SOCIAL CAPITAL AND SCHOOL CHOICE: AN UPDATE OF COLEMAN’S
HIGH SCHOOL AND BEYOND ANALYSIS

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Abstract

This research revisits the Coleman (1988) research that initially posited the theory of social capital in education. An update, controlling for new data limitations, extends this theory into magnet and charter schools that have become commonplace in the past twenty years. Furthermore, the usage of institution-level data and on-track rates in place of dropout rates is discussed.

Most of Coleman’s results were reproduced. However, an alternative theory of familial social capital is advanced to explain dropout rate differences between school types. Higher familial social capital by knowing of choice opportunities seems to have more of an effect on school-level social capital than community.

Policy implications such as implementing a nationwide diploma program and making individual level data available to researchers are also discussed. These changes would make social capital analysis much more useful to policymakers and could result in more beneficial changes in our schools.
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Introduction

In 1988, James Coleman outlined his theory of social capital. He described this groundbreaking theory on community strength by examining the education system of the time. In the past twenty years, this theory has become a seminal work in the field of sociology, especially in education sociology. Although Coleman’s theory has been tested in other sociological subfields, the original claims that he made about education have not been revisited.

This is a shortcoming in the sociological literature because of the drastic changes in the education landscape over the past twenty years. School choice programs, charter and magnet schools in particular, have become more prevalent in many areas, and those programs have different structures and goals than traditional high schools. Thus, social capital could differ greatly from traditional schools in these special interest schools—and this is something that ought to be examined.

Furthermore, Coleman’s research used a groundbreaking study from 1980 called High School and Beyond, which tracked a cohort of students from across the country through their high school experience. This study measured characteristics ranging from parental involvement with PTAs, to student achievement on standardized tests, to teacher qualifications. However, access to individual-level data is more restricted today due to privacy concerns, such as the Family Educational Rights and Privacy Act (FERPA) regulations. Many of these effects can be measured at the school level; therefore, it is possible that schools can be seen as a “central force” of social capital. I intend to use
data at the institutional level to investigate whether social capital can be reasonably studied at the level of analysis where data are accessible.

There are two main sets of questions I seek to answer. The first deals with updating Coleman’s research from 1988. Particularly, how have dropout rates changed for traditional schools, and how do the rates for magnet and charter schools compare? This is an important question to answer since dropout rates motivated Coleman’s analysis of social capital in schools. Furthermore, what are the specific mechanisms that influence dropout rates in terms of sociological, demographic, and environmental factors? This is important in determining policy applications of this research in the hopes of decreasing dropout rates.

The second part of this research is a two-fold methodological extension of Coleman’s work. First, I address the question of whether individual-level data is key to doing social capital analysis since a national sample of individual students of the scope of Coleman has not been performed since *High School and Beyond*. Can we utilize institution-level data to measure levels of social capital present in and around those institutions? Second, I consider whether dropout rates are the best available operationalization of social capital effects on education. On-track rates, which measure whether students are making adequate progress toward graduation, represent an opportunity to refine the analysis. Do on-track rates actually measure social capital more accurately than dropout rates? This innovation could help motivate future work and extend future educational research in social capital.

In what follows, I will first review the literature, highlighting educational literature at large, then focus on Coleman’s theory of social capital and the changes in the
educational landscape that have transpired in the past twenty years. Next, I will outline my methodology in technical terms, and explain the tools I will be utilizing in my analysis. This will include in-depth motivations for the extensions I am performing on the Coleman analysis. Finally, I will discuss these results in conjunction with the prior literature and by analyzing methodological gains and potential policy extensions.
Review of the Relevant Literature

The literature in the sociology of education focuses on the factors that affect educational outcomes in our schools in two main ways. First, many authors examine environmental effects on schools. Much analysis has been done over the years on the effects of race on achievement in schools and interracial friendships (George 2007), influences of added academic support on racial disparities in education (Alfaro et al 2006), racial factors in high-achieving cohorts (Gayles 2006), and disparities in educational opportunities among races (Darling-Hammond 2004). Class differences have also been examined in studies involving retention across classes (Moller et al 2006), college attendance (Goldrick-Rab 2006), spatial inequalities in education (Roscigno, Tomaskovic-Devey, and Crowey 2006) and race, class, and gender in vocational education (Ainsworth and Roscigno 2005). The focus in these works has been on educational outcomes such as college acceptance and high school completion rates as dependent variables.

On the other hand, many other scholars choose to examine endogenous factors. For example, the strength of Parent-Teacher Associations (Epstein and Dauber 1991), the level of student involvement with faculty (Verkuyten 2002), and the effects of standardized testing and “teaching to the test” (Herman and Golan 1993) are measured with respect to those same educational outcomes of educational failure or success. These factors are more likely to have policy implications, since these are factors that can be affected more easily through changes in standard operating procedures.

The remainder of this section will describe the literature in the sociology of education that is most relevant to my research. First, I will describe James Coleman’s
(1988) theory of social capital, which is the theoretical foundation for this research. After that, I will profile magnet and charter schools because their emergence and proliferation have defined the changes in the education world since 1988. Finally, I will position these ideas in the context of my research questions before moving into my specific findings.

Social Capital in Education Research

James S. Coleman (1988) elaborated the theory of social capital, which, as opposed to physical capital (Marx 1867), is potential action that is stored in social structures but not held by any one person. Social capital is usually activated by human capital, which is the productive capacity of humans. Coleman then describes three ways in which social capital operates in today's society. First, he discusses social capital through a model of social inter-reliance. Coleman’s example of this is the open air market, where merchants cannot offer everything, but between them all, can fulfill the needs of the community. Second, Coleman talks about information channels as networks of trustworthy sources for information that they do not otherwise want to seek out. Next, Coleman explores social capital as an enforcer of norms and sanctions. Social capital helps reinforce norms through stronger community bonds. Those community bonds represent a shared group of base norms, and the members of the community thus keep fellow members in check with respect to those norms.

