Understanding School Choice: Location as a Determinant of Charter School Racial, Economic, and Linguistic Segregation

Nicholas Jacobs

Abstract
The author analyzes the revealed school preferences of parents in the Washington, D.C., and asks, “What is the main determinant of charter school choice and how does it create racial, economic, and linguistic segregation?” The author first establishes a theory of choice, which incorporates past research and adds an additional variable to our understanding of school selection—school location. Through a multivariable regression, the author tests the new proximity variable against other possible determinants and finds that parental preference for neighborhood schools significantly correlates with racial segregation. The results indicate that school-choice markets, as they currently exist, reinforce the de facto segregation patterns found in urban neighborhoods.

Keywords
charter schools, school choice, choice

Introduction
One of the most important decisions a parent makes for his or her child is choosing where he or she will go to school. Many parents typically choose that school by default, selecting the neighborhood school assigned to them by the local school board. However, the current education reform movement stresses policies that would make simple neighborhood selection only one...
of many options. Parents now have choice in a marketplace of education options ranging from intradistrict transfers, magnet school programs, to increasingly popular charter schools. Charter schools are quickly changing the educational environment as they have grown since 1991 to enroll nearly 2.5% of all children in the United States (U.S. Charter Schools, 2010).

Supporters of charter schools claim that increasing school choice will create schools that are better suited to students’ individual needs. Most notably, they claim that parents would reach their decisions on the basis of the academic quality of a school, thereby establishing competitive incentives for all schools to raise their academic performance (e.g., Buckley & Fisler, 2003; Hassel, 1999; Lubienski, 2003). However, the literature has not reached a consensus on this claim, and there is no definitive agreement on the various possible influences affecting parental choice in charter school systems. Yet research has fully determined that charter schools across the United States increasingly segregate their students along racial, economic, and linguistic profiles (Frankenberg, Siegel-Hawley, & Wang, 2010; Miron, Urschel, Mathis, & Tornquist, 2010).

Although several possible explanations for charter school segregation have emerged, scholars have noticeably ignored proximity as a potential determinant of segregation in free-choice markets. I establish an alternative theory of how charter school location systematically alters parental selection of certain schools. By establishing such a theory, I am able to account for previous revealed-preference research, which has not yet identified proximity as a causal variable. Finally, I empirically examine the relationship between the location of a charter school and the likelihood that parents will enroll their child there. I study the charter school system in Washington, D.C., and determine that racial, economic, and linguistic segregation occurs as a result of parents choosing the neighborhood charter school. This selection bias, therefore, reinforces de facto segregation patterns found within that neighborhood. The proximity theory and its empirical justification provide a competing explanation for the persistent patterns of racial, economic, and linguistic segregation found in charter schools. Such a finding challenges assertions that free markets work to deter segregation in public schools and provides insight into how policy makers can address this problem.

**Literature Review**

**Segregation in Charter Schools**

Although most scholarly work remains focused on analyzing the academic benefits of charter schools, a strong consensus has emerged that charter
schools, in their current capacity, are a “civil rights failure” (Frankenberg et al., 2010, p. 1). It was once widely believed that free market systems would dramatically alter the student populations between charter schools and traditional public schools in unconstructive ways. Researchers believed that charter schools would be able to control the applicant group by targeting academically strong students and, in doing so, remove them from the traditional public school system (Garcia, McIlroy, & Barber, 2008; Lacireno-Paquet, Holyoke, & Moser, 2002). Despite the fear of this process, known as cream skimming, studies have shown that markets have created a different imbalance, one in which charter schools serve disproportionate percentages of racial minorities and at-risk youth (Eckes & Rapp, 2005; Green, 2001; Rapp & Eckes, 2007).

Frankenberg et al. (2010) concluded that more than 40% of all Black students attend charter schools, which enroll 99% minority students—nearly 3 times more than Black students served in public schools (p. 37). Miron et al. (2010) found charter schools run by education management organizations, which operate close to a third of all charter schools, followed similar trends in economic and racial isolation. And despite a wide range of laws meant to ensure that student segregation does not occur, public officials rarely enforce those standards (Frankenberg & Lee, 2003).

Charter schools with large proportions of minorities lack in the number of available academic resources and offer a less advanced curriculum than predominately White charter schools (Fuller, Gawlik, Gonzales, & Park, 2003). Despite this fact, the proliferation of charter schools across the United States continues. The general public increasingly sees charter schools as a popular alternative to traditional public schools, and they are a major reform initiative of President Obama; he has enticed states to lift restrictions on charter school growth through his 4 billion dollar “Race to the Top” federal grant program (Banchero, 2010; Nagel, 2009; U.S. Department of Education, 2009).

