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Is There Empirical Evidence That Charter Schools "Push Out" Low-Performing Students?

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What is This?

Is There Empirical Evidence That Charter Schools "Push Out" Low-Performing Students?

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A major concern among opponents to charter schools is whether these schools will serve all students. Some have raised concerns that charter schools will "push out" low-achieving students in hopes of improving the schools' academic profile while minimizing costs by educating fewer challenging students. In this article, we use data from an anonymous major urban school district to examine whether we see exit patterns consistent with the claim that charter schools are more likely to push out low-achieving students than are traditional public schools (TPSs). Overall, we find no empirical evidence to support the notion of push-out.

Keywords: *school choice, charter schools, segregation*

Introduction

CHARTER schools, which are publicly funded schools of choice that operate outside the direct control of school districts, continue to expand on the educational landscape as the movement has grown from the single school in 1992 in Minnesota to now more than 6,000 schools operating in 40 states and the District of Columbia.[1] However, this growth has not been without controversy. While advocates argue that charter schools, freed from bureaucracy and red tape, can improve student achievement (Finn, Manno, & Vanourek, 2000), opponents argue that charter schools take valuable resources away from traditional public schools (TPSs) and lack the incentives to serve all types of students (Wells, 1993). Opponents worry that charter schools will not only create greater racial/ethnic isolation and attract the best students away from TPSs (Cobb & Glass, 1999; Lee & Croninger, 1994; Ravitch, 2010; Wells, 1993) but will also "push out" the lowest achieving students in hopes of improving the schools' academic profile while minimizing costs by educating fewer challenging students (Ravitch, n.d.).

Although the critique of racial/ethnic isolation and cream skimming has been examined in recent papers (Bifulco & Ladd, 2007; Booker, Zimmer, & Buddin, 2005; Frankenberg, Siegel-Hawley, & Wang, 2010; Miron, Urschel, Mathis, & Tornquist, 2010; Ritter, Jensen, Kisida, & Bowen, 2012; Ritter, Jensen, Kisida, & McGee, 2010; Zimmer, Gill, Booker, Lavertu, & Witte, 2011), the claim of "pushing out" low-achieving students has gained traction in part from opinion pieces.[2] These voices express concern that a practice of pushing out low-achieving students would not only make it difficult to accurately assess charter school performance (Henig, 2008; Ravitch, n.d.) but also have detrimental effects on those students who are pushed out, as

research suggests that transfers from one school to another can create adverse effects (Booker, Gilpatric, Gronberg, & Jansen, 2007; Hanushek, Kain, & Rivkin, 2004; Xu, Hannaway, & D'Souza, 2009).

In general, it is difficult to demonstrate definitively that charter schools, or public schools, push out low-achieving students, as it is unlikely that schools would be so bold as to expel students outright for low-achievement performance. If students are being pushed out, it is more likely to occur in subtle ways—for example, through counseling students and their families to seek a better fit for their needs or having more stringent disciplinary consequences or requiring certain commitments that are associated with higher student achievement such as family involvement and student attendance requirements (Karp, 2010). However, we can examine empirical data to see whether we observe patterns consistent with the claim that charter schools are pushing out low-performing students.

To address this question, we use data from an anonymous major urban school district with a large number of charter schools to compare the exit patterns of low-achieving students in charter and TPSs. We identify students who are low-performing relative to their peers in the same school (or, in some analyses, relative to the rest of the district) and investigate their rates of exit in charter and TPSs. We also conduct a number of sensitivity analyses, including an examination of whether students who do not reach proficiency status in reading and math are more likely to exit charter or TPSs and whether there are differential exit patterns across low- and high-achieving schools. If these analyses suggest that low-performing students are more likely to exit charter schools, this would supply some evidence to support claims that charter schools are pushing out low-performing students.

What Is the Motivation for "Pushing Out" Students

Theoretically, a charter school's motivation to push out low-performing students could come from at least three sources. First, charter schools are schools of choice. As such, they need to attract students. Students are not assigned to charter schools like neighborhood schools and only can survive to the extent students choose to enroll. Therefore, charter schools feel market pressure to recruit students. One way to recruit students is through the academic reputation of the school (Ravitch, 2012), which is in part a function of the academic achievement of its students.[3] Therefore, a school would have an incentive to push out below-average students to improve the overall average achievement level of the school.

Second, low-performing students may be more expensive to educate (Miron, Urschel, & Saxton, 2011). For instance, low-performing students may be more likely to be a special education or limited English proficient (LEP) student requiring greater resources, and previous research has shown that charter schools have lower percentages of special education and LEP students (Center for Research on Education Outcomes [CREDO], 2011; GAO, 2012; Nichols-Barrer, Gill, Gleason, & Tuttle, 2012; Zimmer et al., 2003).[4] Given the need for charter schools to be financially viable and that the reimbursement for at least some of these low-performing students may not be adequate (Miron et al., 2011), charter schools may again have an incentive to push out below-average students.

Third, charter schools may feel strong accountability pressures. Most charter schools, like TPSs, have to meet academic targets to avoid sanctions under the federal No Child Left Behind (NCLB) or other state accountability programs. There has been a fair amount of research suggesting that accountability pressures can alter decisions by schools and lead to unintended consequences. For instance, in Chicago, Jacob (2005) found evidence that teachers excluded low-ability students from testing by placing them in special education in response to accountability pressures, whereas Jacob and Levitt (2007) found evidence of outright cheating by teachers. Other researchers have found that because schools are generally held accountable for the percentage of students making proficiency thresholds, schools and teachers will focus more attention on students near this cutoff threshold than on students at other parts of the distribution (Booher-Jennings, 2005; Krieg, 2008; Neal & Schanzenbach,

2010). As another example, Figlio (2006) found evidence that schools assign long suspensions for low-performing students near test-taking periods. All this evidence suggests that schools and teachers sometimes respond to accountability pressure in unintended and even insidious ways. In particular, schools just above or below the proficiency threshold that determines whether they make adequate yearly progress (AYP) have the greatest incentive to push out low-performing students. Schools significantly above or below the threshold may have less incentive to push out low-performing students because pushing out a subset of students is unlikely to affect the odds of the schools making AYP. These schools would gain little in terms of accountability and lose the revenue associated with losing students. Later, we will examine whether low-performing students are more likely to exit when schools are near the AYP threshold.

