Parental Preferences for Charter Schools in North Carolina: Implications for Racial Segregation and Isolation

Working Paper 243
National Center for the Study of Privatization in Education
Teachers College, Columbia University
September 29, 2020

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Abstract

We use information on the charter school choices made by North Carolina families, separately by race or ethnicity, who switched their child from a traditional public school (TPS) to a charter school in 2015-16 to explore how such choices affect racial segregation between schools and racial isolation within charter schools. We find that the movement of white, but not minority, switchers to charter schools increases racial segregation between schools. Further, using a conditional logit model to estimate revealed preferences, we find that the value parents place on the racial composition of individual charter schools differs by the race and income of the switchers. As a result, even after we control for other valued aspects of charter schools -- such as distance from the previous traditional public school and the charter school's mission, academic performance and services offered -- the differential preferences of the switchers reinforce racial isolation within charter schools.

This research was supported by the National Center for the Analysis of Longitudinal Data in Education Research (CALDER), which is funded by a consortium of foundations. For more information about CALDER funders, see www.caldercenter.org/about-calder. All opinions expressed in this paper are those of the authors and do not necessarily reflect the views of our funders or the institutions to which the author(s) are affiliated. This paper is a more recent version of a paper circulated under the title "Choosing Charters in North Carolina: What do Parents Value?" The authors are grateful for the comments of readers and anonymous reviewers of the earlier version.

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Suggested citation: Helen F. Ladd and Mavzuna Turaeva, Parental Preferences for Charter Schools in North Carolina: Implications for Racial Segregation and Isolation, Working Paper 243, National Center for the Study of Privatization in Education, Teachers College, Columbia University, September 29, 2020, accessed at http://ncspe.tc.columbia.edu/working-papers/WP243.pdf.

1. Introduction

Parental choice is at the center of the charter school movement. Unlike most traditional public schools, all charter schools are schools of choice with no assigned students. Among the arguments for parental choice are that parents have a right to choose schools for their children, that parental choice will lead to a better match between the educational needs and goals of their children and the schools they attend, or that parental choice will put competitive pressure on traditional schools and, thereby, spur them to improve. On a more negative note, parental choice may lead to greater racial and ethnic segregation. Given the centrality of parental choice to the charter school movement, the purpose of this paper is to enrich our understanding of the choices North Carolina parents make among the charter schools available to them with an explicit focus on the choices made by three (overlapping) groups of students: underrepresented minority students (including black students), black students, and white students. [1]

In prior research, we have documented the contribution of charter schools to racial imbalance between schools throughout North Carolina (Clotfelter et al, 2020) and have highlighted the increasing racial isolation of students in charter schools over time (Ladd et al, 2017). In the present paper, we use data on all North Carolina students who switched from traditional public schools to charter elementary or middle schools for the 2015/16 school year to explore two interrelated research questions. The first, and most straightforward, question concerns the extent to which the decisions of the switchers increase racial segregation across schools. For this analysis, we compare the racial mix of the chosen charter school to the racial mix of the traditional public school that each switcher leaves behind, separately by racial group. We find that by switching to charter schools that are whiter than the traditional public schools

they leave behind, white switchers contribute to racial segregation across schools. In contrast, the movement of underrepresented minority students to charter schools does not increase racial segregation and may slightly reduce it. Even though many minority switchers choose charter schools with high minority shares, such shares are often lower than those in the traditional public schools they leave behind.

For the second research question, we take as given the decision of a family to move a child from a traditional public school to a charter school and use conditional logit models to determine the value that different racial and economic subgroups place on specific characteristics of charter schools. The racial and ethnic mix of the students in each charter school is our primary interest, but we also include charter school characteristics that are of interest in their own right and might be correlated with a school's racial mix. These include the academic performance of the school's students, the distance to the charter from the student's traditional public school, whether the school provides lunch or transportation services, and the charter's distinctive mission or approach.

Although our empirical methods for this second research effort are similar to those used in other recent studies of revealed educational preferences, this paper differs in several respects. First, our focus on parental preferences for a single type of choice option, namely charter schools, allows us to identify clearly defined choice sets for each switcher. Second, we examine charter school choices throughout a large and diverse state, which provides a broader perspective on parental preferences for charter schools than those generated by studies of charter choices within individual cities. Third, we examine asymmetry in preferences between groups of minority students (including black students), groups of black students, and groups of white students across a wide range of charter school characteristics, including their racial mix, average

levels of student performance, school mission, and the availability of provision of transportation and lunch services.

We review the relevant literature in section 2, describe the North Carolina context and data in section 3, and report results for racial segregation in section 4. We then explain the conditional logit model in section 5, describe the charter characteristics that parents may value in section 6 and report our findings related to the revealed preferences of elementary and secondary switchers in section 7. The paper ends with a concluding discussion.

2. Existing Literature on Racial Segregation and Parental Preferences

Racial segregation refers to the degree of imbalance of racial groups across schools. By following the movement of North Carolina students to urban charter schools in the early 2000s, Bifulco & Ladd (2007) concluded that charters increased segregation. Similar patterns have emerged in other states and districts but the pattern is not universal (Booker et al., 2005; Garcia, 2008; Weiher &Tedin, 2002; and Zimmer et al., 2009). In the highly racially segregated school systems of Chicago and Milwaukee, for example, researchers found that black students transferred to charter schools that were more racially balanced than the schools they left behind. Based on a national longitudinal data set, Monarrez et al. (2019), report small segregating average effects of charter schools but with considerable heterogeneity across states and by district type. Researchers have also found mixed segregating effects for other types of choice programs such as three choice programs in San Diego (Koedel et al., 2009) and a state-wide voucher program in Louisiana (Egalite et al., 2017).

With respect to parental preferences, the simplest approach to determining what aspects of schools parents value is to ask them. But surveys are limited because respondents often

answer in ways they believe are socially desirable and tend not to highlight how a school's demographic characteristics affect their decisions (Armor & Peiser, 1998; Zeehandelaar & Winkler eds., 2013; and Stein et al. 2009). A better strategy is to infer parental preferences from the actions they take. Studies that move in this direction include: Schneider and Buckley (2002) who inferred preferences from parental searches on an official internet site as part of Washington, DC's choice program; Adzima (2014) who examined charter school waitlists in Pennsylvania; and Reback (2008) who took a more macro approach by examining transfer applications across districts under Minnesota's open enrollment program. These authors all conclude that a school's demographic profile affects parental choices.

Recent research relies on the school choice preferences revealed by rank ordered school applications data. Examples of this approach appear in studies of the choice programs in England (Burgess et al., 2014) and in the U.S. cities of New Orleans (Harris & Larson, 2015; and Lincove et al., 2018); Washington, DC (Glazer & Dotter, 2017; and New York City (Abdulkadiroglu et al., 2017). In such studies, the researchers estimate conditional or ranked choice logit models based on the stated preferences of choosers for specific schools to determine how choosers (or subsets of choosers) value the various characteristics of schools. These and similar studies document that parents care about a number of school characteristics, including the composition of the school's students.