How Parents Choose Schools

Much of the research on charter school segregation continues to only compare the levels of segregation in charter schools with traditional public school systems rather than analyzing how individual choices contribute to these patterns (Garcia, 2008, p. 806). As a result, there is a strong understanding of how students are distributed, but there is little agreement as to why segregation exists in market systems.

Supporters praise charter schools for their educational variety, but all charter school systems in the United States share one common characteristic—parents must actively choose to seek their child’s enrollment. Parents usually
seek alternative school enrollment when they feel that traditional public schools have failed to educate their child well enough (Bauch, 1988; Greeley, McCready, & McCourt, 1976; Kraushaar, 1972). Supporters of free market reforms rely on that assumption and argue that parents are most likely to choose charter schools that have the highest academic quality. As a result, they believe that such a system increases the pressure on other schools to raise their academic quality in order to attract students (Blast & Walberg, 2004; Merrifield, 2001).

Kleitz, Weiher, Tedin, and Matland (2000) found that parents from the three dominant races in Texas (White, Black, and Latino) all chose schools using academic factors like perceived educational quality and average class size. Armor and Peiser (1998) found similar responses in Massachusetts; parents, regardless of race or economic status, overwhelmingly relied on high academic standards, curriculum, and school facilities, when determining where their children went to school. Solomon (2003) also supported the traditional belief on parental preferences. The top factor 44.8% of parents identified in choosing a charter school was the belief that there were “better teachers at [the] school” (p. 13). Even among students, who will usually have some input in the decision-making process, academic characteristics were valued highest among all races and economic classes. Vanourek, Manno, and Finn (1998) found that “good teachers,” “Teachers teach until I learn it,” and “Teachers don’t let me fall behind” were the top three characteristics students relied on in choosing a charter school.

There are two basic approaches in studying parental preferences in education. All the previously mentioned studies, which concluded that parents use academic factors in choosing charter schools, relied on questionnaires or interviews to determine what factors influenced their decisions. One possible explanation for why parents overwhelmingly cite academic quality in selecting charter schools is that most respondents know that this is an abstract concept that they are supposed to pay attention too; respondents will likely pay “lip service” to ideas like educational quality and diversity (Kleitz et al., 2000, p. 849). Although Kleitz et al., tried to control for this problem, only by analyzing the actual decisions parents made, or revealed preferences, can bias be fully removed (Glazerman, 1998).

Weiher and Tedin (2002) recognized this problem and compared the self-reported preferences of parents with their actual charter school selection. Their results showed that 60.6% of sampled parents responded that high test scores were one of the top three factors in choosing a charter school. Yet a majority of those parents transferred their child into a school that had worse test scores than the public school they previously attended. One possible explanation is that though parents may consider a host of academic characteristics, they are
most likely to send their child to a school where the average test score is about equal to their child’s (Glazerman, 1999; Manksi & Wise, 1983; Weiler, 1996). Students do not want to go to a school where they will consistently rank at the bottom of the class, yet they also see no benefit in going to a school where they are well above average. This runs contrary to the traditional assumption that parents would rationally seek the best academically performing schools, which could also possibly lead to academic segregation in charter schools.

Within the group of parents who actively seek charter school admission, it appears that parents consider other factors, besides academics, in selecting a school. Garcia (2008) studied revealed parental preferences in Arizona and concluded that elementary students enroll in charter schools that are more racially segregated than the traditional public school they left whereas high school students enroll in charter schools that are as segregated or less than the school they left. A 2009 RAND report followed a similar methodology and observed that in five major cities and two states, parents enrolled their children in charter schools that had similar racial distributions as the traditional public schools they were leaving. Black charter school students attended schools with 3.8% higher Black enrollment than their previous public school. Latino students transferred to charter schools with 5.9% fewer Hispanic students than their previous school (Zimmer et al., 2009). The authors concluded that their evidence supported a 2007 study in North Carolina, where Black students entering charter school systems were more likely to enroll in higher segregated schools (Bifulco & Ladd, 2007).

Schneider, Marschall, Teske, and Roch (1998) concluded that parents from similar social, economic, and cultural backgrounds had similar preferences in school-choice decisions. These similarities, therefore, explain why racial and economic segregation persists in the free market. Schneider, Teske, and Marschall (2000) added empirical data to that theory and found that minority and low-income parents are much less concerned that schools teach values or that they be racially diverse. Discipline and high test scores, rather, were most important when selecting a school. Lee, Croninger, and Smith (1996) also found that low-income and minority parents considered school safety more than White, middle-class families. Schneider and Buckley (2002) tracked the search queries of parents who were researching D.C. charter schools, and they too concluded that parents considered student demographics when selecting a charter school.