Because of recruitment, fiscal, and accountability pressures, charter schools may have strong incentives to push out low-performing students through counseling or other means. However, it may also be the case that TPSs have these same incentives—as TPSs certainly feel accountability and fiscal pressures and may, although to a lesser extent, feel market pressure as they compete with other TPSs and schools of choice for students. But one could argue that TPSs do not have the same ability to push out students because students are assigned to them (Karp, 2010).[5] However, this does not take into account the fact that TPSs could also counsel students into charter schools or other schools of choice. Alternatively, to the extent that one observes low-performing students exiting either type of school, it may be that these students move of their own accord hoping to improve their educational situation by moving to a higher quality school (Hanushek, Kain, Rivkin, & Branch, 2007; Rumberger, Larson, Ream, & Palardy, 1999) or, more simply, that low-achieving students are more transient (Alexander, Entwisle, & Dauber, 1996).

Related Research

While the bulk of the research surrounding charter schools in recent years has explored the achievement effects of these schools (Abdulkadiroglu et al., 2009; Bifulco & Ladd, 2006; Booker et al., 2007; Booker, Sass, Gill, & Zimmer, 2011; CREDO, 2009; Hanushek et al., 2007; Hoxby & Murarka, 2007; Sass, 2006; Witte, Weimer, Shober, & Schlomer, 2007; Zimmer & Buddin, 2006; Zimmer et al., 2003; Zimmer et al., 2009; Zimmer, Gill, Booker, Lavertu, & Witte, 2012), research is beginning to emerge on other important issues including the effects these schools may have on the distribution of students by race/ethnicity and ability. Some worry that these schools could further stratify an already racially or ethnically stratified system, as families will choose schools based on their racial/ethnic makeup and try to isolate their child from students of other groups (Cobb & Glass, 1999). A further concern is that only the most motivated families with the highest ability students will utilize the option of charter schools (Lee & Croninger, 1994; Wells, 1993). As a result, charter schools will "cream skim" the best students from TPSs, leaving the more challenging students behind for TPSs to educate. However, others argue that because charter schools allow students to attend schools outside of their neighborhood school, students would be allowed to attend more racially or ethnically diverse schools (Finn et al., 2000; Nathan, 1998) and that many students who are struggling academically in TPSs may seek new educational opportunities in charter schools.

While research has begun to address questions of whether charter school recruitment leads to greater racial/ethnic segregation and cream skimming and finds mixed evidence across locations (Bifulco & Ladd, 2007; Booker et al., 2005; Butler, Carr, Toma, & Zimmer, in press; Frankenberg et al., 2010; Garcia, 2008; Garcia, McIlroy, & Barber, 2008; Miron & Nelson, 2002; Ritter et al., 2012; Ritter et al., 2010; Zimmer et al., 2011), it has almost entirely neglected the question of whether students exiting charter schools are more likely to be below average than students exiting TPSs. However, researchers have examined the exit patterns of students in other school choice programs. For instance, Cowen, Fleming, Witte, and Wolf (2011) examined the Milwaukee voucher program and found that students who switched from the private to public sector are

disproportionally African American and lower performing. In addition, Hanushek and colleagues (2007), although not directly addressing the issue, examined whether there are differential exit rates among the charter schools of varying quality. They found that higher achieving charter schools have lower exit rates than lower achieving charter schools. The authors suggest that much of the student mobility in charter schools is motivated by a desire to improve one's educational situation, which could suggest that if low-performing students are leaving charter schools, they may be leaving on their own accord.

Furthermore, a few studies have looked at entering and exiting patterns of students from charter schools managed by the management organization KIPP (Knowledge Is Power Program). KIPP schools have been widely acclaimed for their "no excuse policy" and strong student test score performance, but many have wondered whether the policy leads to higher quality students applying to these schools and higher levels of attrition (Henig, 2008; Miron et al., 2011). Miron and colleagues (2011) used school-level data to examine 60 KIPP schools and found that KIPP schools have greater attrition than their local school districts. A recent Mathematica study extended the research on KIPP by using student-level data focusing on 19 KIPP middle schools (Nichols-Barrer et al., 2012). On average, they found that "students exiting KIPP schools have similar prior achievement to those exiting nearby schools" (Nichols-Barrer et al., 2012, p. 21), but did suggest that KIPP schools are underrepresented by special education and LEP students. Although these studies have provided insights into the students served by KIPP schools, their findings are somewhat mixed, and they do not address the exit patterns of low-performing students in a wide variety of charter schools.

Recent research has examined exit patterns across all charter schools in Delaware and Washington, D.C. Miron, Cullen, Applegate, and Farrell (2007) examined the exit patterns of charter students in Delaware and found mixed patterns across grades, with "leavers" (those who exit charter schools) at the elementary level having higher test scores than students who remain in the charter schools ("stayers"), no

notable difference at the middle school level, and leavers having lower test scores than stayers at the high school level. It is notable that this analysis did not compare these patterns with TPSs to examine whether these patterns represented a general trend or not. In a recent evaluation of Washington, D.C.'s charter schools, the *Washington Post* found that charter schools had higher rates of behavior-related expulsion than TPSs, but that these high expulsion rates were concentrated in a select number of charter schools (Brown, 2013).

Together, this research has provided some useful insights but has either focused on the exit patterns of low-performing students in charter schools without comparing them with general trends within the district, focused on a particular type of charter school (e.g., KIPP schools), or focused on behavior-related expulsions. Prior research has not specifically addressed the "push-out" critique—that is, charter schools are more likely to push out low-performing students than TPSs. Our research addresses this gap by examining the exit patterns of low-performing students in all charter and TPSs in a large urban school district containing a large number of charter schools of many types. Our analyses examine this question in a comprehensive manner and check the sensitivity of results to several possible influential factors relating to accountability pressures. In addition, because the prior literature suggests that there could be a large amount of variation in student exit patterns among charter schools, we also examine the exit patterns of *individual* schools in the charter and TPS sectors, which may have implications for whether individual charter schools should receive greater scrutiny for pushing out students when they are reauthorized. Together, these analyses allow us to determine whether there is empirical evidence consistent with the claim that charter schools are pushing out low-performing students, at least in the large urban district examined.