Finally, in one section of a broader analysis of the racial implications of charters in North Carolina, Bifulco and Ladd (2007) report results from conditional logit models that are similar in spirit to the models we report below. Their analysis is based on elementary and middle school children who switched from a traditional public school to a charter school in the years 2000/2001 and 2001/2002 within the state's five largest metropolitan areas. A significant difference

between that study and many of the studies just described is that the choices are the actual schools in which the children enrolled, rather than those that were stated as preferred in an application process. The authors conclude that the most preferred racial mix of students in charter schools for black families is between 40-60 percent black but for white families is less than 20 percent black (Bifulco and Ladd, 2007). The implication of these asymmetric preferences is that few charters will end up with racially mixed student populations. The present study further explores these asymmetries in the North Carolina context based on a much larger set of charter schools and a more complete set of school characteristics.[2]

3. North Carolina context, switchers, and choice sets

North Carolina legislation enabled charter schools in 1996 with a cap of 100 schools that was lifted in 2011. As of 2015-16 there were 159 charter schools, 15 of which were new in that year (including two online charters), and the total charter school student population was 82,730.[3] In 2016, 23,867, or 29 percent of charter school students were enrolled in predominantly white charters (those that were less than 20 percent minority) and 18,919, or 23 percent, of students were enrolled in charter schools with more than 80 percent minority students.

We focus here on the families who moved their children from traditional public schools to charters school serving elementary or middle school grades for the 2015-16 school year. We include all elementary and middle charter schools other than those that were newly established in that year because parents would have had no information on the racial mix or the test scores of the students. For the estimation model, we use lagged racial mix and performance information for the 2014-15 academic year, information that would have been available to switchers in 2015-16. All the data on students' movements, as well as charter school characteristics such as the racial mix of the charter schools and their academic performance levels, come from the North

Carolina Education Research Data Center (NCERDC). Other charter-specific data comes from charter school websites and parent handbooks.

The switchers

The starting point for both research questions is all the students in charter schools in grades K-8 in 2015-16 who were observed in a traditional public school, including those who were in a public preschool, the year before they moved to a charter school. In addition to excluding students in newly established charter schools we exclude students who came from a different charter school, from a home school, or from out of state. We also exclude from the analytic data set any switcher who does not have at least two distinct charter schools in her choice set so that we can observe the switcher making a decision.[4]

We report patterns for three groups: minority students (defined as black, Hispanic and other underrepresented minorities); black students; and non-Asian white students.[5] Although Hispanic students currently represent a rapidly growing ethnic group in the state, their numbers are too small for us report separate results for them. At the elementary level, the nearly 3000 minority switchers come from 569 public schools and the more than 1,900 white switchers come from 518 schools. The analytic sample of middle school switchers includes about 1,500 minority students and 1,200 white students from 507 and 479 traditional public schools, respectively.

The choice sets

As we explain below, the concept of choice sets is central to our models of what switchers value as they choose charter schools. To define the choice set for each switcher, we first determine the straight-line distance between each relevant traditional public school and each charter (using ArcGIS).[6] The use of the prior traditional public school has the advantage of allowing us to use fixed effects to specify switchers who have identical sets of charter schools

from which to choose. We find that only 5 or 6 percent choose schools that are more than 20 miles away from the current school, which makes 20 miles a reasonable boundary for each choice set.

4. Do the choices of switchers increase racial segregation?

Our focus in this section is whether the members of each racial group choose charter schools that have higher or lower proportions of minority students than the traditional public schools they left. Table 1 shows the patterns.

Consider first the white switchers at both levels of schooling. While about 15 percent of white switchers at the elementary level moved to a charter with a higher share of minority students (and about 13 percent at the middle school level), a full two thirds at the elementary level (and 72 percent at the middle school level) switched to charters with lower shares of minority students. This pattern implies that as they move to charter schools, white students on average contribute to greater racial segregation. The story differs for minority (and for the subset of black) switchers. About 30 percent of minority switchers at both levels chose charters with student racial compositions very similar (that is, minority shares within +5/-5 percentage points) to the schools they left. Moreover, smaller proportions of the minority or black switchers chose charters that had higher minority shares than those who chose charters with lower minority shares. Thus, the choices of minority students do not lead to greater racial segregation.

These descriptive patterns imply that it is the average choices of white families, and not those of black or minority families, that cause charter schools to increase racial segregation. One might wonder, however, whether such patterns simply reflect the availability or lack thereof of nearby charter schools. As we show in appendix Table 2, further analysis based on conditional

logit models with statistical controls for distance measures and the log of enrollment generates patterns that are consistent with the simple descriptive patterns.

5. Model of revealed preferences.

Turning to our second research question, we estimate conditional logit models to determine which charter school characteristics switchers value. In a standard multinomial choice model, the analysis would typically focus on the characteristics of the choosers, such as their income, race, or gender, with the goal of determining which groups are more likely to favor one option over another. In the conditional logit model developed by McFadden (1974), the focus switches to the characteristics of the choice options. In our case, that means the characteristics of the charter schools, such as the racial mix of the students in the school, the achievement level of its students, the distance to the charter and various other characteristics that differ across charter schools. By choosing a specific charter with certain characteristics over other charter schools, the family is revealing its preferences for those characteristics. When many families make choices among charter schools that differ along a number of dimensions, it is possible to infer preferences from the estimated coefficients of the conditional logit model.

One convenient feature about working with charter school choices is that the set of charter schools available to each family is quite well defined. If travel distance to a charter were not an issue, in principle each family could choose any charter school in the state. Because distance matters, however, we have restricted each family's choice set to the charter schools located within 20 miles of the public school in which the child was enrolled in the previous year and control statistically for the distance to each charter school in the choice set.

Each family *i* that switches their elementary-level child to a charter school in a particular year from the *j*th traditional public school (TPS) has precisely the same set of charter schools from which to choose, namely the charter schools offering elementary grades within 20 miles of the public school. Families with children in a different traditional public school would have a different choice set that may or may not be overlapping with that of the families in the *j*th TPS.

Within a choice set, a parent has a choice of charter schools indexed *c*= 1,……n. We assume that each switcher *i* currently in the *j*th traditional public school TPS derives utility from each charter school as follows:

$$Uijc=Vijc+\varepsilon ijc$$

where $Vijc$ is a deterministic linear function of the vector X_{ijc} of the characteristics of charter schools in the relevant choice set. Assuming that the family chooses the charter school that provides the highest utility, and that we make certain assumptions about the nature of the error term,[7] we can use a maximum likelihood procedure to estimate the following model, where P_{ijc} is the probability that the ith switcher from traditional public school j chooses charter school c:

$$\log Pijc1-Pijc= i,j=1I,JXijc\beta+\delta j+\varepsilon ic \qquad (1)$$

Importantly, the model includes fixed effects (δ_j) for each traditional public school from which the switchers come. Thus, the estimates of the vector β are based on variation in choices made by switchers from the same traditional public school, that is, those that have identical choice sets. We estimate the models separately by racial and economic subgroups to determine if the preferences of different racial and economic groups differ.

Several points about this approach are worth noting. First, the model requires that the choice set of each chooser includes at least two charter schools. Second, none of the charter schools should be such close substitutes that the switchers would be indifferent between them.[8] Third, the use of fixed effects for each traditional public school means that one cannot include in the model any characteristics of the public schools from which the switcher is departing. Fourth, some switchers have a richer set of choices than other choosers given the geographic distribution of the charter schools. In general, that should not matter as long as there are sufficient choices within each switcher's choice set. In some cases, however, limited choices along some dimensions of interest may lead to large standard errors and imprecise estimates. Finally, the basic model sheds no light on the factors that affect the family's initial decision to take a child out of a traditional public school.[9]

One potential concern about this approach is that not all children who apply to a specific charter can be admitted if the charter school is oversubscribed. As a result, the chosen charter school that we use to infer preferences may not always coincide with the switcher's most preferred charter school.[10] The fact that oversubscribed charter schools are required to accept students by lottery, however, substantially mitigates this concern. While it introduces error into the selection process, the error, at least in principle, affects all the choosers with the same choice set in the same way and should not bias the results.[11] Of somewhat greater potential concern is that some choosers may have differing amounts of information about specific charter schools and may have more or less capacity to pursue a thoughtful search process among the charters in their choice set (Villavicencio, 2014). We address that concern in part by estimating the models for different subsets of choosers defined by their race/ethnicity and income. Within any subgroup of

choosers, the ability of families to gather and process information should be relatively similar which makes it possible to isolate average preferences for each subgroup.

