

# LET THE NUMBERS HAVE THEIR SAY

## EVIDENCE ON MASSACHUSETTS' CHARTER SCHOOLS

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# Introduction

In November, voters will decide whether to raise the cap on charter school enrollment in Massachusetts. The irony is that for most voters—those living in suburban and rural communities in the state, where charter enrollment remains far below the current cap—the outcome will have no impact on the likelihood that new charter schools will open in their own communities. The state could approve or disapprove new charter schools in such communities regardless of what happens with the cap. However, for many parents in low-income communities that are at or near the current cap—such as Boston, Holyoke, Chelsea, and Lawrence—the stakes are high. The outcome of the November vote will effectively determine their children’s future educational options.

So, the question is, should voters statewide limit the educational choices of parents in communities such as Boston, Holyoke, Chelsea, and Lawrence by leaving the cap in place? And, if so, on what basis might they do so? Are the parents who choose charter schools misinformed? Are charter schools diminishing—rather than improving—their children’s learning? Are charter schools undercutting the financial stability of the traditional public schools in those communities? Or is the truth more complicated?

Given the consequences, Massachusetts voters have an obligation to inform themselves, and not simply vote based on ideology or partisan politics. Over the past seven years, the Massachusetts Department of Elementary and Secondary Education has worked with teams of university-based researchers to examine the track record of charter schools and traditional district schools in the state. Below, I summarize the evidence they have produced thus far.

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# Summary

## In Massachusetts, the charter school debate has centered on four concerns:

- that the achievement of the high-scoring charter schools is due to selective admission and retention policies and not the education that the charter schools provide,
- that charter schools are underserving English language learners and special education students,
- that charter schools are disciplining students at higher rates in order to drive troublesome students back to traditional schools, and
- that charter schools are undermining traditional public schools financially.

The available evidence has essentially resolved the first two questions, and sheds at least partial light on the remaining two.

First, the higher achievement of the oversubscribed charter schools is not simply due to selective recruitment and retention. When charter schools hold admission lotteries—as required by state law when they have more applicants than slots available—they conduct a randomized controlled trial, the “gold standard” of empirical research. At the time of their admission to a charter school, the only difference between the applicants offered a slot and other applicants is their luck in the lottery. Yet, when researchers have subsequently tracked down admission lottery winners and losers (including those who drop out of charter schools) and compared their outcomes, they have found large differences in their achievement. The oversubscribed charter schools in the urban areas of the state—particularly those in Boston and Lynn—are having large, positive impacts on student achievement.

Second, in 2010, a new state law requiring charter schools to intensify recruitment of English language learner (ELL) and special education students is working. At least in the Boston area, the proportion of charter applicants who are English learners and special education students is now similar to that for non-applicants. Moreover, just as they are doing for other students, the oversubscribed charter schools are having large positive impacts on the academic achievement of ELL and special education students.

Third, although there is no difference in high school and small differences in elementary grades, charter schools do have higher discipline rates in middle school grades. The Board of Elementary and Secondary Education should ask the schools with high disciplinary rates to justify their discipline policies. Nevertheless, the policies are not resulting in abnormal rates of school exit. On the contrary, the proportion of middle school students switching schools is actually lower in Boston area charter schools than in the Boston Public Schools.

Fourth, the impact of charter schools on the financial well-being of districts is unclear. The state’s formula reimburses district schools for the first year that a student has left and, for the subsequent five years, pays a quarter of the cost for each student who is no longer there. When students choose to attend charter schools, a school district suffers a loss in enrollment analogous to what would happen if the district’s boundaries constricted, yet property tax wealth per student remains the same. Ultimately, the financial impact on district schools depends on the degree to which districts respond to that decline in enrollment. When a district enrolls fewer students, it needs to right-size its central office staff and its school buildings, as well as its instructional staff. If the district fails to respond, the cost per student will rise or services per student will need to be cut.

In the first section below, I describe the communities that are at or near the charter cap today. In subsequent sections, I summarize the evidence pertaining to impacts on achievement, impacts on English learners and special education students, and discipline and retention rates, and, finally, discuss issues of school financing.

## I. Communities Directly Affected by the Cap

When a student from a school district attends a charter school, the state reduces its aid to the district by the average spending per student in that district (excluding facilities charges) and diverts the funds as a “tuition payment” to the charter school to educate the student. The cap on charter school enrollment is not based on the number of students. Rather, it applies to the percentage of the district’s school spending that can be used to pay tuition for students in charter schools. For most communities, that cap is currently set at 9%. However, for districts that are in the bottom 10% of school districts in the state on an achievement metric used by the state, the cap is higher—currently 18%.

There are 18 communities in Massachusetts where more than 7% of school spending goes toward tuition payments to charter schools and, thus, could be considered at or near the charter cap. Three of those are quite small (the Edgartown and Up-Island school districts on Martha’s Vineyard, and Williamsburg, with a population of 2,500 in western Massachusetts). The remaining 15 districts are primarily urban districts serving large numbers of economically disadvantaged and immigrant students.