Data

The anonymous district we study is a large school district with a high concentration of low-income students (nearly 80% of the students qualify for free and reduced lunch [FRL]). It has

experienced strong growth in the number of charter schools—from a handful of charter schools in the late 1990s to about 60 charter schools by 2007—making it a high profile district for the charter movement. These charter schools have created new educational opportunities for students and were initiated by a vast array of individuals and organizations, including educators, politicians, community groups, and social service organizations. The schools' mission statements reflect their varied origins and address a wide range of themes such as community, family, career, and cultural heritage, as well as support for academic achievement. In 2007 (the last year of our data), about 65% of the district's charter schools made AYP under NCLB compared with about 45% of schools in the district as a whole. The substantial advantage charter schools have in making AYP in this district makes it an ideal place to examine the pattern of students transferring out of charter schools, as we want to know whether this advantage could be the function of low-performing students exiting charter schools at higher rates than TPSs.

To track students exiting charter schools and TPSs, the anonymous district provided student-level data that included race/ethnicity, gender, special needs, LEP, test scores, school of attendance, and grade enrolled for each year from 2000–2001 through 2006–2007 school years. In addition, the district provided a list of school identifiers for each charter school and the year in which the school was established. Using this list combined with the school identifiers for each student, we were able to identify whether a student attended a charter school for each year.

In the period under examination, students in the district took three kinds of annual achievement tests in reading and math, varying with the school year and grade. The primary test was the state accountability test, which is used to hold schools accountable for performance targets under NCLB. This test was used for math and reading in Grades 5, 8, and 11 annually beginning in spring 2001 and Grades 3 through 8 and 11 in spring 2006 and 2007. Because not all grades were tested through the state accountability test and, because the district wanted to have its own assessment of performance, it administered additional tests, including the

Stanford 9 and Terra Nova tests. Table A1 in the appendix provides a comprehensive list of grades and years covered by each test. We use the scores from these administered tests, along with the demographic information, to examine the achievement levels of students exiting charter schools.

To utilize all testing information and because there is no consistent scale across the various tests, we normalized all scores by grade and year with a mean of zero and a standard deviation of one. We then created a single variable composed of the standardized state accountability test score as the preferred test when more than one test score was present and the Terra Nova or Stanford 9 scores were present only in cases where the state accountability test was missing. We preferred the state test because it is the state accountability measure and, in the most recent years, has been administered in more grades. Because combining different types of tests could be a source of concern, we ran a sensitivity analysis using only the state accountability test scores and thus limiting the analysis to a smaller set of grades. As we will demonstrate later, restricting the analysis to the state accountability test only does not change our results.

Table 1 shows the descriptive characteristics of charter schools and TPSs over the course of the 7 years of data. A variable of key importance to our study is the "transferring out" variable. For this variable, we remove students who are making "structural" moves[6]—that is, students who are switching from elementary to middle schools and middle to high schools—as we are interested in the possibility of students being "pushed out" and not naturally promoted out of a charter school. This variable is defined as transferring out rather than exiting because it does not capture moves of students who leave the data set. For instance, some students may exit a school to attend a private school or a school in another district or may drop out of school altogether. Nevertheless, with the exception of moves to a private school or dropouts (which would only be relevant at the high school level), our variable captures the type of school exit that would be affected by "push-out."

Based on the descriptive means, the proportion of students transferring out of charter

TABLE 1
Descriptive Statistics of Charter Schools and TPSs

Variable	Charter schools		TPSs	
	M	SD	M	SD
Transferring out of a school	0.12	0.33	0.15	0.36
Black	0.67	0.47	0.65	0.48
Hispanic	0.12	0.33	0.15	0.35
White	0.19	0.39	0.14	0.35
Male	0.48	0.50	0.50	0.50
LEP	0.02	0.15	0.07	0.25
Special education	0.12	0.33	0.15	0.36
Math z scores of all tests	0.01	0.91	0.00	1.01
Reading z scores of all tests	0.14	0.92	−0.02	1.01
Math z scores of state accountability test	−0.03	0.93	0.00	1.00
Reading z scores of state accountability test	0.09	0.94	−0.01	1.01

Note. TPSs = traditional public schools; LEP = limited English proficient.

schools is actually slightly lower than the transfer proportion in TPSs. In terms of demographic characteristics, charter schools had similar makeup of students with slightly higher shares of White and African American students and slightly lower shares of Hispanic, male, special education, and LEP students. However, charter schools have slightly higher reading achievement levels and similar math achievement levels as measured by the z score of all the tests combined and for the state accountability test.

Descriptive Analysis

To examine whether we find any evidence of charter schools pushing out students, we first descriptively examine in Figure 1 the average achievement levels of students transferring out of charter schools relative to their peers within the charter school in the year they exited. Anything below zero indicates that the average performance of the students is below the average of their peers in the school they exited. The figure suggests that students transferring out of charter schools have slightly lower achievement levels relative to their former peers by 0.05 and 0.06 of a standard deviation. However, a nearly identical pattern is true for students exiting TPSs with slightly lower achievement levels of 0.05 of a standard deviation for math and reading. Therefore, while this provides some evidence that students transferring out of charter schools are slightly lower achieving, there is
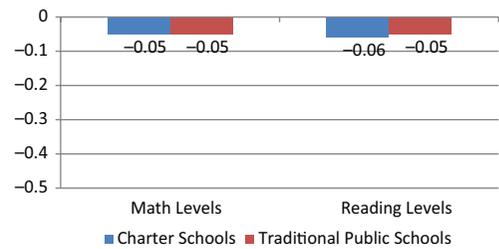

FIGURE 1. *Test score levels of students transferring out relative to former peers.*

similar evidence for students transferring out of TPSs, which could result from a general pattern of low-performing students exiting schools with no clear evidence that charter schools are pushing out low-performing students any more than TPSs.

Regression Analysis and Results

Empirical Model

Although Figure 1 provides some interesting insights, the analysis does not account for other factors simultaneously. To examine the marginal effect of various factors, we conducted a linear probability analysis in which we use a dichotomous outcome indicating whether a student exited a school in a nonstructural move.[7] To construct our independent variables of interest, we first create a measure of the student's performance relative to the campus performance. This

is formed by subtracting the campus average score from the student score. Then we create a variable indicating that the student is below the campus average. Last, we create two interactions with this variable: one in which it is interacted with an indicator for whether the student is in a charter school and one in which it is interacted with an indicator for whether the student is in a TPS. With the inclusion of these interactions, our omitted category represents all students with an above-average performance. This analysis allows us to examine whether below-average students *within a campus* are more likely to exit a charter or TPS relative to above-average students. In addition, because a school might also view a student as low-performing relative to other students within the district rather than simply within the school, we also created a second dichotomous variable defined as whether the student has a below-average test score *relative to the district* and interacted this variable with charter and TPS status.[8]

