SES neighborhoods because of the perceived advantages that high SES schools can give their children. These good schools give children advantages by putting them in an environment where they are surrounded by other children from privileged class and race backgrounds. These schools can be private schools or schools in higher SES neighborhoods. Furthermore, schools were generally perceived as "better" just because they

were in a "better" location. Parents compared schools so that those in wealthier areas (usually more suburban and more white) were deemed "good schools" or "better schools" and those in impoverished ones (those in more urban and racially diverse areas) were more looked down upon. In Johnson's (2006) qualitative study, parents spoke of the "nightmare" of these urban schools and the "terrible conditions" of these school districts even if they had never visited these schools. One parent explained, "While I hate to say it, I think it's the truth: any school that has the money will definitely be able to offer more to the students… They have the money to do that, and they have the parent involvement, which also brings in the money." (Johnson 2006: 43). If parents have the resources and ability to move to a high SES area, than many may choose to do so based on the perceived advantages of a "good school". Whether or not these schools have a positive effect on achievement for the low SES student who has the ability to attend a "good school" is the focus of this study.

Research following status attainment research has focused on the effects of school SES on the academic achievement of low SES students. A significant finding comes from the Gautreaux project. As families were court ordered to move from urban project housing to cities and suburbs, researchers studied how the move affected the academic achievement of students. Students who attended suburban schools had significant gains in academic achievement; this is attributed to nicer housing, higher teacher expectations, and the higher SES background of students in school. While the Gautreaux project found positive results for school context, the results from one specific study cannot be generalized to a broader population. The focus of this dissertation centers on a similar research question but uses a large, nationally representative data set. This allows for a randomized sample of students and results that can be generalized to a larger population. Other research finds that higher SES schools provide positive benefits for

students that affect achievement; these benefits can be the peer networks that are found in higher SES schools and can be most advantageous for low SES students. However, school SES is just one of many factors found to affect achievement. Further research continues to explore the other factors beyond SES that affect student outcomes; below, I discuss the importance of school resources.

School Resources

There have been contradictory findings in research regarding the effects of school resources on student performance and academic outcomes of students. Previous research has shown the modest effect that school resources can have on achievement, specifically noting the positive effects of teacher expectations. However, recent research has noted no significant or consistent relationship between school resources, (such as ACT and SAT training programs, extracurricular activities, AP courses, informational sessions about college), and student performance (Hanushek 1997). Specifically, research has not found that adding more resources to a school increases student performance on standardized tests or other measures of school performance. What has notably been explained is that there is variation between teachers and schools and the way schools use resources. When schools use resources effectively, there is a more positive measured difference in student achievement. Furthermore, a simple increase in funding alone is not enough to increase achievement. However, there is a general policy agreement that while resources alone may not be sufficient to guarantee gains in student performance or academic outcomes, adequate resources and funding in schools is necessary (Hanushek 1997).

Past research indicates that schools with higher proportions of high SES students may offer more resources that are related to positive educational outcomes (Gamoran 1987; Heyns

1974; Oakes 1985). Since these schools tend to be higher achieving, it makes sense that they would offer more opportunities for students to engage in a more rigorous academic program (Willms 1986). Furthermore, school spending, in how it relates to per pupil expenditures on instruction and administration, has been found to have a positive association with academic achievement because both resulted in a reduced class size (Wenglinsky 1997).

In a study focusing on both between and within school variation on achievement, higher SES schools did have more students on an academic level track which helped to explain the increased standardized test scores for students in the higher SES schools. When the academic track variable is controlled, then the variable for SES in the model becomes nonsignificant (Gamoran 1987). Furthermore, mean school achievement and the percentage minority in school had an only slight influence on individual students' achievement and this effect tended to be inconsistent in models. The most significant effects in achievement tended to happen within schools in the tracking and course taking system. Gaps in reading, science, vocabulary, and civics achievement were significant between those in academic track over those in vocational and general tracks (Gamoran 1987). The advantage for students in the academic track in course taking is greater access to courses of study that produce high achievement (Oakes 1985). Furthermore, research has shown that the number of students enrolled in college preparatory tracks varies with schools mean SES. The higher the school average SES, the higher the proportion of students enrolled in a college preparatory track and the higher the educational goals of its students (Alwin and Otto 1977).

There have also been studies that focus on the impact of behavioral engagement and its effect on student achievement. Behavioral engagement ranges from simply completing assigned school work to participation in extra-curricular activities (Fredricks et al 2004). Student

engagement can also vary in intensity, duration, and stability, and all of these factors can have an effect on student achievement. Student engagement is more easily achieved when students participate in extracurricular activities, school programs, or after school activities. Specifically, past research has shown a positive correlation between behavioral engagement and achievement on standardized test scores and grades (Connell et al 1994; Marks 2000). Furthermore, high school students have been known to range in behavioral engagement, from resilient (those in school, academically successful, and engaged), nonresilient completers (still in school but lower levels of academic achievement), and noncompleters (those who dropped out) (Finn and Rock 1997). The results of past longitudinal studies on behavioral engagement regarding student resilience and engagement show that behavioral engagement can have long lasting effects on achievement. Lower levels of behavioral engagement are related to lower levels of achievement and a higher likelihood for dropping out of high school (Alexander et al 1997). For students who exhibit high levels of behavioral engagement, specifically in terms of extracurricular involvement, the risk for dropping out decreases (Mahoney and Cairns 1997; McNeal 1995). The school resources that aid behavioral engagement, such as extra curricular activities, school programs, and after school activities, are more prevalent in high SES schools. Because of the relationship between behavioral engagement and school resources, it can be argued that low SES students who attend high SES schools are more likely to have higher levels of behavioral engagement. If low SES students in high SES schools exhibit high levels of behavioral engagement, it is expected that their standardized test scores and grades would be higher and their likelihood of pursuing further education would increase. However, more research is needed to further explore this relationship between behavioral engagement and school SES to make conclusions about this relationship.

In terms of school resources, some research has focused on the specific resources that can lead to gains in academic achievement, such as tracking, teacher quality and retention, and behavioral engagement. There have been inconsistent findings regarding the relationship between school resources and student achievement. Students who are engaged in school and take advantage of school resources show positive gains in achievement and outcomes. These studies find that students who participate in extra curricular activities and after school programs have a lower likelihood of dropping out and higher standardized test scores. However, it takes more than simply adding funds and programs to a school; it is more important that schools use existing resources effectively in order for gains in achievement to occur. Alongside resources, peer networks are another factor that has been explored as a significant variable affecting student motivation, achievement, and outcomes. It is assumed that students who attend high SES schools will be surrounded by students who come from high SES backgrounds. The discussion of peer network literature below looks at the implications of these networks in regards to academic achievement for low SES students.

Peer Networks

Peer networks, especially the network of close friends, are found to have an important impact on achievement in school, specifically in regards to grades and test scores (Ryan 2000; Berndt and Keefe 1995). Not only do students with high achieving friends show increases in test scores over time compared to students who have low achieving friends, but these students also seem to have higher satisfaction and a more positive attitude towards school. This peer network dynamic is important for low SES students. If low SES students integrate among high achieving peers in high SES schools, there is potential for gains in motivation, achievement, and school satisfaction.

There are two broad forms of influence that take place in peer groups. The first type of influence is based on the characteristics of the reference group (Manski 1995). For example, if a student is surrounded by peers whose parents have a high level of education, they may be less likely to drop out. The second type of peer influence is said to be based on the behaviors of the members of the group. If there is a high rate of dropout among members of a particular peer group, then a student in that peer group is said to have a higher likelihood of dropping out themselves (Manski 1995).

Individuals select peers based on characteristics most similar to themselves, a social dynamic known as homophily (Ryan 2001). Students are likely to choose peers who are similar to them on both social characteristics and academic characteristics, such as GPA, college aspirations, and general engagement in school. There is typically a high correlation among peer groups and school involvement, overall attitude, and behavior towards school (Hallinan and Williams 1990; Brown, Clasen, and Eicher, 1986). Part of the homophily social dynamic is a socialization process where an individual's own motivation and achievement can be highly influenced by their peers as well (Ryan 2001). Peer influence can be both positive and negative and could potentially lead a low SES student towards higher achieving goals if he/she were integrated among the right peer group. According to this literature, low SES students may seek out other low SES students in a high SES school for their primary peer group (Ryan 2001). However, if low SES students are engaged in extracurricular activities and there are fewer low SES students in the school for peer group selection, then low SES students may be more likely to have high SES students in the peer group to influence motivation and achievement.

According to Parsons, influence from peers can directly affect an individual's beliefs through the formation of attitudes and opinions (Parsons 1963). Taken in context of the peer

network, peers can have strong influence over an individual's attitudes and opinions which can affect the individual's future behaviors. Parsons stipulates the school setting as an ideal context for the student to formulate trusting relationships with other students. For a student in a new school, he/she must rely on other students to learn the norms of the school environment, get information about courses, work load, difficulty of teachers, and availability of extracurricular activities. Through these early interactions among new student and peers, a trusting relationship forms. This trusting relationship is what Parsons considers a primary condition for later peer influence (Parsons 1963). These peers are likely to become the closer friends in his/her peer network and will have the most influence on the individual (Hallinan and Williams 1990). Two main areas in which a student is influenced by peers are in the student's aspirations for college and whether or not the student actually attends college. Peer networks that are more similar regarding background and school experiences are expected to have the strongest influence over a peer who might have characteristics different from the group (Hallinan and Williams 1990). According to this theory, a low SES student entering a high SES school is likely to be most influenced by a group whose members have similar achievement levels and goals for postsecondary education. The low SES student, regardless of their own achievement and goals, is more likely to view this group as trustworthy because of their group unity rather than a group who is more diverse and who has different experiences regarding school achievement and varying goals towards postsecondary education.

However, studies have also found that for low SES students, high aspirations do not always lead to college enrollment. The gap for aspirations and college outcomes also appears to be wider for black students than for white students (MacLeod 1987; Hauser and Anderson 1991). College expectations are likely to be lower than aspirations, so that low SES students may aspire

to have a college degree but only expect to enroll in a postsecondary institution. Aspirations and expectations are different; aspirations tend to be idealistic goals whereas expectations are realistic expectations. Because of this, student expectations tend to be lower than aspirations because the realistic idea of what can be achieved is often lower than the goal for what one may like to achieve someday. Overall, low SES students are less likely to enroll and graduate from postsecondary institutions, even if they report high aspirations for college success (Crockett and Crouter 1994). Additionally, studies have found that the college experiences of disadvantaged blacks to be substantially different than their higher SES peers. Low SES black students who enroll in college are found to be less involved in school activities, have less contact with professors, report lower GPA's, and have lower rates of degree attainment (Walpole 2008).

Knowing that it's impossible to choose a peer group where friends are similar on all characteristics, individuals focus on characteristics in peers they value most (Ryan 2000). If there is a characteristic highly valued in an individual not found in peers, the individual will either influence peers to take on the valued characteristic, or resist change in oneself to take on the characteristics of peers that might be in conflict with the individual's values. On the other hand, the individual is more easily receptive to change or peer group socialization when the beliefs, values, or new activities fall in line with existing beliefs or hold little conflict with current values (Hallinan and Williams 1990; Ryan 2000). What this means for low SES students is that if they are integrated into a high SES peer group, hold little individual value for achievement, but are integrated among peers who hold have high standards for achievement and college enrollment, then low SES students can easily be socialized into new beliefs and activities of the new group. Low SES students may resist this socialization process only if they hold an intrinsic value for a working class career or not entering a post secondary educational institution (Ryan 2000). This is

based on Ryan's theory of dimensions that influence the socialization process. When individuals have personal value dimensions that are high when friendships are formed and friendship groups are similar on many dimensions, there is a high resistance for change. In this dimension there is also low pressure to change or pressure to stay the same. Conversely, if individuals have low personal value dimensions when forming friendship groups regardless of the similarity dimensions of the group, there is more receptiveness to change. The more similar the group on less valued characteristics, the less pressure to change (Ryan 2000).

Race is another factor to take into consideration when looking at peer network formation. Especially when focusing on the situation of a low SES situation in a higher SES school, the social and cultural mechanisms behind race are factors to consider. Blacks may achieve at lower levels based on the theory of "oppositional culture" which discourage students from conforming to attitudes and behaviors that might raise achievement (Ogbu 1992). If black students take on attitudes or behaviors that raise achievement scores, they might be sanctioned by their black peers for "acting white" (Fordham and Ogbu 1986). However, this theory is based on ethnographic studies of black students and there were patterns of behaviors that contradicted this theory. Black students who were found to have higher levels of aspirations and achievement were found to be more popular among white students (Fordham and Ogbu 1986). Additionally, there have been numerous studies, both qualitative and quantitative, that have been pursued since the Ogbu studies that have found evidence against the "oppositional culture" theory (Ainsworth-Darnell and Downey 1998; Cook and Ludwig 1998).

Furthermore, the more integrated a student is among a group of individuals in their neighborhood, the less likely they are to be integrated among a network of peers in the school setting (Urberg et. al 1995). This has been found to be more common among African American

students than white students. These African American students are found to be less connected among a school network of peers, have lower levels of school network participation, and have higher levels of neighborhood peer network involvement (Urberg et. al 1995). For a student who attends a magnet school or a school their neighborhood peers do not attend, the impact of school peers over neighborhood peers remains in question, especially when looking at student motivation towards high school graduation and postsecondary enrollment. Research has shown that students may be more integrated and influenced by neighborhood peers over school peers (Urberg et. al 1995); low SES students who attend high SES schools may have patterns of school network participation and neighborhood peer network involvement similar to African American students. While this question is beyond the scope of this dissertation, more research is needed to explore the relationships and patterns of network formation and influence of low SES students who attend high SES schools and how they vary by school and neighborhood.

College Access

A substantial proportion of the literature already discussed uses standardized tests as a proxy for student achievement. Looking at student achievement is meaningful because it has a direct relationship to college aspirations and expectations. Additionally, many of the factors affecting student achievement, such as family background, peer networks, and school resources, are also significant factors affecting college access and college choice.

The strongest predictor of postsecondary educational aspirations is parental encouragement and peers (Falsey and Haynes 1984). Additionally, the most significant predictor of postsecondary educational plans is the amount of encouragement and support parents give students (Stage and Hossler 1989). Parents' education also plays a significant role in the development of student aspirations and the actualization of college plans. For students whose

parents had at least a high school diploma, only half attended college; this number increases to 75% for students whose parents have a college degree. This reinforces what early status attainment literature finds; there is a relationship between parents' educational outcomes and students' educational outcomes (Hossler et al 1999). Parents' education, income, and wealth are also significant predictors of student's academic preparation towards college. Students from high SES families take more advanced courses in high school and are more prepared to enter selective universities (Massey et al 2003). Income also plays a role in the actualization of college plans. Students from low income families are more likely to go to work after high school; students from higher income families were more likely to attend four year schools (Hossler et al 1999).

