

Choice in a World of New School Types

J.S. Butler, University of Kentucky
Douglas A. Carr, Oakland University
Eugenia Toma, University of Kentucky
Ron Zimmer, Vanderbilt University

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Abstract

As the school choice options have evolved over recent years, it is important to have an understanding of what family and school factors are associated with enrollment decisions of households. In this paper, we use restricted-access data from the *Early Childhood Longitudinal Study (ECLS)*, which allows us to identify household location from a nationally representative sample of individuals and to match the household to the actual school attended and other nearby schools. This matching is significant as the previous research has generally not been able to link individual households to their school enrollment decisions. Using these data, we examine the role that socioeconomic status and race/ethnicity play in school enrollment decisions. One of our more interesting results suggests that the newest public alternative (charter schools) attracts higher socioeconomic status families than do traditional public schools. Unlike traditional public schools, the attraction of the charter schools, however, appears to be race/ethnic neutral. Families neither choose the charter schools because of their racial/ethnic composition nor does household race/ethnicity influence the choice of charter schools. Other socioeconomic factors influencing charter school choice are more similar to factors explaining choice of private schools than to those of traditional public schools.

I. Introduction

In recent years, school choice options for families have grown tremendously. Families can choose among traditional public schools (TPSs), charter schools, magnet schools, and out-of-district public schools in addition to the religious and nonsectarian private schools. Critics of school choice worry that the expanding set of choices is leading to the abdication of the vision of the common school to create social and racial integration (Wells, 1993). For decades, the critics raised concerns that greater school choice options would result in school enclaves of White and/or affluent student—exacerbating the already existing segregation in TPSs (Wells and Cain, 1992). With reduced integration, these critics argue that there would be less interaction across students of different races, ethnicities, and socioeconomic backgrounds to foster positive understanding of different backgrounds and experiences. In addition, there may be less positive influence of peers for those students who remain behind in neighborhood schools if schools of choice “cream skim” the best and most engaged students (Frankenberg and Lee, 2003; Zimmer and Toma, 2000; Summers and Wolfe, 1977; and Henderson, et al., 1978). Supporters, in contrast, argue that broadening school choice options improve racial/ethnic and socioeconomic integration by letting families choose schools outside of neighborhoods where housing is racially/ethnically and economically segregated, and by promoting fuller and richer integration in classrooms within schools where all students have chosen to attend (Friedman, 1955; Finn et al., 2000).

Key to analyzing the role of school choice in racial/ethnic and socioeconomic patterns is an understanding of how individual households make school choice decisions. Student bodies at schools are the aggregate result of individual household decisions between the various school types, and the factors influencing these household decisions are little understood. For example,

patterns of racial segregation may be explained by racially oriented schooling choices or by differences in schooling choices across socioeconomic strata, which are correlated with race/ethnicity.

Whether critics or advocates are right may be a function of the relationship between family characteristics and school choices they make for their children. For instance, parents with greater economic means may have greater access to information and reliable transportation and, therefore, may be more likely to take advantage of choice. Because variance in socioeconomic status is related to race/ethnicity, school choice may lead to greater racial/ethnic segregation (Schneider et al, 1998; Lacireno-Paquet et al., 2002). In addition, if it is easier for parents to choose schools based on racial/ethnic composition and if parents have a preference for racially/ethnically homogenous schools, then expanding school choice options could create greater racial/ethnic stratification (Levin, 1998). To get below the surface of the possible relationship between race/ethnicity, other socioeconomic variables, and school choice, researchers not only need to examine what choices families make, but what family and school attributes are driving these choices. This study identifies the extent to which choices among schooling types reflect racial characteristics of the family and school, and the extent to which choices among the school types are driven by other family characteristics.

Largely for data reasons, much of the current research examining who selects into the expanded choice of alternative school types has focused on individual districts or states. In addition, previous research also has either not included the full range of school choice options or has had limited (often aggregated) information on schools or students. Furthermore, previous research has generally not been able to link individual households to their school enrollment decisions. As a result, the research has provided limited perspectives on how families choose,

including the role family and school factors play in enrollment decisions. This paper uses a nationally representative sample of households that allows us to identify the school chosen as well as to identify other schools in the household's choice set. In so doing, we can address many of the deficiencies of previous studies and provide new insights to the factors influencing school choices of families. The paper's findings will be of value in designing future choice policies.

II. Background of school choice options

American students currently choose among a host of school types when choosing to enroll in schools, but in colonial times, to the extent schooling was provided, it was provided through private tutors or a single teacher in a small private school. Over time, publicly-funded, government-provided schools developed in which attendance was based upon residential location. Eventually, two parallel systems evolved —tax supported public schools and tuition-based private schools—and were firmly entrenched by the mid-1800s. By the late 20th century, choice among public schools grew to include magnet schools, open-enrollment within and/or across districts, and charter schools. While magnet schools are now grouped with other forms of school choice policies, they were initially conceived in the 1960s and 1970s as a way of creating greater racial/ethnic integration by relaxing residential assignment requirements and having specialized programs within schools that would be attractive to students across diverse backgrounds. There are a range of enrollment procedures for magnet schools including priority placement for neighborhood students or more flexible enrollment procedures open to students district-wide. Similarly, open enrollment programs relax residential assignment requirements. Both of these public programs provide greater school choice options for families, but the programs are managed by districts within the context of state law. In contrast, charter schools developed in the 1990s in hopes of severing ties to districts by granting contracts (or charters) to

create schools free from many rules and regulations governing TPSs in exchange for accountability over outcomes and are schools families choose to attend. While many states try to incorporate policies that would encourage these schools to enroll students reflective of their district populations, these schools could be a mechanism of creating greater racial/ethnic segregation (Frankenberg, Hawley, and Wang, 2011).

These public school choice programs have increased the alternative types of schooling available to households. To date, we are unaware of any study that looks at the factors that influence choice across all public as well as private school types using household data. In this paper, we use fine-grained data to examine the factors influencing choice of school types with a micro-level analysis of schooling decisions. We are especially interested in the role that race/ethnicity and other socioeconomic factors of both the household and the school play in the choice decision with our results having implications for the design of future choice programs.

III. The literature

While the bulk of the research surrounding school choice programs has explored the achievement effects of choice (Booker et al., 2012; Gleason, et al., 2010; Zimmer et al., 2009; Abdulkadiroglu et al., 2009; Wolf et al., 2009; Cullen, Jacob, and Levitt, 2006; Kruger and Zhu, 2004; Mayer et al., 2002; Rouse, 1998), research examining the family attributes influencing the choice among school types began over three decades ago and continues. The earliest research focused on private schools with noted researchers such as James Coleman asserting that private schools do not exacerbate racial/ethnic segregation that would exist without private schools (Coleman and Hoffer, 1983). Researchers have tried to evaluate these claims and broaden the scope by looking at family attributes that predict private school enrollment. One of the earliest papers used Census of Population data for households (Long and Toma, 1988). The study

combined household level data on type of school chosen and socioeconomic characteristics with aggregate data on the attributes of schools and found that higher income and White households were more likely to choose private schools. Extensions and refinements to this model added more types of private schools such as religious or nonreligious (Downes and Greenstein, 1996; Downes and Shoeman, 1998; Lankford and Wyckoff, 1992; Lankford, Lee, and Wyckoff, 1995; Lankford and Wyckoff, 2001). Interestingly, income coefficients tend to differ across the private school type choices and religious private schools tend to be chosen by those households with stronger religiosity attributes (Cohen-Zada and Sander, 2008).

