Exploring the Unequal Distribution of Social Capital across Social Groups: Implications for Transfer Students*

Submission for the Annual Meeting of the Population Association of America

by

Kristina L. Zeiser
Ph.D. Candidate in Sociology and Demography
The Pennsylvania State University

*This research was supported by a grant from the American education Research Association which receives funds for its "AERA Grants Program" from the National Science Foundation under Grant #DRL-0941014. Opinions reflect those of the author and do not necessarily reflect those of the granting agencies. Please direct all correspondence to Kristina Zeiser at klz124@psu.edu.

ABSTRACT

Previous research has uncovered that the negative effects of school transfers on academic outcomes are relatively independent of the effect of school transfers on measures of social capital. However, past studies have 1) relied on proxy measures of social capital, 2) not considered the unequal distribution of social capital across social groups, and 3) ignored that decreases in one form of social capital may be counteracted by concurrent increases in other forms of social capital. Using the National Education Longitudinal Study, this study shows that, among Hispanics, students from low SES homes, and students from single-parent families, low levels of parent-school social capital are compensated for by higher levels of student-school social capital. Moreover, preliminary results suggest that students who participate in extracurricular activities experience smaller declines in student-school social capital after transferring schools, while African American students experience greater declines in parent-school social capital relative to white students.

Introduction

In today's society, American students transfer between schools at an amazing rate. For instance, 24% of the respondents in the National Education Longitudinal Study (NELS) had transferred between school districts (or experienced what I refer to as student mobility) at least once within the four years following students' eighth grade year, and 8% had transferred schools at least twice (Pribesh and Downey 1999; Rumberger and Larson 1998). Because recent changes in education policies *encourage* parents to seek out new schools if their current schools are not performing up to national standards, these high levels of student mobility are not likely to decrease in the near future. Unfortunately, while an increasing number of children are changing schools, research has shown that school transfers are related to various negative outcomes including increased risk of dropping out of high school (Ou and Reynolds 2008; Rumberger and Larson 1998; South, Haynie, and Bose 2007), lower scores on standardized tests (Strand and Demie 2007; Temple and Reynolds 1999), and decreased probability of enrolling in higher education (Sandefur, Meier, and Campbell 2006).

Previous research has suggested that school transfers negatively impact academic outcomes by negatively affecting students' and parents' relationships with school personnel. These relationships can be summarized by Coleman's (1988) concept of social capital, or the resources that people gain, such as information and guidance, from extra-familial social ties. However, previous studies have found that measures of social capital explain very little of the relationship between student mobility and academic outcomes (Pribesh and Downey 1999; South, Haynie, and Bose 2007). In this study, I suggest three reasons why previous research has failed to adequately account for the

relationship between social capital and student mobility. First, it is possible that previous studies have used inadequate proxy measures of social capital rather than directly measure contact between parents, students, and school personnel. Next, past research has not addressed the fact that decreases in one form of social capital may be compensated with concurrent increases in other forms of social capital. Finally, past studies have not explored whether measures of social capital systematically differ across social groups such as racial/ethnic minorities and students with different levels of socioeconomic status. It is possible that student mobility disproportionately affects the academic outcomes of specific groups of students depending on their levels of social capital before the school transfer occurs.

In the current study, I utilize data from the National Education Longitudinal Study (NELS) to address these gaps in the literature. I begin by creating standardized scales of student-school social capital and parent-school social capital using information from questionnaire items that specifically ask about contact between students, parents, and school personnel in the 8^{th} and 12^{th} grades. Next, I explore how measures of social capital vary across social groups and how they relate to several academic outcomes including math test scores, student GPA, dropping out of high school, and bachelor's degree attainment. I investigate the measures of student-school and parent-school social capital separately in order to determine whether they are positively associated within social groups (i.e. students with high levels of student-school social capital are often observed to also have high levels of parent-school social capital). Finally, I perform lagged regressor models with interaction terms in order to determine whether 1) student mobility is related to decreases in parent-school and student-school social capital and 2)

the effects of student mobility on changes in social capital depend on students' race/ethnicity, generational status, family structure, socioeconomic status, and participation in extracurricular activities. The results of this study will uncover whether transferring schools is more harmful for some subgroups of students relative to others due to differential effects on social capital.

The disruptive experience of transferring schools

While it is commonly recognized that transfer students are often at-risk students before they transfers schools (Rumberger and Larson 1998; Temple and Reynolds 1999; Wright 1999), the experience of transferring schools in itself is likely to have a disruptive effect on students' academic trajectories. Because school districts do not standardize the content of what is taught within the classroom or the sequence of classes that students must follow to belong to a particular academic track, it is likely that many students who transfer schools are placed in classes that do not match their skill level. If students are placed into classes that are below their skill level, it is likely that transfer students will not fulfill the prerequisites required in order to attend higher-level courses, and they may become disenchanted with their school experience and become more likely to drop out of high school. On the other hand, students who are placed in classes that are above their skill level are likely to experience declines in their test scores and grade point averages (GPAs).

While communication between schools and students and their families could minimize the incorrect class placement of transfer students, student mobility is also likely to negatively affect student outcomes by severing positive relationships between parents,

students, and school personnel. Teachers, administrators, and guidance counselors have the ability to promote high educational expectations, give individualized advice and assistance to help students succeed academically, and provide information to students about planning for their postsecondary education and/or careers. However, such ties take time to form, and depending on the conditions under which the school transfer occurred, it is likely that parents and students find it difficult to forge these relationships after transferring to a new high school.

At a basic level, the lack of instrumental support and guidance could potentially lead students to be misinformed about graduation requirements or unaware of what is required to apply for college. A dearth of emotional support in the school setting could also cause students to become frustrated with their school experience and increase their probability of dropping out of high school. Moreover, experiencing multiple school transfers during one's academic career is likely to have a cumulative effect on student outcomes because it would lead to multiple disruptions in students' academic careers and provide students with less time to form stable relationships with school personnel. Therefore, if transferring schools leads to a weakening or loss of students' and parents' relationships with school personnel, then student mobility could be expected to negatively impact students' academic achievement and attainment.

The relationships between students, their parents, and the personnel at students' schools are often referred to as social capital, or the resources that inhere in individuals' relationships with members of social networks (Coleman 1988). In the classical sense, social networks benefit individuals by providing access to information and establishing obligations and expectations of normative behavior within the social group. It is

commonly believed that social capital can impact students' academic outcomes because social networks can provide resources such as effective strategies for studying, advice about which courses to take to meet academic goals, and information about the college application process. Social capital is also hypothesized to inhibit students' deviant behaviors (including poor school performance) by instilling in students high educational expectations, a sense of obligation toward group members to follow group norms, and fear of sanctions from members of their social networks if they fail to do so. In these ways, social capital, which can exist in the relationships between students and their parents, their peers, members of their communities, and their school administrators and teachers, can influence academic achievement and attainment.

While agreeing with the general definition of social capital, Pierre Bourdieu (1986) describes social capital as a tool through which high-status parents can covertly transmit their status to their children. Parents who occupy the higher levels of socioeconomic status tend to form relationships with school personnel to ensure that their children are receiving adequate instruction and are being prepared for high-status jobs in the future. Also, by encouraging their children to speak to authority figures such as teachers and administrators as if they were equals (Lareau 2003), high status parents prepare their children for interaction with school personnel, employers, and members of the community that may have information or access to resources that the parents themselves do not have. This is closely related to the theory of social reproduction (Bowles and Gintis 1976) in which schools simply reproduce existing social inequalities based on their acceptance of middle-class, rather than working-class, norms of behavior. Because high-SES parents and children are more likely than low-SES families to

maintain ties with the school community, one could predict that high-SES students would be more adversely affected by school transfers because they have more resources to lose.

One key of social capital theory that is not often emphasized is that social ties are only as beneficial as the resources they can provide (Coleman 1988; Kao 2004). Essentially, social capital is only valuable when it can be converted into other forms of capital such as human capital (knowledge, skills, etc.) or financial capital that are not available in the family unit (Portes 1998; Stanton-Salazar and Dornbusch 1995). Therefore, it is possible that students from disadvantaged family backgrounds accrue more benefits from their ties with school personnel, and may more actively seek relationships with their teachers and guidance counselors, because they do not have access to a large quantity of resources within their family unit. If this is the case, then perhaps disadvantaged segments of the population are more adversely affected by student mobility.

Previous Research

Previous studies that have investigated the negative effects of student mobility highlight the fact that moving to a new environment ruptures the ties that students and parents had formed with members of the school community that may have helped students to succeed academically (Hagan, MacMillan, and Wheaton 1996; McLanahan and Sandefur 1994; Pribesh and Downey 1999; Sandefur, Meier, and Campbell 2006). Using nationally-representative data, Pribesh and Downey (1999) illustrate that students who experience a school transfer during high school experience greater losses in six separate measures of social capital (including student-school ties, student-community

ties, student-peer ties, student-parent ties, parent-parent ties with parents of their children's friends, and parent-school ties) between the 8th and 12th grades when compared to students who did not experience a school transfer. However, these researchers find that most of the relationship between student mobility and changes in academic achievement and educational expectations is explained by pre-transfer characteristics (parents' education, family structure, etc.) while only about 5% of the relationship is explained by changes in social capital (Pribesh and Downey 1999). Using different data, South, Haynie, and Bose (2007) also find that measures of social capital do not explain a substantial amount of the effect of student mobility on dropping out of high school.

It is possible that previous studies have failed to find that social capital explains the relationship between student mobility and academic outcomes because researchers have utilized imperfect proxy measures for social capital. For instance, participation in extracurricular activities is one way that past research has measured students' relationships with their school communities (Pribesh and Downey 1999; South, Haynie, and Bose 2007). Participation in extracurricular activities is expected to be related to higher levels of social capital because these activities are often organized by faculty within the school and are thought to improve relationships between the students, parents, teachers, and peers within their schools. In fact, Broh (2002) finds that about 50% of the positive effect of extracurricular sports participation on student achievement is explained by measures of social capital (which specifically measure relationships with school personnel). However other studies have indicated that some extracurricular activities are more beneficial than others (Schreiber and Chambers 2002), and may even be detrimental for certain social groups (Eitle and Eitle 2002). Therefore, it may be incorrect to assume

that the effects of extracurricular participation on student-school and parent-school relationships are similar across extracurricular activities and across the diverse members of these groups.

