Charter School Performance in Texas

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CREDO, the Center for Research on Education Outcomes at Stanford University, was established to improve empirical evidence about education reform and student performance at the primary and secondary levels. CREDO at Stanford University supports education organizations and policymakers in using reliable research and program evaluation to assess the performance of education initiatives. CREDO's valuable insight helps educators and policymakers strengthen their focus on the results from innovative programs, curricula, policies and accountability practices.

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Introduction

Across the country, charter schools occupy a growing position in the public education landscape. Heated debate has accompanied their existence since the first charter school opened in Minnesota two decades ago. Similar debate has occurred in Texas with charter advocates extolling such benefits of the sector as expanding parental choice and introducing market-based competition to education. Little of that debate, however, is grounded in hard evidence about charter schools' impact on student outcomes. This report contributes to the discussion by providing evidence for charter students' performance in Texas for six years of schooling, beginning with the 2007-2008 school year and concluding with the 2012-2013 year.

The current study was supported by The Michael and Susan Dell Foundation. With the cooperation of the Texas Education Agency (TEA), CREDO obtained the historical sets of student-level administrative records through the auspices of the Texas Schools Project (TSP) at the University of Texas at Dallas. The support of The Michael and Susan Dell Foundation, TEA, and TSP staff was critical to CREDO's understanding of the character and quality of the data we received. However, it bears mention that the entirety of interactions with TEA dealt with technical issues related to the data. CREDO has developed the findings and conclusions presented here independently.

This report provides an in-depth examination of the results for charter schools in Texas. It is also an update to CREDO's first analysis of the performance of charter schools in Texas, which can be found at our website.[1] This report has two main benefits. First, it provides a rigorous and independent view of the performance of the state's charter schools. Second, the study design is consistent with CREDO's reports on charter school performance in other locations, making the results amenable to benchmarking both nationally and in other states.

The analysis is presented here in four parts. We first present the findings about the effects of charter schools on student academic performance. These results are expressed in terms of the academic progress that a typical charter school student in Texas would realize from a year of enrollment in a charter school. To help the non-technical reader grasp the findings, we transcribe the scientific estimates into days of learning based on the foundation of a 180-day school year.

The second set of findings is presented at the school level. Because schools are the instruments on which the legislation and public policy operate, it is important to understand the range of performance for the schools. These findings look at the performance of students by school and present school average results.

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[1] CREDO. *Charter School Performance in Texas* (2009). http://credo.stanford.edu

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The third set of analyses examines the performance of charter schools grouped by charter school authorizer. In Texas, there are two authorizers of charter schools; the State Board of Education (SBOE) and Local Education Agencies (LEA). We are interested in knowing whether there are differences between schools authorized by the TEA and LEAs.

The final set of findings address the issue of students at-risk of dropping out from Texas schools. The aim of this portion of the report is to present an overview of the at-risk student population in Texas and to measure the academic progress of at-risk students generally. This portion of the report will also compare the performance of at-risk students enrolled in traditional public schools and charter schools.

Compared to the educational gains that charter students might have had in a traditional public school (TPS), the analysis shows that in a year's time, on average, charter school students in Texas show less progress in both reading and mathematics. The impact is statistically significant: thinking of a 180-day school year as "one year of learning", an average Texas charter student would have completed 14 fewer days of learning in reading and 29 fewer days of learning in math. Despite the overall findings, there are positive notes found in the analysis. In both subjects, the trends over the six years of the study are positive; by the final period of the study, there were no differences in reading and the learning gap in math was decreased. Moreover, students in poverty and English Language Learners in Texas post superior yearly gains compared to their counterparts in TPS. Hispanic students in poverty also post positive results: their progress over a year's time is on pace with equivalent TPS students.

Study Approach

This study of charter schools in Texas focuses on the academic progress of Texas charter schools' enrolled and tested students. Whatever else charter schools may provide their students, their contributions to their students' readiness for secondary education, high school graduation, and post-secondary life remains of paramount importance. Indeed, if charter schools do not succeed in forging strong academic futures for their students, other outcomes of interest, such as character development or non-cognitive skills, cannot compensate. Furthermore, current data limitations prevent the inclusion of non-academic outcomes in this analysis.

This statewide analysis uses the Virtual Control Record (VCR) methodology that has been used in previous CREDO publications.[2,3,4] The approach is a quasi-experimental study design with matched student records that are followed over time. The current analysis examines whether students in charter schools in Texas outperform their TPS counterparts. This general question is then extended to consider whether the observed charter school performance is consistent when the charter school population is disaggregated along a number of dimensions, such as race/ethnicity and geographic location. Answers to all these questions require that we ensure that the contribution of the schools – either the charter schools or the TPS schools – is isolated from other potentially confounding influences. For this reason, these analyses include an array of other variables whose purpose is to prevent tainting the estimate of charter schooling by other effects. In its most basic form, the analysis includes controls for student characteristics: prior academic achievement, race/ethnicity, special education status, lunch program participation, English proficiency, grade level, and retention in grade.

To create a reliable comparison group for our study, we strive to build a VCR for each charter school student. A VCR is a synthesis of the actual academic experiences of students who are identical to the charter school students, except for the fact that they attend a TPS that the charter school students would have attended if not enrolled in their charter school. We refer to the VCR as a 'virtual twin' because it consolidates the experience of multiple 'twins' into a single synthesis of their academic performance. This synthesized record is then used as the counterfactual condition to the charter school student's performance.

[2] CREDO. *Multiple Choice: Charter School Performance in 16 States* (2009). http://credo.stanford.edu.

[3] Davis, Devora H. and Margaret E. Raymond. Choices for Studying Choice: Assessing Charter School Effectiveness Using Two Quasi-experimental Methods. *Economics of Education Review* 31, no. 2 (2012): 225-236.

[4] Cremata, Edward, D. Davis, K. Dickey, K. Lawyer, Y. Negassi, M. Raymond and J.Woodworth. *National Charter School Study 2013* (2013). http://credo.stanford.edu.

Our approach is displayed in Figure 1. We identify all the traditional public schools whose students transfer to a given charter school; each of these schools is a "feeder school." Once a TPS qualifies as a feeder school, all the students in the school become potential matches for a student in a particular charter school. All the student records from all the feeder schools are pooled – this becomes the source of records for creating the virtual match. Using the records of the students in those schools in the year prior to the test year of interest (t_0), CREDO selects all of the available TPS students that match each charter school student.

Match factors include:

- Grade level
- Gender
- Race/Ethnicity
- Free or Reduced Price Lunch Status
- English Language Learner Status
- Special Education Status
- Prior test score on state achievement tests

Figure 1: CREDO Virtual Control Record Methodology
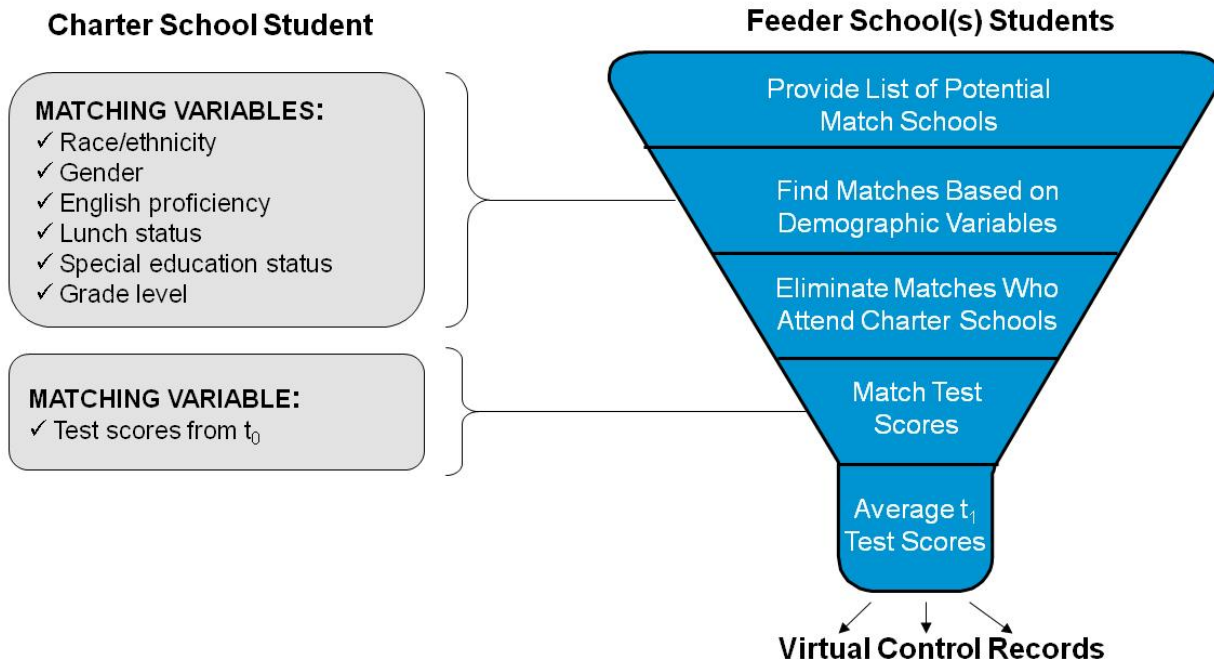
At the point of selection as a VCR-eligible TPS student, all candidates are identical to the individual charter school student on all observable characteristics, including prior academic achievement. The focus then moves to the subsequent year, t_1. The scores

from this test year of interest (t_1) for as many as seven VCR-eligible TPS students are then averaged and a Virtual Control Record is produced. The VCR produces a score for the test year of interest that corresponds to the expected result a charter student would have realized if he or she had attended one of the traditional public schools that would have enrolled the charter school's students.   The VCR thus provides the counterfactual "control" experience for this analysis.

For the purposes of this report, the impact of charter schools on student academic performance is estimated in terms of academic growth from one school year to the next. This increment of academic progress is referred to by policy makers and researchers as a "growth score" or "learning gains" or "gain scores." Using statistical analysis, it is possible to isolate the contributions of schools from other social or programmatic influences on a student's growth. Thus, all the findings that follow are reported as the **average one-year growth** of charter school students relative to their VCR-based comparisons.

With six years of student records in Texas, it is possible to create five periods of academic growth. Each growth period needs a "starting score", (i.e., the achievement test result from the spring of one year) and a "subsequent score" (i.e., the test score from the following spring) to create the growth measure. To simplify the presentation of results, each growth period is referred to by the year in which the second spring test score is obtained.   For example, the growth period denoted "2009" covers academic growth that occurred between the end of the 2007-2008 and the end of the 2008-2009 school years. Similarly, the time period denoted "2013" corresponds to the year of growth between the 2011-2012 and 2012-2013 school years.

With six years of data, and nine tested grades (3rd – 11th) including end-of-course assessments (EOCs), there are 54 different sets of data each for Reading and Math; each subject-grade-year group of scores (or, in the case of EOCs, subject-year group) has slightly different mid-point averages and distributions.

