

WORKING P A P E R

The Effect of Charter Schools on School Peer Composition

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WR-306-EDU

October 2005

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Abstract

Few topics in education inspire as much debate as charter schools, which first appeared on the educational landscape in 1992 and now include some 3,500 schools operating in 40 states. Fueling this debate are recent studies of charter school student achievement (Buddin and Zimmer, 2005; AFT, 2004; Booker et al., 2004; Sass, 2005; Hoxby, 2004; Bifulco and Ladd, 2005a; Hanushek et al., 2002). While these studies have been informative, they generally have not shed light on a broader set of questions, including the effect charter schools have on the distribution of students by race/ethnicity and ability. Charter school critics argue that charter success might be illusory if charter schools are simply recruiting the best students from traditional public schools and that charter schools may further stratify an already racially stratified system. One way to address these concerns is to analyze the effect of the redistribution of students to charter schools on the dynamics of peers within traditional public schools. In this study, we examine charter and traditional public schools in California and Texas. In both states, we have student-level data over time with unique identifiers, which allow us to track students as they move between traditional public schools and charter schools. We find that black students in both states are more likely to move to charter schools and tend to move to charter schools with a higher percentage of black students, and those schools are more racially concentrated than the public schools they leave. We also find that students who move to charter schools are on average lower performing than other students at the public schools they leave and that this performance gap is largest for black students.

Introduction

Few topics in education inspire as much debate as charter schools, which are publicly funded schools of choice that operate autonomously, outside the direct control of traditional school districts under the authority of a quasicontract, or “charter,” granted by a public body. These schools first appeared on the educational landscape in 1992, and now include some 3,500 schools operating in 40 states. Fueling this debate are recent studies of charter school student achievement (Buddin and Zimmer, 2005; AFT, 2004; Booker et al., 2004; Sass, 2005; Hoxby, 2004; Bifulco and Ladd, 2005a; Hanushek et al., 2002). While these studies have been informative, they generally have not shed light on a broader set of questions, including the effect charter schools have on the distribution of students by race/ethnicity and ability.

Charter school critics argue that charter success might be illusory if charter schools are simply recruiting the best students from traditional public schools and reducing the race/ethnic diversity of students in schools (Fiske and Ladd, 2000; Cobb and Glass, 1999; Wells et al., 1998). In fact, when the concept of charter schools was first introduced, some concern was expressed that charter schools would become enclaves of white students escaping the racial diversity of public schools (Frankenberg and Lee, 2003). These critics further argue that charter schools could skim off the best students from traditional public schools, reducing the peer interaction of high- and low-ability students within the traditional schools. These critics point to a long and well-developed literature that highlights the benefits of the interaction of students with diverse backgrounds and ability levels (Frankenberg and Lee, 2003; Zimmer, 2003; Zimmer and Toma, 2000; Summers and Wolfe, 1977; and Henderson, et al., 1978). In general, these critics fear that

charter schools might not only have negative consequences for charter students that attend these schools but might also have social and academic effects for students who remain in traditional public schools if charter schools “skim off” high-achieving students (Lee and Croninger, 1994; Wells, 1993). Supporters, in contrast, argue that charter schools will improve racial integration by letting families choose schools outside of neighborhoods where housing is racially segregated—and by promoting fuller and richer integration in classrooms *within* schools where all students have chosen to attend (Kolderie, 2004; Finn et al., 2000; Nathan, 1998, 1996).

While some have tried to address this debate through an analysis of school-level data, the best way to know how charter schools are affecting the distribution of students is through the tracking of individual students. By doing so, we will know more definitively whether students transferring into charter schools are moving from heterogeneous schools, both by race/ethnicity and ability, to homogenous schools, or vice versa. However, it is also important to note that the effect charter schools have on race/ethnicity and ability may also be a function of the type of charter laws in place (Gill et al., 2001). For instance, if a state only allows schools to convert from traditional public schools to charter schools, or conversion schools, they may not have much effect on the total distribution of students because there may not be much turnover in the school. In contrast, if a state only allows charter schools to start from scratch, or start-up schools, then charter schools may have dramatic effects on the distribution of students within schools. In addition, some states may have more rural, rather than urban charter schools, which may create different opportunities. These are only two examples of how charter laws and environments can affect the distribution of students.