Most of these studies have grappled with the inability to match individual households, the school enrollment decision, and the attributes of individual schools that constitute the household choice set.¹ Recently, Lankford and Wyckoff (2006) examined school choice in metropolitan areas of upstate New York with restricted access census data that allowed matching of household location, school enrollment, and neighborhoods. The latter represents perhaps the best effort to date to address data obstacles but there was no distinction among types of public schools and the data covered a small geographic area just as have most other studies examining the effects of the new school types. Lankford and Wyckoff (2006) find White families choose private schools over public schools with moderate concentrations of minorities in the state of New York.

Recently, there has been research on open-enrollment and magnet programs with relatively good data—two of these studies have used Chicago data. First, in a study of Chicago’s open enrollment program, Cullen, Jacob, and Levitt (2005), using longitudinal student-level data with a wide range of student and family characteristics, found that higher performing students with more educated parents are more likely to take advantage of the school choice options. In a

¹ See Lankford and Wyckoff (2006) for a description of various national data sets and the particular missing elements of each that have precluded these analyses.

second study of Chicago with a broad range of observable student and family characteristics for students matriculating into high schools found that White students were more likely than Black students (controlling for several other factors) to attend a selective school of choice through the intra-district choice program, though there was no difference in the likelihood of attending a non-selective non-neighborhood school (Lauen, 2007). In addition, poor students were less likely to attend any type of school of choice than wealthier students, and students in affluent neighborhoods were more likely to attend a selective school of choice. Also, the probability that middle school students would enter a selective high school of choice was positively related to the propensity of past students in their school to have done so. Finally, Hastings, Kane, and Staiger (2006) used student-level data with an array of student characteristics and examined Charlotte's open enrollment program and found that high achieving students are much more likely to choose schools with high average achievement levels. But again, each of these studies focused on one location and one school type.

In examining charter schools, much of the previous literature has focused on whether charter schools are creating greater segregation and has generally used school-level data to compare the racial/ethnic makeup of charter schools relative to state and district averages (Powell, et al., 1997; Fitzgerald, et al., 1998; RPP, 2000; Miron and Nelson, 2002; Frankenberg et al, 2010). In recent years, researchers have used longitudinal student-level data to examine whether students are moving to charter schools that are more or less racially/ethnically integrated than the TPS they exited and overall, have found mixed results (Bifulco and Ladd, 2007; Zimmer et al., 2011; Ritter, Jensen, Kisida, and McGee, 2010). In one interesting study of how families choose to enroll their children in charter schools, Weiher and Tedin (2002) used survey data to examine factors associated with charter school choice. They found that what parents reported as

important in their decision did not always coincide with their actual decision. While 60 percent of parents ranked test scores as a primary factor in choosing a school, the majority of these parents picked a charter school with lower average test scores than the traditional school their child exited. Similarly, few parents mentioned race/ethnicity as a factor in choosing a school, but parents tended to pick schools with higher concentrations of students in their racial/ethnic group than at their previous school.

Our study adds to the literature by (1) using nationally representative data, (2) examining a wide range of school choice options in both the public and private sectors, and (3) linking individual households to their actual school enrollment decisions.

IV. The choice model

For our theoretical framework, we assume a utility-maximizing household decision model of school choice that includes a complex array of choices among the general categories of public or private schooling and among specific types of public or private choices.² The household utility from any general category t and specific type j , depends on a vector of household attributes, X_i representing socioeconomic characteristics, the child's own characteristics, and tastes for schooling relative to a composite package of consumption goods, C_i . Utility also depends on a vector of school attributes, S_{ij} , of all schools within the household's choice set. These attributes may include quality of the school as perceived through test scores, socioeconomic characteristics of peers, religious or nonreligious aspects of the school, as well as distance that must be traveled to attend the school.

More formally,

$$(1) U_{itj} = U(X_i, C_i, S_{ij}, \varepsilon_{itj})$$

² Houston and Toma (2003), Lankford and Wyckoff (1992), Lankford, Lee, and Wyckoff (1995), and Lankford and Wyckoff (2006) have used the same general utility-maximizing frameworks.

where ε_{ijt} is a scalar composite of all relevant but unmeasured factors in the school choice decision. The inclusion of this random disturbance term captures both unmeasured school specific characteristics and the perception of these characteristics by each household. Each household maximizes utility by allocating its budget between schooling and all other goods and services. All households pay taxes to support public schooling whether they enroll or not.³ Those who choose the general category of private schooling incur a higher cost than those choosing the public system because they also must pay tuition to the private school. Of particular interest for the purpose of this paper is the array of specific choices, traditional public, magnet, or charter that are publicly supported school choice alternatives. Generally, households choose the school alternative, tj , if that choice maximizes utility. In other words, households choose type tj if $U_{ijt} > U_{isr}$ for all $t \neq s$ or $j \neq r$. The probability that a household will choose a particular type of schooling is given by

$$(2) P_{tj} = \text{Prob} [U_{ijt} > U_{isr}] \text{ for all } t \neq s \text{ or } j \neq r.$$

This basic model will guide our empirical analysis in this paper as we look at the choice of particular school types.

V. Data and school choice set

This study combines various data bases. First, and most important for this research, are data on children and their families from the National Center for Educational Statistics (NCES) *Early Childhood Longitudinal Program (ECLS-K)*. The *ECLS-K* program is a nationally representative sample of students who attend both public and private schools. The sample design captured various types of schools within the broad public and private designation so we are able to consider the full range of school choices in our analysis. Finally, the children included

³ Empirically, we assume local tax differences are captured in attributes of the schools such as test scores and socioeconomic measures and differences across states are included in the state fixed effects.

represent diverse socioeconomic and racial/ethnic backgrounds. The *ECLS-K* survey design uses sampling weights to achieve a nationally representative sample of children.

The *ECLS-K* program has resulted in a longitudinal study that follows students who were enrolled in kindergarten in the fall of 1998. The sample of students was refreshed the following year, and then these students were followed through the 8th grade. This longitudinal dataset is nationally representative of the cohort of students who were in 1st grade in the fall of 1999. This paper focuses on survey results from the spring of 2004, when this cohort was in 5th grade. The *ECLS* data set contains information on 11,820 students who were fifth graders in 2004.⁴ Due to missing school district data, school identifiers, or missing student residence, the sample of matched 5th graders to school attended declines to 10,100.⁵

The *ECLS-K* is a rich dataset for our choice model. These data include pertinent student characteristics including the student's own test scores, his or her household characteristics, and the school attended by the student. Information reported on each student's household includes socioeconomic characteristics and family characteristics including information on each parent. The restricted access *ECLS* data also provide the home zip code of the student. For purposes of this paper, we identified the location of each household with a 9-digit zip code in the *ECLS* data set by both latitude and longitude.⁶

To identify all schools from which households may choose, we include the universe of schools as found in the NCES *Common Core Data (CCD)* and the Private School Universe Survey (*PSS*). The *CCD* provides information on each school including the address of the school and characteristics of the school including size and racial, ethnic, and gender diversity of

⁴ Weights are provided in the data for statistical purposes and are used for making nationally representative assignments. The statistics presented in this paper use the student weights.

⁵ Sample size figures are rounded to protect respondent identities.