Models of student college choice consider how students transform college aspirations into actuality. These models have three stages in the college-choice process: predisposition, search, and choice (Hossler et al 1999). Predisposition refers to the plans a student has about college that are formed in high school. Post high school educational plans are typically influenced by family background, academic achievement, peers, and high school experience. In the search phase, students evaluate potential colleges for enrollment. In this phase, students find out what characteristics they want from colleges and which colleges offer these specific characteristics. Some of these characteristics may include majors, extra curricular activities, campus housing, and location. In the final choice stage students choose a college from among the schools they searched and evaluated. For students who have higher levels of achievement and who come from higher SES backgrounds, the number of schools considered for enrollment increases (Hossler et al 1999).

Regarding college choice, a relationship exists between income and college selectivity (Hearn 1991). Upper income students have a higher likelihood of attending elite colleges while

lower income students, blacks, and women are more likely to attend less selective institutions, regardless of academic achievement (Hearn 1990). It is speculated that one reason why blacks, and even Hispanics, seek less selective institutions is because of their subjective assessment of the impact of their lower achievement scores and lesser involvement in extracurricular activities (McDonough 1997). Parents' knowledge in what it takes to prepare for college is a significant mediating factor in the relationship between income and college selectivity (McDonough 1997). For parents who have attended college, they are more likely to plan the college selection process for their children early (Dumais and Ward 2010). They are more likely to develop high expectations for their students and know how to convey information to students about getting into specific colleges. For parents who haven't attended college, this process begins much later and is often triggered by teachers and counselors (McDonough 1997). These students, who are referred to as first generation college students, may struggle in high school by not obtaining information early. They may not take the right classes and may not fully understand the college preparation process. These students are also more likely to come from low SES families where parents are less able to absorb the costs of college education and are less likely to have saved for college while their children were in high school (Massey et al 2003). The lack of academic and financial preparation for college can be disadvantageous for first generation college students trying to succeed in their first year of college.

School effects literature incorporates the importance of school context in shaping students' aspirations, expectations, and college plans. The differences in college attendance can be attributed to differences among schools, such as differences in curriculum and extracurricular activities, higher academic standards and value climate, and resources devoted to counseling and advising college bound students (Falsey and Heyns 1984). Additionally, college access literature

has also shown the importance of parents in shaping students' college expectations and aspirations towards college. Reinforcing early status attainment studies, families play an important role in shaping the future for low SES students. However, if students have the ability to attend the right schools, resources such as counseling and extracurricular activities may prove to be beneficial in shaping positive educational outcomes for low SES students. Schools then may help mediate the effects of families if students are placed in the right schools. Whether or not schools have a significant effect in shaping positive outcomes for low SES students, regardless of family background, is the main question of this research project.

Summary of Literature

Starting with status attainment research and confirmed in later research on family background, there has been a significant relationship established between parental SES and children's academic motivation and achievement. This effect of family has been found to be significant even after effects of school and peers are taken into account. Families from lower SES backgrounds have been found to pass down disadvantages to their children based on family structure, cultural capital, and social networks. In regards to family structure, many low SES students come from single parent homes. Single parent homes are found to have lower levels of involvement in school and outside of school when it comes to attending parent teacher meetings, volunteering in school, and monitoring school work. Low SES parents have been found to have lower levels of aspirations and expectations for students (Astone and McLanahan 1991); this lack of involvement and low levels of expectations have been found to account for much of the achievement gap between low SES and middle/high SES students. Higher SES parents are found to foster a home environment of material resources (through books, newspapers, a place to study) that encourages academic motivation and achievement. Furthermore, high SES parents are likely

to have higher levels of education; higher levels of education among parents are positively correlated with subsequent high expectations for children, involvement in school work, and communication with teachers. Higher SES parents, who are also more likely to have a college education, are more likely to start the college preparation process earlier for their children. These parents are likely to start saving for college earlier, advocate for their children to take advanced courses in high school, and start collecting information about colleges earlier. First generation college students, whose parents did not attend college, do not experience many of these advantages and often do not start the college preparation process until their senior year of high school.

The impact of schools is documented in research as having a significant effect on student achievement. James Coleman (1966) found an achievement gap between students who attended schools of varying quality and asserted that integration may lower this achievement gap. The Gautreaux experiment proved that integration of low SES students to suburban schools is beneficial for academic motivation and achievement (Kaufman and Rosenbaum 1992). Low SES students who attended suburban schools benefitted from the higher standards placed on students in the higher SES school setting and as a result exhibited higher levels of academic achievement. However, peer networks and school resources may be mediating factors affecting the causal relationship between school SES and student achievement. School effects research has shown that school context has an effect on college attendance. Schools with a value climate towards academics, extra curricular activities, and counseling have students who are more likely to attend college. This positive school climate may also be a positive mediating factor affecting the relationship between parents' education and children's education.

Research has shown that increases in funding alone are not enough to improve student achievement; schools need to implement resources and programs effectively. Some of these programs include SAT and ACT preparation programs, after school and extracurricular activities, and college preparation programs. Not only are higher SES schools more likely to offer these types of programs, but students who are engaged in these programs are found to achieve at higher levels on standardized tests. Lower levels of engagement are linked to higher likelihoods of dropping out of high school and lower levels of achievement. A second mediating factor affecting the causal relationship between school SES and student achievement are peer networks. Peer influence has been found to have a significant effect on student engagement, motivation, and achievement. Students who are surrounded by high achieving peers in schools have been found to achieve at higher levels, have a more positive attitude towards school, and engage in more extracurricular activities. While peer network literature suggests that students will form friendship groups with other students based on similar achievement and motivation levels, for low SES students in higher SES schools, this may be a more difficult task. In this situation, low SES students may benefit from the higher levels of motivation and achievement of other students as was the case in the Gautreaux experiment.

As mentioned in Chapter 1, the existing literature contains gaps that are addressed in this dissertation. For example, research has not taken full advantage of longitudinal data in terms of tracking the educational trajectory of students. Selection effects are another issue that is not fully addressed in existing literature, specifically studies which focus on low SES students in higher SES schools. Many of these existing studies make the assumption, both statistically and theoretically, that these students are randomly assigned to these schools and this is not often the case. Studies that do involve random assignment, such as the Gautreaux experiment, are limited

to one geographic location and cannot be generalized to the national student population. Finally, research has looked at the college enrollment of low SES students and found that low SES students are more likely to attend a community college than a four year institution and that community college students are significantly less likely to obtain a bachelors degree (Monkturner 1995). However, this relationship may change for students who are able to take advantage of the resources of a higher SES school. This dissertation will fill in this important gap by exploring further through causal models the type of college low SES students attend (a highly selective four year institution, moderately selective four year institution, and inclusive four year institution). Focusing on college selectivity will stratify those who attend highly selective schools from those who attend inclusive schools.

I now present a conceptual model of this my research question followed by hypotheses and expectations for results based on existing literature.

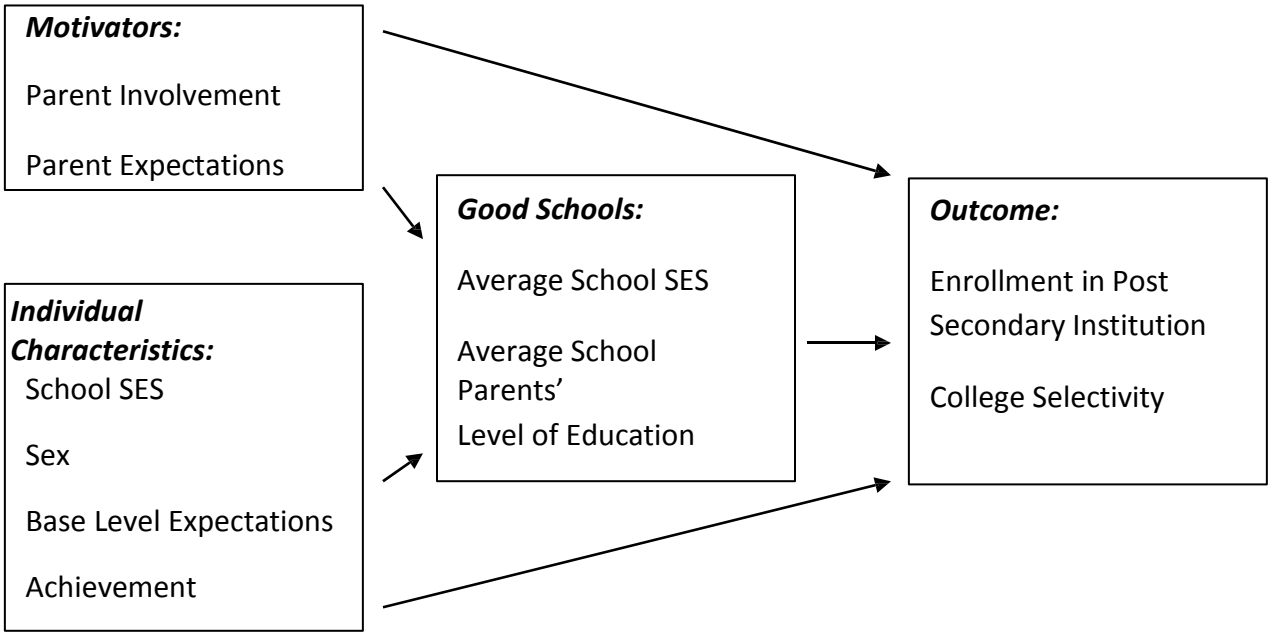


Figure 3. Conceptual Model of Research Question

This conceptual map shows how pretreatment variables, parental motivators and student characteristics, will affect the type of school students attend. In return, the type of school attended will have a causal effect on the level of postsecondary education attained, or enrollment in postsecondary institution in 2006. The following hypothesis will be explored in this dissertation:

1) Good schools will have a positive significant effect on level of postsecondary education attained.

2) Good schools will have a positive significant effect on enrollment in postsecondary institution in 2006.

I expect that parental motivators will lead good schools to have a significant positive effect on postsecondary enrollment and postsecondary attainment. As discussed in the previous literature section, parent involvement is shown to have significant positive effects on education (Parcel and Dufur 2001; Pong 1997). Parents who spend more time volunteering in school, helping with homework, and discussing school issues with students are more likely to have low SES students in higher SES schools. If this is true, the rate of parent involvement will be higher in higher SES schools. This will be the factor that is expected to lead "good schools" to have a significant positive causal effect on level of postsecondary attained.

CHAPTER 3: METHODS FOR ANALYSIS

Chapter four starts with an in-depth discussion of the methodological procedure of weighted regression with causal effect estimators. I then discuss the data used for analysis and variables selected for analysis. Chapter five proceeds with a step by step discussion of a weighted regression model looking at the potential causal effect of "good schools" on level of postsecondary education attained by low SES students.

Weighted Regression with Causal Effect Estimators (Morgan and Todd 2008)

One issue that commonly occurs in studying school effects is the issue of nonrandom distribution. Because families are often able to choose schools based on resources, students are non-randomly distributed across schools, and this is problematic when determining effects of schools. The nonrandom distribution can distort teacher effects, school effects, and peer effects if not properly accounted for (Rivkin, Hanushek and Kain 2005). To approach a causal model based on students' attending schools with different SES contexts, we need to compare students who have a reasonable probability of being in either school (a low SES school or a middle/high SES school). Students with similar propensities based on a set of chosen covariates to be in either a low SES school or a higher SES school can then be matched on the basis of their propensity scores. The difference in their outcome on the dependent variable (i.e., educational attainment) would then be closer to the difference we would expect in a random assignment of students to two groups. The matching of students based on propensity scores makes it more likely that pretreatment characteristics are similar (Rosenbaum and Rubin 1983).

This method, recently proposed by Morgan and Todd (2008), focuses on least squares regression estimates of causal effects that are conditional-variance-weighted estimates of

individual level causal effects. With a set of assumptions, this method examines whether a causal effect estimator from a regression model can be given a causal effect interpretation.

A simple model of counterfactual causality is:

$$Y = a + b_dD + b_2X_x + \ldots + b_kX_x + e \quad (1)$$

The goal of this model is to estimate the causal effect on Y by looking at the differences on D from 0 to 1. The other variables in the model are adjustment variables, used to improve the regression estimation of the causal effect (b_d). It is also assumed that the individual causal effect will vary so that a change in D will have important variation on individual level causal effects.

For this project, D is attendance at a higher SES school and X_x through X_k are student achievement, family involvement, peer networks, and other demographic variables. It is assumed that heterogeneity may exist not only in the strata across schools but also in the unobserved determinants in the factor of low SES versus high SES attendance.

The diagnostic routine for the detection of consequential heterogeneity of causal effects (Morgan and Todd 2008) has nine steps that are broken down into three stages:

Stage 1: Estimation of Baseline Regression Results

Step 1: Estimate a bivariate regression model

Step 2: Estimate a multiple regression model by introducing adjustment variables

Stage 2: Model Treatment Selection/Assignment and Construction of Weights

Step 3: Estimate a model predicting membership in the treatment group for the adjustment variables used in the multiple regression model

Step 4: Form weights as a function of the predicted probabilities of membership in the treatment group

Step 5: Check the balance of the adjustment variables produced by the weights

Step 6: If the adjustment variables remain unbalanced, respecify the model predicting treatment group membership

Stage 3: Estimation of Weighted Regression Estimates and Development of Diagnosis

Step 7: Reestimate the initial regression model using the final weights

Step 8: Compare alternative weighted regression estimates and accept a preliminary diagnosis if the estimates differ

Step 9: Assess the stability of the preliminary diagnosis to alternative decisions about overlap and supplemental parametric adjustment

Steps 1 and 2 are basic regression models used for comparison in later steps. Morgan and Todd (2008) mention that these steps may be unnecessary for those already familiar with the diagnostic procedure.

Step 3 utilizes a procedure to estimate the probability of being in the treatment group rather than the control group, and vice versa.

Each member of the sample will have an estimated probability for being in the treatment group. This estimated probability is calculated using propensity scores. The best way to estimate the difference in effects on college enrollment of attending/not attending a high SES school is to use propensity scores to match cases. The equation used to estimate propensity scores is a transformation of a logit model (Morgan 2001):

$$\text{Pi}\hat{} = \frac{\exp(xi\Phi\hat{})}{1+\exp(xi\Phi\hat{})} \qquad (2)$$

Let X = the same set of variables used in the multivariate regression model and $\Phi\hat{}$ = a vector of regression coefficients. The goal of propensity score matching is to match students on these pretreatment variables across low SES and high SES schools (Rosenbaum and Rubin 1983).