In this study, we examine charter and traditional public schools in California and Texas. In both states, we have student-level data over time with unique identifiers, which allow us to track students as they move between traditional public schools and charter schools. We assess how transferring charter school students affect the racial and ability distributions in the schools that they leave behind as well as the schools that they enter. We also assess if variations in charter policies across the two states have any effect on these distributions. The results have implications not only for the charter debate but also for the federal No Child Left Behind Act, which allows students to transfer out of chronically failing schools, and intradistrict choice programs, including magnet schools.

Background

The question of whether an enhanced array of choices reduces or increases racial segregation has been debated in other contexts, most notably in the debate over school vouchers. Since the concept of school vouchers was introduced by economist Milton Friedman in 1955, advocates have argued that vouchers and other forms of school choice can enhance the access to high quality schools for disadvantaged families (Lacireno-Paquet et al., 2002; Coons and Sugarman, 1978). They argue that poor families, which are disproportionately black or Hispanic, do not have real choices in public education system because of their inability to move their residential location. Under a traditional system, in which school attendance is tied to residential location, school choice advocates argue that schools have become a reflection of highly segregated neighborhoods. Under a system of choice, the advocates argue, parents can now choose among a wide array of

schools, therefore increasing the accessibility to schools with different racial (and to the extent race/ethnicity is correlated with ability) and ability mixes.

Weiher and Tedin (2002) argue that whether schools become more or less segregated under a school choice program is a highly dependent upon two factors. First, parents with greater economic means may be more likely to take advantage of choice and, because variance in income is related to race/ethnicity, school choice may lead to greater racial segregation (Witte and Thorn, 1996; Schneider et al, 1998; Witte, 2000; Lacireno-Paquet et al., 2002). In an analysis of 1,006 charter school households in Texas, Weiher and Tedin (2002) found that race/ethnicity is a good predictor of the choices that whites, blacks, and Hispanics make in transferring to schools with higher levels of students of the same race/ethnicity. These results reinforce the concerns of charter critics who fear that charter schools will create greater racial segregation. In addition, a number of researchers have raised concerns about whether low-income families will have sufficient information to effectively make the “consumer” choice of where to send their children (Henig, 1996, Kleitz et al., 2000.) Second, if it is easier for parents to choose schools based on race/ethnicity and if parents have a preference for racially homogenous schools, then charter schools could create greater racial stratification (Witte and Thorn, 1996; Levin, 1998; Witte, 2000).

Because there are few examples of vouchers instituted within the United States and because data on these programs is limited or nonexistent, segregation has generally not been examined under voucher programs.¹ However, with the introduction of charters,

¹ Notable exceptions include Witte’s (1993) examination of Milwaukee’s voucher program and studies of international school choice programs (Echols, McPherson, and Willms, 1990; Willms, 1996). In addition,

dozens of reports and articles have appeared examining the racial makeup of charter schools. This literature has generally compared the racial makeup of charter schools relative to state and district averages, not taking into account the fact that charter schools are not randomly dispersed within a state or even a district. In fact, one could argue that charter schools generally locate where they can attract students, which would primarily be in low-performing school districts or in areas within a district in which traditional public schools have performed poorly. These low-performing districts and neighborhoods are likely to have high proportions of minority students, making it difficult for charter schools in the aggregate or individually to be representative of statewide or districtwide populations. Thus, an analysis of the racial or ability distribution of charter schools must consider the nonrandomness of charter schools' locations. In this research, we examine the likelihood of students of different races/ethnicities and abilities attending a charter school while addressing the nonrandomness of charter schools' locations.

Literature

In 1997, SRI International conducted one of the earliest examinations of the racial makeup of charter and traditional schools in California (Powell et al., 1997). They compared the average racial makeup of charter schools statewide to the overall distribution of California students and found that charter schools were racially representative. Fitzgerald et al. (1998) examined whether charter schools in Colorado were racially representative by comparing the percentage of students of color enrolled in charter schools with the percentages of their sponsoring districts and found that charter

there has been limited research on intradistrict choice programs, including magnet schools (Lee, Croninger, and Smith, 1996).

schools serve a racially diverse population. In 2000, RPP International examined the racial makeup of charter schools nationally, relative to their surrounding districts. They found that 17 percent of charter schools had a higher proportion of “students of color” and about 14 percent had lower proportions. Later, Frankenberg and Lee (2003) compared the racial makeup of charter schools in 16 states relative to the statewide averages. They argued that charter schools are further exacerbating the current segregation within the school system. More recently, SRI International (Finnigan et al., 2004) in a national study examined the profile, including race/ethnicity, of charter students relative to students in traditional schools by comparing national averages across the two groups. They found that charter schools disproportionately serve minority students and that the overall proportion of minority students attending charter schools has been growing.