6. Charter school characteristics that parents may value

We include in our full-choice models five major characteristics of charter schools that parents may value: the racial mix of students, travel distance, academic performance, provision of lunch and transportation, and the school's mission. In addition, we include as a control variable the size of each charter (specified as the natural logarithm of enrollment).

Racial mix of students in the charter school. Of central interest to this study is the value parents of different groups place on the racial mix of students in the charter schools. In particular, we are interested in whether the revealed preferences regarding the racial composition of a charter school's students differ by the race of the chooser. We classify charters into five categories based on the percentages of minority students in the school, starting with 0-20 percent minority and rising to 80-100 percent minority. The base category in all the models is 40-60 percent minority so that the estimated coefficients in the conditional logit models are interpreted relative to a reasonably balanced racial mix of students in a charter school.

For the conditional logit model, it is important that the choice sets of both the minority and the white switchers include charter schools with a variety of racial mixes. Table 2 addresses this issue by reporting distributional information in two ways. In Panel A, which shows the distribution of available charters, each entry is the number of charters included in the relevant choice sets that have the specified racial mix of students, expressed as a percentage of the aggregate number of charters in those choice sets. Both the numerator and the denominator of this percentage count many charter schools multiple times because of identical or overlapping

choice sets.[12] That panel shows that minority switchers and white switchers at each level of schooling have very similar sets of schools to choose from and also that charters with 40-60 and 60-80 percent minority students are far less common than those with other racial mixes.

Panel B shows the distribution of the actual choices made by the switchers of each type. Striking differences emerge in this case, with minority switchers more likely to choose charters that are majority minority and white switchers more likely to choose charters that are less than 40 percent minority. Although these patterns are highly suggestive, it would be a mistake to infer preferences about the racial mixes of charters from these patterns alone because of the other valued charter school characteristics that may be correlated with a school's racial mix.

Distance to the charter school. One such factor is distance to the school. Given that local school districts do not provide public transportation to charter schools, parents must either provide their own, use public transportation, work with other parents or through the school to organize carpools, or use bus service provided by the charter school itself. Assuming transportation can be worked out, longer distances are still likely to be less appealing to families than shorter distances because of the bigger time commitment and greater inconvenience for the child and the family.

White switchers at both the elementary and middle school levels travel longer distances than minority students, a fact which most likely reflects the smaller proportion of white switchers who attend charters in cities where travel distances are likely to be shorter.[13] In any case, the full models are designed to shed light on the relative value that switchers of different types place on travel distance, and importantly, also to rule out any confounding effects that arise because of any correlation between travel distance and a charter school's racial mix of students.

Academic quality of the charter school. The extent to which parents value academic quality as they choose charter schools is central to one of the main arguments for charter schools, namely that they will improve the quality of education. They are expected to do that through some combination of the higher quality of specific charter schools and the competitive pressure that parental choice places on other schools to improve. If parents do not make decisions based on school quality, it is hard to make the argument that charter schools will improve quality. Extensive literature shows that disadvantaged minority children typically perform less well in school than more advantaged white children. As a result, the racial mix of a school might well be highly correlated with the academic performance of a school, either in fact, or as perceived by the switchers. Hence, we include measures of academic quality in part with the goal of sorting out preferences related to racial mix from those related to academic quality.

To this end, we include three categories of academic performance based on the percentages of students in the charter school achieving at or above grade level in reading and math in the charter school in the prior year. While some people might view a value-added measure of the type used by Abdulkadiroglu et al. (2017) as a better measure of school quality, our simpler measure is more readily available to parents and is more likely to be the information they use to judge charter school quality.[14] We define the lowest category schools as those with 0-40 percent below grade level and the highest as those with greater than 60 percent at grade level, with the base category 40-60 percent.[15]

Table 3 displays information on the distribution of available charter school options (Panel A) and of actual choices (Panel B) by the three school performance categories. The figure shows the aggregate set of options are quite similar across the racial groups but that the actual choices

differ markedly, with white switchers far more likely than minority switchers to choose schools with high proficiency rates.

Charter school provision of lunch or transportation. NC charter school law does not require charters to provide lunch or transportation, but some schools provide them and others do not. Of interest here is the extent to which the availability of lunch services (e.g., prepared lunch or federally subsidized prepared lunch) or transportation services (e.g., bus transportation or organized carpools) is valued by parents and affects school choices differentially by subgroup. Charters that do not provide services that are highly valued by disadvantaged families are less attractive to such families. Moreover to the extent that such services are more available in high minority charter schools than in other charters, some families may choose high-minority schools in part because those are the schools that provide the lunch and transportation services that they highly value and not simply because of their racial preferences.

We compiled information on these services directly from the web sites of charter schools.[16] (See online appendix table 3 for the distributions of available options.) Federally subsidized meals (as indicated by FRPL offered) are most likely to be provided in the highest minority schools available to each racial subgroup. At the same time, more than a third of the available schools with minority shares below 40 percent also provide subsidized lunches. Although a charter school that offers subsidized meals would also be providing lunch, not all schools that provide lunch offer subsidized meals lunch. As a result, the distribution of schools offering lunch is less skewed toward the high minority schools than that of the schools offering subsidized lunches.

With respect to transportation services, bus service is very highly skewed toward high minority schools. This pattern is in sharp contrast to organized carpools that are more likely to be offered by charters with low proportions of minorities. For example, 80 percent of the aggregate charter school choices available to minority switchers at the elementary level and more than 70 percent at the middle school level that offer bus transportation are in schools that are more than 60 percent minority. Moreover, virtually all the schools with more than 80 percent minority shares that offer bus transportation also provide subsidized lunch. This high correlation makes it difficult for us to distinguish revealed preferences for bus transportation from preferences related to the racial mix of a school's students (see section 7 below).

Charter school missions. Some people support charter schools on the ground that they increase educational options for parents. One question is the extent to which parents value the specific curricula or program options that charters offer relative to more generic offerings. Another is whether preferences over such options differ by racial group. A third is the extent to which particular missions are unique to specific types of schools defined by the racial mix of their students. Based on a review of charter school mission statements and other information such as parent handbooks available on school websites, we developed the following distinct categories of charters.[17] For each category, we report the average percent of minority students in such schools. Those shares are lowest in the schools we identified as having an innovative philosophy and highest in the schools identified as serving disadvantaged students.

- **Generic** These schools do not differentiate themselves in any specific way. (Minority share: 50.7% in elementary, 44.9% in middle)
- **Innovative philosophy**. A school employs an unusual method and approach in delivering its curriculum, which may or may not have a unique focus. Examples include project-

based learning, multi-sensory approaches, experiential or hands-on learning and inquiry-based instruction. (Minority share: 33.6% in elementary, 36.5% in middle)

- **Innovative curriculum.** Schools that integrate visual, performing, or fine arts; have a strong emphasis on athletics: or add an unusual component to their core curriculum. This category is broad and a bit amorphous. (Minority share 42.3% in elementary, 46.4% in middle)
- **STEM.** The school's curriculum is infused with subjects in sciences, technology, engineering and math (STEM). The category also includes STEAM (STEM plus art) and E-STEAM (STEAM plus entrepreneurship) (Minority share: 67.1% in elementary, 59.6% in middle)
- **Academically Disadvantaged.** Schools target students from "high risk", low socioeconomic backgrounds. Some, including KIPP schools, use a "no excuses" approach, and direct instruction. (Minority share: 85.3 % in elementary, 81.5% in middle).