Test scores for all these separate tests are transformed to a common scale.   All test scores have been converted to "bell curve" standardized scores to allow year-to-year computations of growth.[5]

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[5] For each subject-grade-year set of scores, scores are centered around a standardized midpoint of zero, which corresponds to the actual average score of the test before transformation. Then each score of the original test is recast as a measure of deviation around that new score of zero, so that scores that fall below the original average score are expressed as negative numbers and those that are larger receive positive values. These new values are assigned such that in every subject-grade-year test, 68 percent of the former scores fall within a given distance, known as the standard deviation.

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When scores are thus standardized into z-scores, every student is placed relative to his peers in the entire state of Texas. A student scoring in the 50th percentile in Texas receives a z-score of zero, while a z-score one standard deviation above that equates to the 84th percentile. Students who maintain their relative place from year to year would have a growth score of zero, while students who make larger gains relative to their peers will have positive growth scores. Conversely, students who make smaller academic gains than their peers will have negative growth scores in that year.

Texas Charter School Demographics

The Texas charter school sector has grown markedly since its inception in 1996. Figure 2 below notes the new, continuing, and closed charter school campuses from the Fall of 2007 (the Fall of the first potential growth period for the current study) to the Fall of 2011 (the Fall of the last potential growth period for the current study).

Figure 2: Opened and Closed Charter Campuses, 2007 to 2011
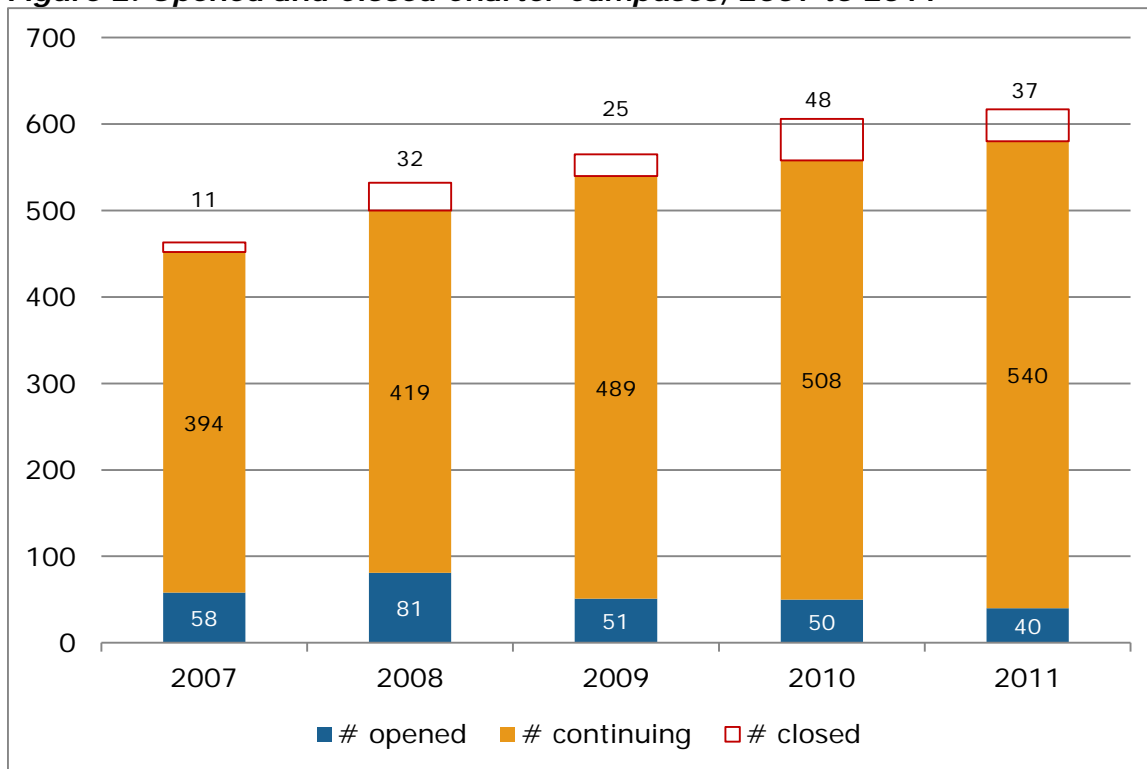
According to the National Center for Education Statistics (NCES), there were 580 charter schools open in Texas in the 2011-12 school year. Because charter schools are able to choose their location, the demographics of the charter sector may not mirror that of the TPS sector as a whole. Further, charter schools offer different

academic programs and alternate school models, which may disproportionately attract particular groups of students relative to TPS. In addition, parents and students who choose to attend charter schools select schools for a variety of reasons, such as location, school safety, small school size, academic focus, or special interest programs. The cumulative result of all these forces is that the student populations at charters and their TPS feeders may differ. Table 1 below compares the student populations of all Texas's traditional public schools, those TPS which comprise the set of charter feeder schools, and the charter schools themselves in the 2011-2012 school year.

Table 1: Demographic Comparison of Students in TPS, Feeders and Charters

	TPS	Feeders	Charters
Number of schools	8,117	5,046	580
Average enrollment per school	593	759	326
Total number of students enrolled	4,811,111	3,831,917	189,064
Students in Poverty	60%	60%	73%
English Language Learners	17%	17%	18%
Special Education Students	9%	9%	7%
White Students	31%	28%	15%
Black Students	12%	14%	22%
Hispanic Students	51%	52%	57%
Asian/Pacific Islander Students	4%	4%	4%
Native American Students	0%	0%	0%

The data from Table 1 show that a large portion of traditional public schools in Texas are feeder schools for the state's charters. Therefore, the demographics for the feeders are nearly identical to the TPS population in Texas as a whole. However, the charter school population in Texas differs from both the Texas TPS and feeder populations on several demographic variables. Charter schools enroll half as many students as their TPS counterparts. Charter schools have roughly half the proportion of White students as other Texas public schools. The proportion of Black and Hispanic students as well as students in poverty enrolled in charter schools is noticeably larger than in other public schools.

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The share of students in charter schools who are receiving Special Education services has been a topic of focus and debate. As shown in Table 1, nine percent of students in feeders and TPS have special education needs. In contrast, seven percent of the Texas charter school population has a designated special education status. The difference in proportions in Texas is smaller than observed in other states, presenting less cause for concern about access to charter school seats for students with special needs.

A Roadmap to the Graphics

The graphics in this report have a common format.

Each graph presents the average performance of charter students relative to their **pertinent comparison student**. The reference group differs depending on the specific comparison. Where a graph compares student subgroup performance, the pertinent comparison student is the same for both subgroups. Each graph is labeled with the pertinent comparison group for clarity.

The **height** of the bars in each graph reflects the magnitude of difference between traditional public school and charter school performance over the period studied.

Stars are used to reflect the level of statistical significance of the difference between the group represented in the bar and its comparison group of similar students in TPS; the absence of stars means that the schooling effect is not statistically different from zero.

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Table 2: Demographic Composition of Charter Students in the Study

Student Group	All Charter Students Tested		Matched Charter Students	
	Number	Percent	Number	Percent
Texas Charter Students	233,858		207,587	
% Matched	207,587	89%		
Black Students	27,075	12%	21,035	10%
Hispanic Students	71,803	31%	60,730	29%
White Students	23,843	10%	18,205	9%
Students in Poverty	87,771	38%	72,062	35%
Special Education Students	14,639	6%	7,711	4%
English Language Learners	13,604	6%	9,233	4%
Grade Repeating Students	11,452	5%	6,178	3%

For this analysis, a total of 233,858 charter school students (with 392,351 observations across five growth periods) from 580 charter schools are followed for as many years as data are available.[6] The students are drawn from Grades 3 – 11, since these are the continuous grades covered by the state achievement testing program for reading and math or by the state end-of-course assessments. High school students are included for reading and math whenever they take the end-of-course assessment sequence in consecutive years, e.g., English I in 9th grade, English II in 10th grade, and English III in 11th grade. An identical number of virtual comparison records are included in the analysis in each subject. In Texas, it was possible to create virtual matches for **89 percent** of the tested charter school students in math and **88 percent** in reading.[7] This proportion assures that the results reported here can be considered indicative of the overall performance of charter schools in the state. The total number of observations is large enough to have confidence that the tests of effect detect real differences between charter school and TPS student performance at the statistically acceptable standard of $p < .05$. Each student subgroup examined also had an acceptable number of observations, as reported in Table 2. Additional descriptive demographics can be found in the Appendix.

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[6] Schools that opened recently or that only recently begun serving tested grades will not have five growth periods of experience to include; however, these schools are still included in the analysis for the years in which data are available

[7] This match rate compares favorably with the 85% match rate reported in the *National Charter School Study 2013*. p.18.

Overall Charter School Impact

First, we examine whether charter schools differ overall from traditional public schools in how much their students learn, holding other factors constant. To answer this question, we average the pooled performance for all charter school students across all five growth periods and compare this pooled performance with the same pooled performance of the VCRs. The result is a measure of the typical learning of charter school students in one year compared to their VCR peers from the feeder schools nearby. These results appear in Figure 3. On average, students in charter schools in Texas learned less than students in TPS in both reading and math in increments that were statistically significant.

Figure 3: Average Learning Gains in Texas Charter Schools Compared to Gains for VCR Student

■ Reading ■ Math

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
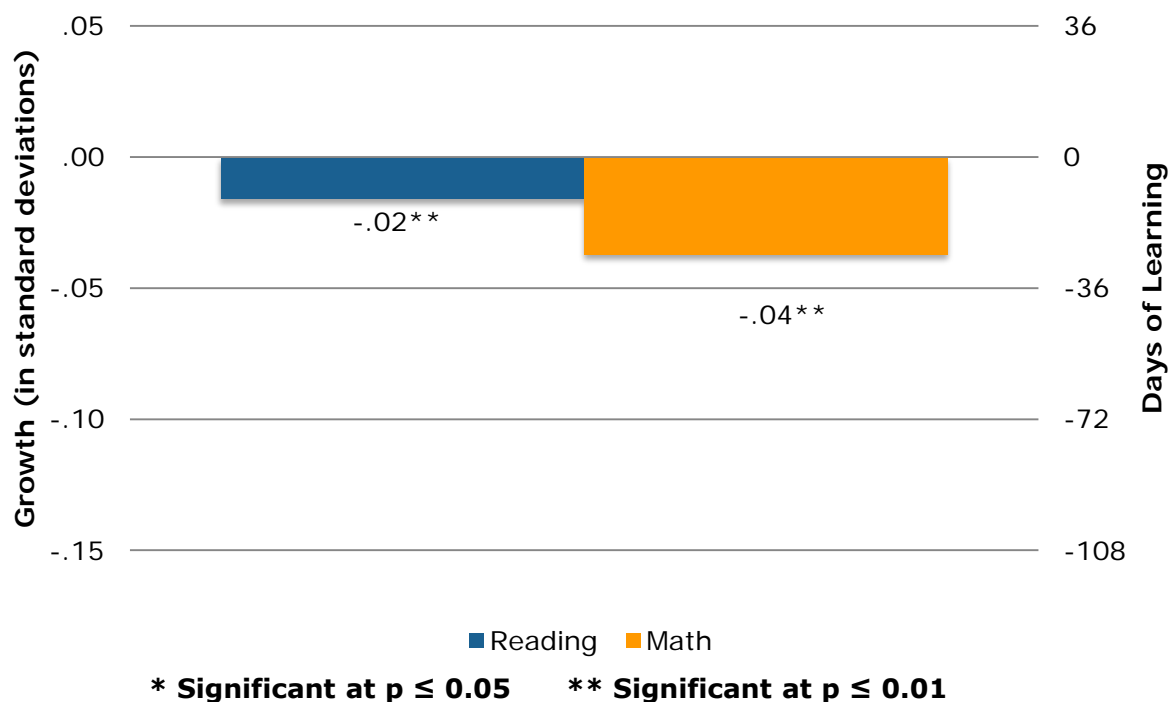
The data is analyzed in units of standard deviations of growth so that the results can be assessed for statistical differences. Unfortunately, these units do not have much meaning for the average reader. Transforming the results into more accessible units is challenging and can be done only imprecisely. Therefore, Table 3 below, presents a translation of various outcomes, but should be interpreted cautiously.[8]

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[8] Hanushek, Eric A. P.E. Peterson, & L. Woessmann. . Achievement Growth: International and U.S. State Trends In Performance. . In Education Next, Vol. 12, 1–35.