However, analysis by Miron and Nelson (2002) suggests that different research approaches can lead to different conclusions. The authors examined how racially representative charter schools were in two ways. First, they compared the racial makeup of charter schools with that of their host school district in Michigan. Using this approach, their analysis suggests that charter schools have proportions of nonwhite students similar to the average in their host districts. Next, the authors examined the composition of individual charter schools relative to traditional public schools in their districts. This approach showed that 14 percent of charter schools had at least 20 percent more minorities than their respective districts and 11 percent had at least 20 percent more white students than their respective districts. This analysis suggests that looking at individual charter schools is important to understanding patterns of integration.

Similarly, Cobb and Glass (1999), Lacireno-Paquet et al. (2002), and Buckley, Schneider, and Shang (2004) argue that an analysis using aggregate data is misleading and masks the racial and other demographic variations across charter schools. For instance, Cobb and Glass try to identify nearby traditional public schools to use as a source of comparison when comparing the racial makeup of charter schools relative to traditional schools. In determining the comparison schools, the researchers used their own subjective judgment about whether a school is the correct comparison school. They find that charter schools are significantly more segregated than traditional public schools. However, by the authors' own admission, their use of subjective judgments of comparison schools will raise suspicions by those who advance other findings. Lacireno-Paquet et al. asks a slightly different question of whether charter schools are educating more challenging students. However, they too make a strong point that aggregate analysis should be avoided when examining the profile of charter students, which underscores the need for the actual tracking of students' movements.

Despite the significant knowledge gain this research represents, two main information gaps exist. First, the research has exclusively examined race/ethnicity, ignoring altogether the issue of stratification by ability. Second, it has used cross-sectional snapshots of schools' enrollments, which does not permit examination of the movement of students between schools. Understanding how charter schools affect the mixing of students requires a dynamic model that uses longitudinal data to examine the movements of individual students. One exception is a study by Bifulco and Ladd (2005) in which they examine migration patterns of students of different race/ethnicity as they choose to go to charter schools. They find that black students are more likely to go to

charter schools with higher concentrations of black students than their exiting school has, and they highlight the importance of using student-level data.

This study tracks individual student movements and examines the environments that the students move to and from. In addition, as with the student achievement analysis, we examine how charter and district policies and contexts may influence the effects charter schools have on the distribution of students.

California and Texas Charter Laws

In our analysis, we examine two states: California and Texas. For the 2004–2005 school year, California had 533 charter schools, more than any other state, while Texas ranked fourth among states, with 234 charter schools.² Collectively, these two states represent nearly 23 percent of charter schools in the nation. In many respects, the two have similar charter laws. Both provide extensive waivers from state regulations, both allow schools to convert from traditional public schools (conversion schools) as well as start from scratch (startup schools), and both states have funding follow the student to charter schools.³

However, there are some differences. First and foremost, Texas initially did not have a cap on charter schools that serve “at-risk” students but did have a cap on charter schools that served non-“at-risk” students. While this cap was eliminated in 2001, it effectively created the motivation and framework of charter schools and continues to affect how charter schools develop. In California, the state requires schools, in their initial charter, to describe “the means by which schools will achieve a racial and ethnic

² Center for Education Reform, www.edreform.com.

³ Education Commission of States, <http://mb2.ecs.org/reports/Report.aspx?id=113>.

balance among its pupils that is reflective of the general population residing within the territorial jurisdiction of the school district to which the charter petition is submitted.”

Also, Texas requires districts to provide transportation to charter schools while California does not.⁴ These distinctions between California and Texas charter laws may result in different distributional impacts both in terms of race/ethnicity and ability. We later examine possible differences through our empirical analysis.