Fuller et al. (2003) believed that similar preferences served “as a means of unifying parents and nurturing like-minded members within an enclosed community” (p. 102). Since parents made a conscious choice, student segregation is nothing more than a reflection of their partiality. Moe (1995) further argued
that “parents cannot be counted on to make choices by reference to sound education criteria or values” (p. 26). Different races and economic classes may consider practical concerns over academic quality; since charter schools are highly segregated along racial and economic profiles, it is plausible that different races choose schools on the basis of different criteria. However, such biases in parental preferences would continue to support unequal educational opportunities (Cookson, 1992; Levin, 1989; Wells, 1993) and would violate the democratic principle of encouraging discussion over competing conceptions of how to live the good life. Parental emphasis on a school’s racial and economic characteristics may also decrease the probability that they will choose a school because of its perceived academic quality, which jeopardizes the logic behind the positive effects market competition brings to the entire public school system (Schneider & Buckley, 2002).

Theoretical Approach

What causes parents to select one school over another? How do consistent patterns of parental preference cause racial, economic, and linguistic segregation in charter school systems? Answers to these questions provide the key insights into how free market systems of school choice operate.

I begin with the theoretical assumptions on how parental choice works within a charter school system. By beginning with these simple, logical predicates I am able to walk through the choice system and create an accurate model of how parents select the charter school to enroll their child. The theoretical approach can now make valid inferences on how parental selection leads to different types of segregation in charter schools.

Parents

Parents are the principal agents in any charter school-choice model. Parents make the conscious decision to pull their child out of the traditional public school and place them in a charter school. Parents are rational actors, beholden only to their needs and desires. They will seek opportunities that best maximize the utility of their choice.

Each parent has an ideal point of utility. In hypothetical terms, every parent envisions the perfect school to send their child, a school that fulfills all possible parental preferences. The goal of each parent in the free market is to select the school closest to their ideal point. If a parent seeks admission to a charter school, the parent has consciously made the decision that the desired charter school is closer to his or her ideal point than the traditional public
school. The selection of a specific charter school in a multischool system indicates that the selected school is closer to the parent’s ideal point than any other school in the system.

**Decision Parameters**

With the single goal of maximizing their utility, parents are constrained by the rules and procedures of actual school selection. Every state and charter school system is governed by its own set of procedures, so there is no uniform process parents take part in when selecting a charter school. However, there are several commonalities between charter school systems, which have become almost universal practice. The two most widely used procedures associated with parental choice are open enrollment standards and the randomized lottery.

Open enrollment standards require that charter schools cannot discriminate against specific student populations. Specifically, charter schools cannot legally deny enrollment to any student on the basis of race, economic status, gender, or academic ability. Charter schools must accept applications of all those who are interested. There are some provisions for preferential treatment toward brothers and sisters of current attendees, but the influence this would have on the general choice process is likely negligible.

When applications for enrollment exceed the available capacity of any school, it is almost universal that charter schools select applicants through a randomized lottery. This lottery ensures that charter schools have not discriminated against specific students and ensures an equal chance of selection for every applicant. The results of the lottery, therefore, accurately depict the applicant pool.

The two main parameters on parental selection establish environments of choice where parents remain the main actor. As a result, other actors, like the charter school board or individual administrators do not systematically control school-choice decisions. Rather, actual student distributions are a reflection of individual-level variables like monetary costs, available information, and preferences.

**Determinants of Choice**

Systematic differences in parental preferences cause predictable patterns of student enrollment. This theory assumes that that every parent has a unique ideal point and will choose a school closest to it. Three broad categories determine where a specific school will lie on a particular parent’s ideal point.
spectrum: the costs associated with attending a charter school, the information available to parents, and the personal dispositions of each parent.

**Monetary costs.** Since charter schools are public schools, enrollment is not associated with any type of tuition or extraneous fees. Therefore, the largest cost of school attendance, monetary, is largely absent from the discussion of charter school systems. This theory views cost variables as strictly monetary. Other definitions of cost (i.e., travel, convenience) will enter the discussion of school choice under the third category of parental preferences.

**Available information.** Similar to how enrollment procedures vary between different charter school systems, information variables will vary with different government policies. For example, the time spent researching and visiting different schools is a function of how frequent and detailed charter school districts make their accountability reports. In this theoretical approach to parental decision making I will assume that information costs do not vary among patterns.

This assumption does not discredit the work of scholars who have shown that information variables, like advertising, affect charter school enrollment (e.g., Rapp & Eckes, 2007). Rather, I am able to create a model that best describes how parents act when school systems negate informational variation. Since free market principles direct the charter school movement, the ideal form of a charter school system would fully limit those informational costs. Inequalities in information among actors place some parents at a disadvantage when participating in the school choice. The market would not be free—exogenous factors, like how well a school advertises and how transparent the system is, would alter parent choices.