Coleman then uses the 1982 High School and Beyond data-set to describe schools as repositories of social capital in communities, notably using dropout rates as a quantitative measure for social capital. He then contrasts different types of schools (private versus public; religious versus non-religious) while controlling for other factors,
such as socioeconomic status, parental involvement, and parental presence at home. Coleman found that parental involvement in schools improves student performance. However, more interestingly, Coleman found that there are different levels of social capital in different types of schools.

Although this is a seminal work in social capital, the data are over 25 years old and new choices in education, like charter schools and magnet schools, are not treated in the original study. The purpose of my research is to fill in that gap in the sociological research. Next, I will profile charter and magnet schools by explicating what defines them and what the research on these types of schools has shown thus far.

Magnet Schools

A magnet school is a school that is open to all students within a district. Instead of students attending a school based on their residence, attendance is determined on other bases such as racial balancing or by competitive application. Magnet schools were first implemented in the late 1970s as a means to desegregate schools while providing students with superior and often unique educational opportunities, especially in urban contexts.

Adam Gamoran (1996) compared student achievement in magnet schools and public and private traditional schools. Utilizing 1992 data from the National Educational Longitudinal Survey, he compared gains on standardized test scores from eighth grade to tenth grade between the three groups of schools. Gamoran found that magnet schools had better results in the areas of science, reading, and social studies, while Catholic
schools improve math scores more effectively than the others. Interestingly, private, non-religious schools had little effect. In terms of the theory of social capital outlined previously, these results would imply that social capital might be higher for magnet schools than public and private, secular schools because academic achievement is associated with lower dropout rates.

In addition, Christine Rossell (2003) tested the efficiency of magnet schools in desegregating school districts, which is often a main policy goal of magnet schools. Rossell used data from 1968-1991 to investigate the efficacy of these programs over time. Specifically, she studied the voluntary magnetization of schools, which is when a school district moves from a geographic placement into schools to an application driven process where all such magnet schools in a district are open to all students, pending acceptance, as a voluntary desegregation plan. Although these programs have the intentions of improving racial diversity in schools, Rossell found that this common form of magnetization has little to no effect on the racial balance of schools. Also, she showed that the greater the percentage of magnets in a district, the greater the white flight out of that district, which results in less diversity in schools overall. When considered in tandem with Gamoran (1996), this shows that magnet schools may be more effective at producing superior student outcomes than desegregating schools.

Finally, magnet schools often liberate students from subpar neighborhood schools. In 2004, Douglas Archbald constructed a study in which he tested the “liberation model” of school choice for verity. This model assumes that poor, minority children are more likely to be trapped in subpar schools due to neighborhood factors; e.g., poor neighborhoods tend to have lower quality schools. Due to the fact that there are no
choices in those areas, children are forced to attend those subpar schools. Magnets are “liberators” in this model, allowing for those trapped children to reap educational benefits, if they are qualified applicants. Utilizing the 1991 Common Core of Data from the National Center for Education Statistics, Archbald finds that economic segregation is not decreased by school choice; rather, it is exacerbated by the pure quantities of schools further partitioning cities into homogeneous areas. This supports the findings of Rossell (2003), and supports the theory that magnet schools should be implemented not as desegregation measures, but as a pure means to higher educational achievement and social capital.

*Charter Schools*

Charter schools are schools developed around a charter, or a constitution of sorts that represents the mission of the school. This mission allows the school to act independently of the general goals of the traditional schools of the larger public school district. First established in Minnesota in 1991, charter schools offer a variety of opportunities to students, ranging from a high technology focus to a focus on interactive learning in the classroom, to even a virtual school that meets four days per week via the internet. This is possible because charters are not subject to the same state restrictions and laws that govern traditional schools.

Renzulli and Roscigno (2005) examined the explosive growth of charter schools in the late 1990s as a function of political processes. The literature review from this article very clearly outlines the growth of charter schools and the formation of “strong” and “weak” charter school legislation. Charter schools grew explosively: by 1999, 36
states and the District of Columbia had passed some charter school legislation. Furthermore, 37 of those 39 states were operating more than 2,000 charter schools, educating more than 500,000 students.

The difference between “strong” and “weak” legislation is important to understand when examining the charter school debate. “Strong” legislation is the term used to describe states that make it fairly easy to establish charter schools, and as such, have fairly large numbers of the schools. To contrast, “weak” legislation is the term used to describe states that have greater restrictions on the creation of charter schools. I have focused my research on Illinois, which is a state that has a “weak” charter school law.

Renzulli and Roscigno (2005) utilized a two-step analysis to test the adoption and proliferation of charter schools. First, they used nested regressions to test importance of different mechanisms (interstate versus intrastate) on adoption of charter school legislation. Second, they utilized a random-effects negative binomial model to predict charter school proliferation from 1991 to 1999. Renzulli and Roscigno found that charter schools spread from state to adjacent state more quickly than to non-adjacent states. For example, if charter schools were only allowed in Illinois, they would be more likely to emerge in Iowa than to “jump over” Iowa and develop in Nebraska.

Robert Bifulco and Helen F. Ladd (2005) studied parental involvement in charter schools. They hypothesized that due to the small size, autonomy, self-selection of students, competition, and sorting processes, charter schools see more active participation from parents. Using data from the Schools and Staffing Survey (SASS), the authors examined organizational and institutional factors in charter and standard schools. They
revealed that autonomy, poverty homogeneity, and more promotion of parent involvement have significant effects in encouraging parental participation in charter schools.