While a plethora of studies provide evidence that student mobility is negatively related to student outcomes (Pribesh and Downey 1999; Rumberger and Larson 1998; South, Haynie, and Bose 2007; Temple and Reynolds 1999), the ways in which the effects of student mobility may differ across segments of the population have not been investigated to such great lengths. If student mobility affects student outcomes through the disruption of ties between parents, students, and school personnel, then it could be hypothesized that student mobility is not as harmful for students who 1) do not have strong ties to the school before transferring or 2) do not rely on school resources due to the abundance of resources present in students' homes and extended families. While social reproduction theory would predict that schools disproportionately benefit middle-class students (Bowles and Gintis 1976), seasonal research suggests that disadvantaged students benefit more from their school resources when compared to students who have more resources at home (Downey, Hippel, and Broh 2004; Entwisle, Alexander, and Olson 1997). In essence, these researchers argue that disparities in resources at the school level are not as large as the disparities in resources within students' homes, and so disadvantaged students actually use their schools to "catch up" with their more advantaged peers. Therefore, there are two opposing theories that could potentially explain the differential effects of student mobility. First, based on the social capital and social reproduction theories, it is possible that *advantaged* students are more adversely affected by student mobility because they and their parents have more and stronger ties to

the school before the transfer occurs. However, it is also possible that *disadvantaged* students are more adversely affected by student mobility because they are more reliant on their relationships with school personnel than students who have a wider variety of resources at their disposal.

When considering these opposing theories, it is important to differentiate between the ties that parents have with schools and the relationships that students form with their teachers and guidance counselors. While much research has suggested that parents in families that experience relative socioeconomic disadvantage do not maintain strong ties with school personnel (Booth and Dunn 1996; Hayes 1992; Lareau 2003), one study actually found that Mexican American students have better relationships with their schools than white students (Ream 2005). This suggests that deficits in parents' relationships with school personnel that are related to their disadvantaged status may be compensated for by students' relationships with their teachers and guidance counselors. For instance, if foreign-born parents are unable to communicate with school personnel, then perhaps students with foreign-born parents feel responsible for establishing and maintaining relationships with school personnel themselves. Therefore, it may be incorrect for researchers to assume that decreases in one form of social capital always accompany decreases in other forms of social capital.

Research Questions

This study addresses three research questions. First, I investigate whether measures of student-school and parent-school social capital in the 8th and 12th grades are equally distributed across different social groups including transfer students, racial/ethnic

minorities, students from different family structures, students of different generational statuses, students from different socioeconomic statuses, and students who participate in extracurricular activities. I also explore the relationships between these measures of social capital and students' academic outcomes. In this section, I also investigate whether social groups with high levels of student-school social capital also tend to have high levels of parent-school social capital. Next, I investigate whether transferring schools once or more than once during high school is associated with changes in student-school and parent-school social capital. Finally, I seek to uncover whether certain social groups experience greater (or smaller) declines in social capital over time as a result of student mobility.

Data

For the current study, I utilize data from the National Education Longitudinal Study of 1988-2000 (NELS). This study interviewed a nationally-representative sample of approximately 12,000 eighth graders in 1988 and then re-interviewed the same respondents in 1990, 1992, 1994, and 2000. Data collectors provided questionnaires to students, parents, administrators, and teachers so that researchers may look at the same social and educational experiences from several different perspectives. After removing 760 respondents who did not complete the baseline survey (including those who were ineligible at the time of the survey, those who did not complete the survey, and "freshened" respondents who were interviewed for the first time after the 8th grade), my final sample includes 11,380[1] 8th grade students. To minimize sample restrictions due to

[1] As per the restrictions set forth by the Institute of Education Sciences, because I am using the restricted NELS data, all of the reported sample sizes have been rounded to the nearest ten.

missing data, I perform multiple imputation (Royston 2004) and all analyses proceed using the resulting five datasets. Imputed values replace the missing values for all variables in this study, including the dependent variables, in order to maximize the amount of information that informs the imputation. In final analyses, however, the imputed values for the dependent variables are recoded to missing so that analyses will not be performed for those respondents who were originally missing information on the outcome. Survey weights are taken into consideration during the imputation and applied to the descriptive statistics and regression analyses so that the results are generalizable to the population of 8th graders in 1988.

Measures

In this study, I explore the ways in which measures of social capital and changes in social capital differ across social groups and among students who experience different levels of student mobility. Student mobility is measured in this study as the number of times students transferred schools during high school. In 1992, students (including those who had dropped out) were asked how many school transfers they experienced since the 8th grade that were not normal transitions between middle school and high school within the same district. This study examines levels of social capital and educational outcomes among students who transferred once (16.61% of the weighted NELS sample) and more than once (8.16% of the sample) during high school as well as students who did not transfer schools after the 8th grade.

In this study, I also investigate the effects of social capital on 12th grade math test scores, 12th grade point averages (GPAs), dropping out of high school, and bachelor's

degree attainment net of demographic and family background characteristics. Grade point averages are measured using the NELS transcript data so that all respondents have a value that ranges between 0 and 4. Dropping out of high school and bachelor's degree attainment are measured at the fifth wave of data collection, 12 years after the 8th grade baseline survey.

The demographic variables in this study include students' sex (with men comprising the reference group), race/ethnicity (black, Hispanic, Asian, and "other" race with white as the reference group), generational status (first and second generation students with third generation students serving as the reference group), and family structure (single parent, cohabiting parent, and "other" family structure with two-parent families serving as the reference category). Students' age is measured as a continuous variable centered at the mean value of 14 (ranging from -4 to 4). Socioeconomic status is measured in this study using the NELS-constructed variable that accounts for parents' education, occupation, and income. Students are grouped into quintiles based on this scale so that students from the bottom quintile of SES can be compared to students whose parents rank within the top quintile of SES.

Finally, I investigate differences in social capital based on whether students participated in extracurricular activities during high school. Previous studies have indicated that extracurricular participation is related to levels of social capital (Broh 2002), and some studies have actually utilized extracurricular participation as a proxy measure for social capital (Pribesh and Downey 1999). Therefore, I create three dummy variables that indicate the extent to which students participated in extracurricular activities with students who did not participate serving as the reference category: students

who participated in the 8th grade but not in the 12th grade (initial participation), students who participated in the 12th grade but not the 8th grade (final participation), and students who participated in the same activity (or activities) in both the 8th and 12th grades (persistent participation). This study considers eleven different extracurricular activities: interscholastic sports, intramural sports, cheerleading, band/music-related activities, academic clubs, drama club, honors society, student newspaper or yearbook, student council or student government, a vocational education club, or a hobby club.

Scales of Social Capital

While past studies have utilized proxies for social capital, such as extracurricular participation and even student mobility itself (Coleman 1988; Pribesh and Downey 1999), this study utilizes exploratory factor analysis to create scales for social capital that investigate school- and future career-related contact between students and school personnel as well as parents and school personnel. Student-school and parent-school social capital are measured in both the 8th and 12th grades so that I am able to measure changes in these relationships over time. Information from the baseline student questionnaire pertaining to students' relationships with school personnel was considered in order to measure 8th grade student-school social capital. In particular, I looked at questions that referred to students seeking or receiving advice or guidance from teachers, counselors, and principals within their schools. In the end, ten variables were selected to represent 8th grade student-school social capital.

In the first set of questions, respondents were asked if they ever talked to their counselors and teachers (separately) about four different topics: high school programs,

jobs or careers after completing high school, help with selecting courses, and things studied in class. These eight variables are dichotomous with a value of 1 if the student talked to a counselor or teacher about the specified topic. While there exist additional questions in this section of the survey that deal with conversations between students, teachers, and counselors, these questions have been omitted because they refer to conversations about academic, behavioral, or personal problems. A response of "no" to these questions could either indicate that 1) students do not have these relationships with teachers or counselors or 2) students do not have these academic or behavioral problems, and so it would be difficult to interpret responses to these questions. Two additional questions ask students how often they talked to their teachers and counselors about planning their high school program. For these two questions, responses range from 0 (never) to 2 (3 or more times).

The Cronbach's alpha of these 10 variables is 0.750, and the removal of any one of these variables would not substantially improve the calculated alpha. Moreover, exploratory factor analyses indicate that all of these indicators load onto a single factor with factor loadings that are greater than 0.40. Therefore, 8th grade student-school social capital is measured with a single standardized scale that utilizes these 10 variables.

Measuring 12th grade student-school social capital is a more difficult task because students require different services of their schools depending on their post-high school plans. Based on information in the 12th grade surveys, I identified three groups of students: those who had dropped out of high school, those who do not intend to go to college, and those who have plans to go to college either directly after high school or after taking a few years off of school. These three groups of students were not asked the

same questions during the third wave of data collection. First, high school dropouts received a completely separate questionnaire. Also, students who planned to go to college immediately after high school were not asked questions about the services they received to help them find a job. The third group of students, who were less sure of their college plans, was asked questions about how their schools were helping them to find a job after high school, but if they ever intended to go to college, they were also asked about the services they received from their school that aided them in the college application process.

In the end, in order to identify the services that students received to help them achieve their immediate goals, among those students who reported that they did not plan to go to college immediately after high school, I measure social capital using the questions about the services they received to help them find a job. However, if they are missing information on this section of the survey but had information about the help they received in the college application process (indicating that they might be leaning more toward college than finding a job right after high school), then their measure of social capital includes the information about the help they received in the college application process. Therefore, I measure 12th grade student-school social capital using three different scales so that the appropriate variables are utilized for these groups of students. However, because each scale is standardized based on its mean and standard deviation, each student is assigned one value of "12th grade student-school social capital" that can be compared across groups and with the 8th grade measure of student-school social capital.