Step 4 formulates weights that are a function of calculated propensity scores. The weights that are calculated are equivalent in structure to survey weights that are used to adjust for the complexity of the survey design so the samples used are representative of their target populations. There are two different weights that are calculated. The first weight (w_i, ATT) is for the treatment group so that the population level treatment group becomes the target population. This weight leaves the sampled treatment group unaltered (since w_i, ATT = 1 for this group), but it seeks to turn the control group into a representative sample of the population-level treatment group. The weight for the control group works in the same way but in the opposite direction. For this study, the first weight would leave the high SES school sample unaltered but weight the low SES school sample in an attempt to create a sample that is representative of students who attend high SES schools with respect to the distribution of X. For the second weight (w_{ii}, ATC), the low SES school sample would remain unaltered but the high SES school sample would become weighted in an attempt to generate a sample that is representative of low SES schools with respect to the distribution of X.

Step 5 checks the balance of the adjustment variables produced by the weights. Utilizing the weights to align treatment and control groups on the distribution of X in step 4 allows for a specific interpretation in step 5. The weights are used as tools to "balance" the data so that the resulting balanced data can be interpreted as if it had been generated from a randomized experiment. For perfect balance to be achieved, the means and standard deviations of the variables in X must be the same across the treatment and control groups. The characteristics of students are expected to vary across low SES and higher SES schools which will produce unbalanced raw data. The expectation is that the differences between the weighted groups will be significantly reduced.

In order to assess the balance achieved by the weights, a metric of balance is constructed. The balance is constructed for both weights and shows how much the average standardized differences of means and standard deviations for the variables in X change with the weights.

Step 6 is focused on continuing to balance the adjustment variables. Because this procedure is seeking to mimic a randomized experiment, it is essential the adjustment variables are balanced as closely as possible in pretreatment characteristics. In step 6, if the adjustment variables are still not balanced, then transformations of the original variables are considered. For example, adding interaction terms to the propensity score logit model may yield weights that produce better balance.

In *Step 7*, the bivariate and multivariate regression models are reestimated using the final weights that were developed in steps 4-6. These weights are equivalent in nature and structure to survey weights that are used for complex samples so that the weights constructed are representative of target populations.

Step 8 compares alternative weighted regression estimates and looks for a causal effect. In order to do this, coefficients for the treatment variable on the outcome variable are compared when used with both treatment and control weights. Interpretations include the average treatment effect for those in the treatment group and the average treatment effect for those in the control group. The models show the effect of the treatment on those who do not receive the treatment and allow us to come to conclusions about the effect of high SES schools.

Step 9 recognizes that some students in the sample have no counterparts. This means that once propensity scores are calculated, some low SES students will have a zero propensity for attending a higher SES school. Hypothetically, there are also high SES students who have a zero propensity for attending a low SES school. This final step recalculates step 8, taking out students

who have a zero propensity. Additionally, this step examines the use of additional variables (if needed) for supplemental adjustment.

Overall, this procedure produces data that is similar to what occurs in a randomized experiement. Because it is difficult, if not impossible, to create the conditions for true randomized experiments in school, this method provides data that is a good alternative to data produced with true experimental methods. This study will evaluate the usefulness of this method, as an alternative to other statistical methods, for understanding the effect of attending higher SES schools for low SES students.

Data

The Education Longitudinal Survey of 2002 (ELS:2002), collected by the National Center for Education Statistics, U.S. Department of Education, follows students as they progress through high school into postsecondary education and/or a career. This data set offers both student- and school-level data. A major benefit of the ELS:2002 data is that it surveys students two years after most of them have graduated high school, thus making available information on college enrollment and future educational expectations. These data offer information on variables such as postsecondary enrollment, GED completion for dropouts, and occupation information for those not enrolled in a postsecondary institution. While the student is the primary unit of analysis in the ELS data set, the multilevel focus of the data allows for a comprehensive understanding of home and school environments and how each of these can impact and influence the outcome of an individual student.

The ELS:2002 uses a two stage sample selection process. First, a nationally representative sample of schools was selected and then from schools, sophomores were randomly selected from enrollment lists. 752 out of 1,221 eligible schools agreed to participate in the study and approximately 26 students per school completed questionnaires. The target

population for schools included public schools, charter schools, private schools, and Catholic schools. A subset of the 752 participating schools completed a school administrator questionnaire and a library or media center questionnaire. Field staff also completed a facilities checklist for each participating school. For the first wave of data collection in 2002, the response rate for eligible schools was 68%, and the response rate for eligible sophomores was 87% (Ingels et al 2007). Of 17,591 eligible selected sophomores, 15,362 completed a base-year questionnaire, as did 13,488 parents, 7,135 teachers, 743 principals, and 718 librarians. Hispanic and Asian students were oversampled, as were private schools, although private schools will be excluded from all analyses in this study.

The baseline data collection occurred in 2002 when students were sophomores. These 10^{th} graders were tested on reading and math achievement and were asked about their attitudes and experiences towards education and school. Information was also obtained in the baseline survey about their future educational expectations. The same students were resurveyed in 2004 in the first follow-up. Students were tested again for reading and math achievement, information was collected on high school enrollment status (whether or not they had dropped out), and the students were resurveyed about their educational expectations.

The 2004 follow up is a freshened sample. It includes students who were in the base year sophomore sample, those who had dropped out prior to first follow up data collection, those who had finished high school early or had completed a GED, and other types of students who may not have been able to participated in the base year but are able to participate in the first follow up either because they had been homeschooled, had a language barrier, illness, temporarily dropped out of school, or some other unstated issue.

The 2006 second follow-up wave of the restricted ELS data set has key outcome variables that will be used in this study. They include students' postsecondary enrollment (whether or not a student attended any type of postsecondary institution), highest level of education attempted two years out of high school, and selectivity of postsecondary institution (if attended). The second follow up was administered by a web-based self-administered instrument with CATI and CAPI for nonresponse follow up.

The 752 schools in the base year represent the approximately 25,000 public and private schools in the United States that had 10^{th} graders in 2002. The base year students who were surveyed represent the approximate 3 million 10^{th} graders attending school in 2002, with the exception of the Bureau of Indian Affairs schools, special schools for students with disabilities, area vocational schools that do not enroll students directly, and schools for dependents of US personnel serving overseas. In the first follow up sample, 14,989 students participated, representing the approximate 3.5 million students, homeschoolers, and early graduates. 13,420 of these who were sampled were in the 12^{th} grade, representing the approximate 3 million 12^{th} grade students in public and private schools in 2004. For the second follow-up using the web based self administered instrument, out of a sample of about 15,900 cases, about 14,200 sample members completed interviews, for a weighted response rate of 88%.

The ELS dataset is ideal to use for causal modeling techniques. The ELS is a large scale national educational study that is designed to be generalizable to the population of high school students. Large scale datasets of this nature are also beneficial for studying the characteristics and achievement of specific subgroups, such as minority and low SES students; groups that are often targeted for policy intervention. These datasets can be used to develop hypotheses and explanations for why students have differences in achievement. From a policy perspective,

causal modeling can be used with these large datasets to suggest the causal mechanisms which explain why one innovative program or resource has a positive effect on achievement over a different program.

The downside to large datasets such as ELS is that they do not offer randomization to treatment or control groups. This creates the issue of selection bias where students who participate in one program or treatment are likely to differ from those who do not. For this specific study, students tend to be selected into schools based on race and family SES. Low SES schools will contain a majority of minority students who are more likely to come from single parent families. The weighting techniques in weighted regression models are used to accommodate for the unbalanced nature between the treatment and control groups.

Variables Used for Analysis

Outcome variables I will examine the following three outcomes: highest level of education attempted (less than high school, high school degree, enrolled in 2 year college, enrolled in 4 year college), enrollment in any postsecondary institution (coded as 0= no and 1= yes) and the selectivity of the institution enrolled (1= highly selective four year school,2= moderately selective four year school,3= inclusive four year school, 4= two year school with no selectivity specified, less than two year school). Beyond college enrollment, college selectivity identifies the type of institution in which students enroll. If attendance in high SES schools is found to be causally related to college enrollment, college selectivity will identify more specifically whether low SES students are attending four year selective universities versus two or four year inclusive universities. This is important because attendance at more selective universities is associated with higher graduation rates and higher income upon graduation (Thomas 2003).

The main *policy variable, or treatment variable,* is whether or not a student attends a low SES or a higher SES school. While the actual SES of a school cannot be manipulated, the attendance of students in school is a variable that can be manipulated (for example, through busing and vouchers). Measuring the SES of a school is by nature measuring the attendance of students who attend the school. I examine two different variables, SES at the student level and SES at the school level. SES at the school level is constructed by taking the mean SES for all students in the ELS: 2002 that were at a respondent's school in the base year. ELS:2002 has a composite SES variable that includes parents' educational attainment, occupational prestige, and income (continuous variable consisting of family income from all sources, missing values imputed by ELS). I use quartile coding of SES, constructed by NCES for the ELS, to define socioeconomic status for both students and schools.

The treatment variable is constructed as a dichotomous variable. All low SES students who are in the first and second SES quartile are retained in the sample for analysis. A student is coded as "0" if they are attending a school in the base year where the average SES is in the first or second quartile (a low SES school). A student is coded "1" if they are attending a school in the base year where the average SES is in the third and fourth quartile. There are 4,558 students who are classified as low SES and 4, 933 students who are classified as high SES. Because this study only focuses on the students who are low SES, the high SES students are not included in the sample.

I define a low SES school as one having a mean SES quartile in the base year below 3, and a high SES school as having a mean SES quartile above 3. In order to do this, I first took the mean SES of the students within each school. If the mean SES within a particular school is calculated below 3, it is classified as a low SES school. If the mean SES of students within a

particular school is calculated to be above 3, the school is classified as a high SES school, or a good school. For the treatment variable, the high SES schools are coded as "1" and the low SES schools are coded as "0".

As an alternative treatment measurement, I also constructed a variable using parents' education as a proxy for social class. For this treatment variable I coded students as "0" if they attended a school where fewer than 75% of students had parents who had ever attended college. Students were coded as "1" if they attended a school where more than 75% of the student body had parents who had reported any kind of college attendance. In looking at alternative conceptualizations of "good schools", „both treatment variables are used in different models to explore causal effect possibilities. Status attainment literature indicates that parents' education is a significant indicator of student's college enrollment (Blue and Duncan 1965; Sewell, Hauser and Porter 1969). Education is also the key component to cultural capital (Bourdieu 1986). Thus, parents' education alone may be more important for the school context than the multifaceted SES variable. On the other hand, parents' income, as a component of the SES variable, may be important in providing higher-SES students with resources which then may affect the school context for the lower-SES students.

It is important to note that the treatment variable is based on the students' sophomore year information. There are instances where students may have transferred schools between sophomore and senior years. A descriptive analysis of the sample shows the following:

	Measurement at 12th grade	
Measurement at 10th Grade	0 (Low SES School)	1 (High SES School)
0 (Low SES School)	4,142	63
1 (High SES School)	67	286

Figure 4. Descriptive Analysis of Data

What this means is that 67 students were measured at a high SES school in 10th grade and then transferred to a low SES school by 12th grade. Because these students are measured in the original treatment as "1", their outcome responses are measured and analyzed as if they remained in a high SES school. Because we don't know the exact time when they transferred schools, it is hard to determine the impact of the low SES or high SES school on these students. It is the same for the 63 students who are originally measured as "0" in the treatment and then also transferred. For the purposes of analysis, these students are categorized as low SES students who attend low SES schools. Overall, in the final sample size, I had 353 students in the treatment group and 4,205 students in the control group. The total sample size is 4,558, although analyses may have slightly smaller Ns due to missing values on the dependent variables.

Adjustment variables (that is, the variables that make up "X") come from student and parent questionnaires. These variables were chosen because they are indicators of "good schools" (Johnson 2006). I operated under the assumption that a student with a given set of characteristics, or a given lifestyle at home, had a higher disposition to attend a certain school over another, or that the set of variables chosen were the best indicators predicting treatment. Other factors such as peer networks, school resources, and teacher expectations are a factor that

occur in schools, or after the treatment occurs, and are not included as predictors of the treatment. See table 1 for a list of adjustment variables, a description of their measurement, as well as their means and standard deviations.

Finally, because of the complex design of the data, I will employ post stratification weights in addition to the weights that are developed in Step 4 of the causal modeling process.

Table 1 breaks the sample down into four groups. The treatment group represents the low SES students who attend high SES schools and schools where students have at least one parent with a four year college degree (D=1) and the control group represents the low SES students who attend low SES schools and schools were students who have parents with less than a four year college degree (D=0). These groups are separated by (SES) and (Educ) on the table. There were instances when students did not answer each question on the survey. In order to maintain sample size consistency, I utilized standard imputation techniques to account for and accommodate missing values for the adjustment variables. In other instances, the variables were noted as composite variables. In these cases, the missing cases were already imputed and provided in the dataset.

Table 1. Means, Standard Errors, and Descriptions for the Variables Used in the Analyses

Variable name	Description	Metric	Mean	Standard Error
Treatment variable:				
School SES	SES is based on five equally weighted, standardized components: father's education, mother's education, family income, father's occupation, and mother's occupation. School SES is created by taking the mean SES of	Higher SES schools had a mean SES school quartile >3. Low SES schools had a mean SES quartile of < 3. Student SES quartiles range from 1 – 4.		