At this point, I have described the background necessary in order to understand the motivations for my research questions, and shown that the educational landscape has indeed changed greatly in the past twenty years. The next section will describe the methodology for how I will shed light on my research question.
Methodology

Data Sources

My data sets come from several different official sources of education data. The first major component is extracted from the Common Core of Data (CCD), provided by the National Center for Education Statistics. The CCD is a database provided by the United States Department of Education that provides general demographic and structural data about schools, students, and staff, ranging from student populations to poverty rates to student services provided by schools. Each school in the United States is a datum in the set, and each state has a separate database for each year. In my analysis, I will be utilizing the 2004-2005 wave of the survey, which is the most recent data available to the public.

The other main data source I will be using is provided by the Chicago Public Schools. There are four CPS data files that are relevant for my research. First, the district provides dropout rates for each school. The dropout rate is defined as the proportion of students who do not complete high school. Since this is the measure used by Coleman in his research, it is key to my analysis. Another data set of interest to me is the on-track rate, which I use as another measure of social capital robustness. The on-track rate is the measure of the percent of students who are making adequate progress to complete high school with their cohort. I am also going to use CPS conducted student and parent surveys to measure student comfort in school, along with parental involvement, which both are shown in Coleman (1988) to have an effect on drop-out rates.
Quantitative Methods

James Coleman (1988) utilized a logit model to measure effects of attributes of student and school life. However, this was appropriate because his dependent variable, whether a student dropped out of school, was a binary variable. My procedures differ fundamentally from Coleman because my data was a percent, thus binary logistic regression would be inappropriate.

I performed ordinary least squares (OLS) regression on my data, using dependent variables mirroring the variables that Coleman tested in his logit analysis. Since my dependent variables were continuous, not binary, this compromise had to be made. However, this does not make my work any less robust; it is just a result of using a different type of data.

Advantages and Disadvantages

There are several advantages to taking on this method of data analysis for this research question. First, institution-level data is more plentiful than individual level data since the implementation of FERPA rules. If this analysis shows that school-level data is valid to use in these calculations, many doors could open in terms of social capital analysis in other areas of sociology. Also, I recognize the importance of magnet schools in my analysis. Coleman did not separate out different types of magnet schools in his analysis\(^1\), which is a shortcoming considering how different magnets are from traditional schools.

There are some additional constraints. First, I have restricted my analysis to the Chicago Public Schools, as opposed to Coleman’s national sample. Since my research does not use a representative sample (e.g., I use only one school district), findings can not
be generalized to the national level. However, this analysis can be used as a “trial run” to see if this analysis can be extended to a national level. Also, since I am not using the same type of data or regression technique as Coleman, our results are not directly comparable. I do expect, however, that the differences will involve changes in magnitudes but not directional changes. Finally, my sample size is fairly small, especially when comparing results between types of school (n=7 for Charter schools, for example.) The main consequence of this is the fact that, although significance is noted, statistical significance at such a low sample size is not considered to be valid.
Data Analysis

Table 1 shows summary statistics for key variables for both the total sample and by school type. This is important for my hypothesis because it is imperative to know what factors differentiate each school type, and if school type influences social capital.

[Table 1 about here.]

After the school-level attributes, e.g., race, school size, socioeconomic status, and student and parent measures, were analyzed one by one for each school type, I performed ordinary least square (OLS) regressions to find out what school attributes were linked with dropout rates and on-track rates. Since I was following Coleman’s model, many dead ends were eliminated because he had faced them. The main challenges I faced were data limitations, like the lack of on-track rates for charter schools.

In order to understand the school-level indicators in my dataset, I divided schools into three groups: magnet, charter, and traditional. Magnet and charter school classifications are reported by schools to the US Department of Education while traditional schools are those that identify as neither magnet nor charter. One thing to note are differences in student populations: charter schools are significantly smaller than traditional schools, which are smaller still than magnet schools. This can affect the strength of network structures, and as a result, levels of social capital.

Dependent Variables

A student’s dropout status (e.g., whether they were still attending school) was the main dependent variable that Coleman (1988) used in his analysis as a measure for social capital. Since I am utilizing institution-level data, individual dropouts had to be
aggregated to a rate that represents the entire school. In these data, dropout rate is defined as the proportion of a cohort that does not complete high school with their peers. The CPS dropout data used for the present analysis is for the 2006-2007 school year.

These data show that traditional schools have higher dropout rates than charter or magnet schools. This could be a result of the superior funding and teaching that those schools tend to receive, or a result of self-selection; e.g., students and parents who are motivated educationally are more apt to stay in school, and also more apt to apply to a magnet or charter school.

The on-track rate of a high school is a measure reported by the CPS of the percent of students who completed enough credits to be making adequate progress with their cohort; that is, they are on-track to graduate in four years. The on-track rate is a better gauge of social capital since it takes a stronger community to keep a student on track than to merely keep them “in the building” as with measuring dropout rates. On the other hand, on-track rates are not measured for charter schools, as these schools do not have the same state-defined goals as traditional or magnet schools.

Similar to the dropout rate, we see in Table 1 that magnet schools have much higher (66.4% vs. 51.5%) on-track rates than traditional schools. This is an encouraging result since we are hypothesizing that on-track rates are a valid alternative operationalization for social capital. Since the on-track rates show similar results to that dropout rates, we know that the on-track rate could measure similar school traits to the dropout rate.
Independent Variables

Race. The race variable is defined as a percent of the total student body of a school of a certain group, e.g., Native American, Asian, or Hispanic. The statistics show that traditional and charter schools have similar racial breakdowns, with African Americans and Hispanic students comprising more than 90% of each school’s student body. However, in magnet schools, African Americans and Hispanics make up less than 70% of the school. One reason for this could be due to the qualifications necessary to matriculate at a magnet school. Qualifications for magnet schools range from IQ tests to auditions. To attend a magnet school, students need to meet stringent qualifications, have the means to apply and, if accepted, be able to transport themselves to and from the premises. The lower levels of minorities in magnets could be a result of the lack of an opportunity structure for groups that have been disadvantaged in terms of education in the past, such as African Americans, to qualify for magnet programs.