⁶ We use all students for which we have zip codes at the 9 digit level for the sake of precision of location. This further reduces the sample size but does not affect our results.

the student body. The *PSS* is a biennial survey of private schools that provides information on type of private such as Catholic, other religious or independent private and the address of the school. It also provides information on grades of schooling offered, the size of the school and characteristics of the student body identified by gender, race, and ethnicity. Finally, we also collected standardized test scores in reading and math for public schools from state individual websites.⁷

For this universe of public and private schools, we first narrowed the schools to all those that provide fifth grade schooling. We identified 69,770 public and private schools offering fifth grade instruction.⁸ We then identified the longitude and latitude of each of these schools and matched the geographical information of each household and school attended from the *ECLS* sample to the geographical information of each school offering fifth grade. By matching the household residences to the universe of schools, we can obtain the full set of possible school choices available to a household at a given time. This geocoding of schools and households also allows the calculation of the flat-earth distance between each school in the choice set and the residential location. Flat earth distances are virtually the same as great circle distances for the short distances (25 miles or less) we use, and flat earth distances require orders of magnitude less computing time, which is vital for subsequent computation.

The matched *ECLS* student-schools data first allow us to identify the type of school actually attended by each student in the sample. The *ECLS* data both over and under samples students in particular school types and the resulting weighted numbers by school type are illustrated in Table 1. The last column shows actual attendance by school type for the same year in the U.S.

⁷ These scores were developed by researchers at Rand Corporation. Hastings and Weinstein (2008) find that information about test scores influence choice of schools in Charlotte, North Carolina.

⁸ This number is rounded to the nearest 10.

[Table 1 About Here]

As described earlier, these matched data contain student, household, and school characteristics. Tables 2 and 3 provide descriptive statistics for each of these variables by each school type used later in the regression analysis. The categories of School Characteristics and School Racial Composition represent the statistics at the school level that were gathered from sources beyond *ECLS*. Test scores, for example, are school level data gathered by the Rand Corporation. Racial composition refers to the percentage of students on average at each school type that identify as a particular race and provided by *CCD* and *PSS*. The school level descriptive statistics indicate that the composition of the student body in the public schools across the three types, among other things, are more racially/ethnically diverse than those of the three types of private schools.

The *ECLS* data are individual student characteristics and those of his or her household and these make up the remaining categories of descriptive data. The race of the student is a binary variable that equals 1 if the sampled student identifies as the specified race category. Variables in these individual categories more generally are binary or continuous (e.g., number of siblings) as appropriate. These statistics indicate, for example, that the proportion of households in poverty in the magnet and TPSs is slightly higher than in all three types of private schools as well as in the charter schools.⁹ While these tables do highlight some interesting patterns, our formal analysis of the characteristics that drive these choices provides more definitive insights as we consider the factors that influence the decision to attend a particular type of school.

⁹ Note that we do not include a variable directly measuring household income. There are income measures in the *ECLS* data but on close examination, we were less confident of their reliability than the other socioeconomic measures. We include many other variables that are highly correlated to income. And, we ran all models with and without income. The results do not change whether income is included or not. The results are available on request from authors.

[Table 2 About Here]

[Table 3 About Here]

Defining school choice set

For the purpose of estimating a model of the school choice decision, we begin by describing our construction of the choice set of schools for each household. We constructed the choice set based on models in which alternatives are constructed in the housing market models (Blackley and Ondrich, 1988; Ioannides and Zabel, 2008; McFadden, 1978; and Quigley, 1985). With no *a priori* restriction on school and student matches (i.e., every 5th grade student matched with every 5th grade school as a possible choice, regardless of locational restrictions) there are over 700 million possible pairings of students to choice of schools. Because we do not expect households to choose across the universe of schools when choosing the one to enroll their children, we make additional assumptions that narrow to a reasonable set of school choices.

We allow households to consider all *types* of schools and arbitrarily restrict their choice of schools to those within 25 miles of their residence. This restriction eliminates more potential private school choices than public ones.¹⁰ On average, this restriction on school options still presents the average student with approximately 46 schools of various types. It does not seem reasonable that households would consider seriously 46 schools and including characteristics of such a large number of school choices is computationally costly. For this reason, and again following the housing choice literature, we include, the actual school chosen but also random sets of schools for each type within the 25 mile constraint. Because we observe that some

¹⁰ For this reason, restricting the set of choices to less than 25 miles may affect the analysis because it would reduce the sample size as we would lose actual school choices especially among the alternatives to the traditional public schools. The results are not sensitive to expanding the set beyond 25 miles.

households choose a long-distance school, we also include a randomly chosen school of each type that is not located near the residence of the household.^{11, 12}

Although we can make a number of assumptions about the choice set, we include more schools for the type actually selected on the conceptual assumption that on average parents look more energetically at the type we observe them choosing. This assumption does not pose any estimating problems because our ultimate set of possible school choices, both for the type chosen and for alternatives, is quite large. In particular, with this identification of a choice set for each household, our students choose across an average of 8.5 schools per student with the actual choices ranging from only 1 to a maximum of 16. For TPSs, we alternatively consider the schools within the public district in which the household is located and also assume the student can choose a public school outside the district boundary.^{13, 14} Results reported in this paper allows students to choose beyond district boundaries. All variables for all possible schools in the resulting choice set are included in the analyses presented below.

VI. Empirical model and results of the decision to choose a school

We assume that school enrollment decisions are based on the observed household and school attributes and unobserved attributes and perceptions, ε_{itj} . The probability that a randomly chosen household (i) will choose school option j is given by

$$(3) P_j = \text{prob}[V_{itj} + \varepsilon_{itj} > V_{isr} + \varepsilon_{isr}]$$

¹¹ The use of a randomized choice set produces consistent estimators.

¹² We then include the randomly chosen long-distance school in the choice set for all households so that our only schools of distance in the choice set are not those actually chosen. Otherwise, we would bias the estimated effect of distance on the school choice decision.

¹³ Some states allow across district choice but an examination of inter-district choice programs is beyond the scope of the paper. We include state fixed effects to account for state policy differences regarding choice. Our estimates do not qualitatively change with the two estimations. Results are available upon request.

¹⁴ There are a small number of households in the data who choose a school more than 25 miles from the residential location. These may be attributed to divorced parents, boarding schools, or other such factors and we drop these observations from the data.

for all $t \neq s$ or $j \neq r$ and where V is a linear function of the observed attributes and characteristics; t is the general school type of private or public. The probability that a student enrolls in alternative j depends on the assumed probability distribution of the disturbance ε and the interpretation of the estimates. In a structural model, if that distribution is uniform, a linear probability model is appropriate and independence of the errors is not required or assumed. If the disturbance is a Weibull distribution, assuming the errors are independent and identically distributed, we should estimate with a logit model.¹⁵ Note that estimating a conventional nested logit model for this choice set is not possible as the choice sets for each household differ in number and identity of schools. The model here is a modified conditional logit model, with school characteristics and student or household characteristics interacted with school type. The modified logit model estimated leads to subsequent marginal impact calculations which are comparable to the linear probability model, apart from small differences arising from non-linear transformations. We estimate both models, but only discuss the results from the logit estimates since the results are consistent across the models. The linear probability results are included in the appendix.