**Parental preferences.** When monetary and information costs are limited, parental choice is determined by the different preferences of parents. Previous work on school choice has identified several possible parental preferences like academic similarity and quality, racial homogeneity, economic homogeneity, and linguistic homogeneity. Yet different theories on how these preferences relate to school-choice decisions have consistently supported different interpretations of the same event. When theory is no longer able to explain certain anomalies, it is necessary to offer a new way of thinking about these problems.

The location of a charter school is a parental preference not often explored by school-choice research. However, the proximity of a school can have a profound impact on parental selection because it serves as a proxy variable for many other preferences: There is the time it takes to get to that school and the equating costs it might take to get there, there is the fact that the school would not be far from home in case there was an emergency, and the fact that participating in the school once the child is accepted would be far less burdensome.
than if the school were far away. The decision to choose a school closer to home represents less of a change in routine from the regular neighborhood public school for many parents.

Proximity, as a parental preference, exists regardless of race, economic status, or linguistic proficiency. It represents a series of underlying conscious or unconscious values parents attribute to the neighborhood school.

It is also possible to characterize proximity as an informational variable as well. A charter school’s location can determine how a parent comes to hear about the school; he or she may pass it on his or her way to work, see flyers in their neighborhood, or get mailers. And neighbors and friends who lived nearby a new school going up would likely discuss it. The likelihood a parent will discover a new educational opportunity will drastically increase when the school is closer to his or her home. It is more likely for charter school location to act in this manner when the charter school market is less mature. Therefore, a theory describing the ideal charter school market treats proximity as a preference variable.

**Process Results: Segregation in Charter Schools**

In a free market of school choice, parental preferences are the sole determinant of segregation in charter schools. Parents are the primary actors who, in an effort to maximize their utility, choose a school that best represents their preferences. In addition, the two processes of open enrollment and randomized lottery prevent charter schools from drastically altering their student populations. As a result, charter school populations are accurate depictions of parental preferences. The end result of school selection is that parental preferences have created segregated schools. However, selecting a racially segregated school does not imply that racial homogeneity is a parental preference. Although racial biases may have influenced a parent’s decision, this conclusion is invalid because it does not follow previous valid premises. Only if we could assume that widespread racial prejudices exist and that they significantly affects school selections, could we conclude that parents consciously segregate their children.

The theory of proximity, however, relies on the strongly tested assumption that de facto segregation exists in neighborhood demographics (Armor, 1996; Orfield, 1995a; Welch, 2007). Scholarship has firmly established this causal mechanism because it is the dominant explanation for why segregation persists in traditional public school systems. Beginning in the early 1990s school systems reverted back to a system of neighborhood school boundaries, which reinforced the demographic composition of neighborhoods (Orfield, 1995b,
Charter schools are not constrained by those same types of district boundaries and were once thought of as effective tools in creating school diversity (Finn, Mann, & Vanourek, 2000; RPP International, 2000). However, charter school location influences parents’ decisions to such a high degree that free-choice produces similarly high levels of segregation. When parents have a consistent, overriding preference for neighborhood schools, neighborhood segregation transposes itself onto charter schools.

**Hypotheses**

The above theoretical framework formulates several important hypotheses that can test the proximity theory of school selection.

**Hypothesis 1:** As a charter school enrolls more students from the surrounding area, levels of racial, economic, and linguistic segregation increase.

The location of a charter school to the parent’s home is a significant influence on whether a parent will enroll his or her child there. As a result, the widespread enrollment of neighborhood children in a charter school creates student populations similar to the surrounding neighborhood. School segregation exists because the surrounding neighborhood is segregated along racial, economic, and linguistic profiles. As the percentage of students enrolling from the surrounding neighborhood decreased, the levels of segregation would also decrease.

**Hypothesis 2:** As a charter school enrolls more students from the surrounding area, levels of racial, economic, and linguistic segregation decrease.

Although parents may have a preference for the neighborhood charter school, other preferences, like racial prejudice, direct parents to specific segregated schools within the same neighborhood. Proximity is not the dominant variable in explaining why segregation persists but is just a coincidental trend in school selection.

**Hypothesis 0:** There is no relationship between charter school location and segregation.

The relationship between charter school proximity and segregation are spurious and noncausal. Parents do not consider the proximity of a charter
school in the decision-making process. The percentage of students who live in the surrounding neighborhood is not related to the student population characteristics of that school.

Data and Methods

With a theoretical argument that establishes a relationship between proximity and school segregation, it is possible to empirically evaluate the assertions made. To do so, it is necessary to re-create an environment, which best represents the theoretical premises. In effect, it is necessary to study the charter school system, which best allows for parental preferences to operate freely. As argued earlier, such a system is the ideal form of a charter school district because it equalizes the market of choice and empowers individual actors to the greatest extent. In addition, to fully test the proximity theory, I study a market where de facto housing patterns are least likely to influence parental choice.