Table 1. (cont.)

	students, by school ID, and then separating them into low and high SES school groups.			
Educational outcomes				
Highest Level of Education Attempted in 2006	Respondents were asked about their highest level of education attempted. If respondent has attended a postsecondary institution, their status is determined by the highest level of attended postsecondary institution.	1 = some high school; 2 = GED; 3 = High School Diploma; 4 = Enrolled in less than 2 year school 5 = Enrolled in 2 year school 6 = Enrolled in 4 year school	full sample: 4.51 D=0 (SES): 4.49 D=1 (SES): 4.85 D=0 (Educ): 4.69 D=1 (Educ): 4.69	full sample: 1.40 D=0 (SES): 1.41 D=1 (SES): 1.35 D=0 (Educ): 1.41 D=1 (Educ): 1.40
Ever Attended Postsecondary Institution	This variable indicates whether the respondent has ever attended a postsecondary institution since high school completion. Missing cases in the second follow up are imputed.	0 = No; 1 = Yes	full sample: .659 D=0 (SES): .652 D=1 (SES): .745 D=0 (Educ): .645 D=1 (Educ): .715	full sample: .474 D=0 (SES): .476 D=1 (SES): .437 D=0 (Educ): .478 D=1 (Educ): .452
Institutional selectivity of first attended postsecondary institution	Measure of the admissions selectivity (based on 2005 Carnegie classifications) of the first "real" postsecondary institution attended. Institutions identified as 4-year schools via IPEDS data are further classified as highly selective, moderately selective, or inclusive according to the Carnegie selectivity measure; institutions identified as 4-year schools via IPEDS data with unknown Carnegie selectivity (or Carnegie-classified as something other than a 4-year institution) are coded as "selectivity not classified, 4-year institution".	1 = Highly selective, 4 year 2 = Moderately selective, 4 year 3 = Inclusive, 4 year 4 = Selectivity not classified, 4 year 5 = Selectivity not classified, 2 year 6 = Selectivity not classified, less than 2 year	full sample: 3.20 D=0 (SES): 3.24 D=1 (SES): 2.86 D=0 (Educ): 3.23 D=1 (Educ): 3.11	full sample: 1.06 D=0 (SES): 1.05 D=1 (SES): 1.17 D=0 (Educ): 1.05 D=1 (Educ): 1.09

Table 1. (cont.)

Race	This is a composite variable. Missing values were already imputed. Variable was recoded to a series of dichotomous variables. The race variables created for analysis were white, black, Hispanic, Asian, and other.	1 = American Indian, Alaska Native 2 = Asian 3 = Black 4 = Hispanic, No race speficied 5 = Hispanic, race specified 6 = More than one race 7 = Other	White D=0(SES) = .449 White D=1(SES) = .521 Black D=0 (SES) = .175 Black D=1 (SES) = .153 Hispanic D=0 (SES) = .212 Hispanic D=1 (SES) = .096 Asian D=0 (SES) = .110 Asian D=1 (SES) = .164 Other D=0 (SES) = .054 Other D= (SES) = .065	White D=0 (SES) = .497 White D=1 (SES) = .500 Black D=0 (SES) = .380 Black D=1 (SES) = .360 Hispanic D=0 (SES) = .409 Hispanic D=1 (SES) = .295 Asian D=0 (SES) = .313 Asian D= (SES) = .371 Other D=0 (SES) = .225 Other D=1 (SES) = .247
Gender	Gender of student (male or female). Missing values imputed in dataset.	0 = female 1 = male	full sample: .459 D=0 (SES): .478 D=1 (SES): .479 D=0 (Educ): .461 D=1 (Educ): .452	full sample: .498 D=0 (SES): .498 D=1 (SES): .500 D=0 (Educ): .499 D=1 (Educ): .498
Student Expectations	In tenth grade students are asked "How far do you think you will go in school?"	1 = Less than high school 2 = High School Graduation/GED 3 = Attend/Complete 2 year school 4 = Attend 4 year college 5 = Graduate 4 year college 6 = Obtain Masters Degree 7 = Obtain PhD	full sample: 4.96 D=0 (SES): 4.94 D=1 (SES): 5.19 D=0 (Educ): 4.92 D=1 (Educ): 5.10	full sample: 1.47 D=0 (SES): 1.48 D=1 (SES): 1.42 D=0 (Educ): 1.48 D=1 (Educ): 1.43
Parent Expectations	Parents are asked "How far in school do you want your tenth grade to go?" Missing cases are imputed in dataset.	1 = Less than high school 2 = High School Graduation/GED 3 = Attend/Complete 2 year school 4 = Attend 4 year college 5 = Graduate 4 year college 6 = Obtain Masters Degree 7 = Obtain PhD	full sample: 5.17 D=0 (SES): 5.16 D=1 (SES): 5.34 D=0 (Educ): 5.11 D=1 (Educ): 5.44	full sample: 1.38 D=0 (SES): 1.39 D=1 (SES): 1.21 D=0 (Educ): 1.39 D=1 (Educ): 1.29

Table 1. (cont.)

Math Achievement	Math IRT (Item-response theory) estimated number right. The estimated number right score for math is an estimate of the number of items students would have answered correctly had they responded to all 72 items in the ELS:2002 math item pool. The ability estimates and item parameters derived from the IRT calibration can be used to calculate each student's probability of a correct answer for each of the items in the pool.	10.199 = Minimum 48.505 = Maximum (for sample)	full sample: 26.8 D=0 (SES): 26.56 D=1 (SES): 29.64 D=0 (Educ): 26.64 D=1 (Educ): 27.43	full sample: 9.11 D=0 (SES): 9.09 D=1 (SES): 8.87 D=0 (Educ): 9.10 D=1 (Educ): 9.13
College Entrance Information Index	Students are asked in tenth grade if they have gone to any of the following individuals for college entrance information: counselor, teacher, coach, parent, and friend. An index was compiled of the total number of responses.	0 = no; 1 = yes (index values range from 0 = student has not gone to any of these individuals for college entrance information to 5 = student has gone to all individuals for college entrance information)	full sample: 1.68 D=0 (SES): 1.67 D=1 (SES): 1.77 D=0 (Educ): 1.67 D=1 (Educ): 1.70	full sample: 1.28 D=0 (SES): 1.28 D=1 (SES): 1.28 D=0 (Educ): 1.28 D=1 (Educ): 1.29
Home Resource Index	Students are asked about the following resources in the home: family has a daily newspaper, family has a regularly received magazine, family has a computer, family has access to the internet, family has more than fifty books. An index was compiled of the total number of responses.	0 = no; 1 = yes (index values range from 0 = student has none of these resources in the home 5 = student has all of these resources in the home)	full sample: 3.46 D=0 (SES): 3.44 D=1 (SES): 3.71 D=0 (Educ): 3.44 D=1 (Educ): 3.56	full sample: 1.22 D=0 (SES): 1.23 D=1 (SES): 1.11 D=0 (Educ): 1.24 D=1 (Educ): 1.16
Student/Parent Interaction Index	Students are asked the following questions about their interactions with parents: "How often discussed school courses with parents", "How often discussed school activities with parents",	0 = Never 1 = Sometimes/Often (index values range from 0 = student does not discuss any of these school related issues with	full sample: 4.60 D=0 (SES): 4.59 D=1 (SES): 4.73 D=0 (Educ): 4.58 D=1 (Educ): 4.70	full sample: 1.46 D=0 (SES): 1.46 D=1 (SES): 1.47 D=0 (Educ): 1.47 D=1 (Educ): 1.42

Table 1. (cont.)

	"How often discussed things studied in school with parents", "How often discussed grades with parents", "How often discussed prep for ACT/SAT with parents", "How often discussed going to college with parents".	parent to 6 = student discusses all of these school related issues with parent).		
Parent Involvement Index	Parents are asked about their involvement in school: "Do you belong to a parent-teacher organization?", "Do you attend parent-teacher organization meetings?", "Do you take part in parent-teach organization activities?", "Do you act as a volunteer at school?", "Do you belong to other organizations with parents from school?"	0 = no; 1 = yes (index values range from 0 = parent does not belong to any parent organizations with the school to 5 = parent is a member and attends all parent organizations for the school)	full sample: 1.03 D=0 (SES): 1.02 D=1 (SES): 1.08 D=0 (Educ): .996 D=1 (Educ): 1.15	full sample: 1.15 D=0 (SES): 1.15 D=1 (SES): 1.18 D=0 (Educ): 1.14 D=1 (Educ): 1.21
Parent Rules Index	Parents are asked the following questions about rules in the home: "family rules for tenth grader about maintaining grades", "family rules for tenth grader about dong homework", "family rules for tenth grader about doing housework", "family rules for tenth grader about watching TV"	0 = no; 1=yes (index values range from 0 = family has none of these rules for tenth grader to 4 = family has all of these rules for tenth grader)	full sample: 3.29 D=0 (SES): 3.28 D=1 (SES): 3.36 D=0 (Educ): 3.28 D=1 (Educ): 3.33	full sample: .886 D=0 (SES): .895 D=1 (SES): .766 D=0 (Educ): .894 D=1 (Educ): .852

CHAPTER 4: AN ANALYSIS OF COLLEGE ATTAINMENT

An in-depth look at the weighted regression process with causal effect estimators is presented here. The treatment variable for this process uses parent and school SES (income, education, and occupation) as an indicator of students' placement in a low SES or high SES school. College enrollment is the outcome variable to determine whether or not there is a significant causal effect of school SES. For this set of models, college enrollment is measured as a continuous variable with the responses some high school (1), GED (2), high school diploma (3), enrolled in less than 2 year school (4), enrolled in 2-year college (5), enrolled in 4-year college (6). Higher scores on the dependent variable thus represent higher levels of educational attainment. The analysis process is presented in nine stages; this process of weighted regression with causal effect estimators is consistent with past literature (Morgan and Todd 2008).

Diagnostic Step 1: Estimate a Baseline Regression Model

Table 2 presents the baseline model for the treatment variable as an indicator of college enrollment. The survey set is weighted with a post-stratification weight provided by NCES to account for oversampling of certain groups and sample attrition. The model presented is $Y = \hat{\alpha} + \hat{\delta}\text{OLS, bivariate}D + \varepsilon$. For this model, Y is an interval level outcome variable and $\hat{\delta}$OLS, bivariate is the estimated causal effect of D on Y.

The first row of the table presents the bivariate regression estimates for the treatment effect. The significant coefficient of .36 for school SES suggests that students have higher rates of college attainment in high SES than low SES schools.

Diagnostic Step 2: Estimate a Multiple Regression Model by Introducing Adjustment Variables

The second model in table 2 is an estimated regression model using ordinary least squares:

$$Y = \hat{\alpha} + \hat{\delta}\text{OLS,multiple}D + X\hat{\beta} + \varepsilon$$

In this model, X represents the variables added to the equation that are thought to predict the treatment variable, D. $\hat{\beta}$ represents the estimated coefficients that correspond to the variables, X. Finally, $\hat{\delta}$OLS,multiple is the estimated causal effect of D on Y; this causal effect is adjusted for the predictor variables, X.

The multiple regression estimates for the SES school effect are shown in Table 3 below. The most important finding at this stage is that the coefficient for the treatment variable decreases and becomes insignificant with the introduction of the adjustment variables. While this positive coefficient still suggests some kind of positive effect for high SES schools, for this model, the effect is insignificant. The R square also shows a large increase, from .004 in model 1 to .2319 in model 2.

Most of the adjustment variables show a positive significant effect on college attainment. One interesting exception is with the parent rules index. This negative coefficient could indicate that students who are most likely to have high level of rules and structure in their home could be students who are already struggling academically or with social deviance; it is these behaviors that might lead to more family rules around the home. If this theory is true, these students would be more likely to suffer in a high SES school and might have lower educational outcomes regarding college enrollment. The higher academic standards in a higher SES school might lead a student to continue to struggle academically which can lower opportunities, expectations, and even desire for college enrollment for this type of student.

Table 2. Regression Coefficients for the Effects of School SES on Highest Level of Postsecondary Education Attempted

	Baseline		Model 2	
	Coeff	**SE**	**Coeff**	**SE**
Black			.178*	(.071)
Hispanic			.048	(.063)
Asian			.358***	(.071)
Other			-.058	(.109)
Male			-.219***	(. 045)
Student Expectations			.181***	(.018)
Parent Expectations			.067***	(.017)
Math Achievement			.034***	(.002)
College Information Index			.034*	(.016)
Home Resource Index			.079***	(.019)
Student Parent Interaction Index			.050**	(.017)
Parent Involvement Index			.069***	(.017)
Parent Rules Index			-.055*	(.024)
School SES (Treatment)	.322***	(.078)	.119	(.082)
Constant	4.45***	(.022)	1.66***	(.151)
R-squared	.004		.2319	

Notes: Standard errors are in parentheses.
* p < .05, ** p < .01, *** p < .001
N = 5,166
Sources: Educational Longitudinal Survey:2002 Restricted Use Base-Year to Second Follow-Up Data Files; Postsecondary Education Transcript Study Data Files.

Even though the treatment variable proves to be insignificant in this model, continuing with the diagnostic routine is still beneficial. Controlling for selection effects might bring out a suppressed causal effect or an insignificant causal effect might be found. Regardless, either outcome will provide a contribution to the literature. A lack of causal effect is strong, rigorous statistical support for the ongoing question of whether schools matter. If I do find a causal effect for schools, this will show that causal modeling can uncover relationships that regular OLS models cannot. This will lend support to past studies that argued for schools effects but did not use this kind of randomized method.

Diagnostic Step 3: Estimate a Model Predicting Membership in the Treatment Group from the Adjustment Variables Used in the Multiple Regression Model

Steps 3 and 4 form weights as a function of the predicted probability of membership in the treatment group based on the model predicting membership in the treatment group from the adjustment variables that were presented in multiple regression model 2.

The treatment variable assigns a student a value of 1 if they attend a high SES school and a student a value of 0 if they attend a low SES school. The procedures used in step 3 and 4 utilize procedures to estimate the probability of a low SES student being in a high SES school rather than a low SES school (if they are assigned a value of 0). Finally, each member of the sample will have a calculated probability of attending a high SES school.

A logit model is estimated to calculate the probability of a low SES student attending a high SES school rather than a low SES school.

$$\text{Logit}(D) = X\hat{} \ \varphi$$

In this model, X represents the adjustment variables entered into the estimated regression model and φ represents a vector of their coefficients. Predicted values are then calculated substituting x from the logit model into the following model:

$$Pi\hat{} = \frac{\quad}{\quad}$$

Pi^ represents the predicted probability of D=1 for each individual, or the predicted probability that a low SES student attends a high SES school. The probabilities calculated in this step are used in later steps to calculate and balance weights.

The estimated logit model represents the likelihood of being in the treatment group, or high SES school, based on the adjustment variables. The estimated logit model fit the data reasonably well, delivering a chi-squared test statistic of 78.93 with 13 degrees of freedom. The predicted probabilities $\hat{}pi$ had a mean of .0889 and a standard deviation of .0439. The distribution is heavily skewed with a minimum of .0098 and a maximum of .2668. It looks like the probabilities of being in a high-SES school are pretty low for students from low SES backgrounds. At most, students in the sample have a 27% predicted chance of attending a high SES school.

Diagnostic Step 4: Form Weights as a Function of the Predicted Probabilities of Membership in the Treatment Group

Step four calculates two sets of weights using the treatment variable and the estimated predicted probabilities Pi^ calculated in step 3. These weights are representative of their respective target samples because their structure is the same as the weights used to weight complex samples. These two weights, *wi,* ATT (average treatment effect for the treated) and *wi,* ATC (average treatment effect for the controls) are calculated:

For $di = 1$: wi, ATT = 1,
For $di = 0$: wi, ATT = $\frac{\hat{}pi}{1 - \hat{}pi}$,

For $di = 1$: wi, ATC = $\frac{1 - \hat{}pi}{\hat{}pi}$,
For $di = 0$: wi, ATC = 1.