The full model thus describes the discrete outcome (i.e., whether a student transfers out of his or her school) as a function of several factors, as follows:

$$y_{it} = \text{year}_t + \varphi\,\text{below} \times \text{charter}_{i,t-1} \\ + \gamma\,\text{below} \times \text{TPS}_{i,t-1} + \beta'\mathbf{X}_{it} + u_{it}, \quad (1)$$

where $y_{it} = 1$ if the ith student makes a nonstructural transfer from his or her school in the tth year; year_t are separate intercepts for each year; the coefficients of interest—that is, the effect on nonstructural transfer of being a below-average student interacted with charter and TPS, are φ and γ, respectively. To examine whether there is differential transferring of low-performing students in charter schools relative to students in TPSs, we examined whether coefficients on these last two variables were statistically different. In the model, the vector $\mathbf{X}$ includes student characteristics of race/ethnicity, gender, special needs, and LEP. Race/ethnicity indicators are entered as dummy variables for African American, Hispanic, and Other, with White as the omitted reference category. Table 2 provides a definition for the primary variables of interest in the analysis.

We estimate Equation 1 in four separate models—two in math (one measuring low-performing students as below the campus average and one measuring low-performing students as below the district average) and two corresponding models for reading. Finally, given that there is reason to believe the choices of individual students within schools are not "independent" observations, the t statistics are computed from robust standard errors clustered by schools.

Limitations

Before presenting our results, it is worth noting the limitations of our analyses, some of which have been noted earlier. First, our dependent variable only measures transfers between school years. It does not include students who completely exit our database including students who switch to private schools, to a school in another district, or drop out. Along the same lines, we do not examine within school-year transfers, although these do not affect our analysis unless students transfer more than once throughout the year, which is likely a small percentage of the population. Although these omissions weaken our dependent variable slightly, we argue that between school transfers across years is a strong proxy for the types of student exits we wish to examine. Second, our data do not contain a consistent measure of poverty status for students such as FRL over time. Although our analysis would be more complete with a good measure of FRL status, it is highly correlated with minority status, and, according to National Center for Educational Statistics, approximately 80% of the students in the district are FRL students. Therefore, having FRL status would likely not account for much additional variance from student to student. Third, we do not have measures of student disciplinary problems. Although student behavior is not the focus of the current article, it would be interesting to examine the degree to which behavioral issues are correlated with the exit of low-performing students in charter schools and TPSs. Fourth, we do not know why students transfer out of a school and cannot determine whether a student is being pushed out of a school rather than exiting for some other reason. Nevertheless, we can see whether patterns in the data are consistent with claims that charter schools push out low performers and thus provide some of the first empirical insights into this debate.

TABLE 2

Definition of the Dependent Variable and Independent Variables of Interest

Variable	Description
Transferring out of a school	Discrete outcome indicating whether a student made a nonstructural transfer from a school and serves as the dependent variable in our models.
Low-performing students in math for charters	Interaction between two dichotomous variables—defined in two ways: (a) Indicator for student is *below the campus* math average achievement of the school the student exited × Indicator for whether the exiting school is a charter (b) Indicator for student is *below the district* math average achievement of the school the student exited × Indicator for whether the exiting school is a charter
Low-performing students in math for TPSs	Interaction between two dichotomous variables—defined in two ways: (a) Indicator for student is *below the campus* math average achievement of the school the student exited × Indicator for whether the exiting school is a TPS (b) Indicator for student is *below the district* math average achievement of the school the student exited × Indicator for whether the exiting school is a TPS
Low-performing students in reading for charters	Interaction between two dichotomous variables—defined in two ways: (a) Indicator for student is *below the campus* reading average achievement of the school the student exited × Indicator for whether the exiting school is a charter (b) Indicator for student is *below the district* reading average achievement of the school the student exited × Indicator for whether the exiting school is a charter
Low-performing students in reading for TPSs	Interaction between two dichotomous variables—defined in two ways: (a) Indicator for student is *below the campus* reading average achievement of the school the student exited × Indicator for whether the exiting school is a TPS (b) Indicator for student is *below the district* reading average achievement of the school the student exited × Indicator for whether the exiting school is a TPS

Note. TPSs = traditional public schools.

Main Results

Table 3 presents the results using achievement level relative to their schoolwide (columns 1–2) and districtwide averages (columns 3–4). Across both sets of analyses, we find evidence that below-average students in TPSs are slightly more likely to make a nonstructural transfer than above-average students whether we use below-average students at the school level or districtwide level. The coefficient estimates suggest that low-performing students at TPS schools are 1% to 5% more likely (at statistically significant margin) to transfer than above-average students, although the statistical significance may be achieved in part due to the large sample size. Low-performing students are neither more nor less likely to transfer out of charter schools. The *F* test of the differences between the coefficient estimates for low-performing students in charter schools versus TPSs is statistically significant in three out of the four cases—only when using below-average math test scores relative to a student's former peers is the difference not statistically significant. This suggests that low-performing students are more likely to transfer out of a TPS than a charter school. But again, the differences are relatively small—about 5%. Overall, the results across all models provide no evidence that low-performing students are more likely to exit a charter school than a high-performing student or a low-performing student in a TPS.

TABLE 3

Linear Probability Results Examining the Exit Patterns of Low-Performing Students in Charter Schools and TPSs Using State- and District-Administered Tests

	Using student scores relative to campus average as the measure of low performance		Using student scores relative to districtwide average as the measure of low performance	
	Math	Reading	Math	Reading
Variable	(1)	(2)	(3)	(4)
Low-performing students in math for charters	−.009 (.014)		.003 (.011)	
Low-performing students in math for TPSs	.018* (.003)		.051* (.004)	
Low-performing students in reading for charters		−.014 (.013)		.002 (.011)
Low-performing students in reading for TPSs		.019* (.002)		.051* (.004)
Black	.079* (.008)	.079* (.008)	.066* (.007)	.069* (.007)
Hispanic	.071* (.010)	.071* (.008)	.061* (.009)	.061* (.009)
Other	−.014* (.007)	−.016 (.006)	−.013 (.007)	−.016* (.006)
LEP	.001 (.005)	.002 (.005)	−.006 (.004)	−.008 (.004)
Special education	.000 (.003)	.000 (.003)	−.007* (.003)	−.007* (.003)
Male	.011* (.002)	.009* (.003)	.011* (.002)	.007* (.002)
Constant	.070* (.011)	.050* (.008)	.063* (.011)	.046* (.008)
Year fixed effects	Yes	Yes	Yes	Yes
p Value of the F test of difference of coefficients	.08	.02*	.00*	.00*
n	470,786	510,371	470,786	510,371

Note. Robust standard errors in parentheses. TPSs = traditional public schools; LEP = limited English proficient.
*Indicates significance at the 5% level.