The affected districts are listed in Table 1. The district with the highest share of its school spending going to charter schools is Boston, with 14%, and the district with the lowest percentage on the list is Amherst, with 7%. Table 1 also reports the proportion of students in each of the districts who are economically disadvantaged or English language learners. In every one of the

**Table 1. Urban Districts with the Highest Charter Tuition Payments**

	Projected Charter Tuition Payment in FY 17 (% of Net School Spending)	Percent Economically Disadvantaged	Percent English Language Learners	Number of Students on Charter Waiting Lists
Boston	14.0	49.5	30.3	10,308
Holyoke	13.6	67.6	24.6	404
Chelsea	11.2	49.5	26.6	373
Springfield	11.0	67.1	16.3	3,931
Malden	10.7	40.2	18.7	1,789
Fall River	10.7	59.1	9.5	441
Lawrence	10.2	63.0	31.0	1,097
Lowell	9.9	38.4	4.7	406
New Bedford	8.5	55.7	22.5	819
Salem	8.3	43.6	13.7	242
Lynn	8.3	47.0	19.5	1,118
Somerville	8.1	36.0	18.4	88
Everett	8.0	42.1	16.0	764
Marlborough	7.3	27.8	17.9	139
Amherst	7.0	28.1	16.6	84
State		<b>27.4</b>	<b>9.0</b>	<b>32,646</b>

*Note.* Projected charter tuition payment represents percentage of net school spending; economic disadvantage is calculated based on a student’s participation in one or more of the following state-administered programs: the Supplemental Nutrition Assistance Program (SNAP); the Transitional Assistance for Families with Dependent Children (TAFDC); the Department of Children and Families’ (DCF) foster care program; and MassHealth (Medicaid) (Massachusetts Department of Elementary and Secondary Education, n.d.).

districts in Table 1, the percentage of students who are economically disadvantaged is above the state average (although barely so in the case of Amherst and Marlborough). In most districts, the proportion of students who are English language learners is also considerably higher than the state average. As a group, the mean percentage of students who are economically disadvantaged or designated ELL in the communities affected by the cap is more than twice the state average.

The last column in Table 1 reports the number of students on the charter waiting lists in March 2016.<sup>1</sup> The communities with the longest waiting lists were Boston and Springfield, with 10,308 and 3,931 students, respectively, waiting for a charter school seat to open up. There were 32,646 students on waiting lists statewide.

## II. Impacts on Achievement

Ever since the first year of MCAS testing in 1998, charter schools have been represented among the top-scoring schools in the state.<sup>2</sup> Despite this fact, the question lingers about whether the high test scores of charter students reflect student learning, or whether the true explanation lies in selective recruitment and retention policies at charter schools. If charter schools were recruiting higher achieving students and then retaining only the highest scoring among them, the schools would do well on state tests—even if the education they provided was no better than at other schools.

Fortunately, the Massachusetts Education Reform Act of 1993 (MERA93) provided a mechanism for resolving that question when it required charter schools to conduct admission lotteries whenever they had more students applying than they had room to accommodate. When admission slots are allocated by lottery, it is analogous to a randomized clinical trial, with lottery winners and losers expected to be equivalent at baseline. Thus, even if the subset of students who apply to charter schools starts out different from other students in a district, analysts can still isolate the impact of charter schools by simply comparing the subsequent achievement of those applicants who were offered slots to the achievement of those who were not.

In such an analysis, the subsequent achievement of any student offered a slot at a charter school is counted against the charter school, even if the student did not remain enrolled in a charter (or never enrolled in the first place). Analysts take the average outcome for the full set of students who are offered slots (regardless of where they are enrolled) and compare that to the average outcome of the full set of applicants not offered slots.

However, that simple comparison only tells us the impact of being offered a slot at a charter, not the effect of attending a charter. Answering the latter question is complicated by the fact that some students offered slots do not attend charter schools, and some of those in the comparison group re-apply and attend charter schools in subsequent years. As a result, in order to estimate the effect of a year of attendance at a charter school, analysts have divided the difference in average outcomes for lottery winners and losers by the difference in the number of years the lottery winners and losers were enrolled in charters. As long as the lottery results only affect students by increasing the number of years they spend in a charter school, this method will yield an estimate of the effect of a year in a charter school for those whose decisions are affected by the lottery offer.

In 2009, I was one of a group of researchers from Harvard, MIT, Duke University, and the University of Michigan to study the impacts of charter admission lotteries in the Boston area. We

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<sup>1</sup> If a student has applied to more than one charter school, they are counted only once.

<sup>2</sup> The Francis W. Parker Charter Essential School was among the top-scoring schools when the first round of MCAS results was published in January 1999.

had to exclude the subset of applicants who were not subject to randomization, such as those who had sibling preferences or those applying to schools that went through their entire waiting lists. For those who were randomized, we reported two primary findings: First, the lotteries seem to have been conducted fairly. When we compared the baseline achievement and characteristics of the lottery winners and losers, there was no difference in their average baseline characteristics. However, after admission offers were made and a subset of applicants attended charter schools, large differences emerged. Specifically, the implied improvement in achievement per year spent in a charter school in Boston was .539 and .171 standard deviations in middle school math and English, and .187 and .164 standard deviations in high school math and English, respectively (Abdulkadiroglu et al., 2009).