Among college-bound students, responses to four questions in the second follow-up questionnaire are utilized to measure student-school social capital. The first three questions ask respondents whether they received help from their school with college applications, financial aid forms, or college entry essays. Respondents provided a yes/no response to these questions. Next, students were asked if they talked to a teacher or counselor about financial aid. Again, this is a dichotomous variable with a value of 1 indicating that the student talked to the teacher or counselor about financial aid. The Cronbach's alpha of these four variables is 0.688, and the removal of any one of these variables would not substantially improve the value of alpha.

To measure 12th grade levels of student-school social capital among those students who do not have immediate plans to attend college, I located thirteen variables that describe the ties that exist between students and school personnel that may confer benefits to students' futures. The first seven questions ask respondents whether they used the following services at their schools to find a job: an interest inventory, job listings, job fairs, career placement counseling, letters of recommendation, practice interviews, or school-arranged job interviews. Each of these variables is dichotomous with a value of 1 indicating that students utilized this service. The next six questions ask whether students received help from six different school personnel when selecting a job: a coach, a guidance counselor, a vocational counselor, a vocational teacher, other teachers, or other school staff. These variables are also dichotomous with a value of 1 indicating that the respondent received help from this member of the school faculty. The Cronbach's alpha of these 13 variables is 0.742, and the removal of any one item would not substantially improve the calculated alpha. While exploratory factor analyses identified three distinct

factors, only two of the factor loadings (for a coach and other teachers helping students to select a job) are less than 0.40 on a single factor, but both of these are greater than 0.30. Therefore, I measure 12th grade student-school social capital among students who do not have immediate plans for college with a single standardized scale that utilizes these 13 variables.

While collecting data for the NELS, separate surveys were given to students who dropped out of school before the third wave of data collection. Therefore, dropouts were not asked many of the same questions that were given to students who were still in school. Also, because these students were no longer in school, it was difficult to find questions that concerned the relationship between respondents and school personnel. However, I located thirteen questions that allowed me to measure student-school social capital among dropouts. First, students were asked if they had talked to teachers, counselors, or a principal about continuing their education. These three variables are dichotomous with a value of 1 indicating that this conversation occurred. Next, students were asked if anyone from their school did the following the last time they stopped going to school: offered to send them to another school, offered to put them in a special program, offered them special tutoring, offered to help them make up the work they missed, offered to help them with personal problems, told them the could return if they maintained a certain GPA, told them they could return if they didn't miss too much school, told them they could return if they would follow school discipline rules, tried to talk them into staying, or called or visited their house.

The Cronbach's alpha of these thirteen variables is 0.744, and the removal of any single item would not substantially improve the value of alpha. While exploratory factor

analyses identified four separate factors, when forced onto a single factor, all factor loadings are greater than 0.30. In fact, only two variables (the school called or visited students' homes and the school offered to send students to another school) have factor loadings that are less than 0.40. Therefore, I measure 12th grade student-school social capital among high school dropouts with a single standardized scale that utilizes these thirteen variables.

To measure parent-school social capital in the 8th grade, twelve variables were selected from the baseline questionnaire. The first four questions asked parents whether they belonged to a parent-teacher organization (PTO), whether they attended PTO meetings, whether they participated in PTO activities, and whether they acted as a volunteer in their child's school. These four variables are dichotomous with 1 indicating that the parent performed the specified activity within the child's school. The next three questions asked parents how often they contacted their child's schools for specific reasons since the beginning of students' eighth grade year. Again, I avoided questions that concerned contacting the school about behavioral or academic problems because a negative response could simply imply that respondents' children do not have problems to talk to the school about. The three variables I selected asked parents how many times they contacted the school since the beginning of the year concerning fundraising activities, doing volunteer work, or discussing their children's academic program. These variables range from 0 (never) to 3 (more than four times).

Because relationships between parents and school personnel travel in both directions, I also selected five questions that ask about the frequency with which the school contacted parents about various topics since the beginning of students' eighth

grade year (omitting those that concerned behavioral or academic problems). These five variables measure how often the school contacted the parent about fundraising activities, doing volunteer work, selecting high school courses, placement decisions regarding students' high school program, and students' current academic program. These variables are also coded from 0 (never) to 3 (four or more times). Altogether, these twelve variables have a Cronbach's alpha of 0.812, and the removal of any single item would not improve this value of alpha.

Finally, while I found twelve questions that described the relationship between parents and their children's school in the 12th grade, these are not the same questions that were asked in the 8th grade. The first three questions asked parents whether they attended a program at their child's school that covered the topics of educational opportunities after high school, financial aid, and employment and career opportunities for their children. A fourth question asked parents if they talked to a high school guidance counselor about financial aid. These four variables are dichotomous with a value of 1 indicating that the parent attended such a program or meeting. Next, similar to the 8th grade questionnaire, parents were asked how many times they contacted the school, and how many times the school contacted them, about their child's college plans, academic program, post-high school plans, and fundraising or volunteering opportunities (resulting in eight separate questions). The values of these variables range from 0 (never) to 3 (more than four times). The Cronbach's alpha for these twelve variables is 0.812, and the removal of any single item would not improve this value. While exploratory factor analyses identified four distinct factors, when all of the variables are loaded on a single factor, all of the

factor loadings are greater than 0.40. Therefore, I measure 12th grade parent-school social capital with a single standardized scale.

Methods

In this study, I utilize a combination of descriptive statistics and OLS regressions to investigate whether measures of social capital differ across race/ethnicity, generational status, family structure, socioeconomic status, levels of extracurricular participation, and students who experience different levels of student mobility. Moreover, I test whether these measures of social capital significantly affect academic outcomes before and after controlling for these background characteristics using OLS and logistic regressions. All analyses utilize survey weights to ensure that results are representative of the population of 8th graders in 1988.

Once I have explored the distribution of social capital across social groups and the relationship between social capital and various academic outcomes, I investigate whether student mobility predicts changes in social capital between the 8th and 12th grades using lagged regressor models (predicting 12th grade social capital while controlling for the 8th grade measure of social capital). To determine whether the effects of student mobility on changes in social capital are more or less pronounced within specific social groups, student mobility is interacted with social group membership in models that control for the aforementioned background characteristics. If the effects of student mobility on changes in social capital are not constant across social groups, then it is likely that estimates of an "average" effect of school transfers on social capital and later educational outcomes are

not accurate because some social groups are disproportionately affected by student mobility.

Results

The first goal of this paper is to demonstrate the unequal distribution of student-school and parent-school social capital across social groups. Figures 1a and 1b illustrate levels of social capital in the 8th and 12th grades for students who transferred schools once, transferred schools more than once, or did not transfer schools during the 4 years following students' 8th grade year. Table 1 provides results from reduced-form OLS regressions (controlling for sex and age) predicting student-school social capital to demonstrate where groups significantly differ in their levels of social capital. Table 2 provides similar results with parent-school social capital as the dependent variable. As theory would predict, students tend to have lower levels of 12th grade student-school and parent-school social capital when they experience school transfers. However, students who transfer schools once during high school do not significantly differ from non-transfer students in terms of their student-school social capital, and their parent-school social capital only significantly differs in the 12th grade. In contrast, students who transfer more than once during high school consistently have lower levels of social capital than students who did not transfer schools except for parent-school social capital in the 8th grade. Interestingly, transferring more than once still significantly predicts lower levels of 12th grade parent-school social capital net of students' demographic characteristics, while the effect of transferring once is reduced to marginal significance (Table 2).

[Insert Tables 1 and 2 about here]

[Insert Figures 1a and 1b about here]

Figures 2a and 2b illustrate the distribution of social capital across racial/ethnic groups. Interestingly, while many researchers consider student-school social capital to be a mode of social reproduction utilized by the relatively advantaged majority group, African American students actually have higher levels of student-school social capital in both the 8th and 12th grades, and Hispanic students have higher levels of student-school social capital in the 12th grade, relative to white students. This is true even after controlling for students' socioeconomic and family background characteristics. In contrast, Hispanic (in the 8th grade) and Asian (in the 12th grade) students have significantly *lower* levels of parent-school social capital compared to white students. According to past research, this could be due to the language barrier between foreign-born parents and school personnel (Hayes 1992; Stanton-Salazar and Dornbusch 1995). Controls for students' family background characteristics explain the lower levels of parent-school social capital among Hispanic students in the 8th grade. However, African American students in the 8th grade, and African American, Hispanic, and "other" race students in the 12th grade, have significantly higher levels of parent-school social capital relative to white students with similar background characteristics. These descriptive results are interesting because they indicate that relatively disadvantaged students, such as African American and Hispanic students who may not have as many resources in their communities and families, may utilize the resources available in their schools more often than students who have a greater number of resources elsewhere. Moreover, minority parents (excluding Asian parents) appear to maintain stronger ties to school personnel relative to white parents with similar family background characteristics.

[Insert Figures 2a and 2b about here]

Following this theory of differential utilization of social capital, the distribution of student-school social capital also differs among students who belong to different socioeconomic status quintiles. Again, while the social reproduction theory would predict that high SES students take advantage of their relationships with school personnel, these results indicate that students within the *lowest* quintile of SES have the highest levels of student-school social capital while students in the highest SES quintile have the lowest levels of 12th grade student-school social capital (Figure 3a). Few differences are observed in the student-school social capital of students in the middle levels of SES, but it should be noted that all other quintiles have significantly lower levels of student-school social capital in the 8th grade compared to students in the lowest quintile. While differences in student-school social capital in the 8th grade are only marginally significant betweens students in the highest and lowest quintile of SES, only students in the highest quintile of SES have significantly lower levels of student-school social capital in the 12th grade relative to students in the lowest quintile of SES. In contrast, consistent with research conducted by Annette Lareau (1987; 2003), levels of parent-school social capital in both the 8th and 12th grades monotonically increase with increased levels of SES, and all other quintiles have significantly higher levels of parent-school social capital relative to the lowest quintile (Figure 3b and Table 2). Significant differences remain after controlling for other family background characteristics.