Checking the Sensitivity to the Measure of Low-Performing Students

To check the robustness of our results, we conducted a number of sensitivity analyses, including different approaches to isolating and defining low-performing students. First, up to this point, we have used three different tests to measure performance and because each of these tests could be measuring different skills and knowledge, we restrict the analysis in Equation 1 to only one test—the state accountability test.

Second, because schools are held accountable according to whether their students are making proficiency rather than the average test scores of their students, we also examine whether our results differ if we define our measure of student performance as whether the student made state-defined math and reading proficiency standards. Because we only have cutoff thresholds for the state

accountability test, we create an indicator of whether the student reached the proficiency threshold only for the state accountability test.[9] As in our analysis using the average achievement levels, we create two interactions: one interacts the proficiency indicator with an indicator for whether the student is in a charter school and one interacts the proficiency indicator with an indicator for whether the student is in a TPS. These interactions are created separately for math and reading, and we again use Equation 1 to estimate the model.

Third, in our main analysis, we have defined low-performing students as those who either had achievement levels below their school or district average test scores. Previously, we noted that we interacted a continuous measure of performance with charter status and found no statistically significant relationship between student performance and transferring out of charter schools. However, to further examine

whether our analysis is sensitive to how we define low-performing students, we created a new interaction in which we define students as low-performing if they are a half of a standard deviation below their schoolwide or district-wide averages and interacted these low-performance measures with charter and TPS status. We then reran the separate math and reading models using Equation 1.

Fourth, and finally, it may be that schools define students as low-performing not based on their achievement *level* but by their achievement *gain*. Therefore, we ran additional analyses in which we defined students as low performing if they had below-average *gain* relative to that of their school and interacted this with the charter and TPS status of the students. However, it should be noted that in many years, the only way to measure gains for a student is to measure the gains across different tests, which may be measuring different skills and knowledge. Therefore, we restricted our gain analysis to the state accountability test only, which was only administered in consecutive grades in recent years.

To conserve space, we do not present each of the results here[10] but note that the results for each of the analysis are consistent with the conclusions of the main results in Table 3—Low-performing students are no more or less likely to transfer out of a charter school than they are to transfer out of a TPS or than high-performing students, in general. Therefore, our results from our main analysis in Table 3 appear to be robust. Again, these analyses cannot tell us why a student exits a particular school. Therefore, we cannot definitely say that charter schools are not pushing out low-performing students, but it does not provide any evidence consistent with the claim.

Adding Additional Controls for Why a Student Exits

Although we cannot definitely know why a student exits a school, we can at least try to control for two reasons why a student may transfer—to attend a better school or because the student is performing poorly. To do that, we ran a model with two additional variables. One variable controls for a student's own performance as

measured by achievement gains,[11] which controls for the possibility that student assessments of his or her own performance may motivate an exit from the school. A second variable measures the performance of the school a student attends in the current year relative to the performance of the school the student attended in the previous year. For students who do not switch schools, these values are generally small. However, for students who switch schools, these values can be large and should control for the possibility that some students exit schools to improve their academic situation. These variables are added to the basic analysis laid out in Equation 1, and the results are displayed in Table 4. The year-to-year gain measure is negative and statistically significant suggesting that students making larger gains are less likely to transfer out of a school, consistent with our intuition. The coefficient estimates for the difference in schoolwide achievement from year-to-year are positive in all cases consistent with the intuition that students transfer out of a school to enter a higher performing school (Hanushek et al., 2007), although the estimates are statistically significant in only one case. As for the variables of interest, we again see no evidence that low-performing students are more likely to exit a charter school than a high-performing student or a low-performing student in a TPS.

Checking the Sensitivity by Disaggregating the Analysis

So far, our analyses have examined charter schools and TPSs across the district in the aggregate. This analysis did not find evidence consistent with the claim that charter schools are pushing out low-performing students. However, because previous research suggests that exit patterns could vary by grade level (Miron et al., 2011) and because there could be individual schools with high exit rates (Brown, 2013), we extended the aggregated analysis to include a disaggregated analysis. Although our aggregate analysis can inform aggregate policy decisions (e.g., whether to have charter schools or not), it is also important to examine whether there is a need to develop policies to ensure greater scrutiny with respect to individual schools.

TABLE 4

Linear Probability Results Examining the Exit Patterns of Low-Performing Students in Charter Schools and TPSs With Controls for Why a Student May Exit a School

	Using student scores relative to campus average as the measure of low performance		Using student scores relative to districtwide average as the measure of low performance	
	Math	Reading	Math	Reading
Variable	(1)	(2)	(3)	(4)
Low-performing students in math for charters	−.003 (.014)		.006 (.011)	
Low-performing students in math for TPSs	.024* (.003)		.055* (.004)	
Low-performing students in reading for charters		−.008 (.013)		.006 (.011)
Low-performing students in reading for TPSs		.025* (.003)		.055* (.004)
Year-to-year gain of individual student	−.014* (.002)	−.011* (.002)	−.017* (.002)	−.014* (.002)
Relative performance of the school a student attends this year relative to the school the student attended last year	.045 (.024)	.051* (.025)	.040 (.024)	.047 (.025)
Black	.078* (.008)	.078* (.008)	.064* (.008)	.067* (.007)
Hispanic	.071* (.010)	.070* (.009)	.060* (.009)	.060* (.009)
Other	−.013* (.007)	−.017* (.006)	−.012 (.007)	−.017* (.006)
LEP	.001 (.005)	.001 (.005)	−.007 (.004)	−.008 (.004)
Special education	−.002 (.003)	−.002 (.003)	−.008* (.003)	−.008* (.003)
Male	.012* (.002)	.009* (.002)	.011* (.002)	.007* (.002)
Constant	.047* (.008)	.049* (.008)	.041* (.008)	.045* (.008)
Year fixed effects	Yes	Yes	Yes	Yes
p Value of the *F* test of difference of coefficients	.08	.02*	.00	.00
n	465,136	503,593	465,136	503,593

Note. Robust standard errors in parentheses. TPSs = traditional public schools; LEP = limited English proficient.
*Indicates significance at the 5% level.