### ***A Note on Magnitudes***

For readers not accustomed to interpreting test score impacts, these are quite large effects. For comparison purposes, the gap in raw MCAS scores between Black and White Massachusetts fourth graders in 2012 was .8 standard deviations in English and .9 standard deviations in ELA. The gap in mean scores that year between eighth-grade public school students in Boston and Brookline was 1.0 standard deviations in English and .9 standard deviations in math. Thus, the impacts estimated above imply that the oversubscribed charter schools in the Boston area are closing one half of the Black–White achievement gap in math and roughly one fifth of the Black–White achievement gap in English—in a single school year!

Fifty years ago, as required by the Civil Rights Act of 1964, sociologist James Coleman and his colleagues documented large differences in academic achievement by race, ethnicity, and income in the United States. Because they saw little difference in the achievement of racial subgroups attending different schools, many took Coleman’s results as implying that schools alone cannot close the achievement gap. A series of failed education reform efforts over the past 50 years seemed to confirm that impression. Therefore, in that context, the Harvard/MIT finding that a group of charter schools in the Boston area was closing a substantial portion of the achievement gap in a single school year was startling—and important. The fact that the finding was based on the equivalent of a randomized clinical trial—the “gold standard” of research designs—made it all the more noteworthy.

### ***What About the Charter Schools that Were Not Oversubscribed?***

As critics such as Skinner (2009) and Miron (2011) have pointed out, the lottery results apply only to the subset of charter schools in Boston that were oversubscribed. Only four of the 13 charter middle schools in the Boston area and four of 12 charter high schools had lottery data that could be used by the Harvard/MIT team in that first analysis. Skinner and Miron suggested that the schools in greatest demand are likely to be more effective than others.

In the original report, we addressed this question and, in fact, confirmed the critics’ hypothesis—at least partially. To do so, we generated a second set of estimates not reliant on the admission lotteries using statistical methods to compare charter and district students in Boston with similar baseline test scores and demographic characteristics. A disadvantage of this approach is that the researcher can control only for the characteristics he or she can measure, such as prior test scores and demographics—not the harder-to-measure traits such as parental engagement and student motivation. Nevertheless, because doing so does not require schools to be oversubscribed, such estimates can be generated for all charter schools, not just those holding lotteries.

As reported in the second row of Table 2, we found large effects of a year at the oversubscribed charters in the lottery study—.356 and .164 standard deviations in math and English in middle

**Table 2. Estimated Effects of Massachusetts Charter Schools on Student Achievement**

Study	Subset of Charter Schools	Study Design	Estimated Impact per Year in Charter School (in Standard Deviations)					
			Elementary		Middle Schools		High Schools	
			Math	English	Math	English	Math	English
Abdulkadiroglu et al. (2009)	Oversubscribed Schools in Boston	Lottery			.539**	.171**	.187*	.164*
		Statistical Controls			.356**	.164**	.168**	.187**
	Undersubscribed Schools in Boston	Statistical Controls			.130**	.075**	.147**	.153**
Angrist et al. (2010)	KIPP Lynn	Lottery			.352**	.150*		
		Statistical Controls			.344**	.185**		
Angrist et al. (2011)	Schools in Urban Areas	Lottery			.361**	.115**	.390**	.270**
	Schools in Non-urban Areas	Lottery			-.131*	-.189**	-.303	-.047
Cohodes et al. (2013)	Oversubscribed Schools in Boston	Lottery			.256**	.138**	.354**	.271**
		Statistical Controls			.295**	.185**	.332**	.251**
	Undersubscribed Schools in Boston	Statistical Controls			.021	.020	-.018	.072**
Setren (2015) (Oversubscribed Schools in Boston)	Special Education	Lottery	.309**	.478**	.243**	.172**	.223**	.148
	English Language Learners		.386**	.360**	.307**	.200**	.414**	.423**
	Non-Special Need		.184**	.199**	.255**	.142**	.342**	.215**

\* p < .05. \*\* p < .01.

school, and .168 and .187 standard deviations in math and English in high school, respectively. These were quite similar to the estimates based on the lotteries. More directly relevant to the Skinner and Miron critiques, we found smaller impact estimates for the remaining charter schools that could not be included in the lottery study—.130 and .075 standard deviations in math and English in middle school, and .147 and .153 standard deviations in math and English in high school, respectively.

Nevertheless, we only partially confirmed the critics’ hypothesis. It is true that the oversubscribed charter schools seemed more effective than those that were not oversubscribed. On the other hand, even the Boston area charters that were not oversubscribed had a larger effect on student achievement than the Boston Public Schools.

The Harvard/MIT team produced three additional studies of test score impacts: one focused on KIPP Academy Lynn Middle School (Angrist, Dynarski, Kane, Pathak, & Walters, 2010), a second including all charter schools in Massachusetts (Angrist et al., 2011), and a third (in which I did not participate) updating the original analysis with data through 2012 (Cohodes, Setren, Walters, Angrist, & Pathak, 2013).

### **KIPP Academy Lynn**

As reported in Table 2, the results for KIPP Academy Lynn were similar to those observed for the Boston charters (Angrist et al., 2010). A single year at KIPP Academy Lynn was associated with a .352 and .150 standard deviation rise in math and English, respectively. The results were similar whether estimated based on lottery results or the statistical controls.