¹⁵The assumption of the independence of irrelevant alternatives (IIA) is potentially problematic in the logit model, as it implies that there is no systematic substitution among types of schools, such as preferentially one private type to another, or to traditional public and magnet schools. To test such an assumption, a model with latent utility (the econometric disturbance) must be modeled, so in practice multinomial probit is required. Unfortunately, multinomial probit is difficult or impossible to estimate with more than four alternatives, and we have up to 16 schools in the choice set. In addition, the number of explanatory variables and explanatory variables is quite large. The linear probability model relaxes the IIA assumption by ignoring the latent utility in favor of predicted observed outcomes. The disturbances must be negatively correlated on net because one choice must be made, and other choices are by definition not made. No test of IIA follows. However, the signs and patterns of effects, what is statistically significant and what is not, can be compared across the logit and linear probability estimates, and in our case there is no apparent difference in the effect of policy-relevant explanatory variables. We conclude that the assumption of IIA causes no apparent bias in the estimation. Also, note that the constant term on school type controls for a fixed effect of school type in the utility function, so the elimination, e.g., of one public school does not result in treating other public schools as equivalent to private schools. The constant term still attaches to the remaining public schools. Put in terms of the classic red bus/blue bus/auto problem, if the red bus becomes unavailable, our model would assign most probability to the blue bus through the bus constant (school type constant) and the personal characteristics that made the red bus attractive. So IIA is greatly alleviated.

Equation (3) above will be estimated with a vector of independent variables describing school characteristics for all schools in the household's choice set, a vector of variables representing attributes of the child and his or her household who is making the choice decision, and variables representing the distance between the household and each school in the choice set. Finally, state fixed effects for the ten biggest states, which constitute half the sample, and a dummy variable for all others, are included to account for different state laws regarding open enrollment, charter school possibilities, and other unobserved state level characteristics that might influence the school choice decision. We limit the state fixed effects to ten to keep the list of coefficients manageable.¹⁶ Based on the estimates, the marginal effects of a particular household attribute or a particular school characteristic on the household's decision to choose each of the six school types are presented in Table 4.

Results

We present the results in Tables 4 and highlight specific sets of attributes or characteristics on the school choice decision given the residence of the household. In this way, we can highlight the importance of each category of attributes in influencing the type of school chosen.¹⁷

Results for Variables of Interest

¹⁶ Sample sizes from the remaining states are small and, thus, are captured in the other state category.

¹⁷ Note we are not examining the household's choice of residence. Rather, we are taking as given, the location of the residence and estimating the effects of the household and school attributes on the type of school chosen. We have attempted to address the endogeneity issue in a variety of ways. First, we are unable to identify instruments in the data that would explain household choice (or distance from school) that are independent of the school choice decision. Our most successful way of addressing possible endogeneity involved estimating subsets of the data that capture households that move across time. Our results qualitatively are unchanged. Results are available upon request from the authors.

Focusing on the variables of interest, our analysis suggests that in many respects, race/ethnicity plays a similar role in the choice to attend magnet and TPSs.¹⁸ The significant and negative coefficient on Hispanic and Black (White is the omitted category) in Table 4 suggests that higher percentages of Hispanics and Blacks in a magnet school and the TPSs make it less attractive to households, *ceteris paribus*. On the other hand, the results indicate that, on average, a Black household is more likely to choose the magnet or traditional public school than are White households. These results suggest that magnet schools can be an attractive option to minorities, but having large proportions of minorities may reduce the general attractiveness of these schools.

[Table 4 About Here]

In contrast, our results, after controlling for other student- and school-characteristics suggest that households choosing charter schools do not appear to be racially/ethnically sensitive either in terms of the composition of the school or in terms of the individual household's own race/ethnicity. The racial/ethnic composition of the schools does not appear to influence the decision, either positively or negatively, to attend charter schools nor does the household's own race/ethnicity. When controlling for other factors, race/ethnicity does not seem to be the driving factor for choosing a charter school. The results in Table 4 indicate that the racial/ethnic composition of the school has the same lack of influence on the nonsectarian private decision as on the charter schools; Race/ethnicity, however, does influence the choice to enroll in other private types somewhat. In particular, Black households are less likely to choose a Catholic school, *ceteris paribus*, than are White households. Finally, significantly fewer Hispanic students choose other religious private schools.

¹⁸ Note that we cannot distinguish magnet public schools that operate as independent schools and those that operate within TPSs. The school designation is based on the CCD classification. For this reason, we do not stress the magnet school results as much as the charter school results.

On other socioeconomic dimensions we also find that factors influencing the charter school decision are different from those influencing the TPS choice decision as displayed in Table 4. In particular, households with no dad present appear to have preferences for the TPS, even after controlling for distance from home, education level of the parent, and the poverty status of the household. On the other hand, the absence of a dad significantly decreases the probability of attending the newest alternative public type, the charter school. The absence of a dad in the household also decreases the probability of enrolling in Catholic schools.. Note that the absence of a mom in the household does not have the same effects. It is the lack of a dad in the household that is significantly influencing household choices of school types, including the newest alternative to the TPSs—charter schools. On these important socioeconomic dimensions of race/ethnicity and the presence or absence of a dad in the household, the choice to attend a charter school is similar to that of attending a private school, not TPSs.

Turn now to other characteristics of the household. Our data include variables representing the mother’s education level, father’s education level, the size of the household, and the religiosity of the household. As expected, the education level of the parents influences the type of school chosen, but works differently in charter schools and TPSs. The results in Table 4 suggest the mother and father’s education levels do not influence the decision in the same way for some school types.¹⁹ First, education level of neither parent (relative to the omitted category of parents with college degrees and advanced college hours) appears to influence the decision to attend the TPSs. The mother’s education affects the decision to attend charter schools and Catholic schools in a similar way. Households in which the mother holds a college degree are more likely to choose charter schools and Catholic schools than households in which the mother

¹⁹ This is one variable for which the linear probability models yielded some difference. But the net policy relevance conclusion is unchanged. See the appendix.

has more than a bachelor's degree. The father's education level also influences the charter school decision similarly to the way in which it affects the choice to attend other religious and non-sectarian private schools. Households with less educated dads, *ceteris paribus*, are less likely to choose the charter schools as they are also less likely to attend other religious and nonsectarian private schools. The education level of parents not only has statistical significance, but the magnitude of the marginal effect on several measures of parental schooling levels is substantively large. This underscores the importance of controlling for family characteristics when comparing the performance of TPSs and schools of choice.

Control variables

One of the strengths of our model is our ability to control for proximity to the various school types. Because travel time is a cost, we predict distance to be negatively related to the probability of choosing a school.²⁰ As can be seen in Table 4, distance from home is a significant and negative factor in choosing a school for the TPSs and in Catholic schools, but the magnitude of the effect of distance is greater for the TPS choice. The estimates show that, at the margin, increasing the distance from the household by one mile decreases the probability of enrolling in a TPS by approximately 2 percent. For other private schools, both other religious and independent private schools, the school's distance from the household does not enter as a variable of significance in influencing the decision to attend. It appears that households are willing to trade off distance for other school attributes to a greater extent in all other school types than in the TPS.

²⁰ In the linear probability model, we include both distance and distance squared in the estimates to reflect the fact that these costs are unlikely to be linear due to exclusionary attendance zones with some school types. We see in the Appendix that there is no significant effect for the quadratic distance coefficient in the Other Religious or the Nonsectarian school types. At the other extreme, the quadratic coefficient is highly significant for the TPS choice. The coefficients on the other three types are significant but as with the linear effect of distance, are small in magnitude. The results on the two distance coefficients together suggest that importance of distance in a household's decision is directly related to the extent to which location is a requirement for enrollment.

Overall, these results are consistent with the assumption that households must live nearer schools with catchment zones that require it. In addition, these results suggest that the inclusion of distance is important when examining school choice families make. Previous analyses did not include proximity to schools and the significance of the distance coefficients for some of the school type choices suggests there has been omitted variable bias in prior work. Any variables correlated with distance are subject to misinterpretation in these earlier studies making the inclusion of distance a significant contribution for our study.