Description of Data

Critical to our analysis is the ability to track students over time as they move from traditional public schools to charter schools and vice versa. In both California and Texas, we have student-level data with unique identifiers to track students over time. In Texas we have student-level data from 1997–1998 through 2003–2004. In California, however, we only have data from a subset of the districts within California from 1997–1998 through 2001–2002. Because the state of California does not compile student-level data with unique identifiers, we are unable to gain a statewide data set that would link students over time. Instead, we requested student-level data from six districts that have a prominent share of charter schools in California: Chula Vista, Fresno, Los Angeles, Napa Valley, San Diego, and West Covina. Together, these districts represented more than 1 million students and 74 charter schools in the 2001–2002 school year.

In both states, the data include student characteristics (including race/ethnicity, gender, and school attendance), and test score information. In California, we have Stanford 9 reading and math test scores for students in grades two through eleven, which

⁴ Education Commission of States, <http://mb2.ecs.org/reports/Report.aspx?id=113>

are based on percentile and normal curve equivalents for each student using the Stanford 9 norming sample.⁵ In Texas, we have statewide math and reading test scores on the TAAS/TAKS test, a criterion-referenced test with a fixed passing standard, for students in grades 3-8 and 10 through 2001-02 and grades three through eleven in 2002–2003 and 2003–2004.

Table 1 shows some descriptive statistics for our sample of charter school and traditional public school students. In Texas, we observe more than 3.9 million students in at least one year, and 38,668 students of those students are observed in charter schools. In California we observe more than 1.1 million students, and 61,448 of those students are observed in charter schools. In both states, black students constitute a larger share of the charter schools population than traditional public schools, with 37 percent black in the charter student sample in both states. In Texas, white students have lower representation in the charter schools sample, 22 percent compared to 43 percent in traditional public schools, whereas in California it is Hispanic students who are underrepresented in charters, 40 percent compared to 63 percent in traditional public schools.

In both states the test score performance of charter school students is lower than those observed in traditional public schools. In Texas, this difference is quite large: 0.4 standard deviations in math and 0.34 standard deviations in reading. By contrast the difference in California it is relatively small: 0.08 standard deviations in math and almost no difference for reading scores.⁶

⁵Starting in 2002–2003, the California Department of Education switched from the Stanford 9 to the California Achievement Tests, Sixth Edition (CAT/6). Therefore, our data sets include the full range of test scores for the Stanford 9.

⁶ We converted all test scores into standardized scores with mean 0 and standard deviation 1 by grade-year-test to ensure comparability over time and across tests.

The last column in Table 1 shows the demographic mix of students and their test scores for students who transferred to a charter school from a traditional public school. A comparison of the results in columns three and four shows whether the stock of students in charters (column three) differs from the flow of students into charters. The comparison shows that Hispanics are becoming a larger share of charter students in Texas, while Asian representation is growing in California charters. The test score information shows that new charter transfers are performing about as well as existing charter students.⁷

Table 1: Descriptive Statistics

	Students Observed:		
	Only in traditional public schools	In a charter school for at least one year	Transferring from a public to a charter school
<i>Texas:</i>			
Number of Students	3,870,804	38,668	21,239
Percentage white	43.3	22.0	20.3
Percentage black	14.4	37.5	35.7
Percentage Hispanic	39.1	38.4	42.6
Percentage Asian	0.7	0.4	0.4
<i>Standardized third grade test score</i>			
Math	0.003	-0.406	-0.370
Reading	0.002	-0.344	-0.309
<i>California:</i>			
Number of students	1,072,674	61,448	15,348
Percentage white	14.2	15.2	12.5
Percentage black	12.9	37.0	37.4
Percentage Hispanic	63.0	40.5	40.5
Percentage Asian	9.4	6.9	9.3
<i>Standardized third grade test score</i>			
Math	0.001	-0.083	-0.055
Reading	0.002	-0.004	0.021

Analysis

⁷ A much larger share of Texas charter students are observed transferring from a traditional public to a charter school (55 percent in Texas versus 25 percent in California). In part, this reflects the fact that our data tracks Texas schools for seven years compared with five years in California. More important, however, the Texas data track enrollments from the introduction of charter schools in Texas, while California charters were well established by the first year of our data (the 1997–1998 school year).