Charter Schools in Washington, D.C.

I propose that the charter school system in Washington, D.C., best meets these criteria. Public law created the D.C. Public Charter School Board in 1996, and it received universal oversight and authorizing privileges in 2007. The board manages 57 independently run charter schools in the city on matters ranging from curriculum and instruction to financial stability. Close to 38% of all eligible children in Washington, D.C., attend a public charter school, and enrollment levels have risen steadily over the past decade (DCPCS, 2010). Charter school growth was a major initiative of former mayor Adrian Fenty and boasts a 74% approval rating from district residents (Braun Research, Inc., 2009). The reform climate is very favorable in Washington, D.C., and, as a result, has created one of the nation’s most established charter school systems.

The D.C. Charter School Board has a host of policies that would likely disperse students around the city and, therefore, not reinforce neighborhood demographics. All children who apply for a charter school are entitled to enrollment via a first-come, first-serve principle. When applications outnumber availability, schools must use a random lottery to select students. Such a process does not favor students who applied early or students who live in the same neighborhood—all children have an equal chance of getting the school they want (DCPCS, 2010). Public law also requires those that need additional language instruction or those who are entitled to IDEA services an equal chance of enrollment in charter schools (DCPCS, 2010; National Alliance,
In addition to the randomized lottery, all students who are eligible for free and reduced-price meals are also eligible for free or subsidized public transportation. Fuller, Elmore, and Orfield (1996) identified this policy as a key incentive in equalizing market opportunity for low-income students.

The fact that D.C. is a relatively small, urban district also encourages greater mobility in charter school selection. Washington, D.C., encompasses a 69 sq. mile area and a single school district. The challenges presented in crossing the city to get to a charter school with better academics or more diverse population are not nearly as great as larger metropolitan areas with more limited choice. Nor are the tradeoffs between choosing a closer charter school over a potentially more desirable school nearly as great as they would be in suburban or rural districts. The time, energy, and material costs are more limited than any other charter school district, which means that if charter school location consistently influences Washington, D.C., parents, then proximity will influence parents elsewhere. This decision rule would only increase levels of segregation as charter school enrollment increases.

**Empirical Models**

Using the Washington, D.C., charter school system, I am able to conceptualize the proximity theory into regression models and test the revealed preferences of parents. Four regression models will be presented, which will calculate the levels of correlation between the four commonly perceived determinants of school choice.

**Model 1: Traditional model of parental choice (academic similarity)**

\[
\text{Racial segregation} = f(\text{academic similarity, student economic [charter school] composition, student linguistic composition})
\]

The above regression model will consider each school’s level of racial segregation and determine whether it is a function of the other three possible choice determinants. The model will show whether preferences for academic, economic, or linguistic homogeneity cause racial segregation. If racial segregation is correlated with academic similarity, then parents create racially segregated schools by grouping their children based on their academic ability. If racial segregation is not a function of any of the possible determinants, then other market forces segregate students; racial segregation is not caused by parents choosing to send their children to academically, economically, or...
linguistically similar schools but is rather a function of other influences. This could indicate that parents actively seek racially segregated schools or that an unknown force is at work.

Model 2: Traditional model of parental choice (academic quality)

\[ \text{Racial segregation} = f(\text{academic quality}, \text{student economic composition}, \text{student linguistic composition}) \]

Although the first model operates under the assumption that parents are most likely to select a school that, on average, tests at a similar level to their child, the second model assumes that parents consistently seek admission to the best-performing charter schools. Supporters of charter schools operate within this postulation, so in order to fully test the validity of the proximity hypothesis, this possibility is also tested. To do this, I substitute the academic similarity variable with an academic quality variable. The regression will test the hypothesis that a consistent preference for the highest-quality schools determines racial segregation; it will also consider the economic and linguistic preferences of parents.

Models 1 and 2 assess the traditional parental choice theory on charter school selection. Two similar regression models will test the possibility that charter school location is a significant determinant of parental choice in the system:

Model 3: Model of parental choice accounting for charter school proximity

\[ \text{Racial segregation} = f(\text{academic similarity}, \text{student economic composition}, \text{student linguistic composition}, \text{charter school proximity}) \]

Model 4: Model of parental choice accounting for charter school proximity

\[ \text{Racial segregation} = f(\text{academic quality}, \text{student economic composition}, \text{student linguistic composition}, \text{charter school proximity}) \]

Both these models test the idea that racial segregation is a function of charter school location. It supposes that any increase in the percentage of students from the surrounding neighborhood will increase the level of racial segregation in that school. A significant, positive finding for the charter school proximity
would indicate that parents, in the ideal charter school market, select schools closest to them, therefore reinforcing the de facto segregation patterns found in the neighborhood.