We control for several other school characteristics and how they influence the household's decision to attend different school types. Most of the previous studies examining school choice have not controlled for religiosity. Cohen-Zada and Sander (2007) found that the failure to take account of religiosity in studies of school choice leads to biased estimates of the school choice decision.²¹ The *ECLS* survey asks the households a series of questions about religion. In Table 4, we include two sets of variables of how often families *discuss* and *argue* as a measures of religiosity. In both categories of variables, the omitted category is “frequent.” Again, the coefficient estimates differ across school types. Religiosity does not explain the decision to enroll in charter schools nor for the most part, does it appear to influence the decision to attend traditional public and magnet schools. Relative to families that discuss religious issues frequently, families that never discuss religious issues are less likely to attend magnet schools. In addition, families that discuss religion less frequently (or ones who discuss frequently—the omitted category) have a lower (higher) probability of attending Catholic schools. The same findings hold for households who choose other religious schools as well. Again, not only are the

²¹ The literature has used alternative measures of religiosity. In particular, there are county-level measures of church affiliation and church attendance. While church affiliation or attendance may be preferable to the religious variables used in this paper, the available measures of these variables are not available for the households in this sample of data. The variables we use are specific to the households making the school choice decision and are part of the *ECLS* survey. We do not know the specific religious affiliation of any household.

estimated coefficients significant but they are relatively large in terms of marginal effects. Finally, in contrast to households who choose any of the religious private schools, only those who never discuss or argue about religion are more likely to enroll in the nonsectarian private school. These results are consistent with previous work on the role of religiosity in school choice.

Taken together and viewed across school types, the religiosity variables affect the school choice decision not only between the public and private sectors but within the particular types of schools. But of great significance for our study, the religiosity variables do not influence the decision to attend charter schools just as they do not influence the decision to attend the nonsectarian schools or the public schools. The factors influencing the decision to attend charter schools are, again, similar to those of the nonsectarian private schools but in this regard, they do not look significantly different from TPSs. On this margin, not surprisingly, the religious private schools are different from all other school types both public and private.

Among the other control variables, with the exception of school size, perhaps the most noticeable result is the lack of systematic results across the school characteristics. School enrollment is a significant factor in the choice to attend charter schools as well as the private school types. Larger student-teacher ratios negatively influence the probability of attending the magnet schools. This also holds for the charter schools, TPS, and Catholic schools at lower levels of significance and the magnitude of the effects are small. The school level test scores in math or reading do not appear to influence the choice to attend a school type²² These results suggest that families may be choosing to attend alternative types of public schools for other reasons than test scores. Finally, the last set of variable results suggests that the students' own

²² Test scores are available only for public schools. We lack school test scores for private schools but, parents will also be less likely to have access to test scores for private schools in making their decisions.

scores do enter the decision about school type but not in a systematic fashion. For example, math and reading scores have different signs in both the magnet and Catholic school type decisions.

VII. Conclusions

In recent years, school choice options have increased substantially. While some have hailed the expansion as a means of improving educational opportunities for students, others have raised equity and integration concerns. Previous research has provided some insights into this debate, but have not often had micro-level information on households and focused on a specific location or school type. In this study, we use a nationally representative data set with household information and examine the school choices families make across a comprehensive range of options.

The results provide a more nuanced picture than previous research. While previous research often made conclusions about particular sectors of the educational market, we examine the range of educational choices simultaneously. This allows us to examine whether demographic and socioeconomic characteristics play differential roles across sectors. For example, we observe that families who are more likely to choose charter schools are more similar to families who choose private schools (especially the non-sectarian privates) than those who chose other public school options. In addition, while some of the previous research suggested that minority families are more likely to enroll in charter schools, our paper suggests that unlike TPSs, the attraction of the charter schools appears to be race/ethnic neutral. Families do not choose charter schools based on the school's racial/ethnic composition or on the household's race/ethnicity. Rather, other socioeconomic characteristics, such as whether a father is present and the father's educational level, are strongly associated with enrolling a child in a

charter school. Therefore, any segregation that occurs with the introduction of charter schools is driven by socioeconomic characteristics of families, not racial or ethnic characteristics of families choosing these schools or the racial or ethnic makeup of the schools. Similar to the charter school results, the results for magnet schools are nuanced. Black households are more likely to choose a magnet school than are White households. However, the results for the magnet schools are somewhat complicated by the fact that as magnet schools gain a higher proportion of minority students, the less appealing these schools become for families. Therefore, while magnet schools can be an attractive option for minorities and thus be a means for creating integration, these schools will only be an attractive option if they maintain a balanced population of students. Finally, our results for private schools are more consistent with the existing literature. We found that students of lower socioeconomic status and Black and Hispanic students relative to White students are less likely to attend religious private schools.

These findings hold significant policy implications. Certainly recognizing that the populations of persons across the country who select into particular school types differ on observable dimensions should affect evaluations of the effectiveness of the school types.²³ But beyond effectiveness, much discussion has focused on whether charter schools are segregated and whether they cream from the TPSs (Zimmer et al, 2011; Bifulco and Ladd, 2007; Booker, Zimmer, and Buddin, 2005). Probably the most important result is that segregation that exists in charter schools is driven more by socioeconomic status rather than the race/ethnicity of households choosing to attend charter schools. This may make it more difficult for policymakers to develop policies to encourage greater integration within charter schools if the segregation is driven by these less observable characteristics of families.

²³ For examples of how researchers are dealing with unobserved student characteristics, see Peterson, Howell, and Greene, 1999; Betts et al., 2006; Bifulco and Ladd, 2007; Zimmer et al., 2009; Abdulkadiroglu, et al., 2009; Gleason, et al., 2010; Wolf et al., 2010; Booker et al., 2011.

Currently, districts and states often have policies encouraging charter schools to be reflective racially/ethnically of the district population in which they locate. As part of these policies, districts and states often examine a charter school's strategy to attract a diverse racial/ethnic mix when deciding whether to approve a charter application. In order to attract a diverse racial/ethnic mix, our results suggest that districts and states should ask charter schools how they are going to address the challenge of attracting students across different socioeconomic groups. Our results suggest that it may not be enough for charter schools to locate near a diverse population to achieve a racially/ethnically diverse school as our analysis holds distance to the selected school constant, indicating that without a strategic enrollment effort, charter schools will most likely attract students from higher socioeconomic households and may limit the diversity of a school. Therefore, charter schools may have think strategically about issues surrounding access to information to make informed decision as well as access to transportation to attend schools outside of their residentially assigned school.

In addition, our results which suggested that families choosing charter schools are more similar to families choosing private schools are consistent with previous research that found charter schools disproportionately attract students away from private schools rather than TPSs (Buddin, 2012; Toma, Zimmer, and Jones, 2006) and may imply that charter schools have greater competitive effects on private schools than TPSs, which has not been examined or really even considered in the literature examining charter schools. While, as always, more research is needed, this nationally representative sample of households suggests that addressing who chooses which school type must be accounted for in any prescription for future school reform.

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Table 1: Weighted Number of Students Enrolled by School Type

School Type	Number of Students Enrolled (using student weights, not counts)	Percent of total students in sample	Percent for U.S. K-12 schools¹ (School year 2003-2004)
Traditional Public	8,790	87.00%	84.95%
Public Magnet	250	2.50%	3.00%
Public Charter	80	0.80%	1.42%
Catholic	480	4.80%	4.55%
Other Religious	390	3.90%	4.02%
Nonsectarian	110	1.10%	2.44%

¹Source for U.S. K-12 Schools: *Public Elementary and Secondary Students, Staff, Schools, and School Districts: School Year 2003–04* (NCES 2006-307). U.S. Department of Education.