## ***Charter Schools Statewide***

In the statewide study, we found that not all charter schools in the state are created equal. As reported in Table 2, the team found effects for the charter schools across the urban areas of Massachusetts that were similar to those estimated for the Boston charters: .361 and .115 standard deviations in math and English in middle school, and .390 and .270 standard deviations in math and English in high school, respectively (Angrist et al., 2011). However, non-urban charter schools typically underperformed the local public schools—students attending the non-urban charters, in fact, lost .131 and .189 standard deviations relative to similar students in non-charter middle schools. We also estimated negative effects for the non-urban charter high schools, although the effects were not statistically different from zero.

## ***The 2013 Update for Boston Charter Schools***

The 2013 update again found large effects of the Boston area charters: .256 and .138 standard deviations in middle school math and English, and .354 and .271 standard deviations in high school math and English, respectively (Cohodes et al., 2013). Importantly, unlike the original 2009 study with limited school coverage, the update covered 85% of charter school enrollment in Boston middle and high schools. The team also found smaller effects for the remaining Boston-area charter schools that were not oversubscribed and did not have lottery data. Moreover, unlike the earlier study, only the effect on high school English (.072 standard deviations) for those schools that were not oversubscribed was statistically distinguishable from zero.

## ***The Stanford CREDO Studies***

The Center for Research on Education Outcomes (CREDO) at Stanford produced three additional reports on the effectiveness of charter schools in Massachusetts. Because they did not have access to the lottery data, their statistical methodology essentially compared charter school students to traditional public school students with similar measured characteristics (specifically, baseline test scores and demographic characteristics). A 2009 report from CREDO pooled data for all the charter schools in the state (combining urban and non-urban charters). They found positive but small effects in math (.06 standard deviations) and no statistically significant difference in English.

In 2013, the same researchers from CREDO updated their analysis and reported results separately for Boston-area charters and the rest of the state. Statewide, the CREDO team found that a year in a charter was associated with small positive effects on student achievement in both subjects—.07 standard deviations in math and .04 standard deviations in English. However, their results revealed that the positive impacts were largely due to the Boston area charters, which were generating gains of .36 standard deviations in math and .34 standard deviations in English.

A notable strength of the CREDO study is that they have applied the same methodology to evaluate the effects of charter schools in 27 states. Their results make it clear that charter schools in Massachusetts—particularly those in the Boston area—are not like charter schools nationally. In their 2013 report, they concluded, “In fact, the average growth rate of Boston charter students in math and reading is the largest CREDO has seen in any city or state thus far [emphasis added]” (p. 7).

In a third report issued in 2015, CREDO documented charter school impacts in 41 urban areas in 22 states over the 2006–2007 through 2012–2013 school years. Again, the Boston area charters had the largest gains relative to local traditional public schools in any of the urban areas, equivalent to .324 standard deviations in math and .236 standard deviations in English.

## *Impacts on SAT Scores, AP Tests, and College Going*

Test scores are obviously not the only outcomes parents and policymakers care about. Students can be coached to perform well on tests even though they may not fully understand the concepts. And test score impacts may fade over time. Even though the immediate test score impacts seem to be positive, we would hope to see evidence of impacts on other, longer-term outcomes such as high school graduation and college preparation.

As a result, in a 2016 report, Angrist, Cohodes, Dynarski, Pathak, and Walters studied the impact of six oversubscribed Boston area charter high schools on students' preparation for college. They found that attending a charter high school was negatively associated with high school graduation after four years, but did not have a statistically significant impact on high school graduation at the end of five years. However, those offered a slot at one of the charter schools were considerably more likely than applicants who did not attend a charter school to score high enough on their 10th-grade assessment to subsequently satisfy the MCAS competency standard and to have scores sufficiently high to qualify for the state's Adams Scholarship, which waives public university tuition.

In addition, enrolling in a charter high school doubled applicants' chances of sitting for an Advanced Placement exam and scoring sufficiently high to receive college credit. Although charter enrollment did not improve students' chances of taking the SAT, those offered a slot at a charter subsequently did have higher SAT scores. The estimated impact of charter admission on any postsecondary enrollment was positive, but not statistically significant. However, those offered a slot at a charter school were more likely to attend a four-year and less likely to attend a two-year college after graduation. Students were not yet old enough to reveal impacts on degree attainment, but given the high non-completion rates at two-year colleges, the shift from two-year to four-year is a positive predictor of their likelihood of completing higher degrees.

## *Comparing Charter and District SGPs*

As noted above, charter schools are not all equal—neither are the traditional districts from which they draw students. Any decision to allow charter schools to expand in a given community should be informed not just by the quality of the charter schools, but by the comparative effectiveness of the charter schools and their sending district. Although the research has generated estimates for the Boston area charter schools and for KIPP Academy in Lynn, it has not provided estimates of charter district differences in every district that is close to the charter cap.