Table 3: Transformation of Average Learning Gains[9]

Growth (in standard deviations)	Gain (in days of learning)
0.00	0
0.05	36
0.10	72
0.15	108
0.20	144
0.25	180
0.30	216
0.35	252

To understand "days of learning," consider that the typical school year consists of about 180 days of school. If we take a student whose academic achievement is at the 50th percentile in one grade and also at the 50th percentile in the following grade, the progress between the two years equals the average learning gain for students between the two grades. That growth is fixed as 180 days of effective learning.

We can then translate the standard deviations of growth from our models based on that 180-day average year of learning, so that students with positive measures of standardized growth have more than 180 days of progress in a year's time and those with negative measures of standardized growth have fewer days of learning in the same increment of time.

Using the results from Figure 3 and the transformations from Table 3 we can see that in a typical school year, charter students in Texas fall behind their TPS counterparts. The disadvantage for charter students is equivalent to 14 fewer days of learning in a school year in reading and 29 fewer days of learning in math for the same time period.

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Charter School Impact for the 2009 Cohort

In 2009, CREDO released a national report on charter school performance. This section provides a comparison between the performance of charter schools in 2009 compared to the performance of charter schools released in the current report. The previous report and the current report have one academic year in common, 2007-2008. Figure 4 depicts academic achievement in Texas in both reading and math for the 2009 report and the current report. Between the 2009-2010 school year and the 2011-2012 school year, 110 charter schools have closed.

Academic achievement in Texas has improved in charter schools since the 2009 report. In reading, charter school students in the 2009 cohort were about 36 days of learning behind TPS students, and in the current report charter school students are 14 days of learning behind TPS students. In math, charter students in the 2009 cohort were 36 days of learning behind TPS students, and in the current report charter school students are 29 days of learning behind.

Figure 4: Comparison of Texas 2009 Study and Texas 2014 Study
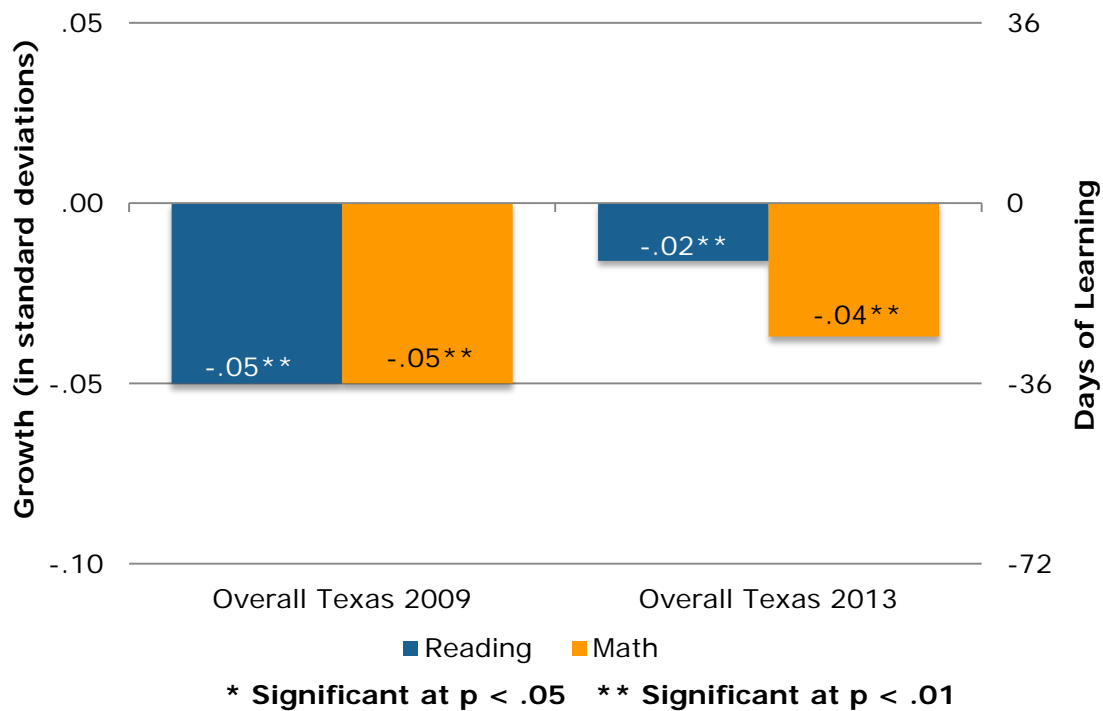
Charter School Impact by Growth Period

To determine whether performance remained consistent over all the periods of this study, the average charter school effects were disaggregated into the five growth periods. Results are shown in Figure 5.

Figure 5: Impact by Growth Period, 2009-2013

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
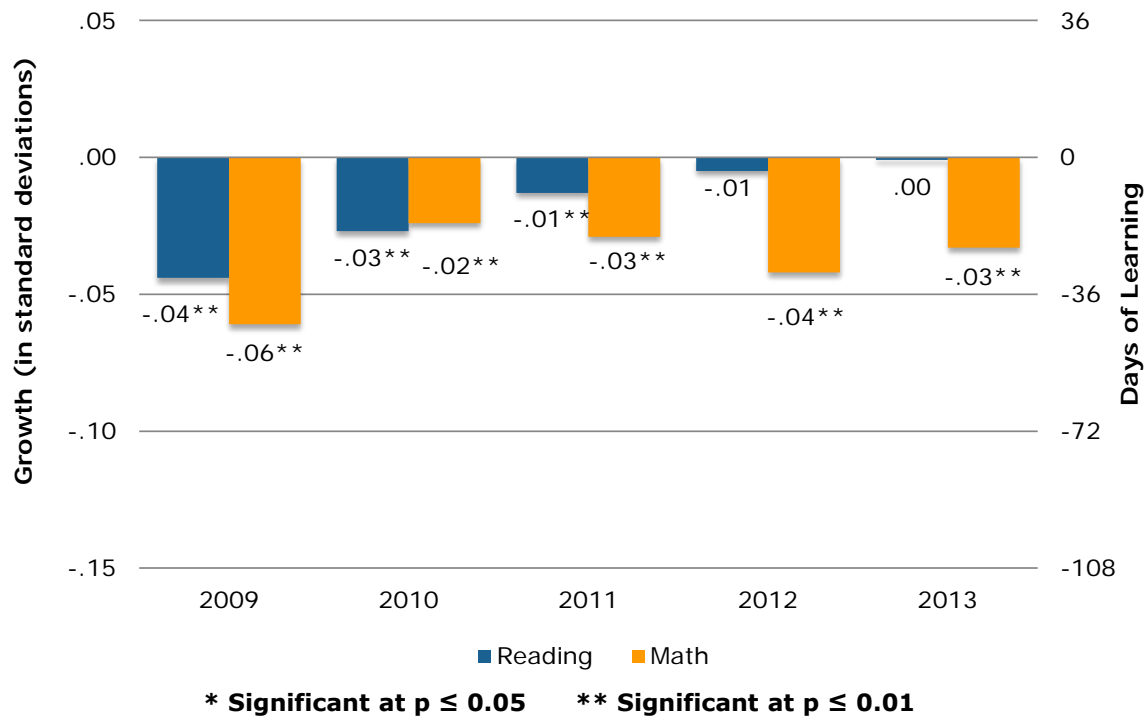
Charter students in Texas learned significantly less in both reading and math than their peers in TPS for all five periods analyzed.[10] Charter students lag further behind TPS students in math than in reading. We do, however, see an improving trend across all years of the study in reading. In the growth period for 2010-2011 to 2011-2012 and 2011-2012 to 2012-2013, there were no significant differences in learning between charter students and their virtual counterparts in reading. The largest gap in math, about 43 days of learning between charter and TPS students occurred in the growth period for the 2007-2008 to 2008-2009 growth year. The largest gap in reading is also found in this growth period, where the difference between charter and TPS students is nearly 29 days of learning.

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[10] With the exception of 2012 where reading is negative and not significantly different, and 2013 where charter students are on pace with their TPS peers.

Charter School Impact by Location

In 2015, CREDO released a study focused on the performance of charter schools in major US cities. There were six urban regions from Texas included in the study: Austin, Dallas, El Paso, Fort Worth, Houston, and San Antonio. The results appear for these regions in Figure 6. Importantly, the report covered the 2006-2007 to 2011-2012 school years. In two regions, Dallas and Houston, charter students in Texas outperformed their TPS counterparts. The advantage for charter students is equivalent to 29 additional days of learning in reading and math for students in Dallas and 14 additional days of learning in reading and math for students in Houston. Students in El Paso and Fort Worth experienced the greatest lags relative to their TPS counterparts. The disadvantage for charter students is equivalent to 22 fewer days of learning in a school year in reading and 65 fewer days of learning in math for students in El Paso and 50 fewer days of learning in a school year in reading and 101 fewer days of learning in math for students in Fort Worth.