When using the ATT weight, the target population is the population-level treatment group. Using this weight will leave the sample treatment group unchanged (because w_i, ATT = 1 for those in the treatment group), but it turns the control group into a representative sample of the treatment group. When applied to the sample of all low SES students, the *wi,* ATT weight leaves the sample of students who attend high SES schools unaltered, but weights the sample of students

who attend low SES schools in an attempt to generate a sample that is representative of students who attend high SES schools with respect to the distribution of *X*. The opposite effect occurs for the ATC weight. The control group becomes the target population and remains unchanged. The weight then attempts to turn the treatment group into a representative, population-level sample of the control group. The *wi*, ATC weight leaves the sample of students who attend low SES schools unaltered, but weights the sample of students who attend high SES schools in an attempt to generate a sample that is representative of students who attend low SES schools with respect to the distribution of X.

The ATT and ATC weights are a function of calculated propensity scores. These calculated weights are equivalent in structure to survey weights that are used to adjust for the complexity of the survey design so the samples used are representative of target populations. Additionally, these weights help deal with selectivity issues that can lead to biased results in this type of data analysis. The balancing of weights that occurs in step five ensures that groups are randomly assigned, equally balanced, and free of selection effects that can lead to false causal effects.

From here I will assess the effectiveness of these estimated weights in balancing the sample. A balanced sample across treatment and control groups using the ATT and ATC weights produces a sample that can be analyzed as if it had been produced from a true experiment with randomized assignment to treatment and control groups.

Diagnostic Step 5: Check the Balance of the Adjustment Variables Produced by the Weights

A balanced sample is achieved when the variables in X are balanced with respect to the treatment variable D: $\Pr[X|D = 1] = \Pr[X|D = 0]$. For perfect balance to be achieved, the distributions of X across the treatment and control group must be equal. For dummy variables,

this means that that the means are equal across treatment and control groups. For continuous variables, all values across the distributions must be equal; any small differences that occur after balancing will be attributed to sample bias.

As shown in Table 1, the raw sample without weights is significantly different across treatment and control groups. Low SES students who attend low SES and low education schools appear to be more racially diverse, have lower math achievement scores, and have lower student and parent expectations for college enrollment when compared to low SES students who attend high SES schools and higher education schools.

Morgan and Todd (2008) developed a program for Stata that automates the balancing process for this step. The formulas used in the balancing process are derived from Rubin (1973) and are based on calculating the differences in means for each variable in X. The result is an average standardized difference of means. The average standardized difference of means is then calculated under the ATT and ATC weights from step 4 in order to achieve balance. Table 3 shows the result of the standardized differences of mean for X without the application of any ATT or ATC weight.

A second formula is used to achieve balance focuses on standard deviations for each variable. Table 4 shows the summary of the standardized differences of means and standard deviations for X with the application of ATT and ATC weights.

Table 3: Standardized Differences of Mean for X without the Application of ATT or ATC weights

	Mean (Std. Diff)	**SD (Std. Diff)**
Black	-.102	-.093
Hispanic	-.390	-.372
Asian	.107	.218

Table 3. (cont.)

Other		

	.062	.112
Male	.037	.001
Student Expectations	.157	-.035
Parent Expectations	.090	-.152
Math Achievement	.356	-.021
College Information Index	.044	.005
Home Resource Index	.249	-.130
Student Parent Interaction Index	.066	.018
Parent Involvement Index	.085	.026
Parent Rules Index	.098	-.181

Sources: Educational Longitudinal Survey:2002 Restricted Use Base-Year to Second Follow-Up Data Files; Postsecondary Education Transcript Study Data Files.

In order to achieve balance, the final value of the standardized differences and mean and the value of the scaled standardized differences of standard deviation needs to be 0. Table 4 shows how the standardized differences of mean and standardized differences of standard deviation change with the application of ATT and ATC weights. For each of the ATT and ATC weights, a poststratification weight was also applied along with an ATT or ATC weight.

Table 4: Summary of the Standardized Differences of Mean and Standardized Differences of Standard Deviation of ATT and ATC Weights

	Unbalanced	**ATT**	**ATC**
Means	.14188	.002	.022
Standard Deviations	.10499	.026	.048

With the application of ATT and ATC weights, along with the survey created post-stratification weight, the standardized difference of means changed from .14 to .002 and .02 respectively. This is a significant change and shows that the variables are very close to achieving balance with the application of these weights.

With the application of ATT and ATC weights, along with the survey created post-stratification weight, the standardized differences of standard deviation changed from .11 to .03

and .05 respectively. This is a significant change and shows that the variables are very close to achieving balance with the application of these weights. The levels of balance are comparable to what Morgan and Todd (2008) achieved with their data.

Diagnostic Step 6: If the Adjustment Variables Remain Unbalanced, Respecify the Model Predicting Treatment Group Membership until No Further Improvement in Balance Can Be Obtained (Repeat Steps 3 through 5)

This step suggests manipulating the data through trial and error procedures to see if a better metric of balance can be created. A perfect metric of balance is created with the standardized differences of mean and standardized differences of standard deviation are equal to zero. After step 5, the standardized differences of mean and standardized differences of standard deviation are close to zero but not exactly zero. In the Morgan and Todd (2008) article, after step 6, his final metric of balance ranged between .004 and .09. While the authors never achieved perfect balance, the addition of interaction terms allowed the balance to be closer to zero.

In order to assess the effectiveness of this step, I created several interaction variables. The interaction terms were not significant in regression models and did not result in a lower metric of balance. The standardized differences of means and standard deviations from step 5 range from .002 to .05 with the application of ATT and ATC weights. These numbers are similar to the final standardized differences that were considered acceptable by Morgan and Todd (2008) a so I am confident to continue with modeling without any further respecifications of the original model.

Diagnostic Step 7: Reestimate the Original Regression Models Using the Final Weights

Table 5 displays the results of the original regression models with the application of ATT and ATC weights. Model 1 is the original regression model displayed in Table 1. Model 2 is the original regression model with the application of the ATC weight. Model 3 is the original regression model with the application of the ATT weight.

Table 5: Regression Coefficients for the Effects of School SES on the Highest Level of Postsecondary Education Attempted, Weighted Separately by ATT and ATC Weights

	Model 1 (no weight)		Model 2 (ATC)		Model 3 (ATT)	
	Coeff	SE	Coeff	SE	Coeff	SE
Black	.178*	(.082)	.116	(.116)	.068	(.123)
Hispanic	.048	(.063)	-.120	(.134)	-.168	(.148)
Asian	.357***	(.071)	.365***	(.097)	.322***	(.082)
Other	-.058	(.109)	-.017	(.156)	-.049	(.159)
Male	-.219***	(.045)	-.225**	(.077)	-.275***	(.076)
Student Expectations	.181***	(.018)	.207***	(.037)	.204***	(.035)
Parent Expectations	.067***	(.018)	.044	(.032)	.058	(.031)
Math Achievement	.034***	(.002)	.032***	(.004)	.032***	(.004)
College Information Index	.034*	(.016)	.010	(.034)	.015	(.032)
Home Resource Index	.079***	(.019)	.068*	(.033)	.070*	(.032)
Student Parent Interaction Index	.050**	(.017)	.063*	(.030)	.067	(.030)
Parent Involvement Index	.067***	(.017)	.068	(.035)	.061	(.033)
Parent Rules Index	-.055*	(.024)	-.075	(.046)	-.036	(.047)
School SES (Treatment)	.119	(.082)	.083	(.090)	.115	(.081)
Constant	1.66***		1.87***	(.286)	1.67***	(.285)
R-squared	.2132		.2405		.2276	

Notes: Standard errors are in parentheses. Standard error adjusted for 569 clusters in school ID.
* p < .05, ** p < .01, *** p < .001
N = 4,543
Sources: Educational Longitudinal Survey:2002 Restricted Use Base-Year to Second Follow-Up Data Files; Postsecondary Education Transcript Study Data Files.

Step 8: Compare Alternative Weighted Regression Estimates and Accept a Preliminary Positive Diagnosis if the Estimates Differ

One of the more unique facets of this type of analysis is that there is not a standard procedure that is utilized to determine whether the regression estimates are sufficiently different to conclude that a causal effect is present (Morgan and Todd 2008). Researchers who have used this method previously (Morgan and Todd 2008) have relied on inference and judgment to make statistical conclusions regarding potential causal effects.

Table 5 gives a lot of information to use in this statistical inference process. When looking at a potential causal effect, I first look at the change in the school SES coefficient with the application of ATT and ATC weights. When ATT and ATC weights are applied, the school SES coefficient remains small and insignificant. More importantly, the difference in the school SES coefficient between the ATT and ATC models is also not significantly different. What this means is that attendance at a high-SES school does not have a significantly different predicted effect for low SES students who attend a low SES school (control group, or ATC model) versus the low-SES students who currently attend a high SES school (treatment group, or ATT model). Furthermore, the 95% confidence intervals for the two groups have a very strong overlap: (-.054, .263) for the treatment group and (-.085, .269) for the control group. The findings indicate that the effect of attending a high SES school for the type of students who attend low SES schools is no different than the effect of a high SES school for the types of students who do attend high SES schools. These findings provide additional support to my original OLS model that showed no significant effect for attendance at high-SES schools.

Step 9: Assess the Stability of the Preliminary Diagnosis to Alternative Decisions about Overlap and Supplemental Parametric Adjustment

This step deals with the issue of overlap that may have occurred in the previous weighted regression models. As shown in Diagnostic step 3, the minimum and maximum values for p1 are not 0 and 1 but .0098 and .2770 respectively. What this means is that some low SES students in low SES schools had no counterparts among low SES students in high SES schools and vice versa. This step will remove the members of the sample that have no counterparts and rerun the weighted regression models to see if the issue of overlap has any bearing on causal effect estimators.

With respect to p1, there is 1 low SES student who has no counterpart among low SES students in low SES schools and 30 low SES students who have no counterparts among low SES students in high SES schools. Table 6 presents all of the models from Table 5 but without the 31 students who have 0 counterparts where .0098<p1<.2770. The point-estimates of the respective coefficients change slightly, but, in general, the same pattern holds with estimates of the average treatment effect for students in low SES schools remaining somewhat lower than estimates of the average treatment effect for students in high SES schools. Because the models did not change significantly with the alternation of the sample, and because the causal effect estimators remain unchanged, it is not necessary to continue with supplemental analyses with the subset of students who have no counterparts.

Table 6: Regression Coefficients for the Effects of School SES on the Highest Level of Postsecondary Education Attempted, Weighted Separately by ATT and ATC Weights

	Model 1 (no weight)		**Model 2 (ATC)**		**Model 3 (ATT)**	
	Coeff	**SE**	**Coeff**	**SE**	**Coeff**	**SE**
Black	.175*	(.071)	.115	(.116)	.068	(.123)
Hispanic	.045	(.064)	-.122	(.134)	-.170	(.149)
Asian	.356***	(.072)	.365***	(.097)	.323***	(.083)
Other	-.059	(.109)	-.017	(.157)	-.049	(.159)
Male	-.217***	(.045)	-.224**	(.077)	-.274***	(.076)
Student Expectations	.181***	(.018)	.207***	(.037)	.205***	(.035)
Parent Expectations	.070***	(.018)	.045	(.033)	.058	(.031)
Math Achievement	.034***	(.002)	.032***	(.004)	.032***	(.004)
College Information Index	.035*	(.016)	.010	(.034)	.015	(.032)
Home Resource Index	.078***	(.019)	.067*	(.033)	.070*	(.032)
Student Parent Interaction Index	.049**	(.017)	.063*	(.030)	.067*	(.033)
Parent Involvement Index	.068***	(.018)	.069	(.035)	.060*	(.033)
Parent Rules Index	-.057*	(.025)	-.076	(.048)	-.034	(.047)
School SES (Treatment)	.119	(.082)	.083	(.090)	.115	(.081)
Constant	1.66***		1.86***	(.286)	1.66***	(.287)

Table 6. (cont.)	.2118	.2399	.2274
R-squared			

Notes: Standard errors are in parentheses. Standard error adjusted for 569 clusters in school ID.
* p < .05, ** p < .01, *** p < .001
N = 4,512
Sources: Educational Longitudinal Survey:2002 Restricted Use Base-Year to Second Follow-Up Data Files; Postsecondary Education Transcript Study Data Files.

Overall, the diagnostic routine has provided strong statistical support to the lack of causal effect of high-SES schools on low SES students. A lack of causal effect is strong, rigorous statistical support for the ongoing question of whether schools matter. Low SES students who attend high SES schools do not seem to have significantly higher postsecondary education outcomes than low SES students who attend low SES schools. However, this analysis has only explored one outcome variable. An analysis of other outcomes or a different conceptualization of school SES might provide different results.

CHAPTER 5: A FURTHER ANALYSIS OF POSSIBLE OUTCOMES

In this chapter I follow the same diagnostic procedure outlined above, but explore the possible causal effect of school SES on different outcome variables. I also run the same diagnostic procedure on educational attainment presented above, but use a different measure for the treatment variable, focusing on parents' educational level instead of a composite SES measure.

The first additional educational outcome I explore in relationship to a potential school causal effect is the logit model of postsecondary college attendance. For these models, I look at whether or not attending a higher SES school has a causal effect on attending any type of postsecondary institution, including both two and four year institutions. Similar to Table 6 presented in chapter 4, Table 7 below presents the original logit model without weights, the logit model with ATC weights, and the logit model with ATT weights.

Table 7: Logit Model of Attendance at a Postsecondary Institution, Weighted Separately by ATT and ATC Weights

	Model 1 (no weight)		**Model 2 (ATC)**		**Model 3 (ATT)**	
	Coeff	**SE**	**Coeff**	**SE**	**Coeff**	**SE**
Black	.317*	(.122)	.344	(.235)	.199	(.234)
Hispanic	.239*	(.115)	-.023	(.272)	-.044	(.307)
Asian	.761***	(.175)	.930**	(.304)	.815**	(.215)
Other	-.110	(.171)	.022	(.303)	-.098	(.306)
Male	-.372***	(.080)	-.424**	(.148)	-.534***	(.146)
Student Expectations	.263***	(.030)	.262***	(.062)	.290***	(.063)
Parent Expectations	.161***	(.031)	.136	(.063)	.122	(.066)
Math Achievement	.045***	(.004)	.048***	(.009)	.045***	(.008)
College Info Index	.079*	(.033)	.040	(.071)	.042	(.071)
Home Resource Index	.140***	(.033)	.125*	(.061)	.099	(.060)
Student Parent Interaction Index	.070*	(.028)	.078	(.054)	.097	(.053)
Parent Involvement Index	.082*	(.033)	.110	(.068)	.103	(.068)
Parent Rules Index	-.097	(.052)	-.212*	(.099)	-.170	(.105)
School SES	.129	(.162)	.080	(.175)	.128	(.162)

Table 7. (cont.)