In an effort to compare district and charter schools in the remaining communities near the cap, I estimated the differences between them in terms of the weighted average of schools' student growth percentiles (SGPs). In calculating SGPs, the state first identifies every student's "academic peers"—other students in the state with similar scores on the MCAS test in previous school years. A student's SGP is the percentage of those academic peers whom the student outperformed on the current year's test. Thus, an SGP of 90 means that a student scored higher than 90% of those with a similar history of achievement through the prior year. Conversely, an SGP under 50 means that the student scored below more than half of those students with similar prior test performance. When a student's SGP is below 50, he or she is losing ground relative to those with similar prior achievement.

I used published data on median SGPs by school to calculate weighted average SGPs for district and charter schools in 2015. I weighted each of the district schools by their enrollment. In turn, I weighted the charter school SGPs by the number of students from the sending districts attending them. Table 3 reports the weighted mean SGPs for the district schools and for the charter schools

**Table 3. Charter–District Differences in SGP in Urban Districts with the Highest Charter Tuition Payments**

	Projected Charter Tuition Payment in FY 17 (%)	District		Receiving Charter		Charter–District Difference	
		SGP Math	SGP English	SGP Math	SGP English	SGP Math	SGP English
<b>Charters have an advantage:</b>							
Chelsea	11.2	37	40	73	81	36	41
Salem	8.3	43	46	76	68	32	21
Lynn	8.3	46	48	71	71	26	23
Boston	14	49	47	64	64	15	17
Everett	8	42	53	58	56	16	3
Holyoke	13.6	46	40	47	54	1	14
<b>No clear advantage to charters or district:</b>							
Marlborough	7.3	54	51	62	56	8	4
New Bedford	8.5	43	41	44	49	2	8
Springfield	11	41	41	47	43	6	2
Lowell	9.9	50	48	51	50	1	3
Lawrence	10.2	58	53	50	63	-8	10
Amherst	7	61	60	62	60	1	1
Malden	10.7	58	53	53	55	-5	2
Fall River	10.7	54	50	64	36	10	-14
<b>Advantage to district:</b>							
Somerville	8.1	61	59	49	57	-11	-2
State Average		50	50	57	57	6	6

*Note.* Projected charter tuition payment represents percentage of net school spending; SGP represents mean of school-level median SGPs; district estimates are weighted by the number of students in each school; charter estimates are weighted by the number of children from the sending district attending the school.

serving that community, as well as the difference between the district and the charters. (The SGP is reported separately in English and math.) The districts in Table 3 are sorted into three groups based on the difference in SGP between the district and the charters serving that district.

The first group of districts—consisting of Chelsea, Salem, Lynn, Boston, Everett, and Holyoke—has weighted SGPs considerably below the SGPs of the charter schools serving their communities. These results are consistent with our lottery estimates for Boston and Lynn. For example, in Chelsea, with the biggest gap, the weighted SGP for the district schools is 37 in math and 40 in English. In other words, with SGPs below 50, the average student in Chelsea is not only starting the year behind, but is losing ground relative to other students in the state with similar prior achievement. (Because their SGP is less than 50, they are essentially losing 10 to 13 percentile points relative to others in the state with the same starting point during each school year.) In contrast, the charter schools serving the students in Chelsea have weighted SGPs of 73 and 81 in math and English, respectively. Thus, rather than losing ground, the typical Chelsea resident attending a charter school is outscoring roughly three quarters of his or her peers statewide who had similar scores the prior year.

The weighted SGP for Boston district schools is 49 in math and 47 in English. In other words, the typical student in the district schools in Boston is losing ground, but only a couple of percentiles per year relative to their academic peers statewide. However, the Boston students attending charter schools are gaining considerable ground relative to their statewide peers; the charter schools' weighted SGP is 64 in both math and English.

In the second group of eight districts—consisting of Marlborough, New Bedford, Springfield, Lowell, Lawrence, Amherst, Malden, and Fall River—there are small differences between the charters and districts, or unbalanced differences (one type of school is stronger in one subject, but weaker in the other). For instance, the charter schools serving the students in Amherst appear to be quite strong, with SGPs of 62 and 60 in math and English, respectively. However, the district schools in Amherst also have an impressive performance record, with SGPs of 61 and 60 in math and English, respectively.

The third group contains only one district—Somerville. The traditional schools in Somerville have weighted SGPs 11 points higher in math and 2 points higher in English than the charter schools serving the district. In other words, the average achievement gains in the traditional public schools in Somerville are larger than those in the charter schools serving that community.

### III. The Growing Demand for Charter Schools in Boston

Prior to spring of 2013, it was difficult for the Massachusetts Department of Elementary and Secondary Education to get an accurate count of the number of students interested in attending a charter school. The simple reason was that students often applied to more than one school, and because the schools were not required to share their lists of applicants, the state could not generate an unduplicated count of the number of charter applicants. As a result, it was difficult to monitor whether the proportion of parents choosing charters was increasing, or whether parents were simply submitting multiple applications.

Because the Harvard/MIT team acquired the applicant lists from most of the Boston area charter schools, they were able to generate an unduplicated count.<sup>3</sup> What they found was surprising. In a 2013 report, Cohodes et al. found that the proportion of Boston's sixth-grade students applying to at least one charter school had essentially doubled between 2009–2010 and 2012–2013, from 15% of all Boston sixth graders to 33%. In other words, a third of all Boston sixth graders expressed a desire to attend a charter school. The proportion of ninth-grade students in Boston who had applied to charter schools also increased considerably, from 11% to 15%.