This analysis examines the movement of students between traditional public and charter schools and assesses how charters are affecting the distribution of students by ability and race/ethnicity across schools. Are charters “creaming” the best student from traditional public schools? Are charters reducing student race/ethnic diversity in schools as students transfer from more to less diverse schools? Alternatively, are charters succeeding in providing better opportunities for low-achieving, minority, and at-risk students? Previous studies have examined how representative charter schools are, relative to the overall composition of a district or state. In contrast, this analysis will look at school-to-school movements and isolate how these microlevel transfers are affecting the distribution of students by ability and race/ethnicity.

Longitudinal student-level data is used to track student movements from school to school. This data feature allows us to examine the characteristics of students that migrate from a traditional public school to a charter and compare the students’ characteristics with the distribution of students at the old and new schools.

Race/Ethnicity sorting

How do charter transfers affect the diversity of traditional and charter schools? Table 2 examines the peer environment in both schools for charter transfers in Texas and California.⁸ Column two of the table shows the overall results for all students, and columns three through six show detailed results by each racial/ethnic group. In both states, students are moving to charter schools with a higher percentage of black students

⁸ Asian students are not identified in the Texas data, but they are identified in the California data.

and a lower percentage of Hispanic students than the traditional public schools that they previously attended.

The effects of charters on racial/ethnic diversity are also examined using a Herfindahl index for each school campus. The index is defined as the sum of the squared shares of each racial/ethnic group and is scaled from 0 to 1, where 1 indicates total concentration of enrollment in one racial/ethnic group.⁹ In Texas, the charter schools where students move to are less diverse than the traditional public schools the students left. In contrast, California students are transferring to charters slightly more diverse than the traditional schools they are leaving.

Table 2: Comparing Traditional Public and Charter Peer Environments for Charter Movers by Race/Ethnic Background of Student

	Total	White	Black	Hispanic	Asian
<i>Texas:</i>					
Number of students	15,300	2,977	5,405	6,480	-
Whites at traditional (%)	21.1	49.9	14.0	12.9	-
Whites at charter (%)	22.7	56.0	12.0	15.1	-
Difference	1.6*	6.1*	-2.0*	2.2*	-
Blacks at traditional (%)	28.4	15.7	52.6	14.1	-
Blacks at charter (%)	36.5	16.8	68.6	19.0	-
Difference	8.1*	1.1*	16.0*	4.9*	-
Hispanics at traditional (%)	47.8	30.5	30.8	71.1	-
Hispanics at charter (%)	39.1	23.6	18.1	64.8	-
Difference	-8.7*	-6.9*	-12.7*	-6.3*	-
Herfindahl at traditional	0.602	0.517	0.562	0.681	-
Herfindahl at charter	0.655	0.570	0.699	0.662	-
Difference	0.053*	0.053*	0.137*	-0.019*	-
<i>California:</i>					
Number of students	14,210	1,834	5,342	5,641	524
Whites at traditional (%)	14.7	44.9	7.5	11.7	22.5

⁹A number of recent studies have used the Herfindahl index to measure competition from private schools or among traditional public schools, including Zanzig (1997), Borland and Howsen (1992, 1993, 1996), Hoxby (1994).

Whites at charter (%)	14.7	37.5	7.4	13.1	31.7
Difference	0.0	-7.4*	-0.1	1.4*	9.2*
Blacks at traditional (%)	26.1	12.9	39.1	19.5	20.2
Blacks at charter (%)	39.7	18.5	50.8	30.1	22.8
Difference	13.6*	5.6*	11.7*	10.6*	2.6
Hispanics at traditional (%)	47.9	28.0	46.0	61.4	36.6
Hispanics at charter (%)	36.0	32.2	25.0	49.4	31.7
Difference	-11.9*	4.2*	-21.0*	-12.0*	-5.1*
Asians at traditional (%)	11.0	13.6	7.2	7.1	20.3
Asians at charter (%)	9.2	11.0	6.5	7.0	17.2
Difference	-1.8*	-2.6*	-0.7	-0.1	-3.1
Herfindahl at traditional	0.523	0.442	0.508	0.582	0.409
Herfindahl at charter	0.518	0.347	0.579	0.562	0.336
Difference	-0.005	-0.095*	0.071*	-0.020*	-0.073*