[Insert Figure 3a and 3b about here]

Overall, the results in Table 1 demonstrate that, while it appears in Figure 4a that there are differences in student-school social capital by generational status, these

differences are not statistically significant. In contrast, first generation students-students who were born outside of the US and whose parents were born outside of the US-have significantly lower levels of parent-school social capital in both the 8th and 12th grades relative to the native-born children of native-born parents (Figure 4b, Table 2). Again, this may be due to the language barrier as foreign-born parents may be unable to communicate with English-speaking school personnel, and this also may explain the lower levels of parent-school social capital among Hispanic and Asian students. In fact, after controlling for other family background characteristics, there are no significant differences in parent-school social capital by generational status.

[Insert Figures 4a and 4b about here]

Next, I explore differences in student-school social capital by family structure. Interestingly, students who live in single parent families generally have higher levels of student-school social capital in the 8th grade relative to students in two-parent families (Figure 5a), though this effect disappears after controlling for other student background characteristics. In contrast, students from single parent and cohabiting parent families have significantly lower levels of parent-school social capital in the 8th grade, and students living with a single parent and students with "other" family structures have lower levels of parent-school social capital in the 12th grade, relative to students from two-parent families (Figure 5b, Table 2). These significant differences remain after controlling for other family background characteristics.

[Insert Figures 5a and 5b about here]

Finally, Figures 6a and 6b illustrate differences in social capital for students with different patterns of extracurricular participation during high school. For all four

measures of social capital, students who persist in the same activities between the 8th and 12th grades have significantly higher levels of social capital relative to students who do not participate in extracurricular activities in either the 8th or 12th grades, and this effect is significant net of family background characteristics. This is consistent with theories that suggest that these activities foster relationships between students and school personnel (Broh 2002). Moreover, participation in extracurricular activities in the 8th, but not the 12th, grade (initial participation) is significantly related to the 8th grade measure of student-school social capital and the 12th grade measure of parent-school social capital. These results indicate that even inconsistent participation in extracurricular activities can lead to stronger relationships between students, their families, and school personnel.

Social capital and educational outcomes

While the previous section illustrated the ways in which these measures of social capital are distributed across social groups, it is also important to acknowledge the effects of social capital on educational outcomes. Table 3 presents the effects of student-school and parent-school social capital (in different models) on academic outcomes 1) at the bivariate level, 2) when both 8th and 12th grade levels are included in the same model, 3) when individual indicators of social capital predict academic outcomes net of student background characteristics, and 4) when both 8th and 12th grade measures are included in the same model with controls for student background characteristics. For the models that use logistic regression (predicting dropping out of high school and obtaining a 4-year college degree), results are presented as odds ratios. Though only coefficients for the

four measures of social capital are presented here, full tables are available from the author upon request.

While they are not presented in Table 3, it is important to note the relationships between student mobility and the academic outcomes considered here. Transferring more than once significantly and negatively affects students' math test scores (by approximately 3.6 points) and grade point averages (by approximately 0.4 points) net of student demographic and family background characteristics as well as measures of social capital. Moreover, net of controls, both measures of student mobility predict significantly higher probabilities of dropping out of high school (increasing odds by approximately 200%) and lower probabilities of obtaining a bachelor's degree (decreasing odds by about 43% among students who transferred once and 79% among students who transferred more than once).

At the bivariate level, 12th grade student-school social capital is positively related to GPAs in the 12th grade and probabilities of receiving a 4-year college degree. However, higher levels of student-school social capital in the 8th grade are associated with slightly *lower* math test scores at the bivariate level. This may indicate that lower-achieving students are more likely to seek guidance from school personnel in the 8th grade, when students are not as concerned about planning for college. In contrast, and consistent with social capital theory, higher levels of both 8th grade and 12th grade parent-school social capital are associated with higher math test scores and GPAs, lower probabilities of dropping out of high school, and higher probabilities of receiving a bachelor's degree. Even when they are included in the same model, parent-school social

capital in both the 8th and 12th grades significantly and independently predict all four of the educational outcomes considered here.

[Insert Table 3 about here]

Multiple regressions were also performed in order to explore the effects of social capital on educational outcomes net of students' background characteristics (Table 3). In these models, 8th grade student-school social capital is still negatively associated with 12th grade math test scores (and student GPAs after controlling for the 12th grade measure of student-school social capital). However, higher levels of 12th grade student-school social capital are positively associated with 12th grade math test scores, GPAs, and probabilities of obtaining a bachelor's degree even net of the 8th grade measure of student-school social capital. In fact, an increase of one standard deviation in student-school social capital in the 12th grade is associated with a 28% increase in the likelihood of receiving a 4-year degree.

Net of demographic characteristics, the associations between parent-school social capital in the 8th and 12th grades and educational outcomes are attenuated. Neither measure of parent-school social capital is significantly related to 12th grade math test scores, and only 12th grade parent-school social capital is significantly associated with student GPAs. However, while parent-school social capital is not associated with the probability of dropping out of high school, both measures of parent-school social capital still significantly predict the probability of receiving a 4-year degree. Similar to the effect of 12th grade student-school social capital on this outcome, an increase of 1 standard deviation in parent-school social capital in the 12th grade is associated with a 29% increase in the likelihood of receiving a 4-year degree.

Student mobility and changes in social capital

In the final set of analyses, I regress 12th grade measures of social capital on 8th grade measures of social capital, student mobility, and student demographic characteristics to determine whether student mobility significantly predicts changes in social capital. Interaction terms between student mobility and students' demographic characteristics and extracurricular participation are added to statistical models-each set of interactions being added to a separate model-to uncover whether some social groups experience larger or smaller changes in social capital as a result of student mobility.

In general, student mobility has a stronger effect on changes in parent-school social capital than changes in student-school social capital (Tables 4 and 5). While students who transferred more than once experienced greater declines in student-school social capital compared to students who did not transfer schools during high school, students who transferred once did not significantly differ from students who did not transfer in terms of changes in student-school social capital. On the other hand, both measures of student mobility significantly predict 12th grade levels of parent-school social capital net of the 8th grade measure of parent-school social capital. At the bivariate level, students who transferred once have declines in parent-school social capital that are 0.13 standard deviations greater than students who did not transfer schools, while the decline is 0.30 standard deviations greater among students who transferred more than once. The difference between students who transferred once and students who transferred more than once is marginally significant with a p-value of 0.052.

[Insert Tables 4 and 5 about here]

Next, student demographic characteristics are interacted with student mobility to determine whether the negative effects of student mobility on changes in social capital differ across social groups. In general, most of these interactions are insignificant, indicating that transferring schools during high school leads to similar declines in social capital over time across different social groups. However, some interesting findings appear when looking at students who participate in extracurricular activities, African American students, and second generation students. Only significant interaction effects are presented in Tables 4 and 5.

First, it appears that participation in extracurricular activities provides a buffer against declines in student-school social capital among those students who transferred more than once during high school (Table 4). In fact, while students who did not participate in extracurricular activities experienced a 0.548 standard deviation decline in student-school social capital after experiencing two or more school transfers, this loss in social capital is almost entirely eliminated (by at least 80%) among all three groups of students who participated in extracurricular activities. This finding remains significant after controlling for measures of family structure, race, and socioeconomic status (though the interactive effect of persistent extracurricular participation becomes marginally significant). This suggests that participating in extracurricular activities is one method through which transfer students establish ties with school personnel in the new school setting. However, it is interesting to note that the same cannot be said for parent-school social capital: participation in extracurricular activities does not significantly moderate the effect of student mobility on changes in parent-school social capital.

Finally, results also show that losses in parent-school social capital related to transferring once during high school are more pronounced among African American students (Table 5). While transferring once is related to a 0.114 standard deviation decline in parent-school social capital among whites, this effect size is more than twice as large among African American students. Because these students were also found to have the highest levels of 8th grade parent-school social capital among racial/ethnic groups net of other family background characteristics, it is likely that African Americans experience the greatest losses because the have the largest amount of parent-school social capital to lose. In fact, when taken in conjunction with the main effects of race/ethnicity and student mobility, it appears that transferring schools once during high school eliminates the advantage in parent-school social capital that African American students generally experience relative to whites.

In contrast, it appears that second generation students who transfer once experience significantly *smaller* declines in parent-school social capital relative to third generation students who experience one school transfer during high school. These results remain significant after controlling for family background characteristics. This suggests that second generation students, who are often regarded to have "immigrant optimism" and support from their foreign-born parents that lead them to have higher-than-expected educational aspirations and outcomes (Kao and Tienda 1995), have higher levels of parent-school social capital than their levels of student mobility would normally predict.

Conclusion

This study accomplished three main objectives. First, I created new measures of student-school and parent-school social capital which directly measure relationships between students, parents, and schools, and demonstrated how these measures of social capital are unequally distributed across different social groups. Next, I tested these new measures of social capital to determine whether they significantly affect student academic outcomes net of students' demographic characteristics. Finally, I investigated how transferring schools during high school affects changes in parent-school and student-school social capital between the 8th and 12th grades and whether the size of this effect differs across social groups.

The measures of social capital that were created in this study, which refer specifically to the contact between students and schools and parents and schools in relation to students' academic and future career plans, are not equally distributed across social groups. Consistent with social reproduction theory, students with higher levels of SES, students from two-parent families, and white students (relative to Hispanic and Asian students before accounting for differences in socioeconomic status) have higher levels of parent-school social capital. Parents likely utilize their relationships with school personnel in order to further their children's academic careers and increase their children's chances of academic success. In fact, high levels of parent-school social capital significantly predict higher GPAs and higher probabilities of receiving a 4-year college degree net of students' demographic and family background characteristics.