I was able to conduct these four tests by collecting public information data through the D.C. Charter School Board. In the 2009-2010 school year, 11,343 charter school students who lived in Washington, D.C., took a D.C. Comprehensive Assessment System (DC-CAS) exam. A FOIA request provided the math and reading scores; racial, economic, and linguistic demographics; and residential zip code for each of those students.2

Table 1 lists the population characteristics of the students who took a DC-CAS exam during the 2009-2010 school year. Schools can exempt LEP (Limited English proficient) students from state standardized tests because of English deficiency; this not only lowers the percentage of LEP students who take the test but consequentially lowers the percentage of Latino students who are in the DC-CAS population (Amrein & Berliner, 2002, p. 39; Jennings & Beveridge, 2009). This also inflates the percentage of Black students who are in the sample. Overall though, the sample represents the demographic characteristics of the total D.C. charter school system.

The data set presents each student’s reading and math exam scores; racial, economic, and linguistic data; and the zip code where they live. I recoded the exam scores from the written score (below basic, basic, proficient, and advanced) to an ordinal scale, with lower numbers representing lower scores and higher numbers representing higher scores. The academic similarity variable, used in Models 1 and 3, represents the standard deviation for each school’s DC-CAS

<table>
<thead>
<tr>
<th>Table 1. Descriptive Differences in Student Sample and Annual School Performance Report Demographics.</th>
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<tbody>
<tr>
<td>DC-CAS (D.C. Comprehensive Assessment System) sample</td>
</tr>
<tr>
<td>Percentage Black Students</td>
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<tr>
<td>Percentage Latino Students</td>
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<tr>
<td>Percentage White Students</td>
</tr>
<tr>
<td>Percentage limited English-speaking (LES) Students</td>
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<tr>
<td>Percentage limited English-proficient (LEP) Students</td>
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</tbody>
</table>
exam scores on math and reading. Academic quality is the average, numerical score for each school on those same exams.

Demographic data were also recategorized as a dichotomous variable. Levels of racial segregation are determined by coding students as either “Black” or “non-Black” and taking the average to determine the level of segregation in each school. The student population’s economic composition is determined by coding students as either “low economic status” or “high economic status” and calculating the standard deviation to determine the level of economic segregation in each school. Student linguistic composition is similarly determined by coding students as either “limited English proficient” or “English proficient” and computing the standard deviation to determine the level of linguistic segregation in each school.

Finally, the data set distinguishes students who lived in or adjacent to the zip code in which they attend school from those who lived out of their school’s zip code. I was able to determine the percentage of students who lived in, adjacent to, and out of the zip code in which they attended school. These data serve as the charter school proximity variable in Models 3 and 4. Means and standard deviations for each school were then calculated.

Each of the 74 different charter school campuses served as a case in the regression models. The proximity variable also indicates that 64% of D.C. charter school students attended a charter school close to their home. The mean value for racial, economic, and linguistic characteristics of the schools is comparable to the mean values of the student sample. This indicates that varying school size did not adversely affect the representative accuracy of my model. Using each school as an individual case is an valid and precise measure of actual D.C. charter school populations and allows for more parsimonious regression models to be used.