(Treatment)						
Constant	-3.63***	(.290)	-3.09***	(.634)	-3.10	(.638)
Pseudo R2	.134		.149		.139	

Notes: Standard errors are in parentheses. Standard error adjusted for 569 clusters in school ID.
* p < .05, ** p < .01, *** p < .001
N = 4,484
Sources: Educational Longitudinal Survey:2002 Restricted Use Base-Year to Second Follow-Up Data Files; Postsecondary Education Transcript Study Data Files.

The results from these logit models are similar to the regression models shown in Table 6. For the low SES students in the ATC model, the likelihood of attending any type of postsecondary institution is almost the same as it is for the low SES students in the ATT model (.080 versus .128). The insignificant coefficient in each model, as well as the remarkably similar odds ratio between models once again confirms the lack of school causal effect. To interpret the treatment variable specifically, attending a high SES school increases the log odds of postsecondary enrollment for low SES students by .128; for those students attending low-SES schools, the predicted effect of high-SES school attendance is .08. Looking specifically at race, Model 2 and Model 3 show that low-SES Asian students have a higher log-odds of attending postsecondary education that whites whether they are at a low or high-SES school.

The second outcome variable I explore in seeking a possible school causal effect is the enrollment selectivity of postsecondary education. This variable is restricted to those who choose to enroll in a four year postsecondary school and is coded: highly selective, moderately selective, inclusive, and intensity not specified. Since the most selective four year institutions are coded as 1 and the most inclusive, or selectivity not specified coded as 3 and 4, the coefficients in the models below are mostly negative, where in previous models they have been mostly positive. For a variable like home resource index, where a positive coefficient indicated that more home

resources in a home would lead a student to have a higher likelihood to enroll in a postsecondary institution, or have a higher educational outcome, in these models, a negative coefficient indicates the student is more likely to attend a more selective four year postsecondary institution. For the models presented in Table 8, for the low SES students who choose to attend a four year institution, the high school's SES has a significant causal effect on whether or not the low SES student attends a selective or inclusive four year institution. Because the sample is limited to those who choose a four year postsecondary institution, the sample size is somewhat decreased.

Table 8: Regression Coefficients of Four Year College Selectivity, Weighted Separately by ATT and ATC Weights

	Model 1 (no weight)		**Model 2 (ATC)**		**Model 3 (ATT)**	
	Coeff	**SE**	**Coeff**	**SE**	**Coeff**	**SE**
Black	-.188**	(.060)	-.082	(.096)	-.068	(.108)
Hispanic	.037	(.062)	.116	(.112)	.116	(.125)
Asian	-.305***	(.077)	-.307**	(.100)	-.351***	(.099)
Other	-.090	(.091)	-.089	(.148)	-.105	(.148)
Male	.079	(.043)	.129	(.066)	.150*	(.073)
Student Expectations	-.107***	(.017)	-.145***	(.029)	-.174***	(.035)
Parent Expectations	-.039*	(.016)	-.036	(.027)	-.046	(.030)
Math Achievement	-.033***	(.003)	-.034***	(.003)	-.036***	(.004)
College Info Index	-.017	(.016)	-.021	(.028)	-.010	(.030)
Home Resource Index	-.041*	(.018)	-.055	(.030)	-.074*	(.034)
Student Parent Interaction Index	-.017	(.016)	.003	(.022)	.002	(.025)
Parent Involvement Index	-.048**	(.016)	-.028	(.029)	-.030	(.030)
Parent Rules Index	.057*	(.026)	.002	(.035)	-.016	(.043)
School SES (Treatment)	-.154*	(.069)	-.079	(.069)	-.147*	(.070)
Constant	5.36***	(.136)	5.67***	(.245)	6.05***	(.287)
Pseudo R2	.196		.224		.225	

Notes: Standard errors are in parentheses. Standard error adjusted for 558 clusters in school ID.
* p < .05, ** p < .01, *** p < .001
N = 2,949

Sources: Educational Longitudinal Survey:2002 Restricted Use Base-Year to Second Follow-Up Data Files; Postsecondary Education Transcript Study Data Files.

With this analysis, a significant effect emerges in the treatment group. For low SES students who attend higher SES schools and choose to attend four year post secondary institutions, it seems that schools might have a significant causal effect on the selectivity level of the postsecondary institution. For students who have the ability to attend higher SES schools, these students are more likely to choose more selective institutions than those who attend low SES high schools. Furthermore, the number of resources in the home and base year student expectations is also significant predictors of college selectivity as well. So, while attendance at a high-SES school may not affect college attendance generally, it does provide a benefit to those who enroll in 4-year schools, by increasing their chances of enrolling in a more selective institution. Table 8 also shows that the effect of the treatment on the "treated" group is stronger than the effect of the treatment on the control group, indicating that the effect of attending high-SES schools is bigger for the types of students who attend high-SES schools than for the types of students who attend lower-SES schools. Students who attend higher-SES schools are the most likely to benefit from doing so.

The final analysis will take another look at the outcome variable of educational attainment presented in Chapter 4 (college enrollment is measured as a continuous variable with the responses some high school, GED, high school diploma, enrolled in less than 2 year school, enrolled in 2-year college, enrolled in 4-year college), but will use a different measure for treatment. In Chapter 4, students were separated by two different SES quartile groups (1^{st} and 2^{nd} quartile, and 3^{rd} and 4^{th} quartile). For this set of analyses, I will perform the same set of nine steps but use parents' level of education as a basis to define, separate, and "treat" students. Students will be separated into two groups, those who have at least one parent with a four year college degree and those who do not have any parents with a four year college degree. When

creating the treatment variable, students who do not have any parents with a four year college degree were classified as either attending a "high education" school or a "low education" school. Consistent with previous literature, parents' education is known to be a significant predictor of parents' expectations, motivations, and level of education attainment of their children (Astone and McLanahan 1991). The sample sizes for the two groups are: 3,651 students attended a school where students have parents who do not have any type of college education and 907 students attended a school where students have at least one parent with a four year college degree.

Table 9: Regression Coefficens of Highest Level of Postsecondary Education Attempted using Parents' Education as a Measure for SES, Weighted Separately by ATT and ATC Weights

	Model 1 (no weight)		**Model 2 (ATC)**		**Model 3 (ATT)**	
	Coeff	**SE**	**Coeff**	**SE**	**Coeff**	**SE**
Black	.169*	(.071)	.181*	(.088)	.176*	(.085)
Hispanic	.042	(.063)	.024	(.087)	-.014	(.084)
Asian	.354***	(.072)	.401***	(.089)	.354***	(.083)
Other	-.066	(.110)	.010	(.123)	.001	(.113)
Male	-.219***	(.045)	-.192**	(.061)	-.204***	(.058)
Student Expectations	.181***	(.018)	.178***	(.027)	.190***	(.026)
Parent Expectations	.065***	(.018)	.084***	(.022)	.085***	(.022)
Math Achievement	.034***	(.002)	.032***	(.003)	.033***	(.003)
College Info Index	.035*	(.016)	.050*	(.020)	.037	(.020)
Home Resource Index	.079***	(.019)	.106***	(.026)	.083**	(.025)
Student Parent Interaction Index	.050**	(.017)	.035	(.024)	.041	(.025)
Parent Involvement Index	.065***	(.017)	.059*	(.024)	.069**	(.022)
Parent Rules Index	-.055*	(.024)	-.057	(.033)	-.052	(.031)
School Parental Educational Level(Treatment)	.102	(.054)	.073	(.057)	.110*	(.040)
Constant	1.65***	(.152)	5.67***	(.245)	1.55***	(.200)
Pseudo R2	.213		.210		.206	

Notes: Standard errors are in parentheses. Standard error adjusted for 558 clusters in school ID.
* p < .05, ** p < .01, *** p < .001
N = 4,541
Sources: Educational Longitudinal Survey:2002 Restricted Use Base-Year to Second Follow-Up Data Files; Postsecondary Education Transcript Study Data Files.

When using parent's education as the treatment, a causal effect emerges for students who come from families without a college education but attend schools where a majority of students have parent at least one parent with a college degree. Additionally, it appears that the students who attend these schools are the ones who most benefit from doing so. This is consistent with literature on the importance of parents' education. Parents who themselves have high levels of education are more aware of the environment necessary for educational success and may have a better understanding of what items are necessary to have at home in order for children to achieve at high levels academically. Parents who have high levels of education are also more likely to communicate high academic expectations to their children, communicate with teachers, have a better understanding of educational processes, and help children with schoolwork (Parcel and Dufur 2001).

According to Morgan and Todd (2008), another way we can analyze the differences between school effects is through analyzing the differences in confidence intervals between the regression coefficients for the treatment effect for the treated and the treatment effect for the control group. For students in the treatment group, the regression coefficient is .110 with a 95% confidence interval of (.005, .215). For students in the control group, the regression coefficient is .073 with a 95% confidence interval of (-.039, .186). First of all, there is significant overlap in the two confidence intervals of the point estimates. This overlap can suggest similarities between schools but does not lead us to automatically reject any school differences. We can state the significance of the treatment variable in model 3, and when comparing the two point estimates, we find a difference of .037 (.110-.073); this difference suggests that the average effect of schools is 51 percent larger for those who typically attend schools with a majority of students

from college educated families than for those who typically attend schools without this educational advantage (i.e., .110−.073/.073 = .506). In contrast to Morgan and Todd (2008), who found that the students who would most benefit from a Catholic school education were the ones currently attending public school, I find that the students who would most benefit from a school context of students from educated families are the students who are attending these schools

CHAPTER 6: DISCUSSION AND CONCLUSION

A Final Discussion of "Good Schools"

The weighted regression models have displayed mixed findings that are consistent with existing literature about schools. In certain settings and circumstances, schools seem to have a significant causal effect on *certain* types of outcomes. Or, depending on how we define the treatment, schools can emerge as having a causal effect on postsecondary outcomes, specifically for students who come from families without college education. How do we interpret these outcomes? A closer examination of the sample and the schools they attended might help explain the differences in outcomes, as well as help understand the nature of "good schools" versus "bad schools". This research makes the assumption that a "good school" is a high SES school enriched with the added resources and beneficial peer networks that are commonly associated with the high SES school setting. Parents who have high expectations for their children, have high levels of education, and are highly involved in their children's education, are typically associated with students who attend high SES schools (Johnson 2006). Similarly, students who come from high SES backgrounds, have high levels of academic expectations, and high levels of achievement are also more likely to be found in the high SES schools.

Schools are believed to be the "equalizer to the American Dream". If Americans believe that success is built upon hard work and effort, schools are the equalizers to give all children an equal head start (Johnson 2006). Additionally, if schools are true equalizers to the American Dream, then achievement becomes something that is independently earned and not tied to family background. In interviews with parents, Heather Johnson discovered that parents not only believed schools to be equalizers to the American Dream, but also the *key* to the American

Dream. For their children, education provided the knowledge and tools necessary for any level of success (Johnson 2006). Unfortunately, the same 260 parents Johnson interviewed acknowledged the reality of the current education system which offered drastically different opportunities for children. Some of these schools were labeled "good schools" because they were of better quality, in better neighborhoods, and offered more opportunities for the students who attended (Johnson 2006). Johnson also states,

"Parents said that good schools had updated facilities and equipment, stimulating atmospheres, and high-quality educational programs. They said that they were safe, had teachers who were dedicated, small class sizes, computers, healthy environments, and successful graduates who went on to excel academically and occupationally" (Johnson, 2006: 40).

However, as much as parents stated these factors in classifying a school as a "good school" or "bad school", the most important factor was the *location* of the school. A school in a good neighborhood was labeled by the parent a "good school" because the higher taxes of the neighborhood were perceived to provide extra resources, programs, and school quality. If the school was located in a good neighborhood, then it was expected that the school would provide things such as computers, better teachers, smaller class sizes, and a better school environment overall (Johnson 2006). These "good schools" were also assumed to be "whiter", and parents often pursued these schools, whether public or private, in order to avoid the racial diversity that often occurred in lower income schools. Interestingly, though, Johnson states that minority parents, whom may have had a strong desire for racial diversity in school, had a stronger preference for quality schools, which they assumed to be whiter and less racially diverse. Many parents interviewed confessed that while race was not the defining factor in choosing a school, it was an influential factor in making that decision for their children (Johnson 2006).

Jencks (1972) discussed this very issue when he stated that schools are segregated by academic achievement. This implies that children with low levels of achievement are more likely to attend schools where other students also achieve at lower levels; this is largely due to economic and racial segregation where there is a high correlation between low achieving students and poverty. This is because parents who come from a higher socioeconomic status are more likely to concentrate in areas where schools have a better reputation and a higher achieving student body. The positive effect of family explains the higher achievement levels of higher SES students; parents from higher SES backgrounds are more likely to be involved in school and to help with homework which can lead to higher achievement levels (Jencks, et al 1972).

To summarize what existing literature has stated, a "good school" involves both school and family quality. This means that a "good school" includes school level factors such as: school resources, high teacher expectations, and positive peer networks as well as parent level factors: high parent expectations, parent involvement, and parent educational background. The effect of family background has continued to have significant effects on children's educational outcomes. When looking at the effects of schools, one cannot ignore the selection effect that occurs with school choice. When parents have the opportunity to choose schools, whether public or private, or to relocate families to different neighborhoods because of school availability, then we cannot ignore the effects of family when looking at potential causal effects of school SES on the educational outcomes of low SES students.

In order to more fully understand the diversity in outcomes presented in the models in Chapters Four and Five, I take a further descriptive look at the schools. Table 10 is a descriptive table of means of some of these specific factors listed above for the treatment and control group.