Class. In this model, we use a proxy measure for class. Class is operationalized by looking at participation in reduced and free lunch programs. Reduced and free lunch programs are social welfare programs provided by the United States government in order to ensure that students from low-income backgrounds are able to eat lunch at school every day. Using subsidized lunch programs as an operationalization for class is an assumption made by many in the Education field, including Coleman. Charter schools have a more affluent student body, with 14.8% of charter school students receiving subsidized lunch, while magnets and traditional schools have 64.5% and 69.4%, respectively, of their populations receiving subsidies. This could be a result of stronger
information networks in more affluent communities regarding the availability of charter schools.

*Student Measures.* The student measures included in CPS data were extracurricular activity participation and rigor, safety, social/emotional health, and support as rated by students. Students across the three types of schools participated in extracurricular activities at similar rates; however, the student ratings had significant differences. Charter schools were rated significantly higher in all four measures than traditional or magnet schools, probably as a result of the more focused, mission-based education that charters give to those who attend. This focus is reflected in the choice of a school based on a focused mission rather than a comprehensive school.

Also, the smaller size of charter schools could explain the higher ratings. The small size facilitates more student-teacher interaction, which could raise student feelings of support. This is a result of stronger in-school relationships.

*Parental Measures.* Parental measures of general satisfaction and satisfaction with participation opportunities are also provided by the CPS. Generally, the three groups had statistically similar satisfaction rates; however, it is notable that charter schools have a more than ten percent advantage on the other two groups. This is a reflection, again, of the increased parental participation in charter schools described in Bifulco and Ladd (2005). Since parents have chosen a charter at least partly based on its mission, the choice aspect of the school may increase parental satisfaction in that it more closely matches their educational preferences.
Regression Analysis: Dropout Rates

The main focus here is an Ordinary Least Squares (OLS) regression that regressed measures of social capital (dropout and on-track rates) on the school level indicators listed above: race, class, and measures of student and parental satisfaction.

[Table 2 about here.]

Model 1 has a number of interesting characteristics. Enrollment, extracurricular involvement, and the race variables were the factors that turned up as statistically significant at the 95% level. The r-squared for the regression is 52.7%, which for an empirical study, is extremely high. This is an indication that many of the factors I have identified are relevant to dropping out, and thus important to the measurement of social capital.

However, enrollment has a negative coefficient in this regression. This implies that larger schools have lower drop-out rates. However, note that the dropout rate is measured as a percentage, not a raw number. The marginal drop-out rate of one student at a small school is much larger than at a larger school. I propose that this finding, which goes against Coleman’s argument that tight-knit, small communities encourage the development of social capital, is merely an artifact of school size.

Extracurricular involvement also had a negative coefficient. This is highly intuitive because extracurricular activities allow students to invest more time in school, and provide relationships that might compel some would-be dropouts to stay in school. That “safety net” would be an indication of social capital; thus, this coefficient makes perfect sense in the context of this problem.
Student-reported support was significant at the 90% level, as well. This is important to note since this is a direct measure of the strength of relationships that the student believes it has at the school; the more strong relationships within the school for the student, the more likely it is for that student to stay in school. This is social capital in action; the networks created by the school act as a safety net to keep students in school.

The significance of all races in this regression was highly surprising. However, looking at the results of the regression, the constant of the regression is not significantly different from zero. I hypothesize that the race variables are acting as a constant in the regression because all four rates are significantly different from zero, meaning that having any kind of race raises dropout rate. This is an artifact of a collinearity problem, since the race variables sum to 1 for all cases.

To allay these concerns, I ran a second regression without the white population as a variable. Coefficients from this analysis are found in Table 2, under Model 2. The main difference between this regression and the last in terms of statistical significance is that parental satisfaction is statistically significant at the 90% level. I believe that this is more of a reverse effect; that is, because drop out rates are lower, parents become more satisfied. In this case, we will reference the fact that regressions do not prove causation; they prove correlation. Also, the constant is now significantly different from zero, meaning that the problem involving collinearity in race has been ameliorated to a sufficient extent.
Regression Analysis: On-Track Rates

The use of on-track rates is an extension of Coleman’s research based on the theory that on-track rates might be a better proxy for social capital than drop out rates. This is motivated by the hypothesis that higher social capital is required to keep a student on track to graduate with their cohorts than is required to keep them in school for however many years they need to complete their degree. The test for this would be to see what insights we can get from the on-track rates when regressing them against the same variables as model 2^3, with the exception of working with charter school data. Table 2 shows the coefficients and p-values for the regression described above. The r-squared for this regression is 76.8%, which is extremely high for an empirical analysis.

Extracurricular involvement was one of two variables to be significant at the 95% confidence level in this regression. This verifies the strong link that evident between keeping a student in school and their involvement in the school. This finding says that if a student is involved in school activities, they are more likely to stay in school and graduate on time.

Student support was also significant, but at the 90% confidence level. This shows that an increase in support for students decreases dropout rates. A potential reason for this is that if students feel more supported, they have stronger community ties to the school, and are more likely to go to class and make adequate progress towards graduation. Help and encouragement are correlated with positive feelings toward school and motivating students to succeed.
The similarity in results to the initial dropout regressions indicates that on-track rates are a valid operationalization of social capital as much as dropout rates are. The greater r-squared for this regression shows that the independent variables explain on-track rate better than they explain dropout rate, which indicates more robustness. However, in using on-track rates, the major weakness is that the data are not widely available. This is an issue that must be weighed heavily by researchers in education.