Notes: Figures for *ECLS* sample are rounded to protect respondent identities.

Table 2: Descriptive Statistics: Student and School Characteristics

	Magnet		Charter		Traditional Public		Catholic		Other Religious		Nonsectarian	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
School Characteristics												
Distance to School	8.61	7.51	9.73	7.24	6.28	7.23	8.43	7.55	8.26	7.19	8.52	6.81
Distance Squared	130.55	172.18	147.02	174.07	91.66	155.95	128.09	172.10	119.91	163.77	119.06	159.15
School Enrollment	878	799	341	329	535	322	327	184	189	218	215	260
Percent Free Lunch	44.32	28.53	25.85	29.32	32.55	28.04	na		Na		na	
Student/Teacher Ratio	15.89	7.86	13.22	15.49	16.03	21.19	17.81	5.62	12.01	8.54	10.18	28.55
School Math Scores	37.84	35.48	23.45	32.45	44.65	32.10	na		Na		na	
School Reading Scores	35.97	34.34	26.61	33.31	44.76	32.17	na		Na		na	
Midsize City Location	0.28	0.45	0.45	0.50	0.40	0.49	0.42	0.49	0.40	0.49	0.49	0.50
Rural Location	0.05	0.22	0.11	0.31	0.24	0.43	0.22	0.41	0.27	0.45	0.15	0.36
School Racial Composition												
Percent Asian and American Indian	8.46	11.17	4.68	8.12	7.26	12.15	6.90	11.32	4.53	11.49	8.00	12.83
Percent Hispanic	30.04	31.68	20.28	26.24	17.74	26.27	14.86	24.01	7.72	16.46	8.20	14.71
Percent Black	31.36	30.80	31.88	35.97	15.38	24.40	7.47	19.00	13.50	25.54	15.45	24.59
Percent White	30.14	27.83	43.16	36.20	59.63	35.57	70.77	33.15	74.26	32.19	68.35	29.41
Student Characteristics												
Student Math Score	112	24	114	24	113	25	114	24	114	24	114	24
Student Reading Score	139	27	138	28	138	28	139	27	139	28	139	28
Race of Student												
Asian	0.12	0.33	0.10	0.30	0.08	0.27	0.08	0.27	0.07	0.26	0.09	0.28
Hispanic	0.26	0.44	0.27	0.45	0.20	0.40	0.19	0.40	0.18	0.38	0.21	0.41
Black	0.17	0.38	0.11	0.32	0.12	0.33	0.11	0.31	0.11	0.31	0.12	0.33
White	0.44	0.53	0.51	0.52	0.59	0.51	0.62	0.50	0.64	0.50	0.57	0.51

Table 3: Descriptive Statistics: Household Characteristics

	Magnet		Charter		Traditional Public		Catholic		Other Religious		Nonsectarian	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Household Characteristics												
HH in Poverty	0.21	0.41	0.19	0.39	0.20	0.40	0.17	0.38	0.18	0.38	0.18	0.38
Number of Siblings	1.59	1.24	1.58	1.17	1.57	1.17	1.58	1.17	1.56	1.16	1.55	1.11
Mother's Age	39	9	39	9	39	9	39	9	39	9	39	9
No Mother at Home	0.02	0.15	0.02	0.14	0.02	0.15	0.02	0.15	0.02	0.15	0.02	0.14
Father's Age	33	19	34	18	34	18	35	18	34	18	34	18
No Father at Home	0.23	0.42	0.20	0.40	0.21	0.40	0.19	0.39	0.19	0.39	0.20	0.40
Mother's Education												
Less than High School	0.13	0.34	0.12	0.32	0.11	0.32	0.10	0.30	0.10	0.30	0.11	0.31
High School	0.21	0.41	0.23	0.42	0.25	0.43	0.24	0.42	0.25	0.43	0.23	0.42
Some College	0.31	0.46	0.33	0.47	0.34	0.47	0.34	0.47	0.34	0.47	0.32	0.47
College Degree	0.21	0.41	0.19	0.39	0.17	0.38	0.19	0.39	0.18	0.38	0.19	0.39
College Plus	0.12	0.33	0.12	0.32	0.10	0.31	0.12	0.32	0.11	0.31	0.13	0.33
Father's Education												
Less than High School	0.11	0.31	0.10	0.30	0.10	0.30	0.09	0.29	0.09	0.29	0.10	0.30
High School	0.15	0.36	0.19	0.39	0.21	0.41	0.20	0.40	0.21	0.41	0.19	0.39
Some College	0.20	0.40	0.22	0.41	0.22	0.41	0.22	0.42	0.23	0.42	0.20	0.40
College Degree	0.15	0.36	0.16	0.36	0.14	0.35	0.15	0.36	0.15	0.36	0.16	0.37
College Plus	0.16	0.37	0.14	0.35	0.12	0.33	0.14	0.35	0.13	0.34	0.15	0.36
Discuss Religion												
Never	0.05	0.22	0.05	0.23	0.06	0.24	0.05	0.23	0.06	0.23	0.05	0.23
Almost Never	0.06	0.24	0.06	0.24	0.06	0.25	0.06	0.24	0.07	0.25	0.07	0.25
Several Times a Year	0.15	0.36	0.17	0.37	0.16	0.37	0.17	0.37	0.17	0.37	0.17	0.38
Several Times a Month	0.25	0.43	0.27	0.45	0.27	0.44	0.28	0.45	0.28	0.45	0.28	0.45
Argue About Religion												
Never	0.11	0.31	0.11	0.31	0.11	0.31	0.11	0.32	0.12	0.32	0.11	0.32
Hardly Ever	0.06	0.23	0.06	0.24	0.06	0.23	0.06	0.24	0.06	0.24	0.06	0.24
Sometimes or Often	0.01	0.09	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10	0.01	0.10