7. Revealed preferences by the race and SES of switchers

We estimate separate models for each of the three racially defined groups of switchers as well as for subgroups divided by economic disadvantage. All the estimated coefficients reported in tables 4 (for elementary schools) and 5 (for middle schools) come from full models of the form of equation 1 above. We report estimated coefficients as odds-ratios so that, relative to the base category, values above 1 indicate characteristics that are valued more highly and values below 1 indicates those that are valued less highly.[18]

At the bottom of each table we report three key variables related to sample sizes for each model. The letter N indicates the total number of charter school choices within the relevant choice sets. As we noted above, this number, which is the sum of all the charters within each of the student-level choice sets, counts most charter schools many times because individual charter schools appear in the choice sets of many switchers. The number of groups refers to the number of traditional public schools the switchers come from and the number of observed choices is the number of switchers in the relevant category. The smaller is the number of switchers within a particular group relative to the number of groups the larger are likely to be the standard errors, and hence, the less precise the estimates.

Revealed preferences: elementary school choices

Columns 1-3 in Table 4 refer to all switchers, with separate estimates for each of the three racial groups. Columns 4-6 refer to economically disadvantaged switchers and columns 7-9 to economically advantaged switchers, labeled low SES and high SES, respectively, within each racial group.[19] For elementary schools, the switchers in the two economic groups do not sum to the total number of switchers by racial category because SES data are available only for switchers into grades 4 and 5. We note that the very small number of low-SES white switchers in column 6 makes it difficult to identify statistically significant effects for that group. Of interest is how the revealed preferences of the various groups of switchers differ both with respect to the racial mix of students in the charter school and the various other charter characteristics. We organize the following discussion by category of charter school characteristic.

Share of minority students. The estimates reported for the full sample in columns 1-3 reveal clear asymmetric preferences over a school's racial mix of students by race of the switcher, even controlling for other charter school characteristics. In particular, the patterns for

white switchers (column 3) indicate a statistically significant preference (as indicated by odds ratios above 1) for charters with low percentages of minority students and a strong aversion (as indicated by odds ratios below 1) to charters with high proportions of minority students. In contrast, the revealed preferences of minority switchers, as well as for the subset of black switchers, tell the reverse story: a strong preference, especially among black switchers, for highly minority charters and an aversion to charters with low percentages of minority students. The patterns of the coefficients in columns 4-9 for the SES subgroups related to the racial mix of students follow the same patterns but not all are statistically significant, perhaps because of the smaller sample sizes. The differing patterns of revealed preferences across the racial groups have an important policy implication: they make it difficult, if not impossible, for racially mixed charter schools to emerge and to be sustained. Once a charter school is disproportionately white or minority, it is not likely to be attractive to the other racial group.

School academic performance levels. The pattern of preferences of elementary school switchers over schools defined by their performance levels (controlling for the other variables in the model) is less clear than over the racial mix of a school's students. No statistically significant differences emerge in column 1 for minority students although black switchers are marginally less likely to choose high-performing charters (column 2) and white switchers are marginally less likely to choose low-performing schools (column 3) relative to schools with average performance. The patterns for the SES subgroups of minority and black students are clearer, however, as shown in columns 4 and 5 and 7 and 8. The statistically significant odds ratios below one for charter schools with both below- and above-average performance reveal that both low- and high-SES minority and black switchers are most likely to choose elementary schools exhibiting average performance. Recall that the SES subgroups refer to students

entering charter schools in grades 4 or 5, when school performance may be quite salient. Despite this greater salience, both the low- and the high-SES white switchers (columns 6 and 9) reveal no clear preference for one performance level over another. We conclude from the patterns for all three racial groups that parents who are switching to charter schools are far more concerned about other factors, including, but not limited to, the racial mix of the school's students than they are about academic performance levels.

Services offered. Included among these other factors are the lunch and transportation services offered by the charter schools. The evidence clearly indicates that minority and black switchers value the availability of federally subsidized meals and, not surprisingly, such preferences are especially strong for low SES members of those racial groups. Low-SES minority or black switchers, for example, are more than twice as likely to choose charter schools that offer subsidized lunches than those that do not, all other factors held constant (columns 4 and 5). Moreover, black switchers overall, and especially high-SES black switchers, are more likely to prefer having some lunch available to having to bring their own. In contrast, neither the availability of either lunch or subsidized lunch appears to be valued by white switchers.

We had initially expected to find that charter school switchers, especially low-SES switchers, would positively value the availability of bus transportation. The patterns, however, are not consistent with that hypothesis in that none of the coefficients of the "bus offered" variable is statistically significant. The explanation appears to be the difficulty of separating the provision of bus transportation from other characteristics of the school. As we noted earlier, within the choice sets of minority switchers (and also the subset of black switchers) at the elementary level more than 80 percent of the schools offering bus transportation are those with high or very high shares of minority students. Further, a high correlation between the

availability of bus transportation and the provision of subsidized lunch compounds the challenge of separating preferences.

The greater variation across school types in the promotion of carpooling arrangements allows us to sort out a few patterns. The main findings are that minority and black switchers tend to shy away from schools promoting carpools (see odds ratios of about 0.7 for such switchers in the full sample and about 0.5 to 0.6 in the low SES elementary sample) while white switchers as a group are indifferent between the carpooling option or the no transportation provided option. White high-SES switchers seem to disfavor the carpooling option.

School Missions. One of the avowed purposes of charter schools is to promote innovation and to expand the set of pedagogical and educational options available to parents. The inclusion of school missions in the conditional logit model permits us to determine the extent to which parents value various types of options relative to a more generic school.

Columns 1 and 3 indicate that both minority and white switchers tend to avoid schools with innovative philosophies (as indicated by statistically significant coefficients less than one) and tend to prefer schools offering an innovative curriculum. Only the subgroup of low-SES black choosers (column 8), shows any hint of preferring schools with an innovative philosophy, but even that coefficient is not significant. The clearest pattern of racial differences in preferences emerges for the schools that promote themselves as serving disadvantaged students. While minority and black switchers are more likely to choose these schools over a generic school, white switchers are far less likely to choose them, a pattern that is true for the full samples in columns 1-3 and the SES subgroups in the other 6 columns. Finally, switchers of all races, seem to prefer charter schools with a STEM orientation, although the results for the SES subsamples are less clear and not statistically significant.[20]

Proximity and school size. Not surprisingly, we find that proximity is highly valued by all groups of choosers. The base category for the distance variables is charter schools within 5-10 miles of the switcher's traditional school. As indicated by odds ratios far greater than one for the closest schools, switchers in all racial and SES groups prefer charters within 5 miles to those within 5-10 miles. The declining odds ratios below 1 for the more distant charter indicate that the odds of choosing more distant charters decline with distance. Finally, switchers are more likely to choose larger charter schools, presumably primarily because they have more openings.