In contrast, results for student-school social capital suggest that students from more disadvantaged backgrounds, such as low SES students, African American students,

and Hispanic students, have higher levels of student-school social capital relative to their relatively more-advantaged counterparts. Past theories of social capital have not adequately addressed how different forms of social capital (student-school, parent-school, student-parent, student-community, etc.) work in conjunction with each other. However, it is likely that students who do not have many resources within their homes take advantage of the resources available in their schools with a greater frequency compared to students who have more resources available to them within their homes. In addition, parents of African American and Hispanic students tend to have significantly higher levels of 12th grade parent-school social capital relative to white parents with similar family circumstances, suggesting that minority parents also recognize the advantages to seeking information and guidance from school personnel.

While higher levels of social capital are generally perceived to be associated with improved academic outcomes, regression analyses suggest that higher levels of 8th grade student-school social capital are associated with *lower* math test scores and do not affect probabilities of dropping out of high school or bachelor's degree attainment. On the other hand, increased levels of 12th grade student-school social capital are associated with higher student GPAs as well as higher probabilities of obtaining a 4-year degree. This suggests that student-school relationships are particularly important toward the end of students' academic careers, when they are applying for college and planning their futures. Moreover, measures of parents-school social capital are consistently and positively associated with math test scores, GPAs, obtaining a bachelor's degree, and staying in high school. While much of the effect of parent-school social capital on educational outcomes is explained by student background characteristics, results for bachelor's

degree attainment particularly highlight the importance of parents' communication with school personnel to ensure their children's academic success.

Finally, the results of this study show that there are few cases in which the effects of student mobility on changes in social capital differ across groups. While African American students appear to experience greater declines in parent-school social capital than white students after experiencing a school transfer, second generation students actually experience *smaller* declines in parent-school social capital relative to their third generation peers who experienced one school transfer. These results suggest that student mobility, at least transferring schools once during high school, disproportionately affects some social groups relative to others. For African American students, this also highlights the fact that students who generally have higher levels of social capital in the 8th grade have a greater number of resources to lose when they transfer schools relative to other groups of students.

On the other hand, it appears that participating in extracurricular activities is one way that highly-mobile students, or students that transferred schools more than once during high school, may maintain constant levels of student-school social capital. While this does not translate into similar stability in parent-school social capital, it is likely that participation in these school-based activities provide a means through which highly-mobile students can come into contact with and gain resources from school personnel in the new school setting. More research is encouraged in this area to explore whether all types of extracurricular activities similarly protect transfer students from losses in student-school social capital and whether this buffering effect of extracurricular participation differs across social groups.

Overall, the results of this study indicate that different forms of social capital are not equally distributed across social groups, and future research needs to take into account that students who have low levels of one type of social capital may compensate by actively seeking other forms of social capital. Moreover, students who transfer schools generally experience larger declines in parent-school social capital rather than student-school social capital. The findings surrounding the buffering effects of extracurricular participation suggest that there are ways in which students can actively integrate themselves into their new school settings whereas parents, who are likely preoccupied with new places of residence and new jobs that are likely to co-occur with school transfers, are not able to re-establish relationships with school personnel. The results of this study suggest that researchers may need to re-conceptualize the relationship between student mobility and changes in social capital.

Works Cited

Booth, Alan and Judith F. Dunn. 1996. *Family-School Links : How do they Affect Educational Outcomes?* Mahwah, NJ: Lawrence Erlbaum.

Bourdieu, Pierre. 1986. "Forms of Capital." Pp. 241-258 in *Handbook of Theory and Research for the Sociology of Education*, edited by J. G. Richardson. New York: Greenwood Press.

Bowles, Samuel and Herbert Gintis. 1976. *Schooling in Capitalist America: Educational Reform and Contradictions of Economic Life*. New York, NY: Basic Books.

Broh, Beckett A. 2002. "Linking Extracurricular Programming to Academic Achievement: Who Benefits and Why?" *Sociology of Education* 75:69-91.

Coleman, James S. 1988. "Social Capital in the Creation of Human Capital." *American Journal of Sociology* 94:S95-S120.

Downey, Douglas B., Paul T. von Hippel, and Beckett A. Broh. 2004. "Are Schools the Great Equalizer? Cognitive Inequality during the Summer Months and the School Year." *American Sociological Review* 69:613-635.

Eitle, Tamela McNulty and David J. Eitle. 2002. "Race, Cultural Capital, and the Educational Effects of Participation in Sports." *Sociology of Education* 75:123-146.

Entwisle, Doris, Karl Alexander, and Linda Olson. 1997. "Low Socioeconomic Status." in *Children, Schools, and Inequality*. Boulder: Westview.

Hagan, John, Ross MacMillan, and Blair Wheaton. 1996. "New Kid in Town: Social Capital and the Life Course Effects of Family Migration on Children " *American Sociological Review* 61:368-385.

Hayes. 1992. "Attitudes Toward Education: Voluntary and Involuntary Immigrants from the Same Families." *Anthropology & Education Quarterly* 23:250-267.

Kao, Grace. 2004. "Social Capital and its Relevance to Minority and Immigrant Population." *Sociology of Education* 77:172-176.

Kao, Grace and Marta Tienda. 1995. "Optimism and Achievement: The Educational Performance of Immigrant Youth." *Social Science Quarterly* 76:1-19.

Lareau, Annette. 1987. "Social Class Differences in Family-School Relationships: The Importance of Cultural Capital." *Sociology of Education* 60:73-85.

—. 2003. *Unequal Childhoods: Class, Race, and Family Life*. Berkeley: University of California Press.

McLanahan, Sara and Gary Sandefur. 1994. *Growing up with a Single Parent: What Hurts, What Helps*. Cambridge: Harvard University Press.

Ou, Suh-Ruu and Arthur J. Reynolds. 2008. "Predictors of Educational Attainment in the Chicago Longitudinal Study." *School Psychology Quarterly* 23:199-229.

Portes, Alejandro. 1998. "Social Capital: Its Origins and Applications in Modern Sociology." *Annual Review of Sociology* 24:1-24.

Pribesh, Shana and Douglas B. Downey. 1999. "Why are Residential and School Moves Associated with Poor School Performance?" *Demography* 36:521-534.

Ream, Robert K. 2005. *Uprooting Children: Mobility, Social Capital, and Mexican American Underachievement*. New York: LFB Scholarly Publishing, LLC.

Royston, P. 2004. "Multiple imputation of missing values." Pp. 227-241, vol. 4: STATA PRESS.

Rumberger, Russell W. and Katherine A. Larson. 1998. "Student Mobility and the Increased Risk of High School Dropout." *American Journal of Education* 107:1-35.
Sandefur, Gary D., AM Meier, and ME Campbell. 2006. "Family Resources, Social Capital, and College Attendance." *Social Science Research* 35:525-553.
Schreiber, JB and EA Chambers. 2002. "After-School Pursuits, Ethnicity, and Achievement for 8th- and 10th- Grade Students." *Journal of Educational Research* 96:90-100.
South, Scott J., Dana L. Haynie, and Sunita Bose. 2007. "Student Mobility and School Dropout." *Social Science Research* 36:68-94.
Stanton-Salazar, Ricardo D. and Sanford M. Dornbusch. 1995. "Social Capital and the Reproduction of Inequality: Information Networks among Mexican-Origin High School Students." *Sociology of Education* 68:116-135.
Strand, Steve and Feyisa Demie. 2007. "Pupil Mobility, Attainment, and Progress in Secondary School." *Educational Studies* 33:313-331.
Temple, JA and AJ Reynolds. 1999. "School Mobility and Achievement: Longitudinal Findings from an Urban Cohort." *Journal of School Psychology* 37:355-377.
Wright, Dan. 1999. "Student Mobility: A Negligible and Confounded Influence on Student Achievement." *The Journal of Educational Research* 92:347-353.

Appendix A: Tables and Figures

Table 1: Investigating significant predictors of student-school social capital[1]

	Reduced-form 8th grade		Multivariate 8th grade		Reduced-form 12th grade		Multivariate 12th grade	
Age			0.06656	**			-0.035793	
Sex			-0.041046				0.122406	***
Student mobility								
1 transfer	0.021661		0.021191		-0.077649		-0.07465	
2+ transfers	-0.148848	*	-0.120777	+	-0.149119	*	-0.112674	+
Race								
black	0.410666	***	0.373417	***	0.20718	**	0.193584	**
Hispanic	0.084121		0.066702		0.177417	***	0.124026	*
Asian	0.100433	+	0.108345		0.043251		-0.014015	
other	0.042954		0.039218		0.083606		0.082683	
Family Structure								
single	0.11055	*	0.073378	+	0.02445		0.000993	
cohabiting	0.006779		0.041906		0.008621		0.028933	
other	0.073787		0.010664		-0.17033		-0.167503	
Generation								
first	-0.013942		-0.059847		0.17994	+	0.163135	
second	0.040979		0.036193		0.08157		0.066758	
ECA participation								
Initial	0.37834	***	0.401838	***	0.18948	+	0.195013	*
Final	0.064028		0.080103		0.169122		0.16834	+
Persistent	0.553656	***	0.57974	***	0.364707	***	0.379821	***
SES								
2nd Q	-0.114521	*	-0.093082	*	-0.023505		-0.006256	
3rd Q	-0.132161	*	-0.12461	*	-0.019119		-0.006864	
4th Q	-0.163305	**	-0.151541	**	-0.068759		-0.057671	
5th Q	-0.100083	+	-0.092901	+	-0.188466	***	-0.179733	***
8th grade Student-school social capital								
Constant			-0.424556	***			-0.308993	**
N	11010		11010		10680		10680	

+ p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001

[1]Reduced-form models control for sex and age

Table 2: Investigating significant predictors of parent-school social capital[1]