### IV. Impacts on English Language Learners and Special Education Students

Charter schools have always been prohibited—as a matter of state and federal law—from discriminating against students with special needs or English language learners. Nevertheless, prior to 2010, students with special needs and ELLs were underrepresented among charter applicants. As a result, the state legislature amended the charter school provisions to require charter schools to submit plans to actively recruit students with special needs and ELLs. Moreover, the legislation required the state board to consider schools' success in recruiting and retaining students with disabilities and ELLs in the charter renewal process. Finally, in 2014, the state board of education required charter schools to notify students in their application and recruiting materials of their rights to services if they are students with disabilities or ELLs.

The stricter requirements on charter schools to reach out to special education students and English language learners has had the desired effect. In December 2015, Elizabeth Setren (a graduate student at MIT) reported that the proportion of charter applicants with special needs had risen sharply. In the spring of 2004, 17% of charter applicants in fourth and fifth grade were special education students, as compared to 22% of the Boston Public School (BPS) students in those grades. Those gaps remained largely unchanged through 2009, before the law changed. By the spring 2014 lottery, the representation of special education students among fourth- and fifth-

<sup>3</sup> The state now generates an unduplicated count. In fact, they generated the counts reproduced in Table 1.

grade charter applicants (who were applying for seats in schools that begin in fifth or sixth grade) had risen to 21.6%, versus 23.1% for BPS students. Clearly the gap was much diminished.

In fact, the gap closed among eighth-grade students: In spring 2014, 20.3% of charter applicants were students with disabilities, versus 19.5% of BPS students. Moreover, the charter schools narrowed the gap even among students with the most severe disabilities: 5% of charter applicants were special education students in substantially separate classrooms, as opposed to 7.4% in BPS.

Charter schools have made similar progress in attracting ELLs. In 2004, the percentage of charter students who were English learners in the entry grades for middle schools and high schools was one third the percentage in BPS: 4% versus 12%. By 2014, the proportion of ELL students in BPS sectors grew as a result of federal pressure to appropriately categorize language minorities. However, the gap between charter schools and BPS has largely closed. Among fourth- and fifth-grade students, the percentage of charter applicants who were ELLs (24%) was the same as in BPS overall. Among eighth-grade students, the percentage of charter applicants who were categorized as ELL was 27%, compared to 30% among BPS students.

Setren used the lottery data to estimate impacts of charter school admission for ELL and special education students. These students saw similar gains from charter admission as other students—over .26 standard deviations per year in math and .19 standard deviations in English. Setren also found that admission to charter schools doubled the likelihood that a student in special education at the time of the lottery would be reclassified out of special education the following year and tripled the likelihood that ELL students would be reclassified out of ELL status.<sup>4</sup> The reclassifications help to explain why special needs students and ELL students appear underrepresented in charters.

## V. Discipline and Retention

The Massachusetts Teachers Association (n.d.-b) has drawn attention to the high discipline rates at some charter schools:

Charter schools' discipline policies and high suspension rates lead to push-outs and poor outcomes for some students. Year after year, the statewide average for out-of-school suspensions is at about six percent. For example, at the Roxbury Prep Charter School, these numbers are significantly higher. In some years, out-of-school suspensions reached more than 60 percent.

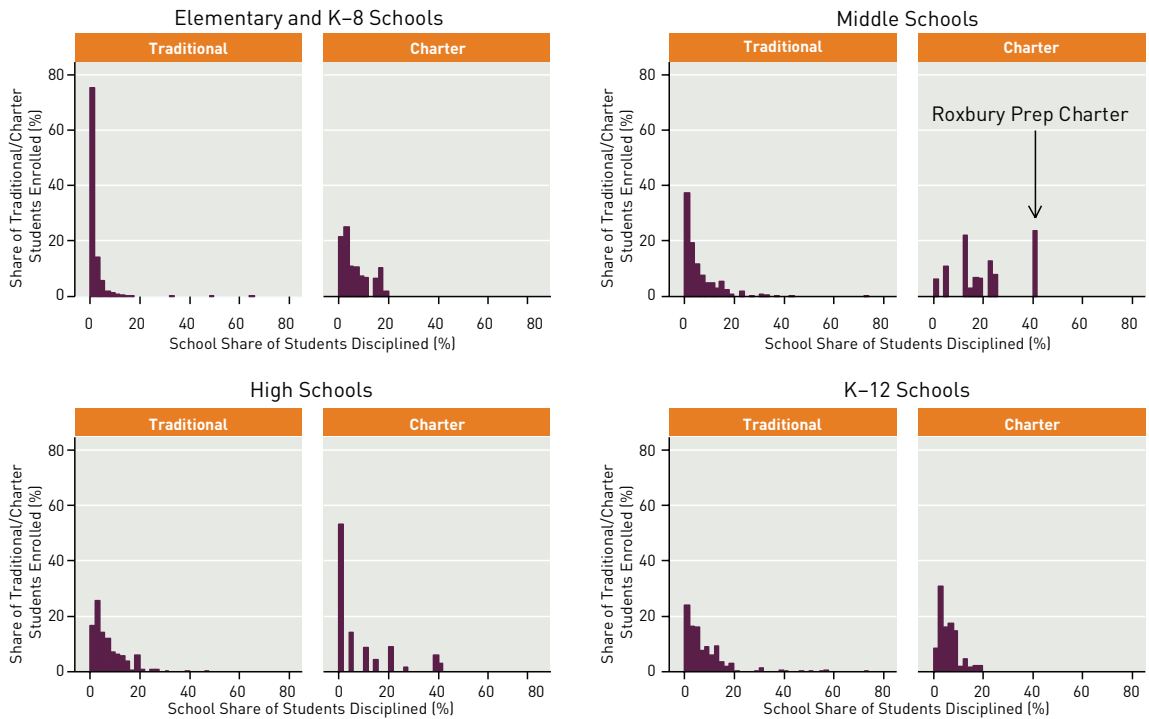
Figure 1 portrays the percentages of students reported to have been disciplined at different grade spans for charters and traditional district schools in 2015.<sup>5</sup> At many charter schools, the proportion of students disciplined is similar to that in traditional district schools. For example, among high schools, 7% and 8% of students disciplined, respectively, were at traditional district and charter schools. Among K–12 schools, the differences were again small—7% at traditional district schools versus 6% at charter schools.