First, we ran Equation 1 separately for primary (students in eighth grade or below) and secondary school grades (in ninth grade or above) with the same interactions of low-performing students and charter and TPS status as Equation 1 for math and reading. The results for the primary and secondary results are shown in Table 5. For primary grades, the results continue to be consistent with the main results displayed in Table 3. For the secondary grades, the results differ a bit, as the coefficient estimates are positive for charter schools and range between 3.3% and 4.6%. However, only the estimate for secondary students with below-average reading scores relative to the district is statistically significant and this estimate is not statistically different from the TPSs estimates. Nevertheless,

greater scrutiny of charter high schools may be warranted.

As mentioned earlier, there could be differential incentives to push out students based on where the school fits into a distribution relative to NCLB's accountability threshold. If a school is near the proficiency cutoff, pushing out low-performing students could help the school make NCLB's proficiency rate. However, if a school is either far below or above the proficiency rate cutoff, the school may not have much incentive to push out low-performing students, as it is unlikely to help the school make proficiency and would reduce its revenue. To explore whether our results differed for schools near the proficiency cutoff rate, we created three-way interactions between the indicators of whether

TABLE 5
Linear Probability Results Examining the Exit Patterns of Low-Performing Students in Primary and Secondary Charter Schools and TPSs

	Primary schools				Secondary schools			
	Using student scores relative to campus average as the measure of low performance		Using student scores relative to districtwide average as the measure of low performance		Using student scores relative to campus average as the measure of low performance		Using student scores relative to districtwide average as the measure of low performance	
	Math	Reading	Math	Reading	Math	Reading	Math	Reading
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Low-performing students in math for charters	−.022 (.012)		−.005 (.012)		.034 (.028)		.033 (.018)	
Low-performing students in math for TPSs	.021* (.002)		.050* (.004)		.002 (.006)		.055* (.013)	
Low-performing students in reading for charters		−.028* (.012)		−.009 (.012)		.036 (.027)		.046* (.020)
Low-performing students in reading for TPSs		.019* (.002)		.048* (.003)		.010 (.006)		.057* (.014)
Black	.079* (.007)	.080* (.007)	.067* (.007)	.070* (.007)	.077* (.020)	.080* (.019)	.060* (.019)	.063* (.019)
Hispanic	.073* (.009)	.072* (.008)	.064* (.008)	.063* (.008)	.052* (.026)	.054* (.026)	.040* (.026)	.042* (.026)
Other	−.014* (.006)	−.020* (.006)	−.013* (.006)	−.016 (.006)	−.013 (.014)	−.014 (.010)	−.012 (.015)	−.016 (.015)
LEP	.002 (.005)	.004 (.005)	−.004 (.005)	−.005 (.005)	−.004 (.010)	−.004 (.010)	−.012 (.010)	−.019 (.010)
Special education	.002 (.003)	.002 (.003)	−.004 (.003)	−.004 (.003)	−.008 (.007)	−.008 (.007)	−.020* (.069)	−.019* (.007)
Male	.010* (.002)	.009* (.002)	.010* (.002)	.007* (.002)	.013* (.007)	.011 (.007)	.011 (.006)	.006 (.006)
Constant	.063* (.007)	.065* (.007)	.060* (.008)	.061* (.007)	.048 (.027)	.046 (.026)	.038 (.280)	.040 (.027)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p Value of the F test of difference of coefficients	.00*	.00*	.00*	.00*	.27	.36	.35	.68
n	373,788	409,343	373,788	409,343	96,948	97,497	96,948	97,497

Note. Robust standard errors in parentheses. TPSs = traditional public schools; LEP = limited English proficient.
*Indicates significance at the 5% level.

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the student is low-performing, an indicator of whether the student is in a charter or TPS school, and whether the school's percentage of proficient students is more than 5% away from the proficiency cutoff rate[12] and reran Equation 1 separately for math and reading.[13] To conserve space, we do not show the results here, but the analysis provides no evidence of charter schools pushing out low-performing students.

We also examined whether transfer rates differ by the achievement levels of schools. To do this, we created three groups of schools— schools that had a mean z score in the bottom third (low achieving), middle third (average achieving), and top third (high achieving) in the district. We then interacted each of these variables with charter and TPS status, and whether the student is a below-average student relative to his or her campus and district. Some have wondered whether the performance of high-achieving schools is a function of high levels of attrition within these schools (Henig, 2008), which could be the result of pushing out low-performing students. In addition, the low-achieving schools may be desperate to improve their academic profile. Therefore, even if a low-achieving school loses revenue when students leave, one could argue that they may have motivation to push out low-performing students as well. The results are shown in Table 6.

The estimates for the probability of low-performing students transferring out of charter schools at various achievement levels are generally small and only statistically significant in two cases. First, using math scores, low-performing students (relative to their former peers) are significantly less likely than an above-average student to transfer out of an average-achieving charter school but at a small margin of 2.8%. Second, using reading scores, low-performing students (relative to the *district* average) are significantly more likely to transfer out of a low-achieving charter school but at a modest margin of 3.9%. Given this relative small positive probability for reading and the fact that the estimate is sensitive to how low-achieving students are defined (as none of the other measure for low-performing students in low-achieving charter schools are statistically significant), large concerns are not warranted. In addition, the probability of

low-achieving students exiting any type of charter school is never statistically different (and always numerically smaller) than the estimates for TPSs. Overall, these results generally do not provide evidence consistent with the claim that charter schools push out low-performing students and only raise slight concern for low-achieving schools.

Finally, to investigate whether the levels of aggregation we have examined mask push-out behavior on the part of particular schools, we do a school-by-school regression analysis (for charters and TPSs using below-average campus math score as the measure for low performance) by regressing the transfer outcome variable on a dummy variable for below the campus average.[14] The results are shown in Figure 2, which shows the number of schools by the probability of low-performing students exiting a school relative to high-performing students.