Figure 6: Average Learning Gains in Texas Charter Schools Compared to Gains for VCR Student by Urban Region

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
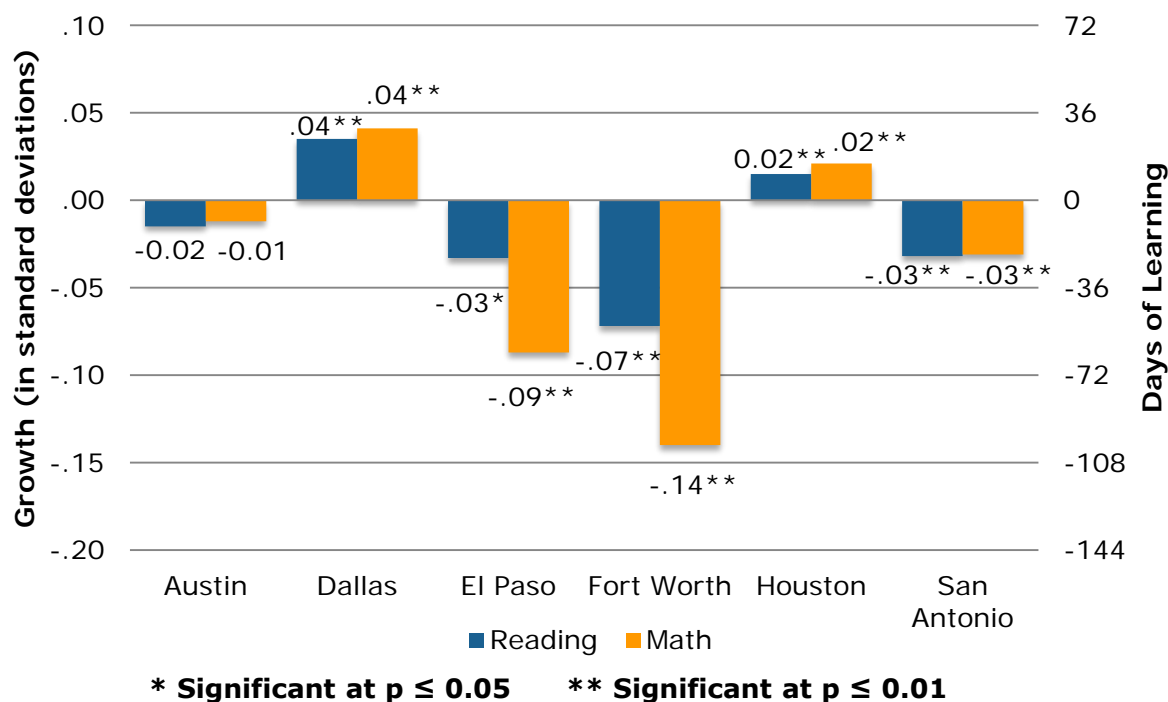
Although charter schools in urban areas receive the bulk of media attention, charter schools can and do serve students in other locales. Charter schools in different locations may serve different student populations, face different levels of available human capital or both. The results in Figure 6a represent the disaggregated impacts for urban, suburban, town, and rural charter schools. In this breakout, charter

students in different locations are compared with their virtual twins in the same locale[11].

Figure 6a: Impact by School Location

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
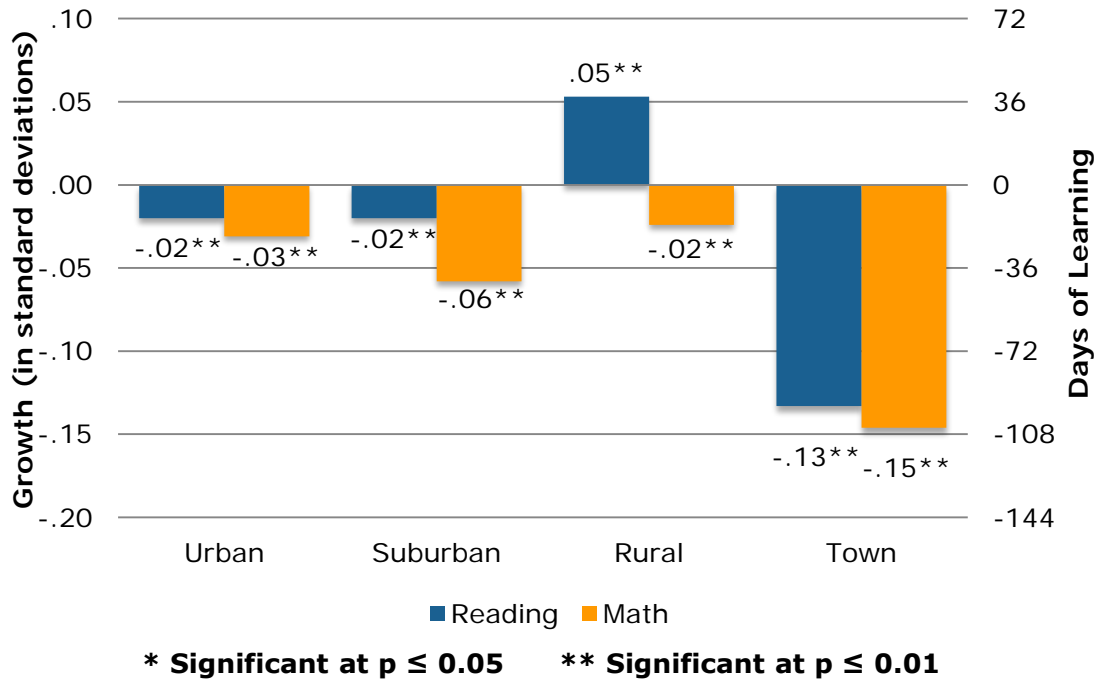
As shown in Figure 6a, geographic location does not provide a strong differentiator for performance. Charter school students in Texas do not perform as well as students in traditional public schools across all locales with one exception: rural students outperform their TPS counterparts in reading (but not math). The greatest disparity in academic growth between charter students and TPS students is found for students attending charter schools located in towns. Charter students in towns are about 94 days of learning behind their local TPS students in reading and 108 days behind TPS students in math. Charter students in rural areas experience 36 additional days of learning than rural TPS students in reading; however, rural charter students fall 14 days behind their rural TPS counterparts in math. In suburban areas, charter students fall behind 14 days in reading and 43 days in math. The difference between urban charter students and their TPS virtual peers equates to about 7 fewer days of learning in reading and 22 days in math.

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[11] The National Center for Education Statistics defines 12 urban-centric locales which are divided into four main locale types: city, suburb, town, and rural.

Charter School Impact by School Level

The flexibility and autonomy enjoyed by charter schools allows them to choose which grade levels to serve, with many charter operators deciding to focus on particular ages while others seek to serve a full range of grades. For example, multi-level charter schools serve grade ranges larger than traditional elementary, middle or high schools, such as a combination of middle and high school grades. In the state of Texas, schools are classified as multi-level if they serve both elementary and secondary students. These school levels are identified by the National Center for Education Statistics, which allows us to disaggregate charter school impacts for different grade spans.

This study examined the outcomes of students enrolled in elementary, middle, high, and multi-level schools. The results appear in Figure 7 below.

Figure 7: Impact by School Level

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
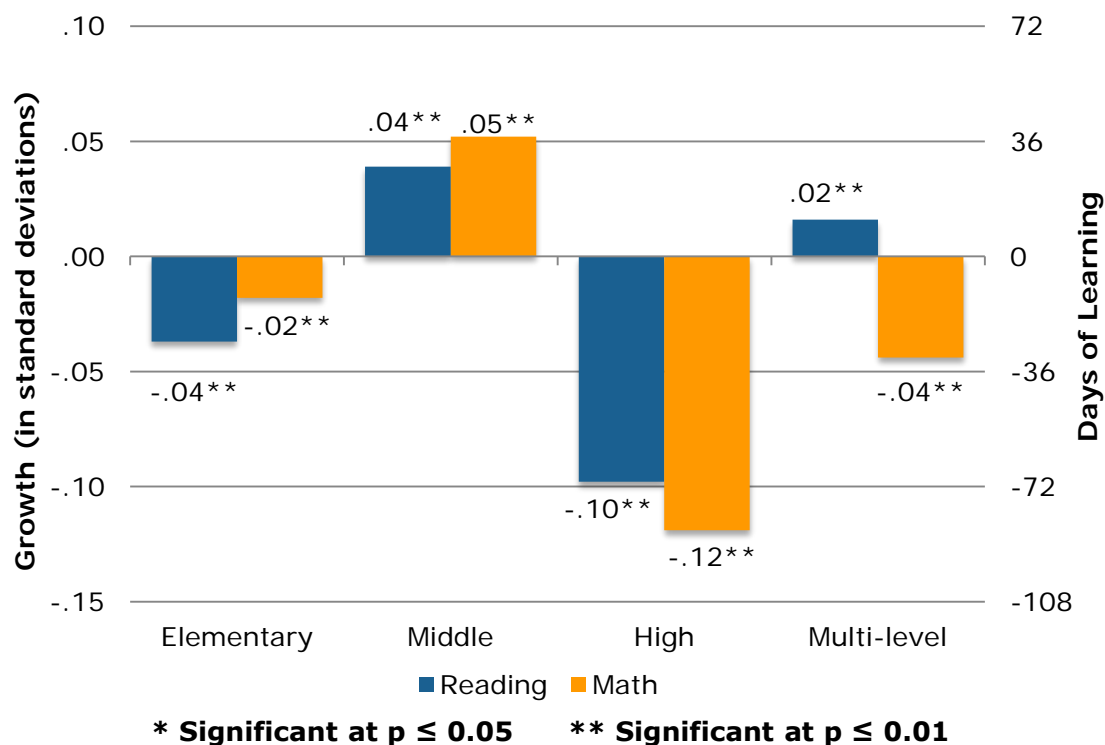
The results show that the best picture of charter school performance is seen in middle schools where, on average, students have significantly stronger academic growth than their TPS virtual counterparts in both reading and math. This difference is equivalent to an additional 29 days of learning in reading and 36 days of learning in math. Charter students enrolled in high schools, by contrast, have the weakest

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growth: they lag behind their TPS peers by 72 days of learning in reading and 86 days in math.

Charter School Impact by Students' Years of Enrollment

Student academic growth in charter schools may change as students extend their enrollment in their school. To test this, we grouped students by the number of consecutive years they were enrolled in charter schools. In this scenario, the analysis is limited to the charter students who enrolled for the first time in a charter school between 2007-2008 and 2011-2012. Although this approach reduces the number of students included, it ensures that the available test results align with the years of enrollment. For this reason, the results of this analysis contain a subset of the full study sample and should not be contrasted with other findings in this report. This question examines whether the academic success of students who enroll in a charter school changes as they continue their enrollment in a charter school. The results are shown below in Figure 8.