However, there were larger differences in other grade ranges. For instance, among elementary and K–8 schools, the charter schools had higher discipline rates: 6% versus 2% at district schools. The primary difference was at the low end, where nearly 80% of students enrolled in traditional elementary and K–8 schools attended schools where fewer than 2% of students were disciplined.

<sup>4</sup> Interestingly, the ELL reclassification seems to happen by October 1 following the lottery—too quickly to be attributable to the test score gains in English. Instead, they probably reflect failure to transfer data from district to charter schools or a different threshold for classification in the charter schools.

<sup>5</sup> Schools are required to report the number of in-school suspensions, out-of-school suspensions, expulsions, and number of children moved to alternate settings. The estimates in Figure 1, as well as the mean disciplinary rates discussed in the text, are weighted by the number of students in the school.

**Figure 1: Percentage of Students Disciplined in 2015**



The biggest difference in discipline rates was in middle schools, particularly at Roxbury Prep, where the percentage of students disciplined was 40%. Including Roxbury Prep, the difference in discipline rates was 6% at traditional district schools, versus 21% at the charter schools. Excluding Roxbury Prep, the difference in discipline rates is somewhat smaller: 6% versus 15%.

Despite the higher discipline rates in middle schools and, to a lesser degree, elementary schools, there is no evidence that students are fleeing charter middle schools at higher rates. Cohodes et al. (2013) used admission lotteries to study the effect of charter attendance on the proportion of middle and high school students remaining at the same school. Among those who attended Boston’s traditional district schools as sixth graders, 55% and 44% of seventh- and eighth-grade students, respectively, were likely to have remained at the same schools; students who attended Boston charter schools in sixth grade were 21 and 24 percentage points more likely than this to have remained in their same schools. About half of the difference was due to the fact that lottery losers were more likely to attend exam schools starting in seventh grade. However, even after accounting for exam school attendance, students in Boston charter middle schools were more likely to remain in their schools through eighth grade.

In high school, Cohodes et al. (2013) found higher rates of school switching in charter schools than at traditional public schools: Charter ninth-grade students were about 10 percentage points less likely to attend the same school in 10th grade (relative to a mean of 86%) and 16 percentage points less likely to attend the same school in 12th grade.

It is a puzzle, therefore, that the between-sector differences in retention seem to go in the opposite direction from the differences in discipline rates. Relative to traditional public schools, discipline rates are particularly high in charter middle schools. And yet it seems that the proportion of students switching schools is lower in charter middle schools than in traditional public schools. Moreover, despite the fact that discipline rates are essentially equivalent in charter and traditional high schools, the school retention rates are lower for charter high schools.

Of course, the differences in the aggregate could be masking important differences at the school level. Given the potential damage to students, schools such as Roxbury Prep and the traditional public schools with similarly high rates of discipline should be required to explain and defend their discipline policies.<sup>6</sup> However, the charter sector does not have higher discipline rates at all grade levels, and such differences do not translate into higher rates of school switching in the charter sector as a whole.

## VI. Financing

Critics of charter schools argue that they undermine the financial health of local public school districts. At a surface level, funding for charter schools is deducted from the state's aid to local districts. However, that's only part of the story. When a student has left a district school to attend a charter school, the district is also relieved of the cost of educating that student. The sending school district will eventually see a reduction in state revenue, but, at the same time, it has fewer students to teach. Therefore, the net effect on the financial well-being of the sending district depends on a seemingly simple but, in the end, difficult-to-answer question: Is the incremental loss in state aid greater than the incremental savings a district can achieve when they do not have to educate the exiting students?