In total, there are 15 schools for which the probability that low-performing students transferred out relative to high-performing students exceeded 10%. We examined these schools more closely. Of these, only one is a charter school and 14 are TPSs. One of the most common characteristics shared by these schools is school level—nine serve high school students (including the charter school)—but this may be a function of high school students being more transient in general as the transfer rate among high schools is 39.6% compared with 23.0% for primary students. Four of the 15 schools are classified as alternative discipline schools and have nontraditional grade arrangements (i.e., 5–12, 3–5, 6–12). The one charter school serves at-risk students: Their mission statement states that the school focuses on students "in danger of leaving school prior to their graduation." In addition, nine out of the 15 schools have an achievement level that is in the bottom third of the district-wide distribution. Finally, the 15 schools disproportionally serve African American (74% vs. 65% districtwide), Hispanic (19% vs. 14% districtwide), special education (20% vs. 15% districtwide), and male students (58% vs. 50% districtwide). All these together suggest that many of these schools are serving more transient and challenging students, and that even in cases in which there is relatively high level of low-performing students transferring out of a school,

TABLE 6

Linear Probability Results Examining the Exit Patterns of Students in Low-, Average-, and High-Achieving Charter Schools and TPSs

Variable	Using student scores relative to campus average as the measure of low performance		Using student scores relative to districtwide average as the measure of low performance	
	Math	Reading	Math	Reading
	(1)	(2)	(3)	(4)
Low-performing students in **math** for students in **charter** schools in **bottom** third of the achievement distribution	.011 (.016)		.025 (.017)	
Low-performing students in **math** for students in **charter** schools in **middle** third of the achievement distribution	−.028* (.01)		−.010 (.012)	
Low-performing students in **math** for students in **charter** schools in **top** third of the achievement distribution	−.005 (.032)		−.007 (.021)	
Low-performing students in **math** for students in **TPSs** in **bottom** third of the achievement distribution	.057* (.006)		.074* (.008)	
Low-performing students in **math** for students in **TPSs** in **middle** third of the achievement distribution	.023* (.005)		.039* (.005)	
Low-performing students in **math** for students in **TPSs** in **top** third of the achievement distribution	−.021* (.006)		.022* (.006)	
Low-performing students in **reading** for students in **charter** schools in **bottom** third of the achievement distribution		.025 (.017)		.039* (.015)
Low-performing students in **reading** for students in **charter** schools in **middle** third of the achievement distribution		−.025 (.014)		−.010 (.013)
Low-performing students in **reading** for students in **charter** schools in **top** third of the achievement distribution		−.015 (.024)		−.004 (.017)
Low-performing students in **reading** for students in **TPSs** in **bottom** third of the achievement distribution		.053* (.005)		.068* (.007)
Low-performing students in **reading** for students in **TPSs** in **middle** third of the achievement distribution		.031* (.005)		.047* (.005)
Low-performing students in **reading** for students in **TPSs** in **top** third of the achievement distribution		−.026* (.006)		.015* (.007)
Black	.067* (.007)	.067* (.007)	.061* (.007)	.064* (.007)
Hispanic	.061* (.009)	.058* (.008)	.056* (.009)	.055* (.009)
Other	−.017* (.006)	−.019* (.006)	−.015 (.007)	−.018* (.006)
LEP	−.001 (.005)	−.001 (.004)	−.007 (.005)	−.008 (.004)
Special education	−.001 (.003)	−.002 (.003)	−.004 (.003)	−.005 (.003)
Male	.010* (.002)	.009* (.002)	.010* (.002)	.007* (.002)
Constant	.080* (.010)	.060* (.007)	.067* (.011)	.049* (.008)
Year fixed effects	Yes	Yes	Yes	Yes
p Value of the *F* test of difference of coefficients between charter and TPSs for the bottom third	.01*	.13	.01*	.09
p Value of the *F* test of difference of coefficients between charter and TPSs for the middle third	.00*	.00*	.00*	.00*
p Value of the *F* test of difference of coefficients between charter and TPSs for the top third	.62	.68	.22	.34
n	470,786	510,371	470,786	510,371

Note. Robust standard errors in parentheses. TPSs = traditional public schools; LEP = limited English proficient.
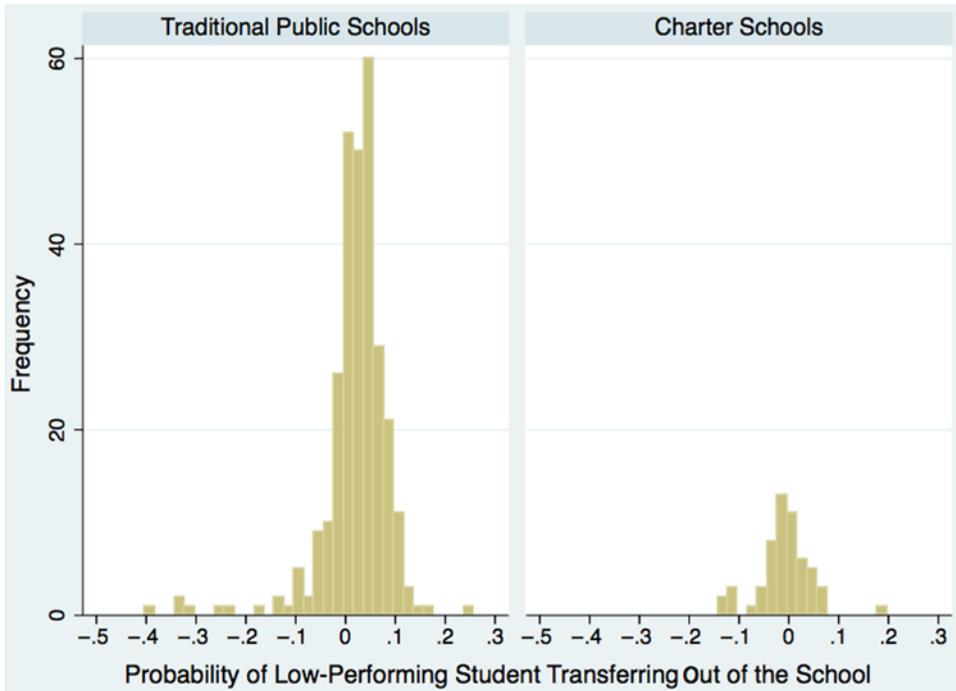*Indicates significance at the 5% level.

FIGURE 2. *Distribution of probabilities of low-performing students transferring out of individual charter and traditional public schools.*

there could be very plausible explanations for these students exiting other than being pushed out.

Conclusion

Recently, concerns have been raised that charter schools may try to improve their academic profile by pushing out low-performing students. These concerns suggest that a comprehensive examination of charter schools in comparison with TPSs with respect to the exit of low-performing students is warranted to inform whether the "push-out" argument serves as a strong argument against charter schools in general and whether greater scrutiny should be imposed on individual charter schools on reauthorization. Although our study is not able to know definitively why a student exits a school, we are able to examine whether there are patterns in the data consistent with the push-out claim in the aggregate level and micro level.