Revealed preferences: middle school switchers

Table 5 reports comparable results for the switchers into middle school grades. The set-up is identical to that for the elementary school switchers, and many of the estimated patterns are similar. Nonetheless, a few points are worth highlighting. As at the elementary level, white choosers at the middle school level have a strong aversion to charters that are more than 80 percent minority (although not at this level to those with minority shares between 60 and 80 percent). In addition, the subgroup of black switchers, but not the full group of minority switchers, prefer such charters. This tendency of black middle school switchers to choose heavily minority schools is reinforced by their strong preference for schools that offer subsidized lunch, and those that offer an innovative philosophy or are oriented toward disadvantaged students. The fact that none of these characteristics is strongly valued by white switchers at the middle school level means that the decisions that charter schools at this level make about which services and programs to offer reinforces the racially isolating nature of such charter schools. Moreover, as is true at the elementary level, the quest for schools with high-performing students does not appear to be a driving force in the charter school choices of middle school switchers.

Interpretation of basic patterns

The patterns shown in Tables 4 and 5 indicate that racial and economic subgroups of parents have differing preferences for charter school characteristics. One possible interpretation is that charter schools serve a useful purpose in that their flexibility allows them to tailor their academic offerings and the services they offer to meet the desires of different groups of parents. That interpretation works best for the low-SES black switchers, many of whom appear to value access to schools with an innovative philosophy and attention to disadvantaged students. An alternative interpretation, however, leads to a more critical view of charter schools. This view reflects the following three findings. One is that parents place a high value on the racial mix of students in a school, which means that charters will inevitably end up being racially imbalanced given the asymmetric preferences of the racial groups of switchers. Another is that the differing values that racial groups place on the availability of subsidized lunch and different program characteristics exacerbates the segregating effects of charter schools. The fact that such programs are at the will of the charter operator means that charter schools can make themselves more or less attractive to disadvantaged students by their decision about what services to provide. Third, while some switchers may prefer innovative philosophies and curricula, the evidence suggests that they are not generally preferred to a more generic model of schooling.

8. Discussion and conclusion

One of the significant policy concerns about the growth of charter schools is that they may contribute to the racial segregation of schools. Using North Carolina data on switchers from traditional public to charter schools in 2015-16, we investigate this issue by comparing the racial mix of the chosen charter schools to those of the schools that choosers left behind, separately for

three groups -- all minority switchers, the subgroup of black switchers, and white switchers. The findings are clear. Charters in North Carolina do increase racial segregation, but largely as a result of the average decisions of white, rather than minority, switchers.

We then examine the pressures for charter schools themselves to be racially imbalanced. To that end, we estimate conditional logit models of the revealed preferences of North Carolina parents who switched their children from traditional public schools to charter schools for the 2015-16 school year, given that they had decided to opt out of a traditional public school. We focus attention on the value that different racial groups of choosers place on the racial mix of a charter school's students, while also shedding light on the value that they place on the academic performance of the school, on services such as the availability of a subsidized lunch, and the school's mission.

We conclude that parents not only care about the racial mix of students in particular charter schools, but that their preferences differ by their race. White parents prefer disproportionately white charter schools and have a strong aversion to predominately minority charter schools. Minority parents, in contrast, prefer schools with large minority shares, though not necessarily higher shares than in the traditional public schools they left behind. These differential preferences generate strong pressures for charter schools in North Carolina to be racially imbalanced, with many charters serving mainly white students and others serving mainly minority students, which is observably the case. The implications of such racial isolation for outcomes such as student achievement is beyond the scope of this paper (but see Author, 2017 for some evidence on that issue based on North Carolina charters, and Reardon, 2017, for achievement differences by racial and economic segregation at the national level). Regardless of their impacts on achievement, however, a significant reason for concern about racially

imbalanced schools is their undesirable social implications for the ability of white and minority children to learn to work and live together.

Although it may be tempting to attribute the patterns we describe here exclusively to racial prejudice—on the part of both white and minority parents–our findings shed no direct light on the motivations behind the preferences that their choices reveal. The patterns we observe may partly reflect a not-unreasonable desire of parents to enroll their children in schools with children who are similar to themselves in characteristics other than race, or the desire of children to go to school with their friends. In particular, we cannot rule out the possibility that what appears to be racial preferences in this study could still be confounded to some extent by preferences related to the economic characteristics of a school's students or to other school characteristics that we have not measured. None of those other variables, however, is likely to negate the basic conclusion of this study, namely that, whatever their motivations might be, white and minority choosers have asymmetric preference with respect to the racial mix of charter schools, with the outcome inevitably being racially imbalanced charter schools.

A case can be made that policymakers have a special responsibility to design publicly funded choice programs, including, but not limited to, charter schools, in ways that would minimize their contribution to the socially undesirable outcome of racially imbalanced schools. This study provides evidence that one policy option, namely requiring all charter schools to offer subsidized meals, would be a start in that direction. Regardless of how desirable that or other such policies may be, however, by themselves they are not likely to offset the strong pressures for racial isolation that charter schools promote because of the asymmetric preferences of different racial groups. Unless policymakers are unwilling to require that individual charter

schools be racially balanced, the expansion of charter schools is likely to promote racial isolation.

Endnotes

1. We use the term "racial" preferences throughout as a shorthand for preferences related to race or ethnicity. We examine the decisions of three groups: minority students: underrepresented minorities including blacks, Hispanics and non-Asian students; black students which are a subset of the larger minority group; and white non-Asian students. We exclude Asian students from the analysis to focus on disadvantaged minorities.
2. In a more ambitious study along these same lines but not restricted to charter schools, researchers used national survey data from the Early Childhood Longitudinal Study to match actual schools attended by sampled fifth grades in 2004 with other nearby schools including regular public schools, magnet schools, charter schools and various types of religious schools. The researchers estimated a modified conditional logit model that include a large range of household characteristics as well as school characteristics. Surprisingly in light of most charter school research, the researchers concluded that families do not choose a charter school because of it racial or ethnic composition and that race and ethnicity with a household do not influence its choice of charter schools (Butler at al, 2013). One possible explanation for this finding is that fewer than 1 percent of the students in their sample attended charter schools.
3. As of 2017-18, the number of charter schools had increased to 173, with 15-20 more expected to open in the following year.
4. Information on the number and characteristics of switchers and non-switchers by grade, see online appendix table 1.
5. We exclude the small group of Asian student-switchers in order to focus on minority groups that are more likely than Asians and whites to be disadvantaged.
6. Although a case can made for starting with each switcher's place of residence rather than the relevant public school, the required data on residential locations are incomplete. Hence, we are not able to determine the extent to which some families select charter schools that require either longer or shorter commutes than those to their current school. Moreover, using the distance from the traditional public schools is helpful for the conditional logit analysis described below.
7. Specifically, we assume that the errors are independent and identically distributed as a Type 1 extreme value.
8. This assumption is referred to as the "independence of irrelevant alternatives." It assumes that, in a choice between A and B, the presence of a third option, C, does not alter the relative odds of choosing between A and B. That is, the choice between A and B is a function of their characteristics, which is not altered by the presence of C. The assumption would not hold if C is a close substitute for A or B.
9. See Long (2004) for an alternative two-stage approach in the context of college choice. She first estimates a logit model to explain the decision to go to college and then estimates a conditional choice model to determine what college characteristics students value. The challenge of that approach is to determine the variables that belong in the first stage. Importantly, as Long notes, the estimates of the conditional logit model will be consistent even if the decision to attend college is endogenous as long as one can assume the independence of irrelevant alternatives. Given that such an assumption is reasonable in the context of our charter choice model we focus this paper on the conditional choice model alone.
10. Nonetheless, the chosen charter is still more preferred than the TPS, even though it may not be the first choice.
11. We explored the possibility of using information on the length of waitlists for individual charter schools as a proxy for the likelihood of being admitted through the lottery process to specific schools but the information we were able to gather for individual schools was incomplete and not reliable.
12. This aggregate for each subgroup (e.g. elementary or middle school minority or white switchers) corresponds to the number of observations in Table 3.
13. The percentage of switchers living in cities differs across races. About 58 percent of minority and 61 percent of black switchers to elementary grades live in cities, compared to only 32 percent of white switchers. Among middle school switchers, about 64 percent of minority students, 70 percent of black students and 30 percent of white students live in cities.