* Difference is significant at 5% level

The results in Table 2 show some interesting movement patterns for students in different race/ethnic groups. . In Texas, both white and black students tend to move to charter schools that have a higher percentage of students of the same race/ethnicity as the moving student. Black students move from traditional public schools that are on average 53 percent black to charter schools that are 69 percent black. White students move from traditional schools that are 50 percent white to charters that are 56 percent white. The Herfindahl measure also shows that white and black students are moving to less diverse schools. In contrast with white and black students, Texas Hispanics move to charters that have a lower percentage of Hispanic students than the public schools they left (65 percent compared to 71 percent) and are slightly more diverse.

The California patterns of transfers for black students are similar to those in Texas—the typical black transfer moves from a traditional public schools that is 39 percent black to a charter that is 51 percent black. The Herfindahl measure also shows

that black students are transferring to charters that are less diverse than the traditional schools that they left. .

In contrast with black students, white, Hispanic, and Asian students in California tend to go to charter schools that have a lower percent of students of the same race/ethnicity and that are more diverse than their traditional public schools.

For both Texas and California it appears that not only are black students more likely to opt for charter schools, but they are also choosing charter schools that are less diverse and more “like them.” This result is consistent with patterns of charter school transfers in North Carolina (Bifulco and Ladd, 2005b). White students in Texas also tend to move to charter schools that have a higher percentage of whites, but California’s white students are shifting to schools that have a lower percentage of whites than their traditional public schools. In both states Hispanic students move to charter schools with a lower percentage of Hispanics than the traditional public schools they leave.

Ability Sorting

An analysis of ability sorting for charters school movers is shown in Table 3. Individual test scores of charters students in the year before their move are shown along with the means of student peers in each student’s traditional school. A comparison of the test scores of movers and those of peers left behind shows whether charter schools are creaming the best traditional school students or providing options for students who have not succeeded in traditional public schools. The second column in Table 3 shows the test score comparisons for all students combined, and more detailed comparisons by the race/ethnic group of students are shown in columns three through six.

In Texas, charter school transfers have lower math and reading scores than their traditional school peers (a difference of 0.23 standard deviations in math, 0.16 in reading). This large difference is particularly striking given that the average test scores at the schools the students are leaving are well below the state average, with lower average math and reading scores of 0.25 and 0.23, respectively. The overall pattern in Texas is that charters draw students from traditional schools with low average test scores and movers are drawn from the group of below-average students at those schools.

The California results provide little evidence of ability sorting into charter schools. Students moving to charter schools have slightly lower test scores than their traditional school peers (0.09 and 0.04 standard deviations in math and reading, respectively). This pattern is similar to that in Texas, but the magnitude of the effect is much smaller. In contrast with Texas, the average test scores at the traditional public schools that charter movers are leaving are slightly above the state average—their math and reading scores are 0.01 and 0.06 of standard deviation higher in math and reading, respectively. California charters are attracting students from traditional schools with average test scores, and the individual student transfers are about average students within those traditional schools. California charters are not creaming the best students from traditional schools, but they are also not providing an outlet for the low-achieving students.

The Texas results by race/ethnicity in Table 3 indicate that each group of movers is scoring lower in math and reading than their traditional school peers of the same race/ethnicity. Black students have the largest achievement difference, with charter movers scoring on average 0.43 lower on math and 0.30 lower on reading than the

average score at the school they left. For Hispanics the difference is smaller, 0.16 for math and 0.13 for reading. For white students, the movers only score 0.05 worse than their campus average on math, and actually score 0.04 better in reading.