Our descriptive results suggest that students transferring out of charter schools do have

slightly lower achievement levels than their former peers. However, the same holds true for TPSs. When we examine these aggregate patterns with a formal regression model, including a number of sensitivity analyses, we find little evidence that low-performing students are more likely to transfer out of charter schools than above-average students or that they are more likely to transfer out of charters than TPSs. In looking at different groups of charter schools (i.e., charter schools near AYP proficiency thresholds, low- and high-performing schools, primary and secondary schools), we generally find no evidence consistent with the claim of pushing out low-performing students. The only groups that could raise some concern are low-achieving charter schools and charter high schools, but the patterns of students transferring out of these schools are similar to those in TPSs, which suggest that there may be a more general problem with low-achieving schools and high schools than a problem with charter schools exclusively.

Finally, in examining individual schools, we found only 15 out of more than 300 schools

districtwide in which below-average students were more likely to transfer out than above-average students at the rates of 10% or more. Of these, only one is a charter school, and that school focuses on students at the risk of dropping out. The other 14 schools were TPSs and many of these schools are alternative discipline schools. Together, our analysis suggests that there is no evidence consistent with the claim that charter schools are in general or at the individual level pushing out low-performing students. Although there needs to be more research in other districts or states, our results weaken the "push-out" argument against the establishment of charter schools in general.

Appendix

TABLE A1

Grades Tested by Year for State Accountability and District-Administered Tests

| | State accountability test | | District-administered test | | | |
| | | | Stanford 9 | | Terra Nova | |
Year	Math	Reading	Math	Reading	Math	Reading
2000–2001	5, 8, 11	5, 8, 11	3, 4, 7, 10	3, 4, 7, 10	No grades	No grades
2001–2002	5, 8, 11	5, 8, 11	3, 4, 7, 10	3, 4, 7, 10	No grades	No grades
2002–2003	5, 8, 11	5, 8, 11	No grades	No grades	1–10	2–10
2003–2004	5, 8, 11	5, 8, 11	No grades	No grades	1–10	2–10
2004–2005	3, 5, 8, 11	3, 5, 8, 11	No grades	No grades	1–10	2–10
2005–2006	3–8, 11	3–8, 11	No grades	No grades	1, 2, 9, 10	2, 9, 10
2006–2007	3–8, 11	3–8, 11	No grades	No grades	No grades	No grades

Note. In grades in which a student takes the state accountability and district-administered tests, we use the state accountability test as a measure of student performance. In the spring of 2002, the Stanford 9 fourth-grade test was only administered to K–4 schools and not to K–5 or K–8 schools (email correspondence with the School District's Director of Accountability, February 16, 2008).

Declaration of Conflicting Interests

Funding

Notes

1. http://dashboard.publiccharters.org/dashboard/schools/page/overview/year/2012

2. See opinion pieces written by well-known historian Diane Ravitch as examples. In the *Montgomery Advisor*, Ravitch writes, "They [charter schools] are also free to push out low-scoring students and send them back to school" (http://groups.yahoo.com/group/nyceducationnews/message/43167), and in a letter to New Mexico legislators, she writes, "Charters are also known for pushing out low-performing students. These actions give the false appearance of charter 'success'" (http://www.independentsourcepac.com/diane-ravitch-letter-to-new-mexico-legislature.html).

3. Given the willingness on the part of many families to pay a premium for housing zoned for a higher quality schools (Black, 1999), it is plausible that at least some families would look at school quality when choosing a charter school. This does not imply, however, that the academic achievement performance of a school is the only reason a family might choose to attend a charter school. In fact, some research suggests that families do not always base their choice on the academic achievement of schools (Stein, Goldring, & Cravens, 2011; Weiher & Tedin, 2002).

4. However, it is not clear whether this is an issue related to push-out policies, rather than entry policies or parental choice (GAO, 2012).

5. http://www.catalyst-chicago.org/news/2010/11/09/one-in-10-charter-school-students-transfers-out

6. For each school, we determined the highest grade offered. We then counted a move as a nonstructural move if the student moved in a grade lower than the highest grade offered by the school.

7. We checked the sensitivity of the choice of a linear probability model (LPM) to the choice of a probit and logit analyses and found that the results were nearly identical. We chose to present the LPM for the ease of interpretation.

8. In our main analysis, we used these interactions based on dichotomous indicators of low-performing students rather than the continuous z score variable because it is easier to describe the coefficient estimates and to separate the meaning for charter and traditional public schools (TPSs; that is, it is relatively straightforward to describe a below-average student as X% more or less likely than the above-average student to transfer out of a charter or TPS). However, we conducted a sensitivity analysis using the continuous test score variable interacted with charter status and found no substantive difference in our results.

9. Although proficiency is the measure that schools are held accountable for, a counter argument to this analysis is that schools may have a greater incentive to push out students prior to grades tested under the state accountability program under NCLB (No Child Left Behind). For instance, in the early years, students were tested only in Grades 5, 8, and 11 on the state accountability test. If schools are trying to improve their academic profile in these grades to avoid sanctions under NCLB, it may make less sense to push out students after they take the state accountability test. Pushing students out at that point does not help the school make adequate yearly progress (AYP). Therefore, we used Equation 1 to once again examine the exit patterns of below-average students measured as either below the schoolwide average or below the districtwide average but restricted the sample to students in nonaccountable grades (i.e., grades tested using district-administered tests rather than the state accountability tests). The results, although not shown here to conserve space, are consistent with the overall conclusion in Table 3.

10. Results are available from the authors on request.

11. Here, because we are using gains only as a control variable, we do look at gains in z scores across different tests with the understanding that this may have some limitations as the gains may not be measuring improvement across the same set of skills and knowledge.

12. Some students drop out of this analysis because some schools do not have a grade tested by the accountability test (e.g., schools that have the highest grade less than fifth grade), and therefore, we cannot see whether the school is near the proficiency cutoff or not. In addition, we can only observe whether the school is near proficiency after the 2001–2002 school year because NCLB AYP standards were not in place in 2001–2002.

13. To define whether a school was within plus or minus 5% of the thresholds, we gained information about the cut score and proficiency requirements by year from the district and the state. From the district, we received the cut score for making proficient in math and reading for each year. From the state Department of Education's website, we gained the schoolwide percent proficiency requirement for math and reading for each year. Using the cut score, we indicated whether a student made the proficient standard and divided the number of students making proficiency by the total number of students tested. That provided us percentage, which we compared with the required threshold to see whether the school was within plus or minus 5% of the required threshold.

14. We also ran the analysis using below-average reading scores as the measure of low performance and find a similar number of schools as outliers.

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