Table 4: Logit Estimates: Student, Household and School Characteristics

	Magnet	Charter	Traditional Public	Catholic	Other Religious	Non-sectarian
	Marginal Effects (z)	Marginal Effects (z)	Marginal Effects (z)	Marginal Effects (z)	Marginal Effects (z)	Marginal Effects (z)
School Racial Composition						
Percent American Indian	-0.0047 ** (-1.46)	-0.0177 (-0.83)	-0.0057 (-2.27)	0.0006 *** (0.74)	0.0059 (3.84)	-0.0072 (-0.55)
Percent Asian	-0.0018 (-1.02)	-0.0080 (-1.11)	-0.0005 (-1.01)	0.0010 (1.09)	-0.0018 (-1.19)	0.0001 (0.16)
Percent Hispanic	-0.0020 * (-1.79)	0.0006 (0.60)	-0.0011 *** (-3.66)	<0.0001 (-0.11)	<0.0001 (-0.16)	<0.0001 (-0.06)
Percent Black	-0.0043 *** (-3.64)	-0.0012 (-1.00)	-0.0015 *** (-4.56)	0.0009 * (1.82)	-0.0003 (-0.66)	-0.0005 (-0.54)
Race of Student						
Asian	0.0402 (-0.70)	na	0.0137 (0.79)	-0.0249 (-0.79)	-0.0710 * (-1.69)	-0.0775 ** (-2.01)
Hispanic	0.0160 (0.34)	0.0446 (0.69)	0.0206 (1.46)	-0.0272 (-1.24)	-0.1355 *** (-4.56)	-0.0861 (-1.62)
Black	0.1122 ** (2.03)	0.0203 (0.19)	0.0378 ** (2.04)	-0.1459 *** (-5.33)	-0.0225 (-0.78)	0.0743 * (1.79)
Household Characteristics						
HH in Poverty	0.0291 (0.66)	-0.0175 (-0.26)	0.0187 (1.18)	-0.1339 *** (-3.14)	-0.1342 * (-1.94)	na
Number of Siblings	-0.0090 (-0.75)	-0.0096 (-0.50)	-0.0015 (-0.39)	-0.0038 (-0.44)	0.0007 (0.04)	0.0034 (0.22)
Mother's Age	-0.0010 (-0.43)	0.0011 (0.15)	-0.0011 (-1.21)	0.0024 (1.64)	0.0007 (0.22)	0.0043 (0.75)
No Mother at Home	-0.0776 (-0.51)	na	-0.0292 (-0.58)	0.0545 (0.66)	-0.0218 (-0.15)	0.1469 (0.52)
Father's Age	0.0024 (0.89)	-0.0113 (-1.52)	0.0010 (1.13)	-0.0024 (-1.62)	-0.0033 (-0.73)	0.0005 (0.12)
No Father at Home	0.1516 (1.14)	-0.6570 ** (-2.29)	0.0822 * (1.89)	-0.1888 *** (-2.73)	-0.1800 (-0.87)	-0.2956 (-1.55)
Mother's Education						
Less than High School	-0.0892 (-1.25)	0.0021 (0.02)	0.0292 (1.32)	0.0022 (0.05)	-0.2009 * (-1.91)	na
High School	-0.0532 (-0.80)	0.2714 *** (2.79)	0.0070 (0.38)	0.0496 (1.54)	-0.0407 (-0.85)	-0.2105 *** (-2.65)
Some College	-0.0758 (-1.15)	0.1201 (1.27)	-0.0018 (-0.11)	0.0423 * (1.92)	-0.0101 (-0.26)	-0.1083 (-1.22)
College Degree	-0.0477 (-0.63)	0.2548 *** (2.62)	-0.0148 (-0.91)	0.0604 *** (2.88)	-0.0292 (-0.84)	-0.0580 (-1.40)
Father's Education						
Less than High School	0.0188 ** (0.20)	-0.2260 * (-1.79)	0.0512 (2.05)	-0.1498 *** (-3.05)	-0.2714 *** (-3.72)	na
High School	0.0446 *** (0.62)	-0.1917 ** (-2.27)	0.0495 (2.87)	-0.0329 (-1.09)	-0.0968 ** (-2.52)	-0.3312 *** (-3.45)
Some College	-0.0239 ** (-0.35)	-0.1904 ** (-2.16)	0.0414 (2.47)	0.0011 (0.04)	-0.1592 *** (-4.49)	-0.1237 ** (-2.04)
College Degree	0.0045 (0.05)	-0.1607 ** (-2.20)	0.0180 (1.12)	0.0150 (0.67)	-0.0580 * (-1.86)	-0.0676 (-1.1)

Table 4: Logit Estimates: Student, Household and School Characteristics (continued)

	Magnet	Charter	Traditional Public	Catholic	Other Religious	Non-sectarian
	Marginal Effects (z)	Marginal Effects (z)	Marginal Effects (z)	Marginal Effects (z)	Marginal Effects (z)	Marginal Effects (z)
Distance						
Distance to School	-0.0024 (-0.20)	-0.0399 (-1.18)	-0.0212 *** (-5.01)	-0.0122 *** (-2.79)	-0.0044 (-0.62)	0.0130 (1.21)
Discuss Religion						
Never	-0.0447 * (-0.80)	na	0.0375 (1.76)	-0.2362 *** (-4.77)	-0.3071 *** (-3.06)	0.1200 * (1.66)
Almost Never	-0.0105 (-0.14)	na	0.0210 (1.03)	-0.1174 *** (-3.58)	-0.1238 (-1.55)	0.0602 (0.89)
Several Times A Year	-0.0726 * (-1.67)	-0.0864 (-1.20)	0.0159 (1.25)	-0.0726 ** (-2.20)	-0.1605 *** (-3.48)	0.0322 (0.73)
Several Times A Month	-0.0165 (-0.50)	0.0771 (1.31)	0.0176 (1.58)	-0.0177 (-0.93)	-0.0908 *** (-2.84)	-0.0954 (-1.40)
Argue About Religion						
Never	0.0314 (0.69)	-0.0160 (-0.26)	0.0054 (0.36)	-0.0343 (-1.35)	-0.0002 (-0.01)	0.0929 * (1.79)
Hardly Ever	-0.0228 (-0.39)	na	0.0192 (1.21)	0.0017 (0.05)	-0.0598 (-1.48)	-0.1003 (-1.38)
Sometimes or Often	0.0182 (0.20)	na	0.0075 (0.26)	0.0355 (0.85)	0.1285 ** (2.28)	na
School Characteristics						
School Enrollment	<0.0001 (-0.99)	0.0002 ** (2.59)	<0.0001 (0.94)	0.0001 ** (2.20)	0.0001 *** (5.32)	0.0001 ** (2.36)
Percent Free Lunch	0.0032 *** (3.03)	-0.0005 (-0.73)	0.0001 (0.28)	na	na	na
School Math Scores	0.0013 (0.87)	0.0014 (1.43)	0.0003 (0.92)	na	na	na
School Reading Scores	-0.0007 (-0.37)	0.0001 (0.10)	<0.0001 (-0.14)	na	na	na
Student/Teacher Ratio	-0.0099 ** (-2.46)	-0.0087 * (-1.84)	-0.0006 * (-1.88)	-0.0036 * (-1.69)	0.0007 (1.32)	-0.0018 (-0.51)
Midsize City Location	-0.0433 ** (-1.15)	0.0206 (0.40)	0.0267 (2.55)	-0.0778 *** (-4.45)	-0.1091 *** (-4.13)	-0.1115 *** (-2.71)
Student Scores						
Student Math Score	-0.0017 * (-1.90)	0.0017 (1.16)	0.0002 (0.55)	-0.0025 *** (-5.20)	-0.0001 (-0.14)	0.0014 (0.85)
Student Reading Score	0.0020 ** (2.33)	0.0003 (0.25)	0.0000 (0.14)	0.0012 *** (2.61)	0.0000 (-0.05)	-0.0036 *** (-2.66)
N	40,000					

Notes: z statistics in parentheses

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

State fixed effects are included in the model.

na - not available/not applicable

Appendix Table 1: Linear Estimates: Student, Household and School Characteristics