	Reduced-form 8th grade		Multivariate 8th grade		Reduced-form 12th grade		Multivariate 12th grade	
Age			-0.106244	***			-0.030427	
Sex			-0.034212				-0.024604	
Student mobility								
1 transfer	-0.053404		-0.019121		-0.125992	*	-0.092582	+
2+ transfers	-0.049295		0.039451		-0.281474	***	-0.197929	***
Race								
black	0.064376		0.24225	***	0.133611	+	0.296028	***
Hispanic	-0.132921	*	0.070245		-0.034127		0.186399	***
Asian	-0.037662		-0.08381		-0.147102	**	-0.129674	*
other	0.144989		0.304637		0.264313		0.410567	*
Family Structure								
single	-0.294664	***	-0.209652	***	-0.201246	***	-0.118811	**
cohabiting	-0.184947	***	-0.107414	*	-0.042682		0.056534	
other	-0.111061		-0.033173		-0.460654	***	-0.321044	***
Generation								
first	-0.213012	**	-0.131273		-0.218989	***	-0.142587	+
second	0.010675		0.055899		-0.043066		-0.015429	
ECA participation								
Initial	0.130804		0.150053	+	0.186312	**	0.161651	*
Final	-0.009457		0.048635		0.073464		0.082832	
Persistent	0.335436	*	0.26389	**	0.501688	***	0.394071	***
SES								
2nd Q	0.15661	***	0.150472	***	0.125848	**	0.116105	**
3rd Q	0.317926	***	0.310917	***	0.365042	***	0.345835	***
4th Q	0.518216	***	0.504713	***	0.4788	***	0.452009	***
5th Q	0.844601	***	0.820736	***	0.647506	***	0.631178	***
8th grade Parent-school social capital								
Constant			-0.500258	***			-0.577372	***
N	10210		10210		9900		9900	

+ p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001

[1]Reduced-form models control for sex and age

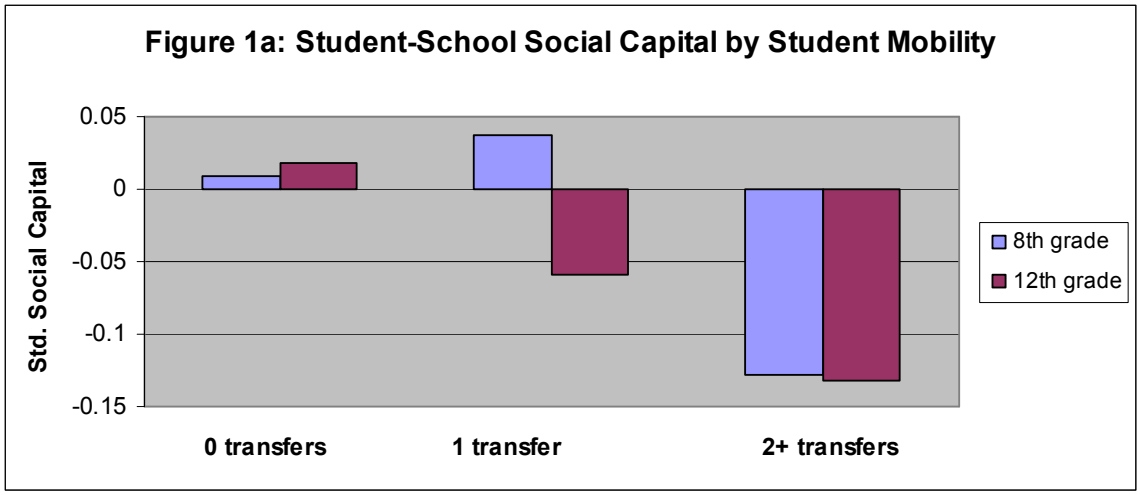
Figure 1a: Student-School Social Capital by Student Mobility
Std. Social Capital
0.05
0
-0.05
-0.1
-0.15
0 transfers
1 transfer
2+ transfers
8th grade
12th grade

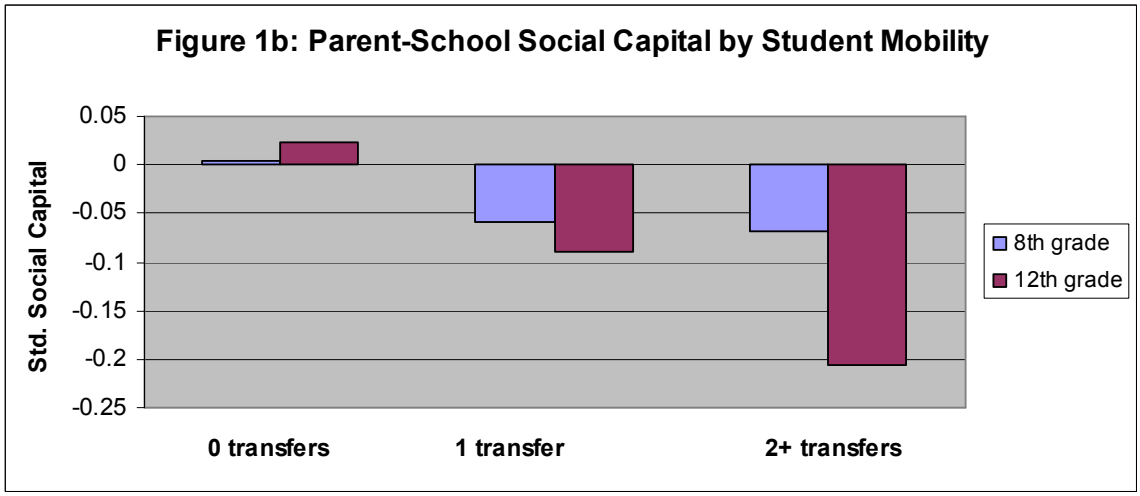
Figure 1b: Parent-School Social Capital by Student Mobility
Std. Social Capital
0.05
0
-0.05
-0.1
-0.15
-0.2
-0.25
0 transfers
1 transfer
2+ transfers
8th grade
12th grade

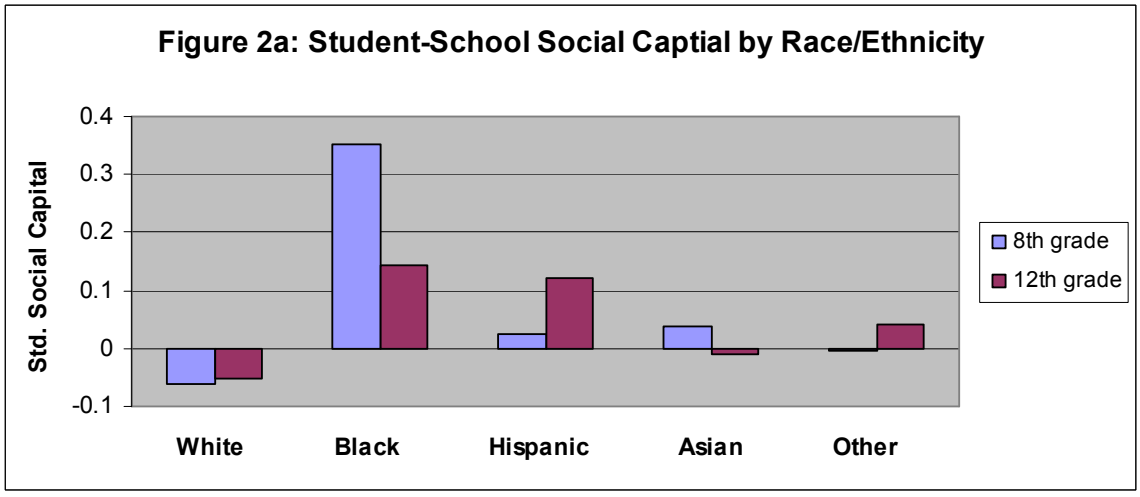
Figure 2a: Student-School Social Captial by Race/Ethnicity
Std. Social Capital
0.4
0.3
0.2
0.1
0
-0.1
White
Black
Hispanic
Asian
Other
8th grade
12th grade

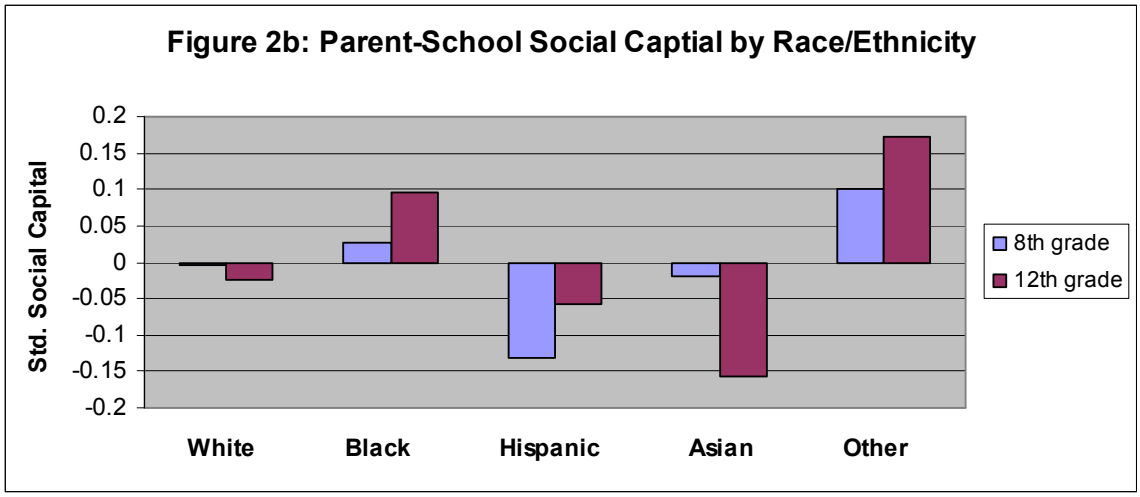
Figure 2b: Parent-School Social Captial by Race/Ethnicity
Std. Social Capital
0.2
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
White
Black
Hispanic
Asian
Other
8th grade
12th grade