Table 3: Comparing Average Math and Reading Scores of Charter Movers to Other Students at the Traditional Public Schools That They Leave

	Total	White	Black	Hispanic	Asian
<i>Texas:</i>					
Number of students	18,351	3,810	6,474	7,560	-
Math score of movers before move	-0.478	-0.028	-0.808	-0.438	-
Math score of traditional peers	-0.248	0.025	-0.380	-0.281	-
Math score of peers of the same race/ethnicity	-	0.191	-0.529	-0.312	-
Difference with traditional peers	-0.230*	-0.053*	-0.428*	-0.157*	-
Difference with peers of the same race/ethnicity	-	-0.219*	-0.279*	-0.126*	-
Reading score of movers before move	-0.392	0.104	-0.615	-0.463	-
Reading score of traditional peers	-0.232	0.065	-0.312	-0.337	-
Reading score of peers of the same race/ethnicity	-	0.248	-0.392	-0.380	-
Difference with traditional peers	-0.160*	0.039*	-0.303*	-0.126*	-
Difference with peers of the same race/ethnicity	-	-0.144*	-0.223*	-0.083*	-
<i>California:</i>					
Number of students	13,863	4,847	1,868	5,707	567
Math score of movers before move	-0.073	0.710	-0.392	-0.232	0.815
Math score of traditional peers	0.013	0.589	-0.150	-0.115	0.271
Math score of peers of the same race/ethnicity	-	0.887	-0.319	-0.236	0.737
Difference with traditional peers	-0.086*	0.121*	-0.242*	-0.117*	0.544*
Difference with peers of the same race/ethnicity	-	-0.177*	-0.073*	0.004	0.078*
Reading score of movers before move	0.022	0.909	-0.168	-0.243	0.562
Reading score of traditional peers	0.059	0.662	-0.070	-0.115	0.303
Reading score of peers of the same race/ethnicity	-	1.044	-0.100	-0.277	0.439
Difference with traditional peers	-0.037*	0.247*	-0.098*	-0.128*	0.259*
Difference with peers of the same race/ethnicity	-	-0.135*	-0.068*	0.034*	0.123*

* Difference is significant at 5% level

This large difference between racial categories in performance differences stems in large part from the fact that black and Hispanic students in Texas have low test scores in general, relative to white students. Comparing the test scores of charter movers to only those students of their same race/ethnicity in the schools they leave reduces the size of the average test score difference for blacks and Hispanics (0.28 and 0.13 lower on math, respectively, 0.22 and 0.08 on reading), and increases it for white students (0.22 lower on math, 0.14 on reading).

The story in California is similar, but the achievement differences are not as large. Black students who move to charter schools have the largest test score difference when compared to the overall test score average at the school they leave (0.24 lower on math and 0.10 lower on reading). When compared to other students of the same race/ethnicity, however, these differences fall to 0.07 for math and reading. White students in California actually have the largest gap relative to same-race/ethnicity peers, performing 0.17 standard deviations lower on math and 0.14 lower on reading. Asian students in California have quite different performance variances, with not only high average scores (0.82 on math and 0.56 on reading) but also large positive differences when compared to other students at the public schools they leave.

For Texas, the evidence suggests that charter schools are mainly attracting lower-scoring students from lower-scoring schools. This seems particularly true for black students, where the students who choose charter schools have the largest performance gaps when compared to their public school peers. In California this phenomenon is not as pronounced, but the students who opt for charter schools have lower performance than their peers. This difference is largest for black students when compared to their overall

public school peer set, but is largest for white students when compared only to peers of the same race/ethnicity. Thus, despite some charter policy differences between California and Texas, the general patterns are largely consistent.

Charter Transfer Decisions

We also examine factors that affect transfers to charter schools and assess whether movement is more likely for some racial groups than for others or for students at certain types of traditional public schools. To do this, we examine what student-level characteristics are associated with moves to charter schools. The data set used for this analysis has one observation for each student observed in our data, and the dependant variable is whether we observe them in a charter school. This charter mobility model is a logit regression specified as equation (1):

$$T_j = \alpha X_j + \beta Y_c + \gamma M_d + G_j + C_j + v_j \quad (1)$$

where T_j is a binary variable that equals one if the j^{th} student transfers to a charter school in our sample, X_j is vector of student-level characteristics, Y_c is a vector of campus-level characteristics for the first campus we observe the student in, M_d is a vector of district-level characteristics for the first district we observe the student in, G_j is an indicator for the first grade in which we observe the student, C_j is a cohort indicator, and v_j is a random disturbance term. Students who are not observed in a traditional public school prior to being observed in a charter school are omitted from the analysis.