	Magnet	Charter	Traditional Public	Catholic	Other Religious	Non-sectarian
	Coefficient (t)	Coefficient (t)	Coefficient (t)	Coefficient (t)	Coefficient (t)	Coefficient (t)
School Racial Composition						
Percent American Indian	-0.0042 * (-1.65)	-0.0009 (-0.51)	-0.0035 *** (-5.68)	-0.0001 (-0.16)	0.0023 ** (2.54)	-0.0001 (-0.22)
Percent Asian	-0.0005 (-0.88)	-0.0003 (-0.67)	-0.0009 *** (-3.00)	0.0004 (1.30)	-0.0002 (-0.80)	<0.0001 (-0.21)
Percent Hispanic	-0.0009 ** (-2.31)	-0.0001 (-0.45)	-0.0019 *** (-11.60)	-0.0001 (-0.26)	-0.0001 (-0.88)	-0.0001 (-0.42)
Percent Black	-0.0016 *** (-5.28)	-0.0001 (-0.92)	-0.0026 *** (-17.35)	0.0002 (1.51)	-0.0001 (-0.86)	-0.0001 (-0.64)
Race of Student						
Asian	0.0334 (1.41)	-0.0117 (-0.76)	0.0237 ** (1.97)	-0.0054 (-0.41)	-0.0172 (-1.51)	-0.0062 (-0.60)
Hispanic	0.0282 * (1.75)	0.0001 (0.02)	0.0491 *** (6.84)	-0.0090 (-1.18)	-0.0224 *** (-3.45)	-0.0124 * (-1.93)
Black	0.0645 *** (4.33)	-0.0046 (-0.45)	0.0620 *** (8.16)	-0.0361 *** (-4.56)	-0.0070 (-0.98)	-0.0050 (-0.77)
Household Characteristics						
HH in Poverty	0.0252 * (1.67)	-0.0044 (-.41)	0.0357 *** (4.79)	-0.0164 * (-1.95)	-0.0147 * (-1.93)	-0.0048 (-.66)
Number of Siblings	-0.0036 (-0.84)	0.0001 (0.05)	0.0028 (1.29)	0.0020 (-0.84)	-0.0017 (-0.81)	-0.0022 (-1.09)
Mother's Age	-0.0008 (-0.86)	-0.0005 (-0.72)	-0.0009 * (-1.94)	0.0005 (1.03)	0.0001 (0.12)	-0.0004 (-0.89)
No Mother at Home	-0.0539 (-1.09)	-0.0313 (-0.95)	0.0222 (0.94)	0.0179 (0.68)	-0.0146 (-0.61)	-0.0312 (-1.35)
Father's Age	0.0020 ** (2.04)	-0.0014 ** (-2.13)	0.0035 *** (7.75)	-0.0007 (-1.46)	-0.0011 ** (2.42)	-0.0006 (-1.50)
No Father at Home	0.1158 ** (2.48)	-0.0834 *** (-2.81)	0.2333 *** (11.06)	-0.0615 *** (-2.68)	-0.0679 *** (-3.25)	-0.0501 *** (-2.59)
Mother's Education						
Less than High School	-0.0563 ** (-2.06)	-0.0082 (-0.48)	0.0691 *** (5.45)	0.0089 (0.64)	-0.0138 (-1.11)	-0.0152 (-1.37)
High School	-0.0249 (-1.08)	0.0077 (0.60)	0.0259 *** (2.74)	0.0141 (1.36)	-0.0146 (-1.59)	-0.0136 * (-1.65)
Some College	-0.0443 ** (-2.18)	-0.0049 (-0.44)	0.0096 (1.14)	0.0152 * (1.67)	-0.0066 (-0.82)	-0.0136 * (-1.89)
College Degree	-0.0230 (-1.11)	0.0217 * (1.88)	-0.0184 ** (-2.10)	0.0234 ** (2.49)	-0.0134 (-1.59)	-0.0075 (-1.01)
Father's Education						
Less than High School	0.0051 (0.20)	-0.0278 * (-1.70)	0.1124 *** (9.72)	-0.0396 *** (-3.15)	0.0390 *** (-3.41)	-0.0247 ** (-2.42)
High School	0.0275 (1.23)	-0.0189 (-1.50)	0.1081 *** (11.66)	-0.0214 ** (-2.14)	-0.0334 *** (-3.87)	-0.0224 *** (-2.74)
Some College	-0.0156 (-0.75)	-0.0275 ** (-2.37)	0.0947 *** (10.97)	-0.0055 (-0.59)	-0.0384 *** (-4.77)	-0.0184 ** (-2.45)
College Degree	0.0185 (0.90)	-0.0249 ** (-2.22)	0.0498 *** (5.84)	0.0064 (0.70)	-0.0217 *** (-2.69)	-0.0152 ** (-2.11)

Appendix Table 1: Linear Estimates: Student, Household and School Characteristics (continued)

	Magnet	Charter	Traditional Public	Catholic	Other Religious	Non-sectarian
	Coefficient (t)	Coefficient (t)	Coefficient (t)	Coefficient (t)	Coefficient (t)	Coefficient (t)
Distance						
Distance to School	-0.0230 *** (-9.08)	-0.0068 *** (-4.03)	-0.0655 *** (-56.96)	-0.0059 *** (-4.80)	-0.0015 (-1.27)	-0.0008 (-0.70)
Distance Squared	0.0006 *** (5.57)	0.0002 *** (3.13)	0.0017 *** (31.76)	0.0001 *** (2.58)	<0.0001 (0.38)	<0.0001 (0.37)
Discuss Religion						
Never	-0.0260 (-1.15)	-0.0210 (-1.52)	0.0662 *** (6.95)	-0.0379 *** (-3.50)	-0.0322 *** (-3.35)	0.0029 (0.30)
Almost Never	-0.0273 (-1.25)	-0.0186 (-1.36)	0.0417 *** (4.27)	-0.0266 ** (-2.41)	-0.0258 *** (-2.71)	0.0022 (0.25)
Several Times A Year	-0.0346 ** (-2.20)	-0.0023 (-0.25)	0.0406 *** (6.10)	-0.0192 *** (-2.68)	-0.0274 *** (-4.32)	0.0038 (0.64)
Several Times A Month	-0.0276 ** (-2.20)	0.0010 (0.12)	0.0378 *** (6.74)	-0.0051 (-0.84)	-0.0218 *** (-4.04)	-0.0041 (-0.81)
Argue About Religion						
Never	0.0239 (1.31)	0.0053 (0.52)	0.0153 ** (2.04)	-0.0133 * (-1.67)	-0.0012 (-0.17)	0.0059 (0.95)
Hardly Ever	-0.0135 (-0.59)	-0.0082 (-0.58)	0.0351 *** (3.22)	0.0018 (0.15)	-0.0094 (-0.92)	-0.0030 (-0.32)
Sometimes or Often	0.0330 (0.50)	-0.0072 (-0.20)	0.0158 (0.56)	0.0048 (0.16)	0.0397 (1.50)	-0.0018 (-0.08)
School Characteristics						
School Enrollment	<0.0001 * (-1.86)	<0.0001 (1.54)	<0.0001 *** (3.89)	<0.0001 *** (3.00)	<0.0001 *** (3.84)	<0.0001 (0.76)
Percent Free Lunch	0.0016 *** (4.78)	-0.0001 (-0.39)	0.0003 ** (2.07)	na	na	na
School Math Scores	0.0006 (1.44)	0.0001 (0.56)	0.0006 *** (4.18)	na	na	na
School Reading Scores	-0.0004 (-0.91)	0.0001 (0.46)	-0.0002 (-1.27)	na	na	na
Student/Teacher Ratio	-0.0037 ** (-2.14)	-0.0002 (-0.74)	-0.0004 ** (-2.39)	-0.0012 ** (-2.26)	0.0001 (0.23)	<0.0001 (-0.43)
Midsized City Location	0.0043 (0.38)	-0.0011 (-0.15)	0.0702 *** (14.19)	-0.0291 *** (-5.47)	-0.0231 *** (-4.83)	-0.0074 * (-1.66)
Student Scores						
Student Math Score	-0.0013 *** (-3.51)	<0.0001 (0.00)	0.0006 *** (3.36)	-0.0009 *** (-4.93)	<0.0001 (0.04)	<0.0001 (-0.03)
Student Reading Score	0.0016 *** (4.84)	-0.0001 (-0.51)	0.0006 *** (3.88)	0.0004 ** (2.26)	-0.0002 (-1.09)	-0.0004 *** (-3.05)
N	47,810					
R-squared	0.4056					

Notes: t statistics in parentheses

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

State fixed effects are included in the model.

na - not available/not applicable