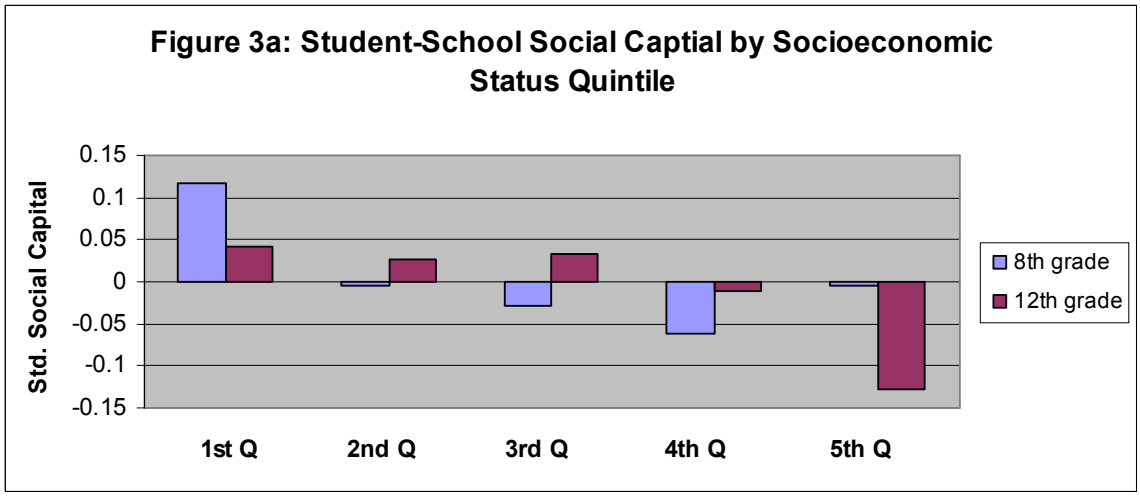
Figure 3a: Student-School Social Captial by Socioeconomic Status Quintile
Std. Social Capital
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
1st Q
2nd Q
3rd Q
4th Q
5th Q
8th grade
12th grade

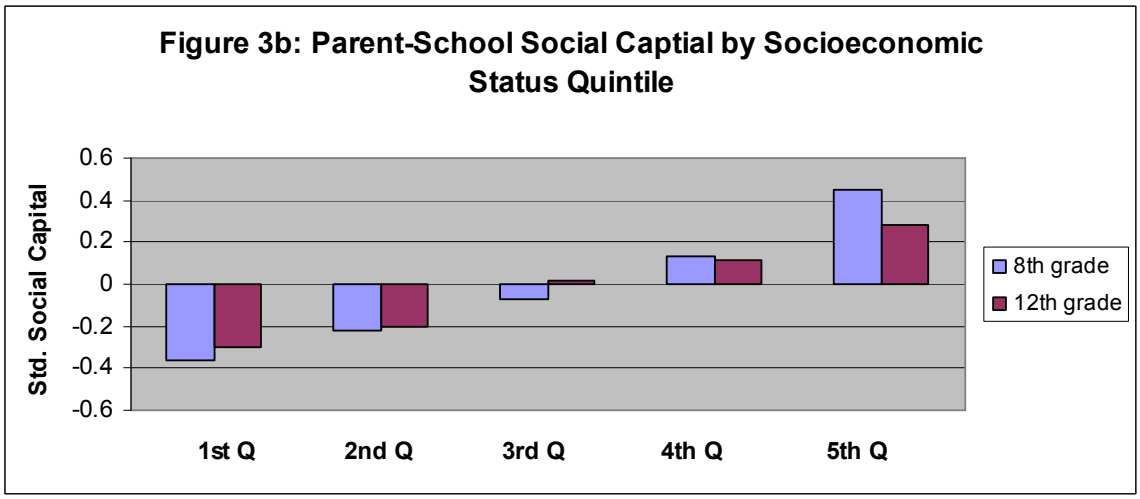
Figure 3b: Parent-School Social Captial by Socioeconomic Status Quintile
Std. Social Capital
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
1st Q
2nd Q
3rd Q
4th Q
5th Q
8th grade
12th grade

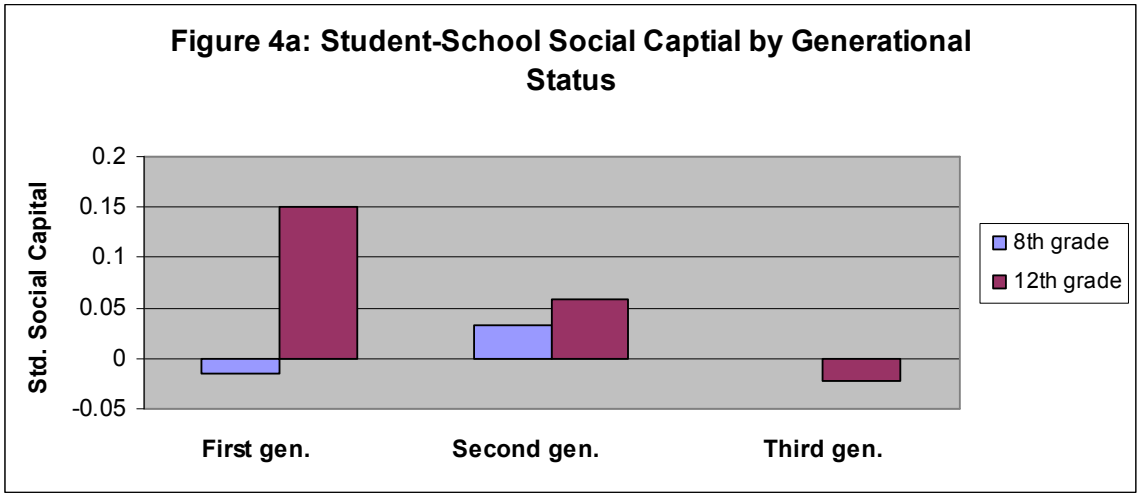
Figure 4a: Student-School Social Captial by Generational Status
Std. Social Capital
0.2
0.15
0.1
0.05
0
-0.05
First gen.
Second gen.
Third gen.
8th grade
12th grade

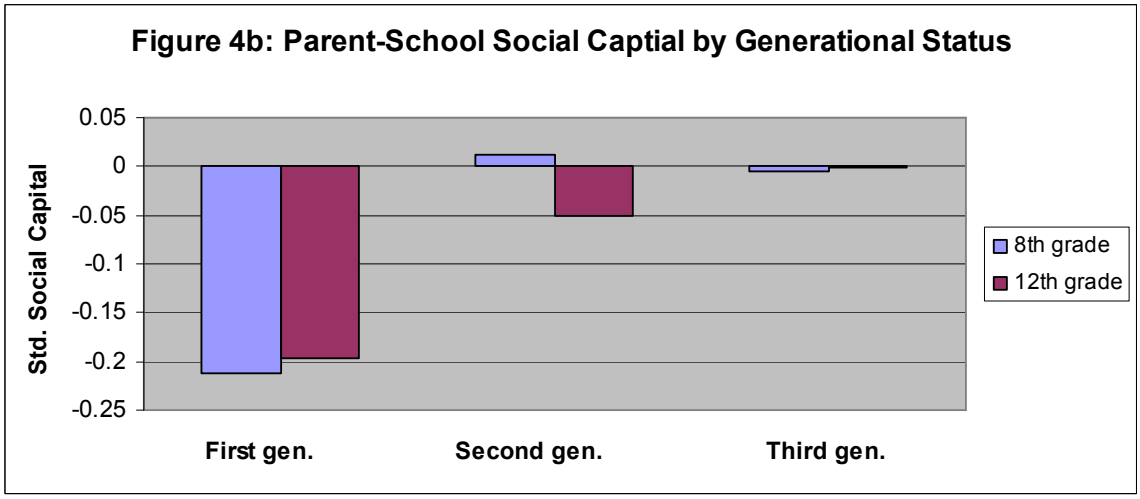
Figure 4b: Parent-School Social Captial by Generational Status
Std. Social Capital
0.05
0
-0.05
-0.1
-0.15
-0.2
-0.25
First gen.
Second gen.
Third gen.
8th grade
12th grade

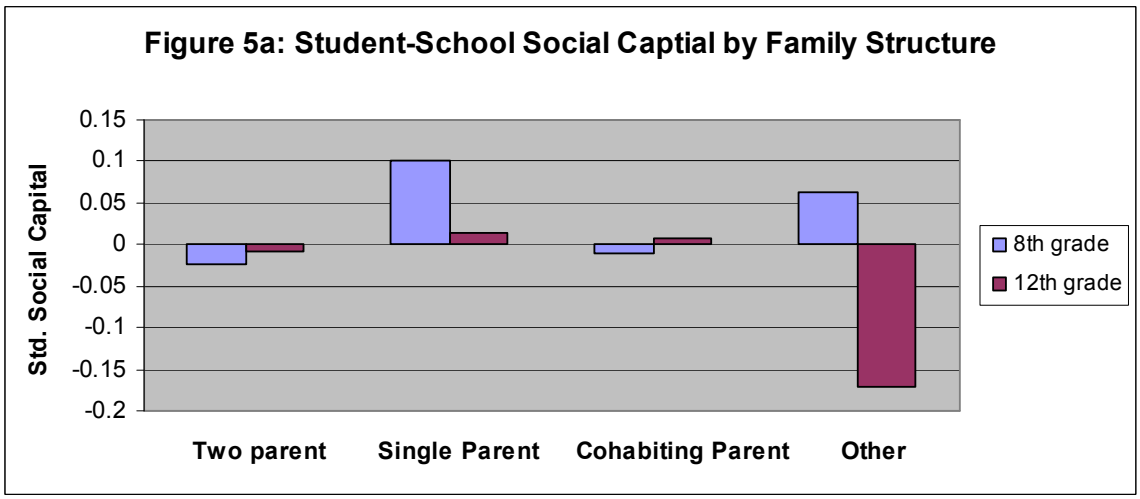
Figure 5a: Student-School Social Captial by Family Structure
Std. Social Capital
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
-0.2
Two parent
Single Parent
Cohabiting Parent
Other
8th grade
12th grade