Table 10. Means, Standard Errors, and Descriptions for the Within School Factors

Variable name	Description	Metric	Mean	Standard Error
GPA	High School GPA in ninth grade	0 = Minimum 4 = Maximum	full sample: 2.26 D=0 (SES): 2.22 D=1 (SES): 2.30 D=0 (Educ): 2.40 D=1 (Educ): 2.33	full sample: .813 D=0 (SES): .809 D=1 (SES): .866 D=0 (Educ): .749 D=1 (Educ): .817
ACT Score	Most Recent ACT Composite Score	. 8 = Minimum 31 = Maximum Sample Size= 833	full sample: 18.01 D=0 (SES): 17.91 D=1 (SES): 19.38 D=0 (Educ): 18.04 D=1 (Educ): 18.77	full sample: 4.08 D=0 (SES): 4.05 D=1 (SES): 4.37 D=0 (Educ): 4.08 D=1 (Educ): 4.07
School Program	High School Program Reported by Student.	1 = General 2 = College Prep 3 = Vocational	General D=0 (42.58%) General D=1 (34.18%) College Prep (41.91%) College Prep (56.12%) Vocational (15.50%) Vocational (9.69%) *percentages are for SES schools	
Extra Curricular Activities	Hours per week spent on extra curricular activities (sports, clubs, or other activities)	1 = None 2 = Less than 1 hour/week 3 = 1-4 hours 4 = 5-9 hours 5 = 10-14 hours 6 = 15-19 hours 7 = 20-24 hours 8 = More than 25 hours	full sample: 2.60 D=0 (SES): 2.60 D=1 (SES): 2.60 D=0 (Educ): 2.63 D=1 (Educ): 2.71	full sample: 1.77 D=0 (SES): 1.77 D=1 (SES): 1.70 D=0 (Educ): 1.77 D=1 (Educ): 1.68
Parent Student Interaction	How Often Discussed Going to College with Parents.	0 = Never 1 = Sometimes 2 = Often Recoded to: 0 = Never 1 = Sometimes/ Often	full sample: .911 D=0 (SES): .909 D=1 (SES): .934 D=0 (Educ): .918 D=1 (Educ): .910	full sample: .285 D=0 (SES): .287 D=1 (SES): .250 D=0 (Educ): .274 D=1 (Educ): .288
Peer Networks	In twelfth grade students were asked, "How many friends plan to attend 4 year college/university?"	1 = None 2 = A Few 3 = Some 4 = Most 5 = All	full sample: 2.88 D=0 (SES): 2.85 D=1 (SES): 3.38 D=0 (Educ): 2.97 D=1 (Educ): 3.07	full sample: 1.12 D=0 (SES): 1.11 D=1 (SES): 1.09 D=0 (Educ): 1.09 D=1 (Educ): 1.10

Table 10. (cont.)

High School Program	This is a school level variable asked to a school administrator. It asks the percent of students who are in a *college prep program*, as opposed to a general program or vocational program.	0 = Minimum 100 = Maximum	full sample: 51.10 D=0 (SES): 49.01 D=1 (SES): 82.52 D=0 (Educ): 48.96 D=1 (Educ): 48.71	full sample: 30.33 D=0 (SES): 29.68 D=1 (SES): 21.24 D=0 (Educ): 28.97 D=1 (Educ): 29.20
College Enrollment	This is a school level variable asked to a school administrator. It asks the percent of students who enrolled in a four year college after high school.	1 = None 2 = 1-10 Percent 3 = 11-24 Percent 4 = 25-49 Percent 5 = 50-74 Percent 6 = 75-100 Percent	full sample: 3.99 D=0 (SES): 3.92 D=1 (SES): 5.23 D=0 (Educ): 3.90 D=1 (Educ): 3.93	full sample: 1.09 D=0 (SES): 1.06 D=1 (SES): .821 D=0 (Educ): 1.04 D=1 (Educ): .986
Teacher Motivation	This is a school level variable asked to a school administrator. It asks if overall, teachers find it difficult to motivate students.	1 = Not at all accurate 2 = Not at all accurate – somewhat accurate 3 = Somewhat accurate 4 = Somewhat accurate – very accurate 5 = Very accurate	full sample: 2.59 D=0 (SES): 2.62 D=1 (SES): 2.09 D=0 (Educ): 2.63 D=1 (Educ): 2.44	full sample: 1.04 D=0 (SES): 1.04 D=1 (SES): .874 D=0 (Educ): 1.05 D=1 (Educ): 1.07

. Students who were in the treatment group, or who attended “good schools”, attended schools with some slight differences from those in the control group. When compared to students in “bad schools”, these students had more friends who planned to attend four year colleges and spent more hours in extra curricular activities. Teachers reported that it was easier to motivate students in “good schools”, and these schools also reported higher rates of college enrollment after high school. When taken together, all of these factors combined help to create a positive good school environment, and help to motivate students towards higher postsecondary education goals.

Another issue that emerges with this table deals with the measurement issue of school SES. For two different variables, high school program and college enrollment, the differences

between the treatment and control group showed considerably different results, dependent on the measurement of SES. When using parents SES to measure school SES, "good schools" showed significantly higher percentages of college preparatory program enrollment and significantly higher percentages of past students who had enrolled in a four year college after high school. When using parents' education as a measure for school SES, the differences between treatment and control groups were not significantly different. There were other instances in the table when parents education, as a measure for SES, caused means to be lower than expected for "good schools" (parent/student interaction and GPA). The most important impact is that differences in measurement conceptualization can create different results. Understanding how different variables can be measured and exploring these different possibilities in models is important.

Implications of Findings

This research supports the contention that family is what matters most. Family level variables were significant in almost every model. When looking at the highest level of postsecondary education attempted (using parents SES as a measure for school SES) resources in the home, student parent interaction index, and parent involvement index were all significant in both treatment and control models. When looking at the logit model of postsecondary attendance (using parents SES as a measure for school SES) resources in the home and the parent rules index were both significant in the control model.

There were two models where a casual effect emerges for schools. In the model predicting selectivity of four year institutions, a causal effect emerges for "good schools" when using parents SES as a measure for school SES. In this treatment group model, resources in the home are also significant. In model predicting highest level of postsecondary attempted, a causal effect emerges for "good schools" when using level of parents' education as a measure for

school SES. In both the treatment and control group models, parents' expectations, resources in the home, and parent involvement index are significant. I also explored other outcome variables using parents' education as a measure for school SES (college selectivity and attendance at a postsecondary institution) but the results for the treatment variable were insignificant.

Overall, there are factors in the home that affect the educational trajectory of students. Having specific educational resources in the home such as a computer, internet, books, encyclopedias, and newspapers has been found to have significant results on postsecondary attainment and enrollment. Parents' education has been a significant factor affecting the educational attainment of children since status attainment models (Blau and Duncan 1965). Education specifically is an important intergenerational factor influencing children's educational trajectories, and if a low-education student is surrounded by kids from educated families, then they will perhaps gain some of the advantages from them. From a policy perspective, if the school context where children come from higher educational families is beneficial, than the conclusion is made that it is beneficial for students to be surrounded by other students whose parents are educated. In schools were the majority of students may come from families where parents are not college educated, administrators can work to bring in parents and community leaders to motivate students about college and careers.

Additionally, the finding for college selectivity in the model utilizing parents' education as a measure for SES is also significant. When low SES students have the opportunity to attend higher SES schools, and decide to enroll in four year postsecondary institutions, they are more likely to attend more selective institutions. Attendance at more selective four year postsecondary institutions is associated with higher graduation rates, higher job earnings, and higher occupational prestige (Hossler et al 1999).

Finally, race did not show significant results that one might have expected. The only race group which displayed significant results in all models was Asians. In the model predicting highest level of postsecondary education attempting using parents' education as a measure for SES, Blacks were significant for both treatment and control groups. Because of sample size issues, I did not do any separate analysis for any specific racial group. In the previous discussion about "good schools", parents mentioned that "good schools" were "whiter" and less racially diverse than "bad schools". When looking at the difference between treatment and control groups, the treatment group shows a larger percentage of white students, but only 52% of the student body is white. While the "good school" might be "whiter", both schools show large percentages of racial diversity:

Table 11. Descriptive Differences between Treatment and Control Group

Race (Using Parents SES)	**Control (D=0)**	**Treatment (D=1)**
White	44.92%	52.12%
Black	17.53%	15.30%
Hispanic	21.19%	9.63%
Asian	11.01%	16.43%
Other	5.35%	6.51%

Overall, weighted regression with causal effect estimators is a valuable method that should be utilized in other contexts when selection effect is an issue. It is an innovative, useful approach to utilize quantitative, experimental methods to look at ongoing, and new, research questions.

Limitations of Study

Table 1 and Table 10 show that for many different variables, "good schools", or higher SES schools have higher postsecondary enrollment, higher levels of attainment, and more selective college attendance. However, many means for treatment and controls are not different

from one another, which can lead one to conclude that "good schools" are not significantly different from other schools. This can partially be attributed to the sample sizes for this study; in order to obtain adequate sample sizes for models, I had to lessen my definition of a "good school". What this means is that instead of having a low SES student attend a high SES school, by the defined SES quartiles of the data (quartile 1 is low and attends a quartile 4 school), I had to expand the higher SES school to include more students. While this increased my sample size from 32 to over 4,000, it does create additional issues. The more I closed the gap between low SES students and the higher SES schools, the more similar the students became. The confidence intervals between the students in the low SES group and the students in the high SES group school became closer together. While they did not overlap, the students on the higher end of the confidence interval for the low SES students group can be very similar to students who are on the low end of the confidence interval of the high SES students group. This can help explain why there is not a causal effect for schools; the low SES students who attended higher SES schools might not have been as different from students in the higher SES schools as was conceptualized in earlier stages in the project.

The ideal measure for this type of research question is a student who is classified as quartile 1, or extremely low SES, who has the opportunity to attend a high SES school, which is classified as quartile 4. This would create a sample size with secondary data that is extremely small because the instance is so rare. However, even expanding the gap between quartiles to look at the instance of a quartile 1 student attending a quartile 3 & 4 school would create different and more accurate results because the differences between students would be more extreme.

There were a few issues with the dataset that posed additional limitations to this project. This first issue is with the timing of waves. Had the first wave of data interviewed students when

they were in eighth grade, I could have added used adjustment variables that had predicted high school SES attendance and were more stable over time. The adjustment variables I used were for 10^{th} grade and were basically predicting whether students enrolled in a high-SES school in 9^{th} grade. This practice has been done in previous literature (Morgan and Todd (2008)) but a stronger test of causal effect would have been created had earlier data been provided.

Directions for Research

Table 1 shows that "good schools", or higher SES schools have higher postsecondary enrollment, higher levels of attainment, and more selective college attendance. Overall, I do not believe the differences between the schools to be large enough to say that the higher SES schools in this sample are "good schools". Students in the low SES schools were surrounded by high teacher expectations, friends with plans for college success, and rates of parent involvement that were comparable to those of students in the higher SES schools. This is likely why causal effect estimators were coming up as insignificant in most of the models in chapter 4 and 5; the differences between the schools *are not extreme.* The next step for this research is to break down the factors in the schools to see which ones emerge as significant so that we can make a conclusive decision about what makes *a good school*.

The best way to accomplish this is with a mixed methods project. This mixed methods project will need both qualitative methods and a dataset which utilizes both a newer, richer longitudinal data. A newer, richer dataset should offer more predictor variables in the eighth grade year which will provide both a stronger test for causal effect and a better logit model for predicting membership in the treatment or control group (step 3). When doing an exploratory look at the data, there were 32 cases of low SES students who attended high SES schools. The qualitative aspect of a mixed methods study will have the advantage of working with sample

sizes of this nature. Once individuals in this unique situation are found, researchers can ask very specific questions about peer networks, influence of neighborhoods, teacher motivations, parent motivations, and student aspirations and expectations. I do not believe that a good school is defined by race or by region, but by a mixture of parent involvement, teacher expectations, peer networks, and school programs. Understanding which of factors is most influential, specifically for low SES students, is the next step for this project.

WORKS CITED

Ainsworth-Darnell, W. and Downey, D.B. 1998. Assessing the Oppositional Culture Explanation for Racial/Ethnic Differences in School Performance. *American Sociological Review*. 63(4): 536-553.

Alexander, K.L., Entwisle, D.R., and Horsey, C.S. 1997. From First Grade Forward: Early Foundations of a High School Dropout. *Sociology of Education*. 70:87-107.

Alwin, D.F. and L.B. Otto. 1977. High School Context Effects on Aspirations. *Sociology of Education*. 50:259-273.

Apple, M.W. 1996. Power, meaning and identity: Critical sociology of education in the United States. *British Journal of Sociology of Education*. 17(2): 125-144.

Astone, N.M., and McLanahan, S.S. 1991. "Family Structure, Parental Practices, and High School Completion." *American Sociological Review*. 56: 309-320.

Ballentine, Jeanne H., and Joan Z. Spade. 2008. "Getting Started: Understanding Education Through Sociological Theory." Pp. 5-19 in Jeanne H. Ballentine and Joan Z. Spade, eds., Schools and Society: A Sociological Approach to Education. 3rd Edition. Los Angeles: Pine Forge Press.

Berndt, T.J., and Keefe, K. 1995. Friends' Influence on Adolescents' Perceptions of Themselves in School. *Child Development*. 66. 1312-1329.

Bernstein, Basil. 1971. *Class, Codes, and Control*. Boston: Routledge.

Blau, Peter M. and Otis Dudley Duncan. 1965. Some Preliminary Findings on Social Stratification on the United States. *Social Stratification and Mobility*. 9: 4-24.

Borman, Geoffrey and Maritza Dowling. 2010. "Schools and Inequality: A Multilevel Analysis of Coleman's Equality of Educational Opportunity Data." *Teachers College Record* Volume 112 Number 5, 2010, p. 1-2 http://www.tcrecord.org ID Number: 15664, Date Accessed: 9/23/2009 11:51:09 PM

Brooks-Gunn, J. Duncan, G., and Aber, J.L. (Eds.). 1997. *Neighborhood Poverty: Context and Consequences for Children*. New York: Sage.

Brooks-Gunn, J., Duncan, G., Klebanov, P., and Sealand, N. 1993. 1993. "Do Neighborhoods Influence Child and Adolescent Development?" *American Journal of Sociology*. 99, 353-395.

Brown, B.B., Clasen, D.R., and Eicher, S.A. 1986. "Perceptions of Peer Pressure, Peer Conformity Dispositions, and Self-Reported Behavior among Adolescents. *Developmental Psychology*. 22:521-530.

Bourdieu, P. and Passeron, J.C. 1977. *Reproduction in Education, Society, and Culture.* London: Sage.

Chubb, J.E., and E.A. Hanushek. 1990. "Reforming Educational Reform. In Setting National Priorities. Washington, DC: The Brookings Institution.

Coleman, James. 1988. "Social Capital and the Creation of Human Capital". The American Journal of Sociology. 94, 95-120.

Coleman, J. S., Campbell, E. Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfeld, F. D., et al. (1966). Equality of educational opportunity. Washington, D.C.: National Center for Educational Statistics.