14. School test-based proficiency rates in reading and math are readily available in North Carolina, and are the central component of the state's A-F rankings of school quality that are highly publicized.
15. We used three rather than five performance categories because of the very small proportions of schools in the 0-20 percent and 80-100 percent categories of actual choices in those categories.
16. We used information provided on the main web site as well as information from the Parent-Student Handbooks that were available on-line. In a few cases, we telephoned the school to make sure that the information applied to the 2015-16 school year.
17. For charter schools in which a mission statement alone did not provide information on the specific approach pursued by the charter school, we consulted the entire website and additional Handbook sections. When we could not find any specific angle, we assigned the charter to the generic category. We have put the charters in non- overlapping categories. The academically disadvantaged category, however, includes some schools that may fit both that category and one of the other categories.
18. One disadvantage of presenting results in this intuitive manner is that one cannot directly determine statistical significance by comparing the reported odds ratio to the reported standard error in parentheses below the odds ratio because the standard errors refer to the estimates from the underlying log of the odds equation. For that reason, the reader should rely on the asterisks to determine whether the underlying estimate from which the odds ratio is calculated is statistically significant. Nonetheless, the standard errors still provide information about the relative variability of estimates from different models.
19. The North Carolina Education Research Data Center has specifically requested that these categories be labeled economically disadvantaged or not, rather than the more common terms of eligibility or not for subsidized school meals. We use the term low SES as a shorthand for economically disadvantaged.
20. Presumably that apparent inconsistency simply reflects the fact that the SES subsamples at the elementary level exclude switchers in the early grades.

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Table 1: Distribution of moves by difference in percent minority (percent of switchers)

source: sc-mt-sa02-V01

	Elementary			Middle		
	Minority	Black	White	Minority	Black	White
Difference in percent minority						
Much higher minority	10.2	12.2	4.5	10.4	11.9	3.6
Higher minority	18.6	20.0	10.7	18.2	20.9	9.7
Same share (base)	30.1	31.1	17.8	29.0	29.3	14.6
Lower minority	26.0	23.9	35.8	19.2	15.9	43.0
Much lower minority	15.1	12.8	31.2	23.2	22.0	29.1
Percent of switchers	100	100	100	100	100	100
Total number of switchers	2,979	2,024	1,911	1,447	960	1,236

Source: North Carolina Education Research Data Center

* All the differences refer to percentage point differences in percent nonwhite between charter and traditional public schools. Whenever the difference is negative - TPS has higher percentage of minoirty students

Much higher minority - percentage point difference is greater than 25 percentage points
Higher minority - percentage point difference is between 5 and 25 percentage points
Same level - percentage point difference is within ± 5 percentage points
Lower minority - percentage point difference is between -5 to -25 percentage points
Much lower minority - percentage point difference is less -25 percentage points

Table 2: Distribution of available options and actual choices by racial mix of the charter schools

source: sc-mt-sa02-V01

	Elementary			Middle		
Panel A	Minority	Black	White	Minority	Black	White
Percent minority						
0 to 20%	22.0	20.7	25.0	19.5	18.2	27.4
20 to 40%	24.2	25.3	25.2	29.1	29.8	27.0
40 to 60%	12.2	12.3	11.7	16.7	17.4	14.2
60 to 80%	8.5	8.7	7.9	4.2	3.9	4.9
80 to 100%	33.1	33.0	30.1	30.5	30.8	26.5
Total percent	100	100	100	100	100	100
Aggregate number of choices	51,396	33,274	31,502	21,701	14,665	16,715

	Elementary			Middle		
Panel B	Minority	Black	White	Minority	Black	White
Percent Minority						
0 to 20%	7.6	3.6	40.2	9.9	4.5	48.6
20 to 40%	10.8	8.6	38.7	13.6	12.5	32.4
40 to 60%	9.0	5.5	11.5	13.3	11.8	13.0
60 to 80%	15.7	17.0	5.9	12.2	12.6	4.3
80 to 100%	57.0	65.3	3.8	51.1	58.7	1.6
Total percent	100	100	100	100	100	100
Total number of switchers	2,979	2,024	1,911	1,447	960	1,236

Source: North Carolina Education Research Data Center

Table 3: Distribution of available options and actual choices by performance of the charter schools

source: sc-mt-sa02-V01

	Elementary			Middle		
Panel A	Minority	Black	White	Minority	Black	White
Performance at or above grade level						
0 to 40%	22.8	22.6	20.9	17.5	17.3	15.1
40 to 60%	17.2	17.9	17.8	20.3	20.7	19.2
60 to 100%	60.0	59.5	61.3	62.3	62.0	66.7
Total percent	100	100	100	100	100	101
Aggregate number of choices	50,264	32,441	30,747	21,678	14,653	16,689

	Elementary			Middle		
Panel B	Minority	Black	White	Minority	Black	White
Performance at or above grade level						
0 to 40%	25.8	28.8	2.3	19.1	20.4	1.9
40 to 60%	30.7	31.6	16.5	34.9	38.7	17.5
60 to 100%	43.5	39.6	81.2	46.0	40.9	80.7
Total percent	100	100	100	100	100	100
Total number of switchers	2,932	1,986	1,888	1,447	960	1,236

Source: North Carolina Education Research Data Center

Table 4: Elementary school switchers: Revealed preferences by racial and SES subgroups