From these results, one can extend many of the statements and revelations from Coleman (1988). In the next section, these will be discussed both for social capital theory and potential policy implications in the field of education.
Discussion of Research Findings

In the introduction, I posed four questions: (1) Have dropout rates in traditional schools changed since 1988? And how do the dropout rates for magnet and charter schools compare? (2) What specific sociological, demographic, and environmental factors influence dropout rates in the three types of schools? (3) Can we use institution-level data to measure levels of social capital present in and around the three types of schools? (4) Do on-track rates actually measure social capital more accurately than dropout rates? The data analysis in the upcoming section provides the answers, which will now be discussed.

Dropout Rates in Schools

Coleman’s (1988) analysis of different types of schools differed slightly from mine in terms of schools studied. He compared public and private schools, while breaking private schools into different groups, namely non-denominational and Catholic schools. He argued that of the various schools described a continuum of social capital, with private, non-denominational schools on the low end, the Catholic schools on the high end, and public schools in the middle.

[Figure 1 about here.]

Coleman attributed the varying degrees of social capital to the communities that form around these schools. Specifically, private schools that are not associated with the church are often geographically removed from a physical community. Students are required to commute, which weakens the link of relationships within the school. Public
schools, on the other hand, are geographically defined around a neighborhood or community, which reinforces the community within a school. This builds a stronger community through a number of ways. For example, neighborhood residents have a vested interest in maintaining high quality of schools whether or not they have family members in those schools. Finally, parochial schools are more integrated with a religious community, which is a cohesive group within a neighborhood. For example, the dropout rates may be lower in Catholic schools because teachers are part of the same religious community, and may have more communication about the student with parents.

Figure 2 depicts my hypothesis for how magnets, charters, and traditional schools would compare on a similar typology. Based on the Coleman theory, I hypothesized that public schools would have higher social capital than charter schools, and in turn higher than magnet schools. Traditional public schools are formed around a region, or neighborhood, which is a community in itself. However, charter and magnet schools do not pull their students from a certain region; they can come from anywhere in the school district. Therefore, the lack of proximity limits the amount of community reinforcement that the school can enjoy. However, charter schools can serve specific neighborhoods in some cases, which contrasts with magnet schools that draw student populations from the whole city. Therefore, my hypothesis is that charter schools serve local communities better than magnet schools that accept students city-wide.

[Figure 2 about here.]
However, magnet and charter schools are both schools of choice; therefore, parents must possess a certain amount of knowledge in order to be informed of these choices. Thus, I alternatively hypothesized that charter schools would have more social capital than magnets because charters are smaller, which would allow for a tighter community to form around them. Furthermore, since parents choose charter schools in part because of their mission, parents might be more likely to participate in the school, leading to lower dropout rates and higher social capital.

[Figure 3 about here.]

The data give some support to my second hypothesis, although it is not unequivocal. The choice schools had significantly lower dropout rates (see Table 1) than traditional schools. However, magnet schools had slightly lower dropout rates than charter schools. This can be explained by considering student populations of both school types. Magnet school selection is governed by a strict, academically driven application process that stresses the selection of the most qualified candidates academically or otherwise, as in arts magnets, while maintaining high levels of diversity in the school population. Those candidates who excel academically are less likely to drop out. On the other hand, charter schools do not have purely talent-based admissions. Many factors, ranging from neighborhood location to gender to even interest in singing in a choir, can be considered in charter school admission. Both school types, however, represent a more selective student body than the traditional school because of their application processes.
Another alternative hypothesis is that charter schools represent a private school opportunity in the public sphere. That is, charter schools can have independent mission statements (as defined in the charter) and admission requirements that are similar to the conditions at many private schools. For example, one would see higher income levels and possibly high concentrations of white students in city private schools. However, the community for the charter school may be stronger, since they have such strong, central missions. Since the total number of charter high schools is low, table 3 provides socioeconomic status and race data for an oversample of charter schools, which includes all charter schools (Elementary, Middle, and High Schools) in the CCD for 2004-2005.

Table 3 provides evidence to support the hypothesis of the charter acting as a private school in the public sphere. The rate of free or subsidized lunch in charter schools is extremely low when compared to those numbers in Table 1 for traditional or magnet schools. However, the level of racial diversity in charter schools is closer to the lagging traditional schools than the extremely diverse magnet schools. Thus, from there, I can draw the conclusion that the families choosing charter schools have enough social capital know about these opportunities, as with private schools, and seek that alternative means to education in the subsidized public schools.

Factors Influencing Dropout Rates

In Coleman (1988), much of the analysis of the factors influencing dropout rates involved data on the families and living environments of students. The main variables he
examined were presence of parents in the household and the expectation of parents going to college. First, the presence of both parents in the household lowered the probability of a student dropping out. Second, a parental expectation of a student going to college also lowered the probability of a student dropping out of school.

I was not able to accurately measure these variables because of a deficiency in the data. However, I tested a number of other variables that I hypothesized would be integral in affecting dropout rates in schools. Of those I tried, extracurricular participation was the most significant in terms of affecting social capital positively, and dropout rates negatively. This supports the Coleman hypothesis that community bolsters social capital. This is a finding that is very useful to policymakers since extracurricular activities, unlike familial characteristics like parental presence at home can be easily stimulated by through increased program funding.

_Institutional Versus Individual Level Data_

One of the weaknesses of this dataset was the fact that individual-level data was not available as in the _High School and Beyond_ data that Coleman utilized in his analysis. It was unclear as I began my research whether using institution-level data would be robust enough to pinpoint areas that would be associated with changes in dropout rates. Thus, one of the goals of my thesis was to determine whether institution-level (aggregated) data yields the same information about social capital as Coleman’s individual-level data.