Connell, J.P., Spencer, M.B., and Aber, J.L. 1994. Educational Risk and Resilience in African-American Youth: Context, Self, Action, and Outcomes in School. *Journal of Adolescent Research*. 10: 41-63.

Condron, Dennis J. and Vincent J. Roscigno. 2003. "Disparities Within: Unequal Spending and Achievement in an Urban School District." *Sociology of Education*. 76:1, 18-36.

Cook, P.J. and Ludwig, J. 1998. The Burden of "Acting White": Do Black Adolescents Disparage Academic Achievement? 375-400 in Jencks, C. and Phillips, M. (eds) in *The Black-White Test Score Gap.* Washington: Brookings Institution.

Crockett, L. and A. Crouter. 1995. "Pathways Through Adolescence: Individual Development in Relation to Social Contexts." Mahway, NJ: Lawrence Erlbaum Associates.

Davis, K. and Moore, W. 1945. Some Principles of Stratification. *American Sociological Review*. 10: 242-245.

Downey, D.B. 1994. "The School Performance of Children from Single-Mother and Single-Father Families: Economic or Interpersonal Deprivation?" *Journal of Family Issues*. 15: 129-147.

Dumais, Susan A., and Aaryn Ward. Cultural Capital and First-Generation College Success. Forthcoming in Poetics.

Falsey, B., and Haynes, B. 1984. The College Channel: Private and Public Schools Reconsidered. *Sociology of Education*. 57:111-122.

Finn, J.D., and Rock, D.A. 1997. Academic Success Among Students at Risk for School Failure. *Journal of Applied Psychology*. 82: 221-234.

Fordham, Signithia and John U. Ogbu. 1986. "Black Students School Success: Coping with the Burden of „Acting White'". *Urban Review*. 18: 176-206.

Fredricks, Jennifer A., Phyllis C. Blumenfeld, and Alison H. Paris. 2004. School Engagement: Potential of the Concept, State of the Evidence. *Review of Educational Research*. 74,1: 59-109.

Gamoran, Adam. 1987. "The Stratification of High School Learning Opportunities." *Sociology of Education* 60:135-155.

Gamoran, Adam and R.D. Mare. 1989. "Secondary School Tracking and Educational Inequality-Compensation, Reinforcement, or Neutrality." *American Journal of Sociology*. 57: 812-828.

Hallinan, Maureen T. and Richard A. Williams. 1990. "Students' Characteristics and the Peer-Influence Process." *Sociology of Education*. 63,2: 122-132.

Hanushek, Eric A. 1997. "Assessing the Effects of School Resources on Student Performance: An Update." *Educational Evaluation and Policy Analysis*. 19:2, 141-164.

Hanushek, E.A., J.F. Kain, and S.G. Rivkin. 2004. "Why Public Schools Lose Teachers." *Journal of Human Resources."* 39:326-354.

Hauser, Robert M. and Douglas K. Anderson. 1991. "Post High-School Plans and Aspirations of Black and White High School Seniors: 1976-1986." *Sociology of Education*. 64: 263-277.

Hearn, James. 1990. Pathways to Attendance in the Elite Colleges. In *The High Status Track: Studies of Elite Schools and Stratification*. Edited by Paul W. Kingston and Lionel S. Lewis. New York: SUNY Press.

Hearn, James. 1991. "Academic and Nonacademic Influences on the College Destinations of 1980 High School Graduates." *Sociology of Education*. 64:158-171.

Heyns, Barbara. 1974. "Social Selection and Stratification within Schools." *American Journal of Sociology* 79:1434-51.

Horvat, Erin McNamara, Elliot B. Weininger, Annette Laureau. 2003. "From Social Ties to Social Capital: Class Differences in the Relations between Schools and Parent Networks." *American Education Research Journal*. 40,2: 319-351.

Hossler, Don, Jack Schmit, and Nick Vesper. 1999. *Going to College: How Social, Economic, and Educational Factors Influence the Decisions Students Make.* Baltimore: The John Hopkins University Press.

Ingels, Steven J, Daniel J. Pratt, David Wilson, Laura J. Burns, Douglas Currivan, James E. Rogers, Sherry Hubbard-Bednasz. 2007. *Education Longitudinal Survey of 2002(ELS: 2002): Base Year to Second Follow Up Data File Documentation.* National Center for Education Statistics.

Jencks, Christopher, Marshall Smith, Henry Acland, Mary Jo Bane, David Cohen, Herbert Gintis, Barabara Heyns, and Stephan Michelson. *Inequality-A Reassessment of the Effect of Family and Schooling in America.* Basic Books Inc. Publishers: New York. 1972.

Jencks, Christopher and Susan E. Mayer. 1990. "The Social Consequences of Growing Up in a Poor Neighborhood." In *Inner City Poverty in the United States*, edited by Laurence Lynn and Michael McGeary. National Academy Press.

Jencks, C. and M. Phillips. 1998. *The Black-White Test Score Gap.* Washington DC: The Brookings Institute.

Johnson, Heather Beth. 2006. The American Dream and the Power of Wealth: Choosing Schools and Inheriting Inequality in the Land of Opportunity. Routledge: New York.

Kaufman, Julie E. and James E. Rosenbaum. 1992. "The Education and Employment of Low-Income Black Youth in White Suburbs." *Educational Evaluation and Policy Analysis* 14, 3:229-240.

Lareau, A. 1989. *Home Advantage*. Philadelphia: Falmer Press.

Lee, S. 1993. "Family Structure Effects on Student Outcomes". In B. Schneider and J.S. Coleman (Eds). *Parents, Their Children, and Schools.* Pp. 43-75. Boulder, CO: Westview Press.

Lin, Nan. 2001. *Social Capital: A Theory of Social Structure and Action*. Cambridge, UK: Cambridge University Press.

Lucas, Samuel Roundfield. 1999. *Tracking Inequality: Stratification and Mobility in American High Schools*. New York: NY. Teachers College Press.

MacLeod, J. 1987. *Ain't No Makin' It: Leveled Aspirations in a Low Income Neighborhood*. Boulder, Co: Westview.

Mahoney, J.L., and Cairns, R.B. 1997. Do Extracurricular Activities Protect Against Early School Dropout? *Developmental Psychology*. 33: 241-253.

Manski, C.F. *Identifications Problems in the Social Sciences.* 1995. Cambridge, MA: Harvard University Press.

Marks, H.M. 2000. Student Engagement in Instructional Activity: Patterns in the Elementary, Middle, and High School Years. *American Educational Research Journal.* 37: 153-184.

Massey, Douglas S., Camille Z. Charles, Garvey F. Lundy, and Mary J. Fischer. 2003. *The Source of the River: The Social Origins of Freshmen at America's Selective Colleges and Universities.* Princeton: Princeton University Press.

Mayer, Susan E. 2002. "How Economic Segregation Affects Children's Educational Attainment." *Social Forces*. 81:1, 153-176.

McDill, E.L., L.C. Rigsby, and E.D. Meyers, Jr. 1969. "Educational Climates of High Schools: Their Effects and Sources." *American Journal of Sociology*. 74:567-586.

McDonough, Patricia M. 1997. Choosing Colleges: How Social Class and Schools Structure Opportunity. New York: State University of New York Press.

McLanahan, S.S. and Sandefur, G. 1994. 1994. *Growing up with a Single Parent: What Hurts, What Helps?* Cambridge, MA: Harvard University Press.

McNeal, R.B. 1995. Extracurricular Activities and High School Dropouts. *Sociology of Education*. 68: 62-81.

McNeal, R.B. 1999. "Parental Involvement as Social Capital: Differential Effectiveness on Science Achievement, Truancy, and Dropping Out." *Social Forces*. 78: 117-144.

Monkturner, E. 1995. "Factors Shaping the Probability of Community vs. 4-Year College Entrance and Acquisition of the BA Degree." *Social Science Journal*. 32: 255-264.

Morgan, Stephen L. 2001. Counterfactuals, Causal Effect Heterogeneity, and the Catholic School Effect on Learning. *Sociology of Education.* 74:341-374.

Morgan, Stephen L, and Jennifer Todd. 2008. A Diagnostic Routine for the Detection of Consequential Heterogeneity of Causal Effects. *Sociological Methodology*. 38: 231-281.

National Center for Education Statistics. 2008. "Policy and Research Issues: Equity/Access/Choice." Retrieved 15, August 2008. (http://nces.ed.gov/surveys/ELS2002/policy3.asp).

Oakes, Jeannie. 1985. *Keeping Track: How Schools Structure Inequality*. New Haven: Yale University Press.

Ogbu, John U. 1992. "Understanding Cultural Diversity and Learning." *Educational Researcher*. 25: 5-14.

O'Hare, W.P. 1996. "A New Look at Poverty in America." *Population Bulletin*. 51:1-46.

Parsons, T. 1963. "On the Concept of Influence." *Public Opinion Quarterly.* 27:37-62.

Pong, Suet-Ling. 1997. "Family Structure, School Context, and Eighth-Grade Math and Reading Achievement." *Journal of Marriage and Family*. 59,3: 734-746.

Parcel, Toby L. and Kikaela J. Dufur. 2001. "Capital at Home and at School: Effects on Student Achievement." *Social Forces*. 79: 881-912.

Perry, Laura B. and Andre McConney. 2010. "Does the SES of the School Matter? An Examination of Socioeconomic Status and Student Achievement Using PISA 2003." *Teachers College Record* Volume 112 Number 4, 2010, p. 7-8
http://www.tcrecord.org ID Number: 15662, Date Accessed: 9/9/2009 4:16:01 PM.

Portes, A. "Social Capital: Its Origins and Applications in Modern Sociology." *Annual Review of Sociology*. 24, 1-24.

Ravitch, Diane. The Coleman Reports and American Education. Social Theory and Social Policy: Essays in Honor of James S. Coleman. Edited by Aage B. Sorensen and Seymour Spilerman. Praeger: Westport, Connecticut. 1993.

Rist, R. 1977. On Understanding the Processes of Schooling: The Contributions of Labeling Theory. In J. Karabel and A.H. Halsey, *Power and Ideology in education* (pp. 292-305). New York: Oxford University Press.

Rivkin, Steven G., Eric A. Hanushek, John F. Kain. 2005. "Teachers, Schools, and Academic Achievement." *Econometrica*. 73,2:417-458.

Rosenbaum, James E., Marilynn J. Kulieke, and Leonard S.Rubinowitz. 1988. White Suburban Schools' Responses to Low-Income Black Children: Sources of Successes and Problems. *The Urban Review*. 20,1: 28-41.

Rosenbaum, James E. and D.B. Rubin. 1983. The Central Role of the Propensity Score in Observational Studies for Causal Effects. *Biometrika*. 70,1: 41-55.

Ryan, Allison M. 2000. Peer Groups as a Context for the Socialization of Adolescents' Motivation, Engagement, and Achievement in School. *Educational Psychologist*. 35,2: 101-111.

Ryan, Allison M. 2001. "The Peer Group as a Context for the Development of Young Adolescent Motivation and Achievement". *Child Development*. 72:4, 1135-1150.

Sadovnik, A.R. 2004. Theories in the Sociology of Education. In J. Ballentine and J. Spade (Eds.), *Schools and Society* (2nd ed., pp. 7-26). Belmont, CA: Wadsworth Publishing.

Schneider, Barbara, Martin Carnoy, Jeremy Kilpatrick, William Schmidt, Richard Shavelson. 2007. *Estimating Causal Effects: Using Experimental and Observational Designs.* Washington DC: American Educational Research Association.

Schubert, Hans-Joachim. 2006. "Foundation of Pragmatic Sociology." *Journal of Classical Sociology*. 6:1, 51-74.

Sewell, William H., Archibald O. Haller, and George W. Ohlendorf. 1970. The Educational and Early Occupational Status Attainment Process: Replication and Revision. *American Sociological Review*. 35,6: 1014-1027.

Sewell, William H., Archibald O. Haller, and Alejandro Portes. 1969. The Educational and Early Occupational Attainment Process. *American Sociological Review*. 34,1: 82-92.

Sewell, William H., Robert M. Hauser. 1972. Causes and Consequences of Higher Education: Models of Status Attainment Process. *American Journal of Agricultural Economy*. 851-861.

Stage, F., and Hossler, D. 1989. Differences in Family Influences on College Attendance Plans for Male and Female Ninth Graders. *Research in Higher Education*. 30: 301-314.

Steinberg, L. 1999. *Adolescence*. New York: McGraw Hill.

Teachman, Jay D. 1987. Family Background, Educational Resources, and Educational Attainment. *American Sociological Review.* 52,4: 548-557.

Thomas, Scott L. 2003. "Longer Term Economic Effects of College Selectivity and Control." *Research in Higher Education* 44: 263-299.

Urberg, Kathryn A., Serdar M. Degirmencioglu, Jerry M. Tolson, and Kathy Halliday-Scher. 1995. "The Structure of Adolsecent Peer Networks." *Developmental Psychology*. 31,4:540-547.

U.S. Bureau of the Census. 2002. Statistical Abstracts of the United States: 2002, Section 1: Population, # 54: Family groups with children under 18 years old by race and Hispanic origin: 1980 to 2000.

Walpole, Mary Beth. 2008. "Emerging from the Pipeline: African American Students, Socioeconomic Status, and College Experiences and Outcomes." *Resource Higher Education*. 49: 237-255.

Weber, M. 1958. The Rationalization of Education and Training. In H.H. Gerth and C. Wright Mills (Eds.), *From Max Weber: Essays in Sociology* (pp. 240-244). New York: Oxford University Press.

Wenglinsky, Harold. 1997. "How Money Matters: The Effect of School District Spending on Academic Achievement." *Sociology of Education*. 70,3: 221-237.

Willms, J. Douglas. 1986. "Social Class Segregation and its Relationship to Pupils' Examination Results in Scotland." *American Sociological Review*. 51: 224-241.

Willms, J. Douglas. 1992. *Monitoring School Performances: A Guide for Educators*. Washington, DC: Falmer Press.

Wilson, Alan B. 1959. "Residential Segregation of Social Classes and Aspirations of High School Boys." *American Sociological Review*. 24:836-845.

Wilson, William Julius. 1996. *When Work Disappears: The World of the New Urban Poor*. New York: Knopf.

Wright, Erik Olin. 2005. "Foundations of a neo-Marxist Class Analysis" in *Approaches to Class Analysis* edited by Erik Olin Wright. New York: Cambridge University Press.

VITA

Aaryn K. Ward was born in Houston, Texas. She attended Texas A&M University in College Station, Texas where she received her Bachelor of Arts degree in history with a minor in sociology in 2004. She received her Master of Arts degree in sociology from Louisiana State University in 2006. She will receive her Doctor of Philosophy degree from Louisiana State University during the Summer 2011 commencement.