source: sc-mt-sa07-V01

	All SES Levels			Low SES			High SES		
	Minority (1)	Black (2)	White (3)	Minority (4)	Black (5)	White (6)	Minority (7)	Black (8)	White (9)
Share of Minority Students									
0 to 20%	0.426***	0.370***	1.819***	0.380***	0.298***	1.244	0.362***	0.345***	1.526***
	(0.052)	(0.069)	(0.212)	(0.105)	(0.117)	(0.551)	(0.068)	(0.099)	(0.237)
20 to 40%	0.475***	0.787	2.212***	0.433***	0.623	1.914	0.483***	0.800	2.052***
	(0.051)	(0.119)	(0.260)	(0.109)	(0.207)	(0.886)	(0.078)	(0.180)	(0.324)
40 to 60% (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
60 to 80%	2.233***	4.793***	0.548***	2.865***	6.118***	1.319	1.254	2.801***	0.454***
	(0.275)	(0.793)	(0.111)	(0.774)	(2.105)	(0.988)	(0.256)	(0.759)	(0.131)
80 to 100%	1.525***	3.500***	0.135***	2.177***	3.967***	0.389	0.887	2.339***	0.179***
	(0.169)	(0.522)	(0.032)	(0.512)	(1.222)	(0.306)	(0.162)	(0.572)	(0.056)
Average Performance									
0 to 40%	0.993	1.000	0.630**	0.508***	0.544***	0.574	0.952	0.936	0.541*
	(0.073)	(0.086)	(0.147)	(0.068)	(0.084)	(0.434)	(0.128)	(0.147)	(0.176)
40 to 60% (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
60 to 100%	0.870	0.758**	0.964	0.662**	0.565***	1.318	0.898	1.024	1.075
	(0.077)	(0.085)	(0.117)	(0.116)	(0.121)	(0.530)	(0.133)	(0.196)	(0.182)
Lunch Options									
Bring own (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
Lunch Available	0.990	1.446**	0.993	0.905	0.871	0.998	1.335*	2.689***	0.923
	(0.104)	(0.222)	(0.095)	(0.222)	(0.306)	(0.374)	(0.226)	(0.664)	(0.120)
Subsidized	1.564***	1.269**	0.944	2.314***	2.459***	0.860	1.395***	0.913	1.019
	(0.129)	(0.149)	(0.079)	(0.437)	(0.685)	(0.317)	(0.180)	(0.162)	(0.115)
Transportation Options									
No option (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
Bus offered	1.050	1.002	1.040	0.939	0.813	1.458	1.141	1.057	0.920
	(0.074)	(0.092)	(0.104)	(0.138)	(0.151)	(0.509)	(0.141)	(0.168)	(0.127)
Carpooling Organized	0.699***	0.744***	0.914	0.549***	0.624**	0.625	0.984	0.910	1.182
	(0.055)	(0.077)	(0.075)	(0.096)	(0.136)	(0.217)	(0.123)	(0.153)	(0.130)
School Mission									
Generic (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
Innovative Philosophy	0.790**	1.153	0.619***	0.849	1.280	0.896	0.564***	0.841	0.418***
	(0.073)	(0.140)	(0.057)	(0.175)	(0.336)	(0.351)	(0.086)	(0.167)	(0.051)
Innovative Curriculum	1.476***	0.961	1.230*	1.346	0.845	0.788	1.250	0.692*	0.820
	(0.141)	(0.130)	(0.136)	(0.278)	(0.253)	(0.370)	(0.189)	(0.145)	(0.122)
Academically Disadvantaged	1.223**	1.384***	0.477***	1.681***	2.055***	0.215**	0.960	0.986	0.436***
	(0.099)	(0.139)	(0.082)	(0.265)	(0.408)	(0.156)	(0.139)	(0.176)	(0.102)
STEM	1.305**	1.306**	1.669***	1.255	1.265	0.957	1.123	1.026	1.011
	(0.140)	(0.168)	(0.278)	(0.274)	(0.327)	(0.708)	(0.206)	(0.226)	(0.230)
Proximity									
Within 5 miles	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
Between 5 & 10 miles	4.033***	3.124***	4.163***	3.600***	2.872***	5.396***	3.806***	3.432***	3.876***
	(0.249)	(0.238)	(0.330)	(0.454)	(0.427)	(1.783)	(0.383)	(0.435)	(0.405)
Between 10 & 15 miles	0.257***	0.304***	0.182***	0.309***	0.298***	0.190***	0.209***	0.292***	0.164***
	(0.022)	(0.031)	(0.018)	(0.053)	(0.061)	(0.077)	(0.031)	(0.051)	(0.022)
Beyond 15 miles	0.049***	0.049***	0.027***	0.057***	0.062***	0.046***	0.036***	0.043***	0.020***
	(0.007)	(0.009)	(0.004)	(0.016)	(0.020)	(0.024)	(0.010)	(0.015)	(0.005)
Size of Charter									
Log of Enrollment	2.192***	2.212***	1.606***	1.813***	1.776***	1.957***	2.043***	1.874***	1.638***
	(0.111)	(0.137)	(0.103)	(0.165)	(0.190)	(0.438)	(0.178)	(0.202)	(0.146)
N	48,485	31,273	27,575	12,052	8,053	1,280	15,738	9,954	14,574
N of groups	569	442	518	304	240	109	377	278	371
N of observed choices	2880	1962	1888	816	614	149	940	614	985
Pseudo R^2	0.251	0.265	0.330	0.306	0.323	0.411	0.260	0.264	0.351

Standard errors in parenthese:
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Middle school switchers: Revealed preferences by racial and SES subgroups

source: sc-mt-sa07-V01

	All SES Levels			Low SES			High SES		
	Minority (1)	Black (2)	White (3)	Minority (4)	Black (5)	White (6)	Minority (7)	Black (8)	White (9)
Share of Minority Students									
0 to 20%	0.750*	0.475***	3.003***	0.705	0.270***	3.154***	0.856	0.879	2.714***
	(0.125)	(0.118)	(0.450)	(0.165)	(0.098)	(0.908)	(0.201)	(0.305)	(0.475)
20 to 40%	0.611***	0.792	2.932***	0.605**	0.790	1.573	0.637**	0.798	3.205***
	(0.088)	(0.148)	(0.453)	(0.126)	(0.202)	(0.505)	(0.127)	(0.219)	(0.569)
40 to 60% (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
60 to 80%	5.539***	8.619***	2.122***	6.829***	9.655***	2.748**	4.094***	6.381***	1.506
	(1.022)	(2.035)	(0.550)	(1.722)	(2.968)	(1.403)	(1.156)	(2.450)	(0.474)
80 to 100%	1.203	2.018***	0.068***	1.904***	2.645***	0.058***	0.689	1.328	0.063***
	(0.181)	(0.391)	(0.022)	(0.391)	(0.672)	(0.031)	(0.161)	(0.410)	(0.027)
Average Performance									
0 to 40%	0.728***	0.675***	0.798	0.885	0.909	0.508	0.348***	0.253***	0.897
	(0.089)	(0.096)	(0.330)	(0.132)	(0.157)	(0.364)	(0.083)	(0.075)	(0.472)
40 to 60% (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
60 to 100%	0.567***	0.478***	0.579***	0.540***	0.402***	0.272***	0.553***	0.534**	0.800
	(0.072)	(0.075)	(0.096)	(0.091)	(0.083)	(0.085)	(0.109)	(0.132)	(0.159)
Lunch Options									
Bring own (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
Lunch Available	1.482**	1.352	2.641***	1.226	1.067	1.794**	1.828**	1.822*	2.733***
	(0.227)	(0.261)	(0.357)	(0.257)	(0.278)	(0.484)	(0.436)	(0.572)	(0.431)
Subsidized	1.752***	1.553***	0.978	1.898***	2.096***	1.606**	1.610***	1.146	0.859
	(0.201)	(0.242)	(0.101)	(0.324)	(0.465)	(0.365)	(0.255)	(0.266)	(0.101)
Transportation Options									
No option (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
Bus offered	0.868	0.796*	0.816*	0.746**	0.652***	0.828	1.002	1.031	0.861
	(0.086)	(0.100)	(0.098)	(0.096)	(0.105)	(0.186)	(0.154)	(0.219)	(0.122)
Carpooling Organized	0.711***	0.772*	0.535***	0.593***	0.581***	0.595**	0.850	1.082	0.519***
	(0.075)	(0.104)	(0.056)	(0.088)	(0.105)	(0.139)	(0.132)	(0.224)	(0.060)
School Mission									
Generic (base)	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
Innovative Philosophy	1.203	1.544***	0.690***	1.328*	1.636***	0.668*	1.236	1.739**	0.719***
	(0.138)	(0.224)	(0.077)	(0.206)	(0.312)	(0.155)	(0.216)	(0.409)	(0.091)
Innovative Curriculum	0.887	0.613**	0.523***	0.637**	0.494***	0.595	1.349	0.957	0.509***
	(0.131)	(0.122)	(0.087)	(0.135)	(0.134)	(0.241)	(0.291)	(0.296)	(0.094)
Academically Disadvantage	1.299**	1.606***	0.214***	1.279*	1.531**	0.385**	1.464*	1.894***	0.191***
	(0.147)	(0.220)	(0.047)	(0.179)	(0.256)	(0.154)	(0.290)	(0.469)	(0.050)
STEM	0.492***	0.536***	0.444***	0.481***	0.520***	0.993	0.630	0.738	0.390***
	(0.084)	(0.110)	(0.087)	(0.105)	(0.130)	(0.443)	(0.178)	(0.278)	(0.087)
Proximity									
Within 5 miles	1	1	1	1	1	1	1	1	1
	-	-	-	-	-	-	-	-	-
Between 5 & 10 miles	3.515***	2.789***	3.287***	2.937***	2.468***	2.175***	4.261***	3.382***	3.620***
	(0.279)	(0.267)	(0.325)	(0.299)	(0.295)	(0.440)	(0.542)	(0.546)	(0.411)
Between 10 & 15 miles	0.207***	0.218***	0.195***	0.195***	0.191***	0.241***	0.245***	0.278***	0.183***
	(0.023)	(0.029)	(0.022)	(0.030)	(0.034)	(0.051)	(0.041)	(0.058)	(0.024)
Beyond 15 miles	0.029***	0.039***	0.030***	0.035***	0.038***	0.025***	0.028***	0.052***	0.031***
	(0.006)	(0.009)	(0.005)	(0.009)	(0.012)	(0.010)	(0.009)	(0.018)	(0.006)
Size of Charter									
Log of Enrollment	1.435***	1.446***	0.780***	1.485***	1.612***	1.166	1.420***	1.330*	0.684***
	(0.110)	(0.138)	(0.070)	(0.147)	(0.197)	(0.211)	(0.176)	(0.213)	(0.071)
N	20,440	13,953	14,921	11,945	8,803	2,822	8,101	4,926	11,642
N of groups	507	365	479	374	292	192	320	195	399
N of observed choices	1447	960	1236	882	640	287	565	320	949
Pseudo R^2	0.283	0.284	0.343	0.297	0.319	0.327	0.313	0.289	0.370