After looking at the results of my regression, new lessons about what leads to educational failure and success have been gained. Obviously, I made compromises to
operationalize my variables in order to do a parallel analysis to Coleman (1988). However, the question of the robustness of the higher level analysis is still cloudy.

To understand the shortcomings of institution-level data, consider the following scenarios. In scenario 1, we have one student that receives free lunch, is white, and participates in extracurricular activities, along with a black and a Hispanic student who participate in extracurriculars. However, scenario 2 depicts a situation where we have an African American student who neither receives free lunch nor participates in activities, a Hispanic student who receives free lunch and participates in activities, and a white student who participates in activities, but does not receive free lunch.

[Table 4 about here.]

This table depicts two sets of students who are completely different demographically, yet they are characterized by similar school level statistics. The problem with the institutional-level data in this case is that the student situations are completely different, yet in my data, they would be represented by identical data points.

Although I do believe that using institution-level data was valid, it is not the better choice for analyzing factors involved with student dropouts. The implications of this illustrative table can be generalized to a basic problem with institution-level data. Individual-level data is more nuanced, and allows a deeper level of analysis into the factors that translate into success in school. However, due to privacy concerns, individual-level is much harder to come by than institution-level data. I conclude that
individual-level data is definitely preferable, but both the costs and benefits of using each data type need to be weighed in order to make the best choice.

*Alternative Operationalization of Social Capital: On-Track Rates*

The last question I tackled in my analysis is whether on-track rate could be used as an alternative operationalization for social capital. The on-track rate of a school, to recall, is the percent of students in a school making “adequate progress” towards graduation, defined in Chicago as accumulating five passing grades in required classes per year. In the data analysis, Model 3 can be compared to model 2 to get a sense of the difference between the operationalizations (see Table 2). Using this information, I will consider the pros and cons of this alternative way of thinking of social capital, and make a decision as to which is superior in the context of my analysis.

As discussed in the data analysis section, the results are mostly identical. However, there are several reasons why the on-track rate is a better measure of social capital than the dropout rate. First, the on-track rate intuitively is a more robust measure of social capital. It takes more time and energy to keep a student on-track to graduate with their cohort than to merely keep them in school, which is essentially what the dropout rate measures. Furthermore, on-track rates do not have an inverse relationship with social capital as dropout rates do, which makes them a more direct comparison.

In addition, in examining the models in Table 2, the r-squared for on-track rates is higher than the corresponding dropout rate model. This implies that, given that the factors tested are equivalent, the independent variables explain more of the variation in on-track rates than in dropout rates. Thus, one could view the on-track rate as being a
more reliable model of social capital, given the assumption that our explanatory variables are comprehensive in terms of the factors that go into social capital.

However, there are two major weaknesses to this form of analysis. First, on-track rates are highly dependent upon the diploma requirements of the school, which vary by state and sometimes by district as well. Since requirements differ from state to state, on-track rates can mean different things in different states, and thus can measure different things. For example, say one needs 32 credits to graduate in New Jersey, but in New York one needs 28 credits plus passing grades on state-level tests. Being on track in New Jersey means passing eight credits, while in New York it means passing seven credits while passing the state level tests. Thus, comparing on-track rates between New York and New Jersey in this case is a comparison between two very different numbers.

The second issue is a corollary to the first; since charter schools often have different measurements of achievement besides credits and test scores, comparing charter schools with the other types is meaningless. There is no reliable way to measure on-track rates for charter schools. These problems, combined, illustrate the main issue with on-track rates: it is extremely hard to compare them across schools.

Given these deficiencies in measurement, which is a better operationalization, on-track rates or dropout rates? Although the on-track rate is theoretically more robust than the dropout rate, the inaccessibility of comparable data for the different school types precludes its use. Reimagining the on-track rate as a function of test scores rather than academic progress may help with comparability; however, the only way that the on-track rate can definitely be used as a robust nationwide measure would be to institute federal course requirements. Therefore, the best measure currently available is the dropout rate⁴.
Although it seems like the methodological “advances” I made are not as robust as the Coleman’s original study, it is important to consider my findings in the context of current research conditions. For education researchers, individual–level data are increasingly difficult to access because of privacy legislation passed since the 1980s. However, what this methodological work shows is that individual level data such as the High School and Beyond set that Coleman used is important to the study of social capital in education.

**Theoretical and Policy Implications**

*Relevance of Findings for the Development of Social Capital Theory.* In this paper, I innovate by using institution-level data to measure social capital in corresponding communities, which can open doors in terms of using institutions to measure social capital in other areas. For example, consider a study of immigrant worker communities where social capital is measured by the unemployment rate. The best measurement of social capital in these communities would be to do a survey of individual workers and regress lifestyle factors on whether they are unemployed, using a logit model. However, that might be too much of an undertaking or might be too hard to acquire that data, but cultural centers might aggregate similar data. Scholars could aggregate data from cultural centers about unemployment rates, community participation, and families (e.g., divorce rate, number of children) and run regressions on unemployment rates versus factors like community participation to come to a conclusion about the social capital in these immigrant communities.

The other important aspect of my findings in social capital theory is that it is not necessarily useful to just consider the community in terms of strength, but also in terms
of what factors strengthen community. Social capital has generally stayed in the academic sphere; however, since it is an important way to analyze school strength, it should be used more in application. Thus, the important lesson from my venture into social capital theory is that the levels of social capital in communities is secondary in application to learning what builds or detracts from social capital in those communities.

Relevance of Findings for Educational Policy. These findings reveal several very interesting things about dropout rates and social capital that flesh out the arguments that Coleman made in 1988. First, the importance of community that Coleman stressed cannot be minimized. Community does play a part in keeping students in school; it is a safety net of sorts. However, community strength does not tell the whole story. The fact that there are admission standards and focused missions for choice schools appear to reduce dropout rates. The main policy implication that can be drawn from this is that schools should take the time to focus their efforts into a mission statement they can rally around. This could foster more of a community, and thus, increase social capital and reduce dropout rates.