The results of this analysis are shown in Table 4. In both Texas and California, black and Hispanic students are more likely to move to a charter school than other students, and the effect is particularly large for black students. In Texas, economically

disadvantaged students are also more likely to move to a charter school, and limited-English students are less likely to move. For both states, the higher the student's math test score in the first year we observe them, the less likely they are to move to a charter school, whereas the student's reading score in the first year has a much smaller impact.

Table 4: Estimated Factors Influencing Transfers to Charter Schools

	<i>Texas</i>	<i>California</i>
<i>Student Characteristics</i>		
Black	0.540**	0.804**
Hispanic	0.180**	0.083*
Asian	-	0.056
Female	-0.037*	-0.023
Economically disadvantaged	0.161**	-
Special education	-0.027	-
Limited English proficiency	-0.358**	-0.033
Third grade math score	-0.131**	-0.107**
Third grade reading score	-0.027**	0.007
<i>School Characteristics</i>		
Percentage Black	0.713**	2.178**
Percentage Hispanic	1.186**	0.058
Percentage Asian	-	0.767**
Campus racial Herfindahl	-	0.815**
Percentage economically disadvantaged	-0.047	-
Percentage special education	-0.665**	-
Percentage LEP	-0.666**	-
Grade average math score	-0.039	-0.364**
Grade average reading score	-0.198**	0.068
Enrollment/1000	-0.049	-0.232**
<i>District Characteristics</i>		
Percentage black	2.152**	-
Percentage Hispanic	0.871**	-
Percentage economically disadvantaged	-0.957**	-
Percentage special education	0.794	-
Percentage LEP	-0.911**	-
Enrollment/1,000	0.005**	-
Chula Vista	-	1.044**
Fresno	-	-0.605**
Napa Valley	-	1.629**
San Diego	-	1.815**
West Covina	-	1.914**
Number of observations	2,894,231	832,500
Number of cases	38,668	61,448
Log Likelihood	-99812.4	-57614.8
Pseudo R-squared	0.107	0.162

* significant at 0.05 level, ** significant at 0.01 level

In both states, students at traditional public schools with a higher percentage of black students are more likely to opt for charter schools. In Texas, students at schools with more Hispanic students are also more likely to move to charters, and in California students at schools with a higher percentage of Asian students and schools that are more racially concentrated are more likely to move to charter schools. In Texas, the campus average reading score has a larger impact on the student's probability of moving to a charter (with a higher campus average reading score implying a lower probability of transferring to a charter), whereas in California it is the campus average math score that has a strong negative effect.

In Texas, students in districts that have a higher percentage of black or Hispanic students are more likely to move to charter schools, but students in districts that have a higher percentage of economically disadvantaged or limited-English proficient students are less likely to move to charters. In California, we only have data for six school districts, so we included district indicator variables rather than district demographic percentages. Students in Napa Valley, San Diego, and West Covina were the most likely to move to a charter school.

In an analysis such as this, it is difficult to disentangle the decisions of students and parent to attend a charter school from the supply-side decisions of charter schools about where to locate. Charter schools will locate where they feel their services will be in high demand, which is inevitably correlated with the student, campus, and district characteristics that motivate the decision to transfer to a charter school. Our results can be interpreted as a joint look at both the decisions to move to charters and the supply

decisions of charter operators, but a possible extension of this analysis would be to take a closer look at possibly disentangling these two effects.

Conclusion

Despite some differences in charter policies across the two states, we found that charter schools in both states had similar effects on the distribution, both by race/ethnicity and ability. In both states, significant differences are apparent between students who choose to move to charter schools and those who do not, and those differences vary by their race/ethnicity. Black students in particular tend to move to charter schools that have a higher percentage of black students and are more racially concentrated than the public schools they leave, which is similar to the findings of Bifulco and Ladd (2005b). Charter schools, particularly in Texas, seem to be taking students who are on average lower-performing, with this performance difference largest for black students, and also appear to be taking students from lower-performing schools. In both states little evidence can be found that charter schools are systematically cream-skimming high-performing students, and indeed in Texas the opposite appears true.

In general, these findings should relieve some of the fears of the critics who argued that charter schools could become white enclaves and skim the best students. In fact, it appears that charter schools are targeting some of the more challenging students. However, on the downside, charter schools, through black student choices, may create greater segregation and expose these students to less diversity.

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