Standard errors in parenthese

*** p<0.01, ** p<0.05, * p<0.1

Appendix Table 1: Characteristics of the switchers and non-switchers by grade

source: sc-mt-sa02-V01

A. Elementary school grades

	Kindergarten	
	Switcher	Remain in TPS
N	532	22,240

	1st grade	
	Switcher	Remain in TPS
N	1,335	108,391

	2nd grade	
	Switcher	Remain in TPS
N	1,354	110,071

	3rd grade	
	Switcher	Remain in TPS
N	1,441	109,646

	4th grade	
	Switcher	Remain in TPS
Reading (lag)	0.0063	-0.0017
Math (lag)	-0.0517	0.0030
Days absent	4.75	4.79
N	1,435	106,740

	5th grade	
	Switcher	Remain in TPS
Reading (lag)	-0.0166	-0.0040
Math (lag)	-0.0389	0.0089
Days absent	4.80	4.77
N	1,535	104,589

Total	7,632	561,677

B. Middle school grades

	6th grade	
	Switcher	Remain in TPS
Reading (lag)	0.0551	-0.0119
Math (lag)	0.0220	0.0015
Days absent	5.12	4.92
N	2,143	96,373

	7th grade	
	Switcher	Remain in TPS
Reading (lag)	-0.1526	-0.0172
Math (lag)	-0.1876	-0.0077
Days absent	7.00	5.67
N	1,043	105,765

	8th grade	
	Switcher	Remain in TPS
Reading (lag)	0.0513	-0.0078
Math (lag)	-0.1115	0.0021
Days absent	7.29	6.04
N	976	106,758

Total	4,162	308,896

Appendix Table 2: Estimated choices of switchers with limited controls

source: sc-mt-sa06-V02

	Elementary School			Middle School		
	Minority	**Black**	**White**	**Minority**	**Black**	**White**
	(1)	(2)	(3)	(1)	(2)	(3)
Difference in share of minority students						
Much higher minority	0.639***	1.192	0.125***	0.759*	1.227	0.177***
	(0.067)	(0.154)	(0.020)	(0.111)	(0.223)	(0.034)
Higher minority	0.640***	0.666***	0.566***	0.697***	0.843	0.631***
	(0.054)	(0.067)	(0.069)	(0.085)	(0.123)	(0.098)
Same share (base)	1	1	1	1	1	1
	-	-	-	-	-	-
Lower minoirty	0.728***	0.613***	1.334***	0.611***	0.581***	1.956***
	(0.054)	(0.054)	(0.142)	(0.071)	(0.083)	(0.265)
Much lower minority	0.119***	0.092***	1.949***	0.230***	0.216***	2.280***
	(0.009)	(0.009)	(0.244)	(0.024)	(0.027)	(0.355)
N	50,551	32,559	28,761	20,759	14,150	15,215
N of groups	597	463	535	519	371	486
N of observed choices	2979	2024	1911	1447	960	1236
Pseudo R^2	0.242	0.242	0.315	0.256	0.241	0.306

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Note: The model includes the listed variables plus controls for distance and log of enrollments (coef. not shown here. Reported coefficients are odds ratios.)

Appendix Table 3: Distribution of available charter options by services provided

source: sc-mt-sa02-V01

	Elementary			Middle		
Bus Service Offered	Minority	Black	White	Minority	Black	White
Percent Minority						
0 - 20%	10.3	9.1	15.4	15.4	14.4	25.8
20 - 40%	8.5	9.0	10.9	12.2	12.4	10.4
40 - 60%	1.0	0.8	2.8	1.6	1.4	3.8
60 - 80%	13.8	13.7	12.4	5.3	4.7	6.2
80 - 100%	66.4	67.4	58.6	65.5	67.0	53.9
Total percent	100	100	100	100	100	100
Aggregate number of choices	13,197	8,696	8,418	5,950	4,082	4,608

	Elementary			Middle		
Carpool Service Offered	Minority	Black	White	Minority	Black	White
Percent Minority						
0 - 20 %	29.7	26.9	28.5	27.4	25.5	33.9
20 - 40 %	38.1	41.6	40.7	38.4	40.2	34.7
40 - 60 %	16.8	18.2	17.3	20.7	22.2	17.1
60 - 80 %	6.0	5.3	5.2	4.6	4.2	5.2
80 - 100 %	9.5	8.0	8.4	8.9	8.0	9.1
Total percent	100	100	100	100	100	100
Aggregate number of choices	16,259	10,174	9,519	6,858	4,629	5,087

	Elementary			Middle		
FRPL Offered	Minority	Black	White	Minority	Black	White
Percent minority						
0 - 20%	10.1	10.4	11.1	8.1	7.8	10.1
20 - 40%	24.8	24.9	25.4	29.7	30.0	29.9
40 - 60%	8.0	8.0	8.7	9.6	9.9	9.2
60 - 80%	9.1	9.4	9.3	5.2	5.0	6.5
80 - 100%	48.1	47.3	45.5	47.4	47.4	44.4
Total percent	100	100	100	100	100	100
Aggregate number of choices	26,125	16,896	15,386	10,848	7,348	8,180

	Elementary			Middle		
Lunch Available*	Minority	Black	White	Minority	Black	White
Percent Minority						
0 - 20 %	19.9	19.5	22.1	17.2	16.4	22.1
20 - 40 %	26.4	27.2	27.6	30.2	31.0	28.9
40 - 60 %	11.1	11.1	10.7	15.6	16.1	13.4
60 - 80 %	8.0	7.8	7.4	4.7	4.3	5.8
80 - 100 %	34.6	34.3	32.3	32.2	32.3	29.8
Total percent	100	100	100	100	100	100
Aggregate # of choices	39,448	25,659	23,713	17,848	12,187	13,329

Source: North Carolina Education Research Data Center

* FRPL and Lunch Available are NON-EXCLUSIVE categories