Figure 8: Impact by Students' Years of Enrollment

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01

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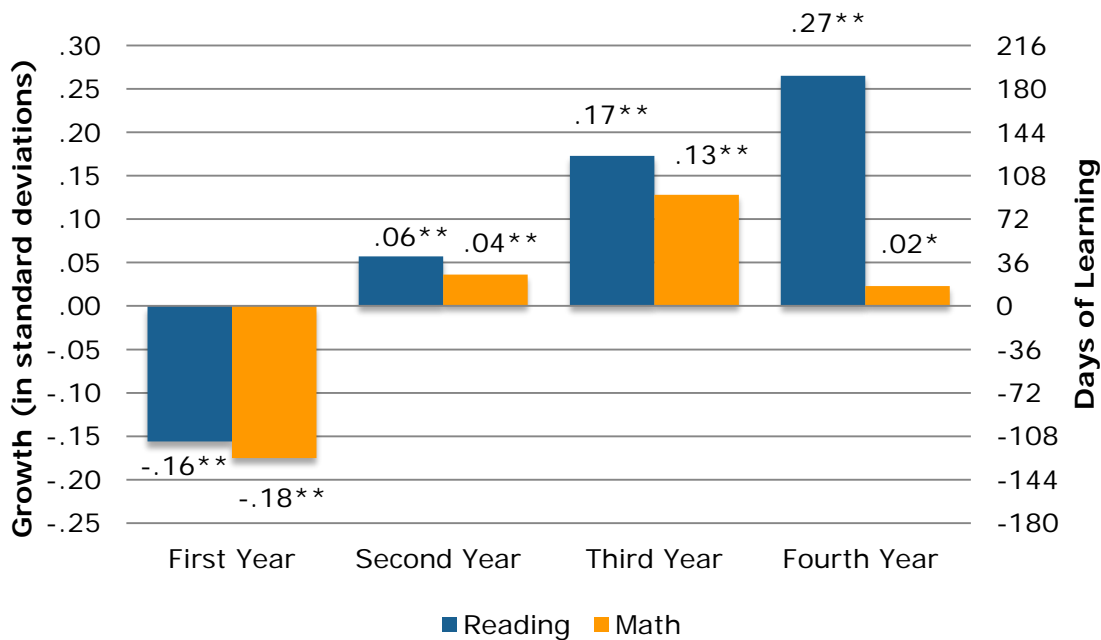
The results suggest that new charter school students in Texas see initial reductions in math and reading growth compared to their counterparts in traditional public schools. The deficit in academic growth between TPS students and charter students is eliminated in reading and math during the second year in charter schools. By the third and fourth years of enrollment, charter schools students outperform their TPS virtual peers in math, with significant gains in reading (a gain of nearly 194 days of learning).

Charter School Impact by Race/Ethnicity

Attention in US public education to achievement differences by racial and ethnic background has increased since the passage of the *No Child Left Behind* Act in 2001. The effectiveness of charter schools across ethnic and racial groups is especially important given the proportion of charter schools that are focused on educating historically underserved students. The impact of charter schools on the academic gains of Black and Hispanic students is presented in Figures 9 through 10a below. The graph displays two distinct comparisons, described below:

1. The first comparison displays the performance of TPS students in the subgroups of interest relative to the "average White student in TPS;" in this comparison, the White student does not qualify for subsidized school meals, Special Education services or English Language Learner support and is not repeating a grade. The values that appear in each vertical bar indicate the magnitude of difference from this comparison student, and the stars indicate the level of statistical significance. Thus, if there is no difference in the learning gains, the bar would be missing entirely; if the learning of the student group in question is not as great as the comparison baseline, the bar is negative; and if the learning gains exceed the comparison, the bar is positive.

2. Graphs labeled "a" display the results of a second comparison testing whether the learning gains in the charter school student subgroup differs significantly from their VCRs in the same student subgroup. As with the first graph, stars denote statistical significance.

Figure 9: Learning Gains of Black Students
Benchmarked Against TPS White Student Learning Gains
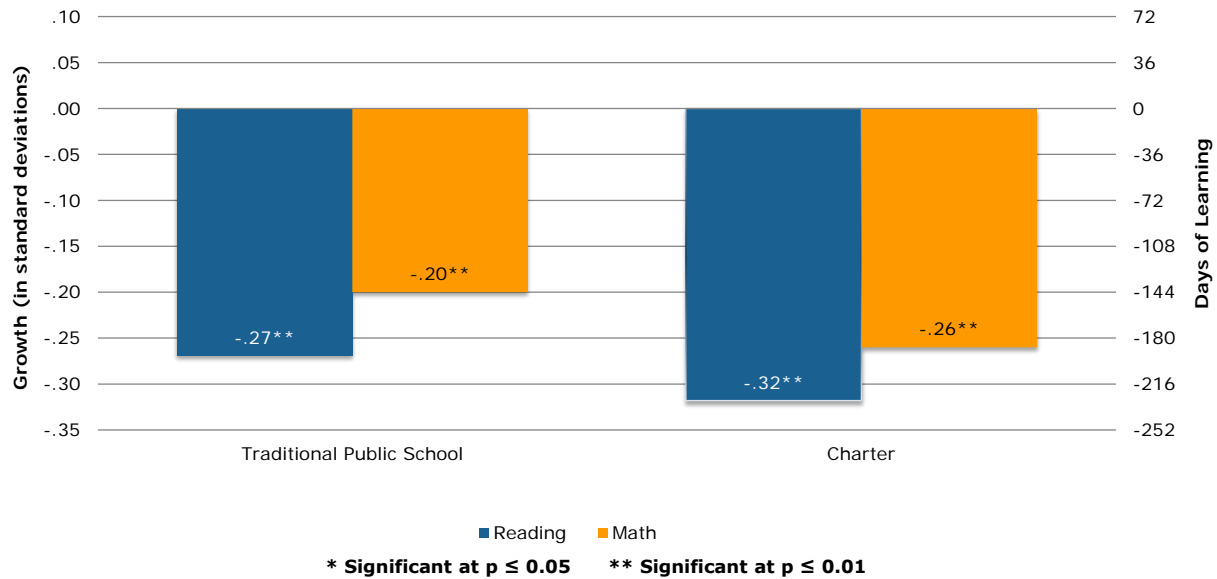
Overall in Texas, Black students in both TPS and charter schools have significantly weaker academic growth in both reading and math when compared to average White TPS students, who serve as the basis of comparison for student performance in other race and ethnic groups. Figure 9a displays the differences in learning between Black students enrolled in TPS and charter schools.

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Figure 9a: Relative Learning Gains for Black Charter School Students Benchmarked Against their TPS Black Peers

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
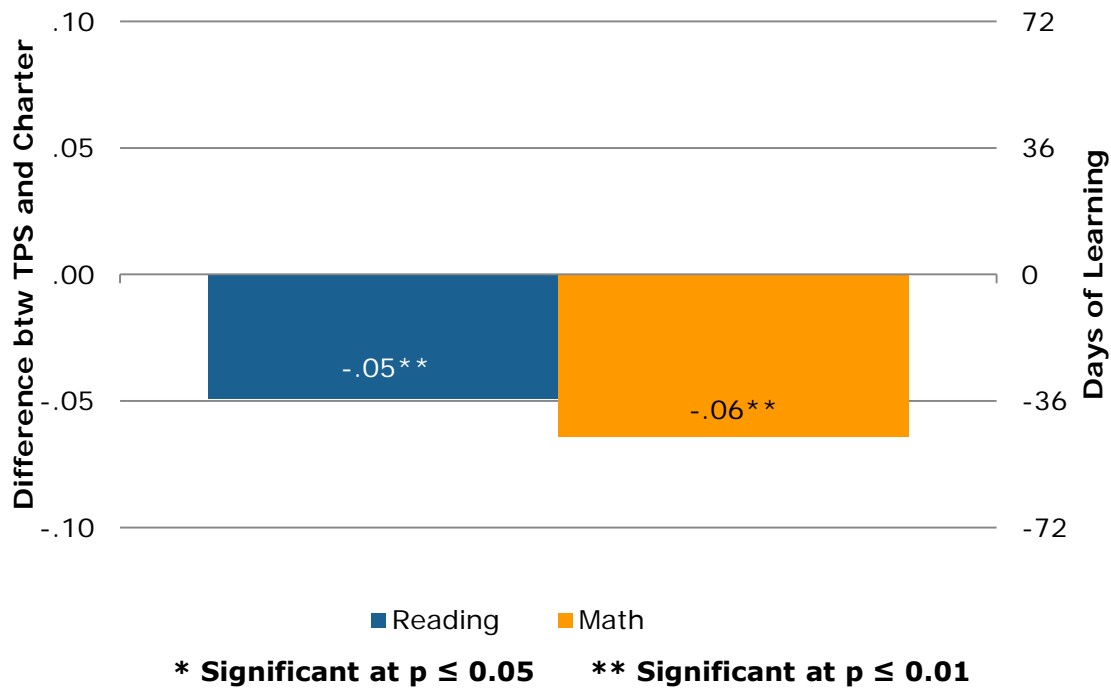
In Texas, Black students in charter schools make less progress in reading and math than Black students in TPS. In a typical year, learning for Black charter students lags that of Black TPS students by 36 days in reading and 43 days in math. Since Black students account for roughly a quarter of the charter school population, these results have an important influence on the overall performance of charter schools in Texas.

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Figure 10: Learning Gains of Hispanic Students
Benchmarked Against TPS White Student Learning Gains

Reading Math
* Significant at p ≤ 0.05 **Significant at p ≤ 0.01
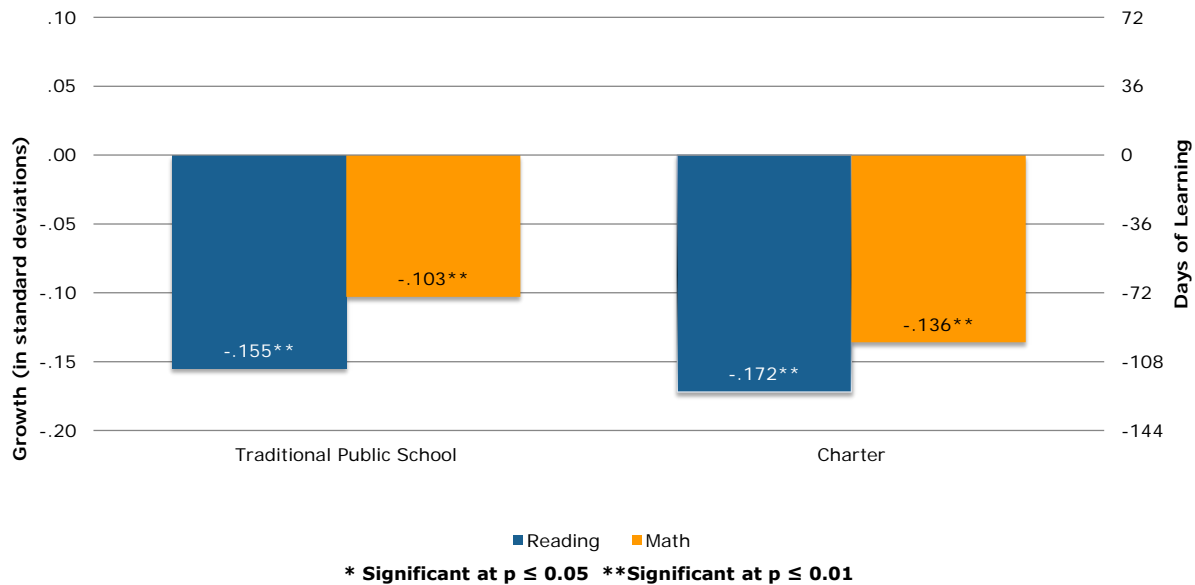
Overall in Texas, Hispanic students in both TPS and charter schools have significantly weaker academic growth compared to average White TPS students, the baseline comparison. This occurs in both reading and math. Compared to White TPS students, Hispanic students in charter schools have learning that lags in both reading (122 days behind) and math (101 days behind). This finding is also true for Hispanic students in TPS (115 days behind) for reading and math (72 days behind).