Another major policy implication involves extracurricular participation. In my regression analysis, I found that increased participation in activities decreased dropout rates, perhaps to the increased investment in the school for activities important for students. This could imply that programs such as arts and sports actually serve a purpose by compelling students to stay in school. Thus, I propose restoring and bolstering funds to extracurricular programs in public schools to give students more of a reason to think of school as more than a place of learning—to think of it as a place where they can participate in activities that they enjoy.
Finally, using the on-track rate is a proxy for social capital that measures educational success as opposed to educational failure. This rate was a more robust measure of social capital; however, there is no standardized definition of the on-track rate across districts, states, or the country. I believe that establishing national standards for high school graduation would enable schools in different states or districts to be compared, and would standardize what a high school diploma in the United States represents. Furthermore, it would enable lawmakers to see what progress students are making towards graduation, and pinpoint schools that are not making adequate gains.
Conclusion

This project was a two-faceted undertaking of examining the theory of the past and confronting the methodological and data limitations of today. First, I set out to compare the three major types of public schools—magnets, charters, and traditional schools—in the vein of how James Coleman compared public and private schools in 1988 in terms of their social capital, as measured by dropout rates (See Figures 1-3). Unlike Coleman, who hypothesized that community was the driving force behind dropout rates, I found that my results reflected an association between familial knowledge of how to apply for choice schools and lower dropout rates.

I also compared my results with Coleman’s findings that familial characteristics greatly affect dropout rates. However, the main result I found is that extracurricular involvement is associated with lower dropout rates. This could be a great argument for those interested in lobbying for more funding in the arts and other extracurricular activities since these programs appear to be key in keeping some students in school.

Furthermore, there are two things I changed in terms of methodology from the Coleman research. Using institution level data was a change I made from the Coleman research in response to a lack of individual level data that included charter or magnet schools. My analysis produced similar results to Coleman’s; however, the data are not as nuanced as when you have individual-level data. Thus, I found that although the data I used was valid for my purposes, scholars would benefit from further availability of student-level data for dropout and social capital analyses.

Finally, I attempted to use the on-track rate of a school as an alternative operationalization of social capital. I found that the measure was more robust; however,
it suffers from the problem of not being transitive from school to school, since most states have slightly different requirements for graduation. I propose that this be used as the operationalization of choice, but only after there is a nationwide standardization of high school graduation requirements or a national high school diploma.

In all, things have not changed much in schools since 1988. What has changed is the data available about schools has become much more restrictive since then. This paper is a call to action—we cannot fix the schools of America unless more data is made available to scholars and policy advocates. Numbers are needed to make a change.

Endnotes

1 This was clarified in an e-mail from Tom Hoffer (February 20th), since this methodological detail was not clearly discussed in the Coleman (1988) article.

2 A potential shortcoming to this distinction is that vocational schools are included in “traditional” programs; however, since they are more traditional in many respects than magnets or charters, the grouping is still valid.

3 Charter school data are not included because of data limitations. Revisit methods section for a full explanation.

4 However, with the advent of the No Child Left Behind (NCLB) legislation, the nationwide on-track rate may not be far away.
References


Chicago Public Schools. 2007. Cohort Dropout and Graduation Rates. Chicago, IL.

------. 2007. High School Freshmen on Track. Chicago, IL.


38:697-725.


### Table 1: Descriptive Statistics (Means)

<table>
<thead>
<tr>
<th></th>
<th>Total (n=87)</th>
<th>Traditional (n=50)</th>
<th>Magnet (n=30)</th>
<th>Charter (n=7)</th>
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<tbody>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007 Drop-out rate</td>
<td>39.4%</td>
<td>44.9%</td>
<td>30.5%*</td>
<td>34.6%</td>
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<td>2007 On-track rate</td>
<td>57.8%</td>
<td>51.5%</td>
<td>66.4%*</td>
<td></td>
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<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>(RACE)</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>59.4%</td>
<td>65.7%</td>
<td>47.5%</td>
<td>67.8%</td>
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<tr>
<td>Hispanic</td>
<td>28.4%</td>
<td>27.0%</td>
<td>31.3%</td>
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<td>White</td>
<td>7.2%</td>
<td>4.3%</td>
<td>12.9%*</td>
<td>2.8%</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>2.9%</td>
<td>1.5%</td>
<td>5.6%*</td>
<td>0.5%</td>
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<tr>
<td>Other</td>
<td>2.2%</td>
<td>1.7%</td>
<td>2.9%</td>
<td>2.7%</td>
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<tr>
<td><em>(CLASS)</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% Receiving Free or Reduced Lunch</td>
<td>63.3%</td>
<td>69.4%</td>
<td>64.5%</td>
<td>14.8%*</td>
</tr>
<tr>
<td><em>(STUDENT REPORTED SATISFACTION)</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Extracurricular Participation</td>
<td>69.8%</td>
<td>67.9%</td>
<td>71.8%</td>
<td>73.7%</td>
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<tr>
<td>Rigor</td>
<td>77.1%</td>
<td>75.3%</td>
<td>77.9%</td>
<td>87.0%*</td>
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<tr>
<td>Safety</td>
<td>80.3%</td>
<td>76.6%</td>
<td>83.2%*</td>
<td>93.2%*</td>
</tr>
<tr>
<td>Social/Emotional Health</td>
<td>63.5%</td>
<td>60.8%</td>
<td>64.5%</td>
<td>78.7%*</td>
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<tr>
<td>Support</td>
<td>68.7%</td>
<td>68.8%</td>
<td>66.5%</td>
<td>79.8%*</td>
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<tr>
<td><em>(PARENT REPORTED SATISFACTION)</em></td>
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<td></td>
</tr>
<tr>
<td>Satisfaction (general)</td>
<td>37.5%</td>
<td>36.2%</td>
<td>38.2%</td>
<td>52.7%</td>
</tr>
<tr>
<td>Satisfaction with participation opportunities</td>
<td>37.9%</td>
<td>38.6%</td>
<td>35.7%</td>
<td>52.9%</td>
</tr>
<tr>
<td><em>(SCHOOL MEASURES)</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enrollment</td>
<td>1167</td>
<td>1044</td>
<td>1505*</td>
<td>295*</td>
</tr>
</tbody>
</table>