The reason the question is difficult to answer is that many of a district's costs are fixed (at least in the short term) and do not decline automatically with the number of students.<sup>7</sup> Many costs, such as the number of people employed in the central office and the number of school buildings that the district must maintain, are difficult to adjust in the short term.

The average class size in elementary grades is typically 21 to 25 students. If 25 students in the same grade move to charters in the same year, a district could theoretically assign one less teacher in that grade. (Such small changes in staffing at a school can often be addressed through natural staff turnover, and need not require layoffs.) However, given the difficulty of re-allocating instructional staff across schools, the adjustment is much more difficult if the 25 students depart from 25 different schools. Likewise, if a sufficient number of students in a given grade range depart, it is possible that a district could reduce expenses by closing or consolidating schools. That is disruptive, however, not just for the neighborhoods surrounding the school, but for other neighborhoods in a community that might see their school catchment areas redrawn and school assignments change.<sup>8</sup>

Acknowledging that school districts have made commitments that make it difficult to adjust quickly to enrollment changes, the state "reimburses" districts for 100% of any increase in charter school tuition payments in the first year and for 25% of the costs for five subsequent years. In other words, state taxpayers pay twice for the same student in the first year after the student switches from a district to a charter school, and then pay 1.25 times for that student in the subsequent five years. Until two years ago, the state had appropriated the necessary funds to reimburse districts for such transition costs. However, in the most recent two fiscal years, the state covered only about two thirds of the cost of those reimbursements.<sup>9</sup>

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<sup>6</sup> In fact, Roxbury Prep charter school was one of five local schools cited by the state for high discipline rates this summer (McKiernan, 2016).

<sup>7</sup> A charter school must inform the sending district by April 1 if it expects to educate a student from the district during the following school year.

<sup>8</sup> VanderZanden (2015) suggests that the cost of adjustment will be higher for smaller school districts, which would not see sufficiently large declines in enrollment in any grade range to consolidate schools.

<sup>9</sup> If the primary concern of lawmakers is with the short-term transition costs for school districts, these reimbursements should be fully funded or increased.

When students leave to attend charter schools, it is as if a district's boundaries have been redrawn, but in such a manner as to leave the property tax wealth per student unchanged. In other words, when students leave for charters, a school district is essentially a smaller version of its former self. Are districts with smaller numbers of students inherently less viable than larger ones? Must the cost per student rise when there are fewer students, if quality is to be held constant?

In the short term, it will be difficult for any district to right-size itself quickly. However, in the longer term, the answer is not clear. Are the schools in Newton better off than those in Wellesley because the Newton school district has double the number of students but roughly similar property wealth per student? On one hand, having fewer students makes it harder to share the cost of a central office math curriculum expert across the district. On the other hand, the difficulty of managing the work of a district increases exponentially with size.

One thing is clear, however: When school districts do not adjust their central office and facilities when their students exit to attend charter schools, their cost per student must rise or the quality of the education they offer must suffer. In fact, there is an added penalty for procrastination: When a school district fails to adjust its costs to account for declining enrollment, its expenditures per student will rise and, as a result, its tuition payment per student enrolled in neighboring charter schools must rise as well!

Unfortunately, the City of Boston's budgeting policies have allowed BPS to postpone the hard decisions implied by charter departures (Boston Municipal Research Bureau, 2016). By the city's accounting, the state's education aid appears on the city's budget, not the school district's budget. As a result, when more Boston students attend charter schools and state aid declines, it represents a reduction in city revenue. But that decline in state aid does not directly translate into a decline in revenue for the school district itself.

Between fiscal year 2011 and 2016, the city's tuition payments for charter schools rose from \$68 million to \$144 million. Over that same time period, despite the fact that students were leaving the district, the total expenditures of the Boston Public Schools grew by 24%! Ironically, according to the Boston Municipal Research Bureau, the primary effect of the decline in state aid resulting from the city's rising charter tuition payments may have been to slow the growth in expenditures in public safety and other city departments, where expenditures rose by 18% and 13%, respectively (less than the rise in the BPS budget).



## VII. Conclusion

More than two decades ago, the Massachusetts legislature authorized a series of small-scale experiments in education reform called “charter schools.” We now know that many of those experiments worked beyond expectation. In fact, many charter schools in Boston and other urban areas in Massachusetts are generating gains in achievement that are large enough to close achievement gaps by race and income over time. It is an historic achievement, and it’s no wonder that thousands of students in Boston and other low-income urban centers in the state would prefer such schools over their district schools.

The vote in November is not a referendum on the public school districts of Massachusetts, which residents in many communities understandably cherish. For most voters, the vote has no impact at all on the likelihood that a charter school will open in their neighborhoods. For communities that are below the current cap, the state’s Board of Elementary and Secondary Education could approve or disapprove a charter school in the future regardless of what happens with the referendum. Rather, those most affected by the vote are parents and students in 15 urban, low-income communities that are at or near the charter cap. In most of those communities, there is no clear advantage to attending a charter school. However, in a subset of those communities—Chelsea, Salem, Lynn, Boston, Everett, and Holyoke—students at charter schools are achieving much faster growth in achievement than their peers in the local district schools. If the cap is lifted, the Board of Elementary and Secondary Education should put those charter schools and those six communities first in line for any charter expansion.

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