Figure 10a displays the relative differences in learning between Hispanic students enrolled in TPS and charter schools. In the state of Texas overall, Hispanic students in traditional public schools perform significantly better than Hispanic students attending charter schools. Charter students who are Hispanic experience the equivalent of 14 and 22 fewer days of learning in reading and math respectively, compared to Hispanic students attending TPS. Over half of Texas charter school students are Hispanic, which gives these findings considerable weight in the overall performance of charter schools as a whole.

Figure 10a: Relative Learning Gains for Hispanic Charter School Students Benchmarked Against their TPS Hispanic Peers

* **Significant at p ≤ 0.05**   ** **Significant at p ≤ 0.01**
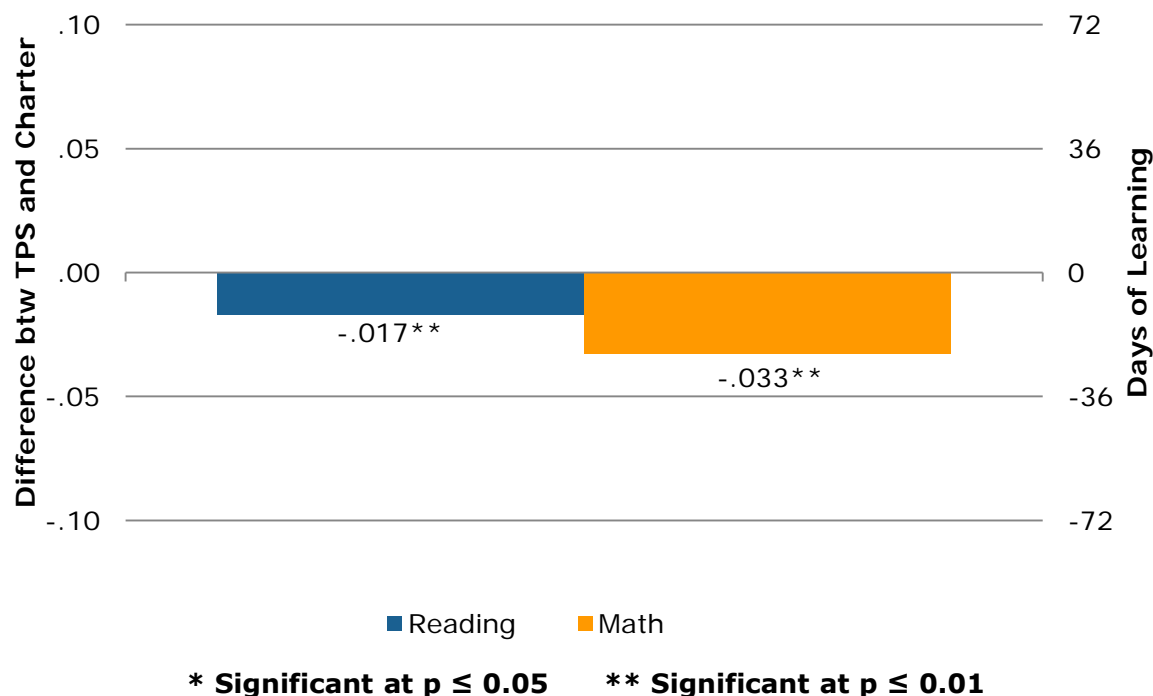
Charter School Impact with Students in Poverty

Much of the motivation for developing charter schools aims at improving education outcomes for students in poverty; the enrollment profiles of charter schools across the United States underscore this fact. In Texas, 73 percent of charter students are eligible for subsidized school meals, a proxy for low income households, compared to just 60 percent of TPS students. Thus, the impact of charter schools on the learning of students in poverty is important in terms of student outcomes. Figure 11 presents the academic growth for students in poverty. In this graph, the comparison student is a student who is not eligible for free or reduced price school meals in TPS, a proxy for not being in poverty.[12]

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[12] Free and Reduced Price Lunch (FRL) is a standard indicator of poverty. Although we agree that FRL is not as sensitive as one might desire, FRL currently serves as our best proxy for poverty.

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***Figure 11: Learning Gains of Students in Poverty
Benchmarked Against TPS Non-Poverty Student Learning Gains***

* Significant at p ≤ 0.05 ** Significant at p ≤ 0.01
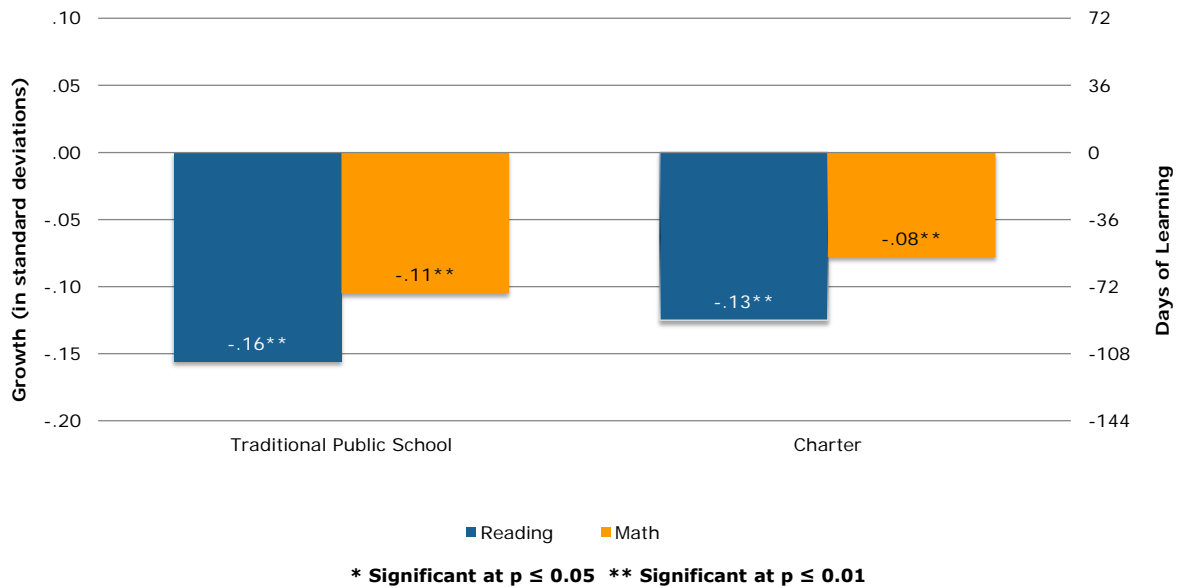
As shown in the Figure 11, Texas students in poverty learn significantly less than their non-poverty peers regardless of the type of school they attend. When compared to non-poverty White students, students in both TPS and charter schools make less progress in reading (115 days for TPS students and 94 days for charters students) and in math (79 days for TPS students and 58 days for charter students).

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Figure 11a: Relative Learning Gains for Charter School Students in Poverty Benchmarked Against their TPS Peers in Poverty

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
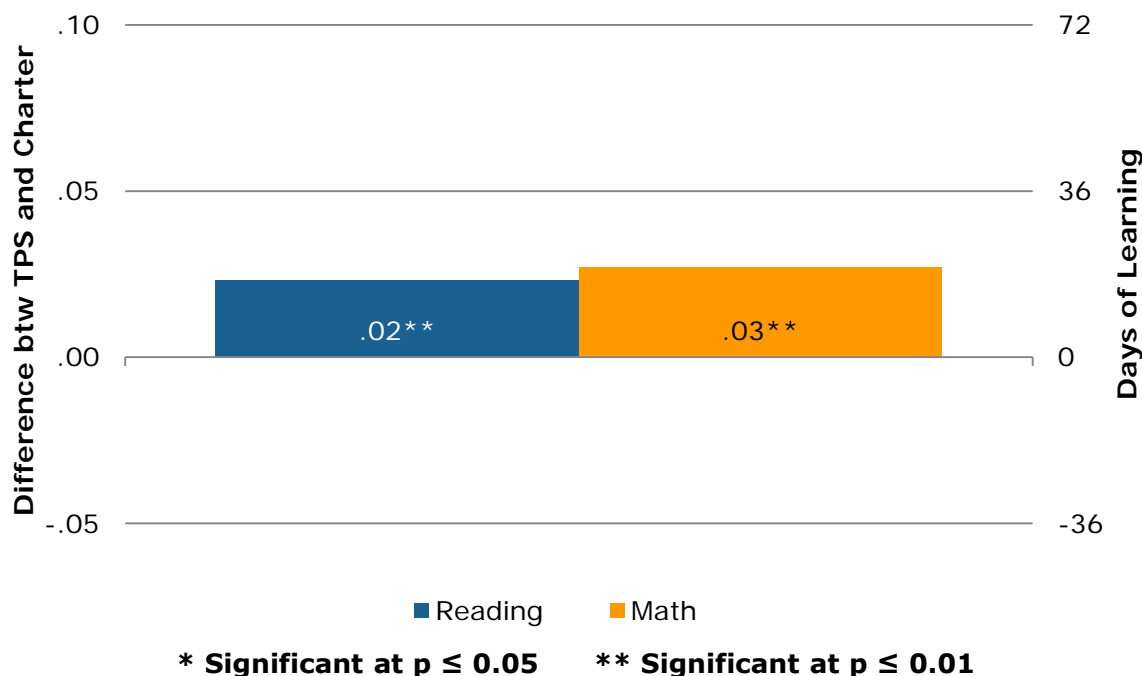
Although students in poverty are outperformed by non-poverty students, students in poverty who are enrolled in charter schools were found to progress significantly more in a year's time in both reading and math compared to students in poverty in TPS, as shown in Figure 11a. Charter students in poverty have a 14 day learning advantage in reading and a 22 day learning advantage in math compared to their TPS peers. This finding is notable given that nearly 73 percent of charter students live in poverty.

Charter School Impact with Race/Ethnicity and Poverty

According to the US Census Bureau, Black and Hispanic students are among the largest groups of students relative to other racial and ethnic groups in poverty. In 2013, nearly 39 percent of Black children and 32 percent of Hispanic children were in poverty. [13] In recent decades, there has been increased interest in closing the achievement gaps between white non-poverty and low-income minority students. Despite these efforts, we have seen little change in achievement gaps. The impact of

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[13] National Center for Education Statistics. (2015). Children Living in Poverty. https://nces.ed.gov/programs/coe/indicator_cce.asp

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Texas charter schools on the academic gains of Black students living in poverty is presented in Figures 12 and 12a. Charter school impact on Hispanic students living in poverty is presented in Figures 13 and 13a below.