Table 2. Descriptive Statistics of Sample Schools.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Academic (reading)</td>
<td>74</td>
<td>2.36</td>
<td>0.69</td>
<td>1.65</td>
<td>3.04</td>
</tr>
<tr>
<td>Academic (math)</td>
<td>74</td>
<td>2.27</td>
<td>0.75</td>
<td>1.40</td>
<td>3.37</td>
</tr>
<tr>
<td>Economic homogeneity</td>
<td>74</td>
<td>0.73</td>
<td>0.38</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>Linguistic homogeneity</td>
<td>74</td>
<td>0.07</td>
<td>0.13</td>
<td>0.00</td>
<td>0.50</td>
</tr>
<tr>
<td>Proximity</td>
<td>74</td>
<td>0.64</td>
<td>0.23</td>
<td>0.08</td>
<td>1.00</td>
</tr>
<tr>
<td>Racial homogeneity</td>
<td>74</td>
<td>0.87</td>
<td>0.20</td>
<td>0.18</td>
<td>1.00</td>
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<td>Independent variable</td>
<td>Traditional school choice, Model 1</td>
<td>Traditional school choice, Model 2</td>
<td>School choice proximity variable, Model 3</td>
<td>School choice proximity variable, Model 4</td>
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<tr>
<td>Academic similarity (reading exam)</td>
<td>−0.01 (0.28)</td>
<td>—</td>
<td>0.06 (0.28)</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Academic similarity (math exam)</td>
<td>−0.30 (0.22)</td>
<td>—</td>
<td>−0.34 (0.22)</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>Academic quality (reading exam)</td>
<td>—</td>
<td>−0.07 (0.12)</td>
<td>—</td>
<td>−0.10 (0.08)</td>
<td></td>
</tr>
<tr>
<td>Academic quality (math exam)</td>
<td>—</td>
<td>−0.06 (0.08)</td>
<td>—</td>
<td>−0.01 (0.12)</td>
<td></td>
</tr>
<tr>
<td>Economic homogeneity (limited English-speaking student [LES] SD)</td>
<td>−0.03 (0.15)</td>
<td>−0.05 (0.15)</td>
<td>−0.05 (0.15)</td>
<td>−0.08 (0.15)</td>
<td></td>
</tr>
<tr>
<td>Linguistic Homogeneity (limited English-proficient [LEP] student SD)</td>
<td>−0.73 (0.11)***</td>
<td>−0.76 (0.10)***</td>
<td>−0.76 (0.11)***</td>
<td>−0.80 (0.10)***</td>
<td></td>
</tr>
<tr>
<td>Proximity to school (students in/adjacent to school zip code)</td>
<td>—</td>
<td>—</td>
<td>0.16 (0.08)**</td>
<td>0.15 (0.08)*</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>1.22 (0.22)</td>
<td>1.30 (0.17)</td>
<td>1.11 (0.22)</td>
<td>1.15 (.18)</td>
<td></td>
</tr>
<tr>
<td>N = 74</td>
<td>$R^2 = .45$</td>
<td>$R^2 = .48$</td>
<td>$R^2 = .48$</td>
<td>$R^2 = .48$</td>
<td></td>
</tr>
</tbody>
</table>

*p < .10. **p < .05. ***p < .01.
Results and Analysis

The results of the regression analysis strongly support the proximity theory of school choice. Parental preference for the neighborhood charter school is a significant predictor of racial segregation levels because de facto housing patterns replicate themselves in neighborhood charter schools. In addition, the revealed preferences of parents in Washington, D.C., indicate that a school’s academic characteristics are not significant predictors of whether a student will choose a certain charter school.

The charter school proximity variable presents the most important result from the regression analyses. The finding in Models 3 and 4 indicate that levels of racial segregation significantly and positively correlate with the percentage of students enrolled from the surrounding neighborhood.

In the Washington, D.C., charter school system an average Black student attends a school that is 92.22% Black. When the proximity variable is set at the mean value (64%), Model 3 shows that the average school is 90.91% Black—roughly equal to the level of racial segregation determined by the expose index method. The model accurately predicts the degree to which a school segregates students along racial lines by the proportion of students it enrolls from the nearby vicinity. The model can, therefore, accurately predict the level of segregation when the percentage of students enrolled from the surrounding area changes. If a school enrolls only 30% of its student population from the surrounding area, the percentage of Black students decreases to 85.47%. This distribution would actually represent a desegregated charter school system because D.C. public charter schools enroll, as a whole, about 84% Black students.

In addition, both models show that as schools increase the amount of students who live nearby the racial segregation will increase. If preference for the neighborhood charter school were to increase so that 80% of enrolled students lived in the surrounding neighborhood, 93.31% of the student population would be Black. This increase theoretically depicts a system where the number of charter schools has increased. Therefore, there are more neighborhood schools for parents to select, which would further segregate charter school students.

These results strongly support the de facto housing segregation hypothesis. Racial segregation exists in D.C. charter schools, and the regression models attempt to decipher what factors are causing these population trends. The ultimate, revealed preference of parents is that they select schools surrounding their homes. Neither academic similarity nor academic quality correlate with increased racial segregation. Therefore, though parents might consider academics when selecting a school, its influence is not widespread enough
to cause the current population trends. The only two variables that predict the levels of racial segregation are linguistic homogeneity and proximity. Although the causal theory behind proximity is firmly rooted in the de facto housing hypothesis, housing patterns also explain how the linguistic variable functions. Linguistic enclaves are just as likely to emerge as racially distinct neighborhoods (e.g., Iceland & Scopilliti, 2008). Not only do children live closest to a high-LEP school because of linguistic influences, they also select these schools because of an overwhelming preference to attend the neighborhood school.