* Represents significant difference from traditional schools at p=0.05 (t-test)
Table 2: (Regression models)

<table>
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<tr>
<th>Model</th>
<th>1</th>
<th>2</th>
<th>3</th>
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<tbody>
<tr>
<td></td>
<td>Dependent Variable</td>
<td>Dropout rate</td>
<td>Dropout rate</td>
</tr>
<tr>
<td></td>
<td>Magnet School</td>
<td>-0.03(0.05)</td>
<td>-0.03(0.05)</td>
</tr>
<tr>
<td></td>
<td>Charter School</td>
<td>-0.09(0.14)</td>
<td>-0.17(0.13)</td>
</tr>
<tr>
<td></td>
<td>Parent satisfaction (%)</td>
<td>-0.90(0.55)</td>
<td>-0.93(0.56)</td>
</tr>
<tr>
<td></td>
<td>Parent satisfaction with participation opps. (%)</td>
<td>0.4(0.57)</td>
<td>0.46(0.58)</td>
</tr>
<tr>
<td></td>
<td>School size</td>
<td>0.00(0.00)*</td>
<td>0.00(0.00)*</td>
</tr>
<tr>
<td></td>
<td>Student reported rigor (%)</td>
<td>0.00(0.01)</td>
<td>0.00(0.01)</td>
</tr>
<tr>
<td></td>
<td>Student reported safety (%)</td>
<td>0.00(0.00)</td>
<td>0.00(0.00)</td>
</tr>
<tr>
<td></td>
<td>Student reported social/emotional support (%)</td>
<td>0.00(0.00)</td>
<td>0.00(0.00)</td>
</tr>
<tr>
<td></td>
<td>Student reported support (%)</td>
<td>0.01(0.01)*</td>
<td>0.01(0.01)</td>
</tr>
<tr>
<td></td>
<td>Extracurricular involvement (%)</td>
<td>-0.01(0.00)*</td>
<td>-0.01(0.00)*</td>
</tr>
<tr>
<td></td>
<td>Asian (%)</td>
<td>2.31(1.23)*</td>
<td>0.43(0.6)</td>
</tr>
<tr>
<td></td>
<td>Hispanic (%)</td>
<td>1.99(1.11)*</td>
<td>0.12(0.23)</td>
</tr>
<tr>
<td></td>
<td>African American (%)</td>
<td>1.9(1.09)*</td>
<td>0.06(0.22)</td>
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<tr>
<td></td>
<td>White (%)</td>
<td>2.11(1.22)*</td>
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<tr>
<td></td>
<td>Free/Reduced Lunch (%)</td>
<td>-0.03(0.08)</td>
<td>-0.03(0.08)</td>
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<tr>
<td></td>
<td>Constant</td>
<td>-1.09(1.16)</td>
<td>0.82(0.36)*</td>
</tr>
</tbody>
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* Represents significance at p=0.05
Table 3: (Charter School Oversample)

Includes all schools—Elementary, Middle, and High

<table>
<thead>
<tr>
<th></th>
<th>Charter (n=24)</th>
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<tbody>
<tr>
<td>White</td>
<td>4%</td>
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<tr>
<td>Black</td>
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<tr>
<td>Hispanic</td>
<td>27%</td>
</tr>
<tr>
<td>Free/Reduced Lunch</td>
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</table>
## Table 4: (Individual vs. Institution Level Illustration)

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Free/Red. Lunch</th>
<th>Race</th>
<th>Extracurriculars?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jonny</td>
<td>Y</td>
<td>White</td>
<td>N</td>
</tr>
<tr>
<td>Jenny</td>
<td>N</td>
<td>Black</td>
<td>Y</td>
</tr>
<tr>
<td>Jamie</td>
<td>N</td>
<td>Hispanic</td>
<td>Y</td>
</tr>
</tbody>
</table>

**INSTITUTION LEVEL (aggregated)**

<table>
<thead>
<tr>
<th></th>
<th>33% Free/Red. Lunch</th>
<th>33% Black</th>
<th>67% participation</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Free/Red. Lunch</th>
<th>Race</th>
<th>Extracurriculars?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jonny</td>
<td>N</td>
<td>Black</td>
<td>N</td>
</tr>
<tr>
<td>Jenny</td>
<td>Y</td>
<td>Hispanic</td>
<td>Y</td>
</tr>
<tr>
<td>Jamie</td>
<td>N</td>
<td>White</td>
<td>Y</td>
</tr>
</tbody>
</table>

**INSTITUTION LEVEL (aggregated)**

<table>
<thead>
<tr>
<th></th>
<th>33% Free/Red. Lunch</th>
<th>33% Black</th>
<th>67% participation</th>
</tr>
</thead>
</table>
**Figure 1 (Coleman (1988)-school levels of social capital):**

Low Private, non denom.  Public  Private, Catholic  High

**Figure 2 (Community-oriented hypothesis):**

Low Magnet  Charter  Public  High

**Figure 3 (Results from this study):**

Low  Public (44.9%)  Charter (34.6%)  Magnet (30.5%)  High