Figure 12: Learning Gains of Black Students in Poverty Benchmarked Against TPS White Student Learning Gains

* Significant at p ≤ 0.05 ** Significant at p ≤ 0.01
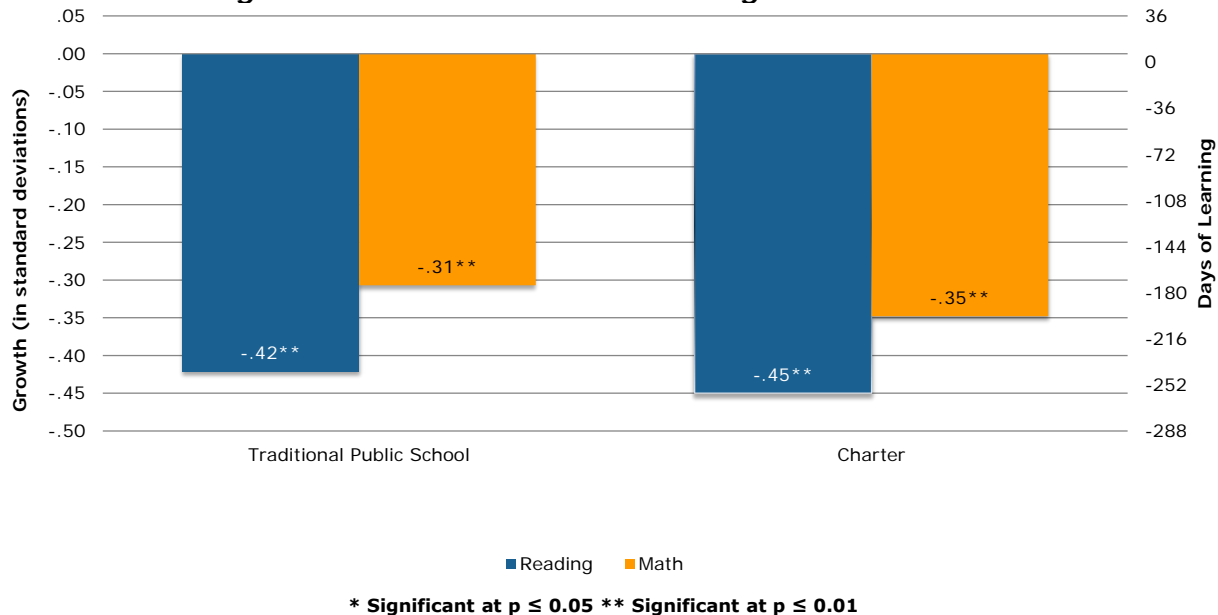
As shown in Figure 12, Black students living in poverty make less progress than White students. In Texas, Black students in poverty in TPS have 302 fewer days of learning in reading and 223 fewer days of learning in math than TPS White students. Black students in poverty in charter schools have 324 fewer days of learning in reading and 252 fewer in math than TPS White students.

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Figure 12a: Relative Learning Gains for Black Charter School Students in Poverty Benchmarked Against their TPS Black Peers in Poverty

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
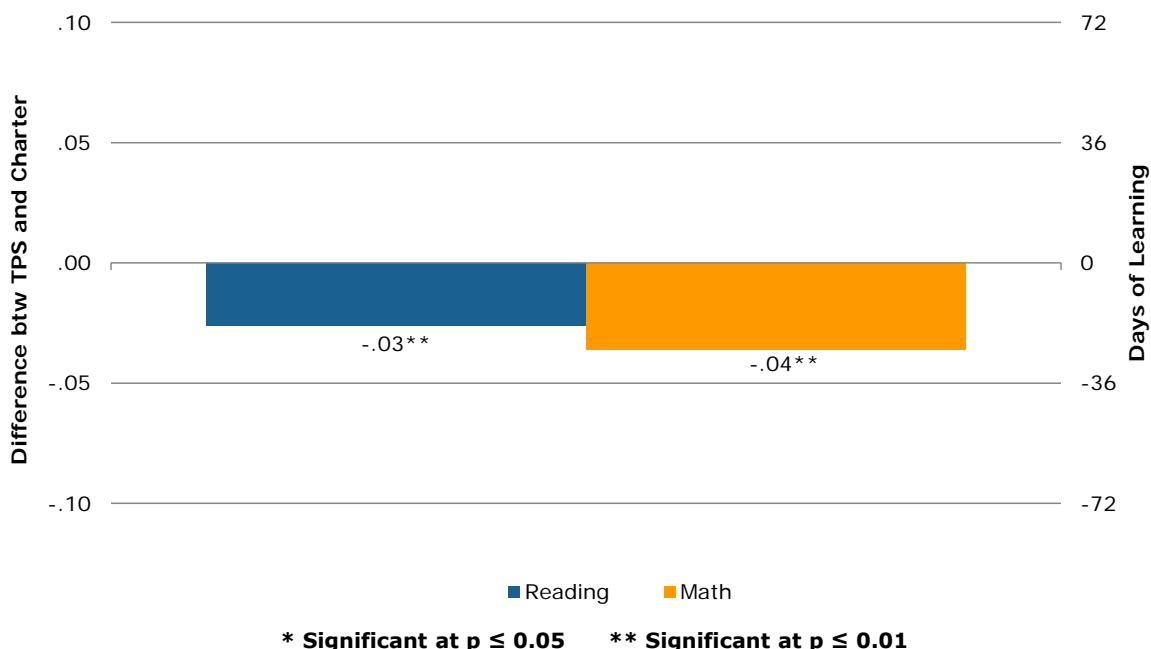
As shown in Figure 12a, across all charter schools in Texas, Black students in poverty fall behind 22 days of learning in reading and 29 days in math as compared to impoverished Black students attending TPS.

Hispanic students in poverty also perform below TPS White students in both reading and math. TPS-attending Hispanic students in poverty experience, on average, the equivalent of 216 fewer days of learning in reading and 144 fewer days of learning in math compared to TPS White students. Hispanic students in poverty attending charter schools have 209 fewer days of learning in reading and 144 fewer days of learning in math, on average, per year.

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***Figure 13: Learning Gains of Hispanic Students in Poverty
Benchmarked Against TPS White Student Learning Gains***

* Significant at p ≤ 0.05 ** Significant at p ≤ 0.01
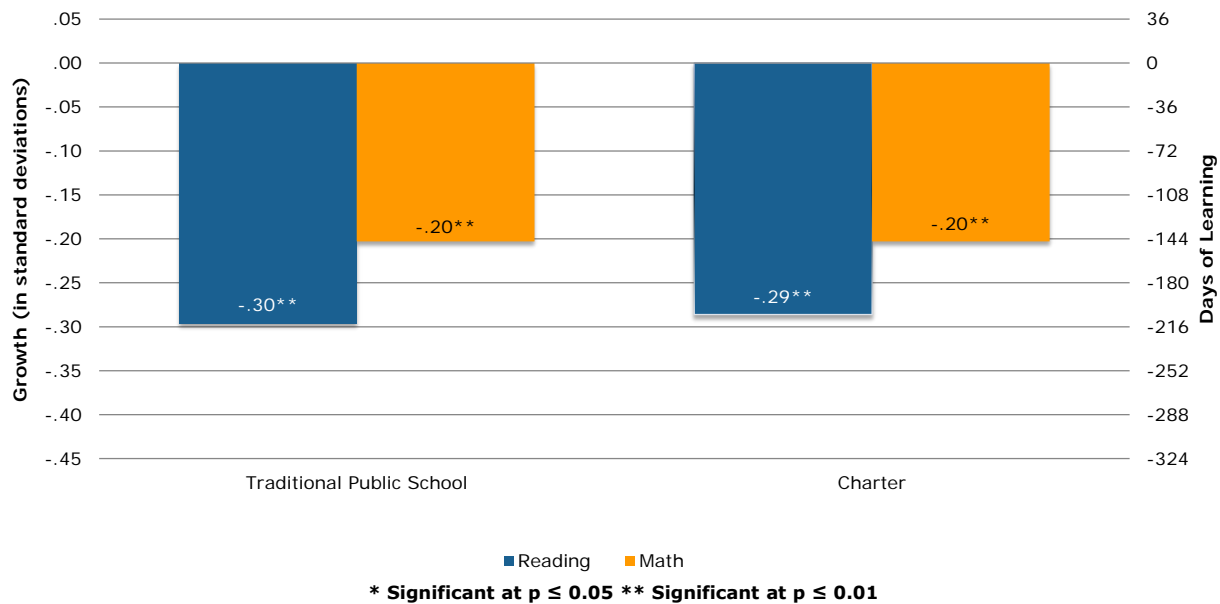
Figure 13a shows the difference between Hispanic students in poverty who attend charter schools and Hispanic students in poverty who attend TPS. In Texas, Hispanic students in poverty who attend charter schools have statistically significantly higher achievement than Hispanic students in poverty who attend TPS in reading (the difference is modest -- about 7 days of learning). In math, the performance of Hispanic charter students is about equal to that of Hispanic TPS students in poverty.

Figure 13a: Relative Learning Gains for Hispanic Charter School Students in Poverty Benchmarked Against their TPS Hispanic Peers in Poverty

■ Reading   ■ Math

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
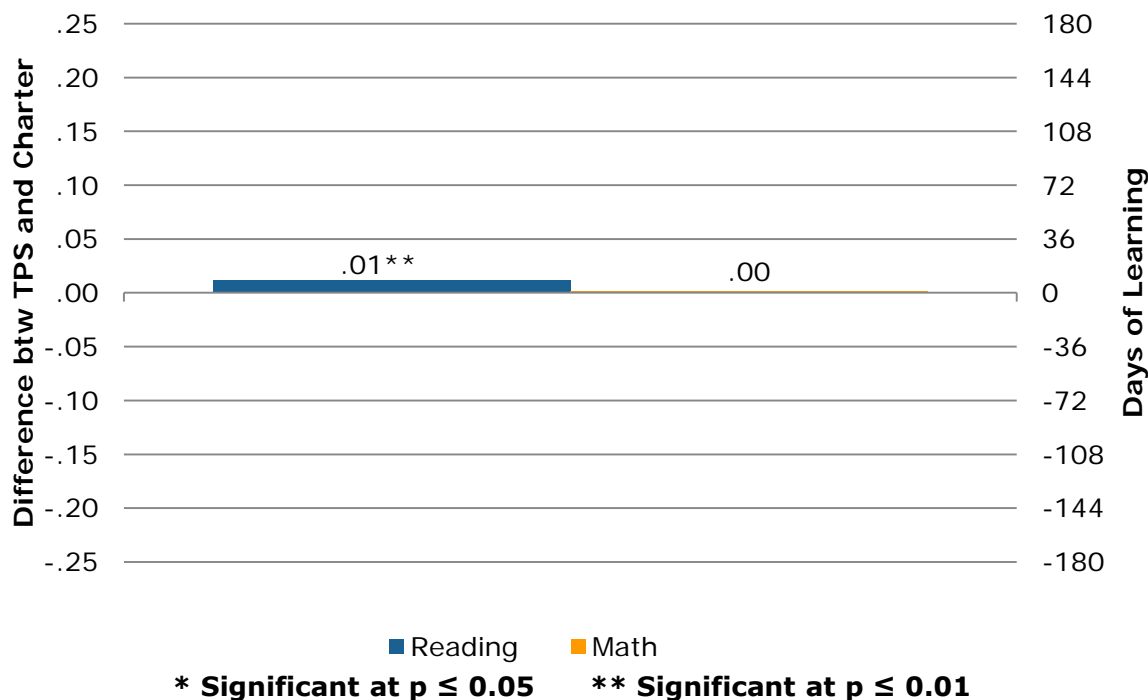
Charter School Impact with Special Education Students

The demographic comparisons in the CREDO national charter school report released in 2009 indicated that across the charter sector, schools serve fewer Special Education students than the traditional public schools both in number of students and as a proportion of their enrollment. In some cases, this is a deliberate and coordinated response with local districts to balance the needs of the students with a consideration of cost-effective strategies for doing so. We do not find a stark disparity in Texas where the overall proportion of charter school students who have Special Education needs is 7 percent, compared to 9 percent in TPS statewide and 9 percent in the charter schools' feeder schools.