The empirical analysis also explains this relationship. The regression models indicate that the degree of linguistic segregation in a charter school correlates with levels of racial segregation. The racial group acting as the dependent variable in the regression models is Black students. All four models show a significant, negative relationship between linguistic diversity and racial segregation; thus, as the percentage of LEP students increases the level of Black segregation decreases. However, in D.C. charter schools, 35.12% of LEP students attend a school where the majority of students also require additional English language instruction; 5.11% of LEP students are in schools where more than 90% of their peers are nonproficient in English too (District of Columbia Public Charter School Board [DCPCS], 2010). Although Black students negatively correlate with linguistic diversity, non-Blacks positively correlate. Since Latinos make up the majority of non-Black students in D.C. charter schools (75%), it is reasonable to assume that Latinos attend schools where there are higher percentages of LEP students. However, it is unreasonable to assume that this is because of underlying preferences linguistic homogeneity; such conclusions would be circular in logic. The models do show relationships between racial segregation, linguistic segregation, and charter school location. Therefore, whereas informational cost variables or linguistic preference variables could explain the choice of a LEP student’s parent, the models alternatively predict that a strong preference for neighborhood schools reinforces linguistic segregation in certain charter schools.

The relationship between racial segregation and proximity can also expand to explain similarly high levels of economic segregation. The correlation between low-income students and racial minorities was a major finding of the most recent Civil Rights Project study on charter schools (Frankenberg et al., 2010). The level of racial segregation in a given school fundamentally relates to levels of poverty. Economic status certainly has an effect on where an individual lives, and as the models show, where someone lives determines where he or she will attend school. Using the most dominant form of segregation, racial, the models are still able to generate logical conclusions on how proximity determines economic and linguistic segregation as well.
It is important to note a second finding from the regression analysis. The four regression models seek to determine whether academic similarity or quality have causal relationships with racial segregation in charter schools. Models 1 and 3 analyze the degree of academic homogeneity in each school and measure the pattern of school choice against other plausible factors. Ultimately, the degree of similarity in reading and math scores on the DC-CAS exam has no significant impact on where a parent sent his or her child. Models 2 and 4 show that a school’s academic quality is also unrelated to racial segregation, signifying that neither measurement of academics had any effect on determining racial distributions in schools. Consequently, any variation between D.C. charter schools’ academic performance is not a result of parental choice. This supports the multiple conclusions made by other studies that cream skimming does not take place in market-based systems (Eckes & Rapp, 2005; Green, 2001; Rapp & Eckes, 2007) and that academic differences between charter schools are school based, not enrollment based.

The weakness of academic similarity and quality’s influence runs contrary to the belief that academic standards would drive charter school competition and selection. Although parents may consider a charter school’s test scores in making decisions, ultimately most students rely on other factors, namely, school location.

**Conclusion**

Scholars have consistently reported that charter schools throughout the United States segregate students along racial, economic, and linguistic profiles. As the charter school movement quickly becomes the catch-all solution for education reform, we are only now beginning to understand some of the implications of a market-choice system. To actively seek and eradicate all types of segregation that exist in public schools, we must first understand the causes of such population patterns. The proximity theory of school choice breaks from the most commonly held assumption that parental preference for racial homogeneity segregates students. Rather, this study provides an alternative theory of how free-choice markets allow segregation to persist in charter schools. Through an analysis of more than 11,000 students in the Washington, D.C., public charter school system, my models show that racial segregation is a function of neighborhood de facto segregation.

This research continues to support the notion that other market forces influence parental decision making, which may have serious consequences on the logic of how charter schools improve public education as a whole. In addition, the theory outlined in this study presents a more approachable understanding of school segregation; one that government policies can solve and does not require
a mass change in how people think about race. We must actively seek to eradicate all types of segregation that exist in public schools; though every child who learns to read or who graduates from high school is a great accomplishment, reforms must focus on providing the ideal environment for students. Current charter schools systems do not create that ideal environment and allow widespread segregation to exist, which almost always produce unequal opportunities, breed intolerance, and advance destructive stereotypes.

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Notes
1. See Gutmann (1987) for a discussion of the democratic authority of education. An unregulated market that allowed racial bias to persist would be similar to the “state of families.”
2. Students who attended a D.C. charter school, but did not live in Washington, D.C., were exempted from this study. These students’ parents were most likely teachers or administrators at the charter school and, therefore, follow an irregular procedure for school selection.
3. I combined students who lived in and adjacent to their school’s zip code because the size of each zip code varies and because the location of each student’s home within the zip code is indistinguishable. The in/adjacent variable is broken down as following: 36.94% live in the same zip code and 29.47% live in an adjacent zip code.
4. This number is calculated from the DCPCS (District of Columbia Public Charter School Board) annual performance report. It is a weighted average of each schools demographic data, known as an exposure index. See Frankenberg and Lee (2003) for a detailed methodology.

References


**Author Biography**

Nicholas Jacobs is a graduate of the University of Mary Washington in Fredericksburg, Virginia. He has previously presented his work at the Virginia Social Science Association conference and is a winner of the National Pi Sigma Alpha essay competition. He currently teaches social studies in Stafford County, Virginia.