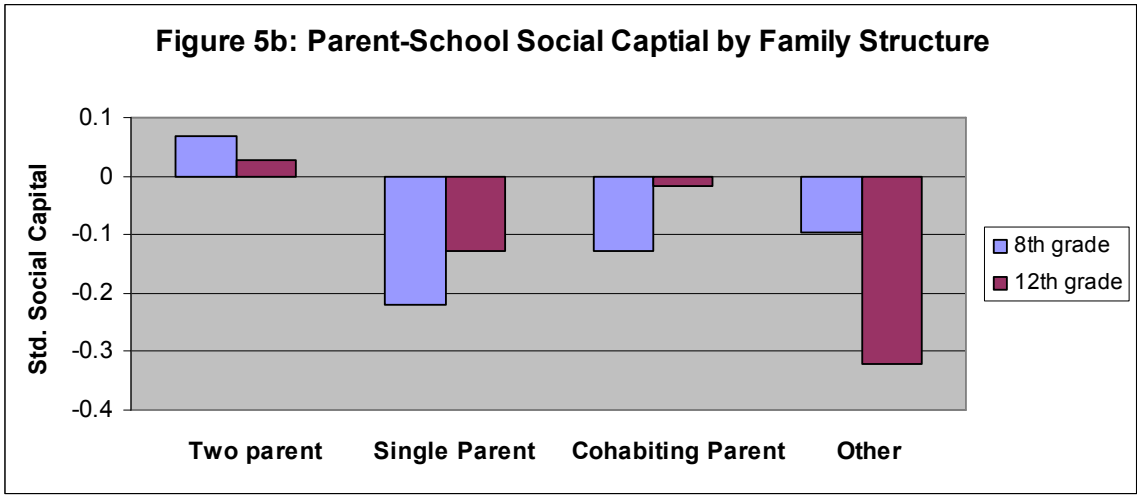
Figure 5b: Parent-School Social Captial by Family Structure
Std. Social Capital
0.1
0
-0.1
-0.2
-0.3
-0.4
Two parent
Single Parent
Cohabiting Parent
Other
8th grade
12th grade

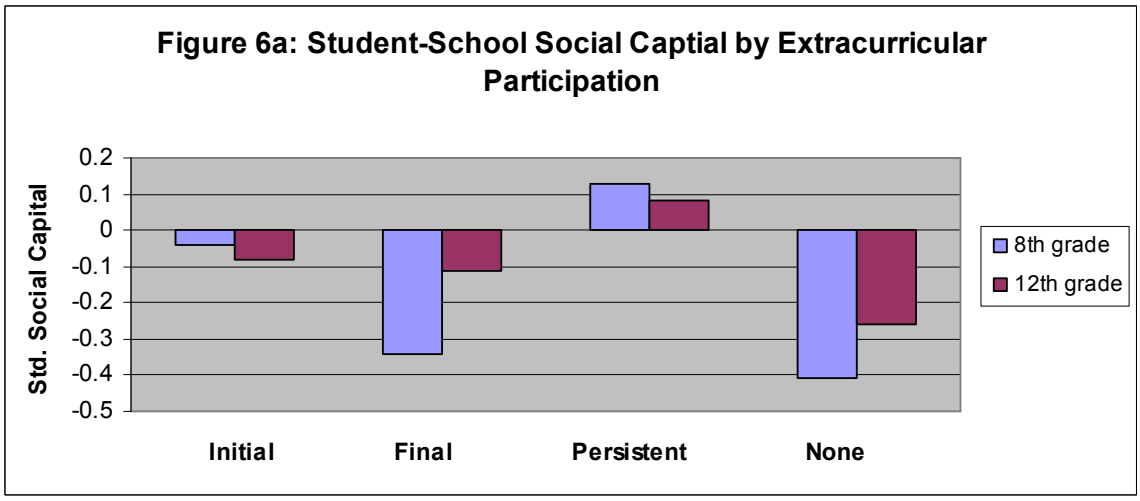
Figure 6a: Student-School Social Captial by Extracurricular Participation
Std. Social Capital
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
Initial
Final
Persistent
None
8th grade
12th grade

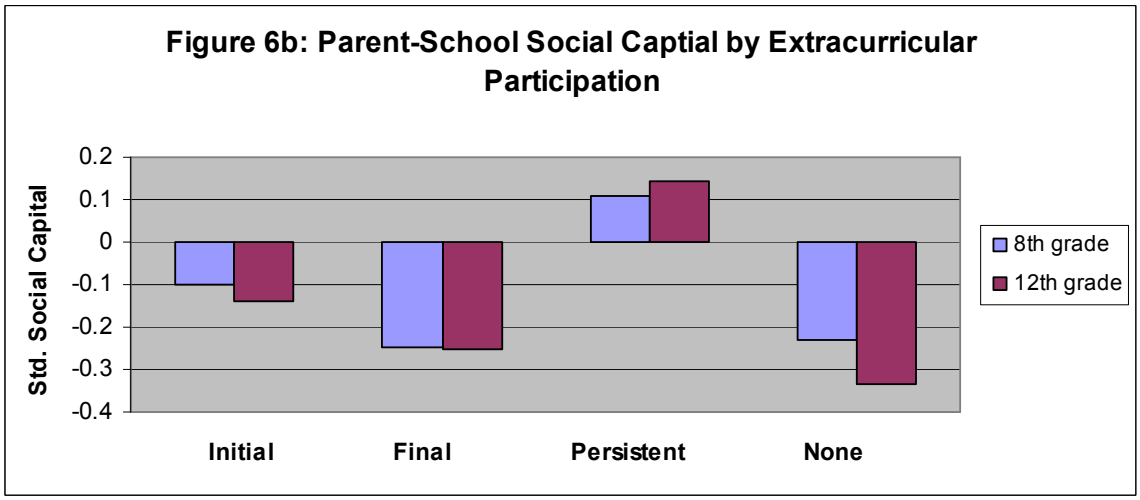
Figure 6b: Parent-School Social Captial by Extracurricular Participation
Std. Social Capital
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
Initial
Final
Persistent
None
8th grade
12th grade

Table 3: Investigating the effects of student-school and parent-school social capital on various academic outcomes[123]

Math test scores (n=8,600)								
					Including Controls			
	Separate		Together		Separate		Together	
8th grade student-school	-0.60076	*	-0.63953	*	-0.41811	*	-0.47675	*
12th grad student-school	0.213359		0.29677		0.507984	*	0.557181	*
8th grad parent-school	2.37118	***	2.01994	***	0.247505		0.182672	
12th grade parent-school	1.78601	***	1.20399	***	0.315309		0.273568	
Student GPA (n=7,410)								
					Including Controls			
	Separate		Together		Separate		Together	
8th grade student-school	-0.0145		-0.02595		-0.01954		-0.02904	*
12th grad student-school	0.081082	***	0.084562	***	0.080483	***	0.083656	***
8th grad parent-school	0.09903	***	0.072372	***	0.016215		0.005751	
12th grade parent-school	0.112483	***	0.093155	***	0.046057	*	0.04487	*
Dropping out of High school (n=11,000)								
					Including Controls			
	Separate		Together		Separate		Together	
8th grade student-school	0.866447		0.87799		0.866295	+	0.876927	
12th grad student-school	0.884116	+	0.898079		0.877312	+	0.889947	
8th grad parent-school	0.664863	***	0.73926	**	0.977491		1.013718	
12th grade parent-school	0.607139	***	0.6569	**	0.826776	+	0.824529	+
Bachelor's degree attainment (n=11,000)								
					Including Controls			
	Separate		Together		Separate		Together	
8th grade student-school	0.988374		0.967376		0.983377		0.958536	
12th grad student-school	1.173517	***	1.178576	***	1.277594	***	1.282874	***
8th grad parent-school	1.572571	***	1.435902	***	1.228982	***	1.15845	***
12th grade parent-school	1.57374	***	1.438775	***	1.335894	***	1.292024	***

+ $p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

[1] Models 3 and 4 control for students' sex, age, race/ethnicity, family structure, socioeconomic status, extracurricular participation, and generational status

[2] Models were run separately for student-school and parent-school social capital

[3] results of logistic regression (dropout and bachelor's degree attainment) are expressed as odds ratios

Table 4: Investigating differential effects of school transfers on changes in student-school social capital[1]

	Model 1		Model 2	
Student mobility				
1 transfer	-0.08079	+	-0.01467	
2+ transfers	-0.14731	*	-0.5477	**
Extracurricular Participation				
initial participation			0.085448	
final participation			0.074619	
persistent participation			0.257078	**
Interactions				
1 * initial participation			-0.07025	
1 * final participation			-0.01407	
1 * persistent participation			-0.06876	
2+ * initial participation			0.472705	*
2+ * final participation			0.556807	**
2+ * persistent participation			0.440376	+
N	10600		10600	

+ $p < 0.10$, *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$

[1] Model 1 shows the bivariate relationship (controlling for 8th grade student-school social capital), while all other models also control for race/ethnicity, family structure, socioeconomic status, and generational status

Table 5: Investigating differential effects of school transfers on changes in parent-school social capital[1]

	Model 1		Model 2		Model 3	
Student mobility						
1 transfer	-0.12996	*	-0.11424	*	-0.15803	**
2+ transfers	-0.30419	***	-0.27736	***	-0.27976	***
Race						
black			0.332692	***		
Hispanic			0.138785	*		
Asian			-0.1135			
other			0.199746			
Generational Status						
first generation					-0.1274	
second generation					-0.09632	
Interactions						
Race						
1 * black			-0.28367	*		
1 * Hispanic			0.145439			
1 * Asian			0.132133			
1 * other			0.525341	**		
2+ * black			-0.06683			
2+ * Hispanic			0.015053			
2+ * Asian			-0.1582			
2+ * other			0.307418			
Generational Status						
1 * first gen.					-0.00779	
1 * second gen.					0.406082	*
2+ * first gen.					0.140533	
2+ * second gen.					-0.13825	
N	9160		9160		9160	

+ p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001

[1] Model 1 shows the bivariate relationship (controlling for 8th grade student-school social capital), while all other models also control for race/ethnicity, family structure, socioeconomic status, and generational status