It is especially difficult to compare the outcomes of Special Education students, regardless of where they enroll. In the ideal setting, we would restrict the comparison by Individual Education Program (IEP) designation and only include

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students who were matched in all ways including IEP designation. That approach faces real challenges, however, because of small numbers of cases that match between charter schools and their feeder schools. Accordingly, it is necessary to aggregate across all categories. As a result, the results presented in Figure 14 and Figure 14a should be interpreted with caution.

Figure 14: Learning Gains of Special Education Students Benchmarked Against TPS Non-Special Education Student Learning

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
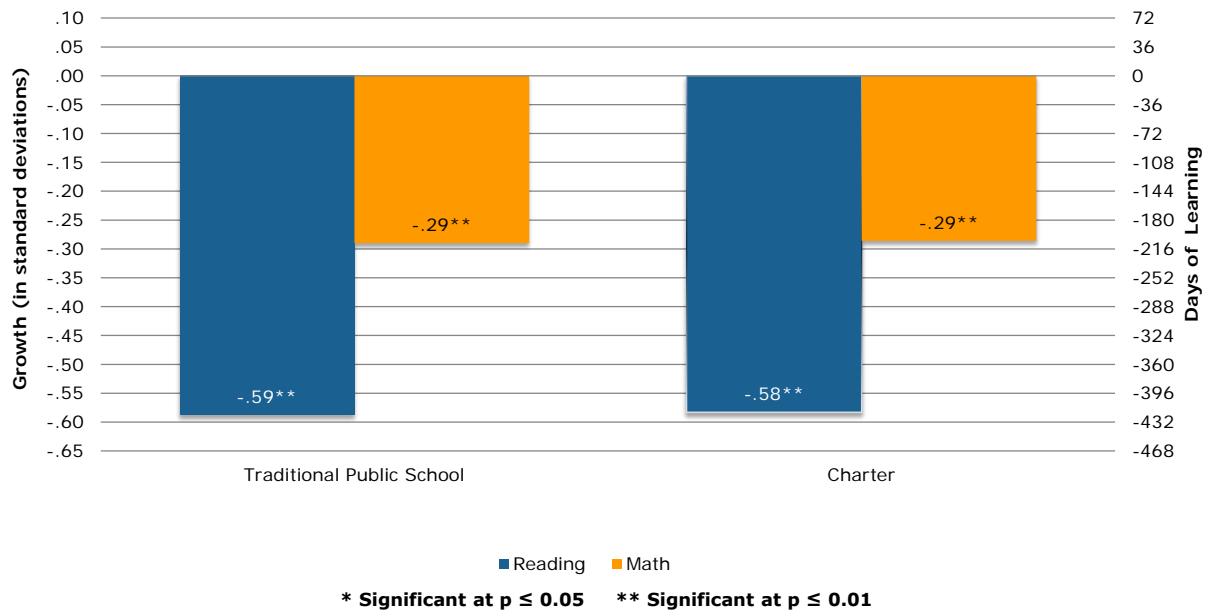
Texas Special Education students enrolled in both TPS and charter schools learn significantly less than students in TPS who do not receive Special Education services. Compared to students not receiving Special Education services, Special Education students in TPS in Texas experience growth equivalent to 425 fewer days of learning in reading and 209 fewer days of learning in math. Comparatively, Special Education students in charter schools fell behind 418 days of learning in reading and 209 days of learning in math. Overall, Special Education students in Texas charter schools perform the same as their counterparts in TPS in reading and math (*see* Figure 14a).

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***Figure 14a: Learning Gains of Special Education Charter School Students
Benchmarked Against TPS Special Education Student Learning Gains***
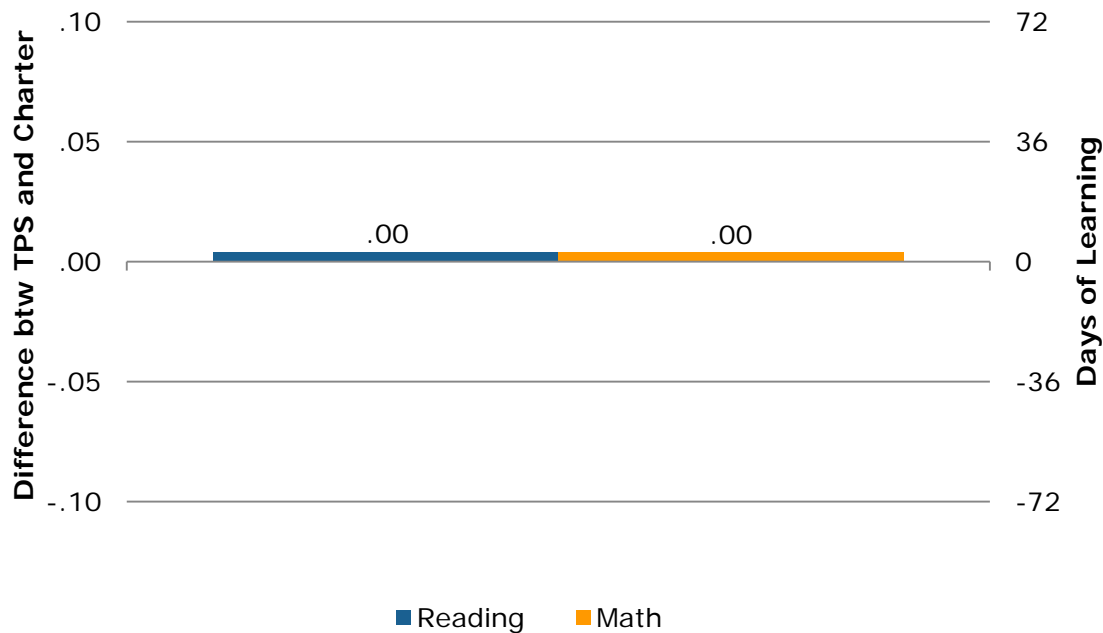
Charter School Impact with English Language Learners

Nationally, students whose primary language is not English represent a growing share of public school students. Their success in school today will greatly influence their success in the world a decade from now. Since their performance as reflected by National Assessment of Education Progress lags well behind that of their English proficient peers, their learning gains are a matter of increasing focus and concern nationally.

The comparison of learning gains of charter school English Language Learners and their TPS counterparts appears in Figure 15. The baseline comparison is the typical learning gain of TPS peers who are proficient in English.

Figure 15: Learning Gains of ELL Students
Benchmarked Against TPS Non-ELL Student Learning Gains
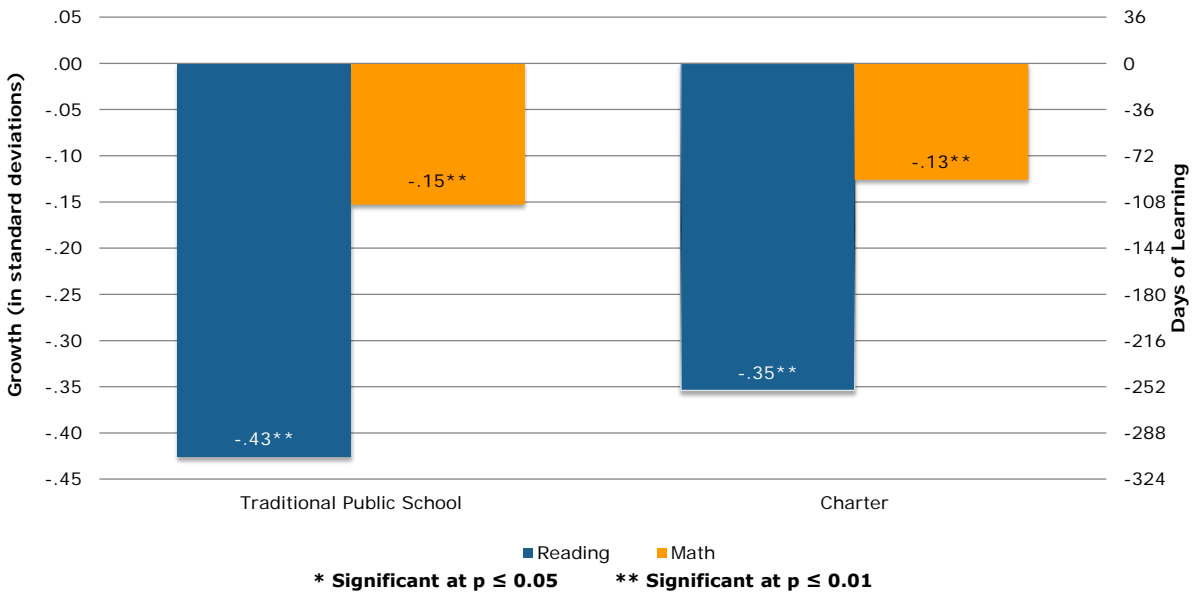
Overall, English Language Learners in both TPS and charter schools learn significantly less per year than fluent English speakers in reading, amounting to a gap of 310 days of learning for TPS students and 252 days for charter students. Similarly, both TPS and charter students fall behind fluent English speakers in math by 108 days and 94 days, respectively.

Despite these differences in academic progress compared to their fluent TPS peers, English Language Learner students in charter schools outperform their English Language Learner counterparts in TPS. English Language Learner students in charter schools have 50 additional days of learning in reading and 22 additional days of learning in math relative to TPS peers who are English Language Learners (See Figure 15a).

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Figure 15a: Learning Gains of ELL Charter School Students Benchmarked Against TPS ELL Student Learning Gains
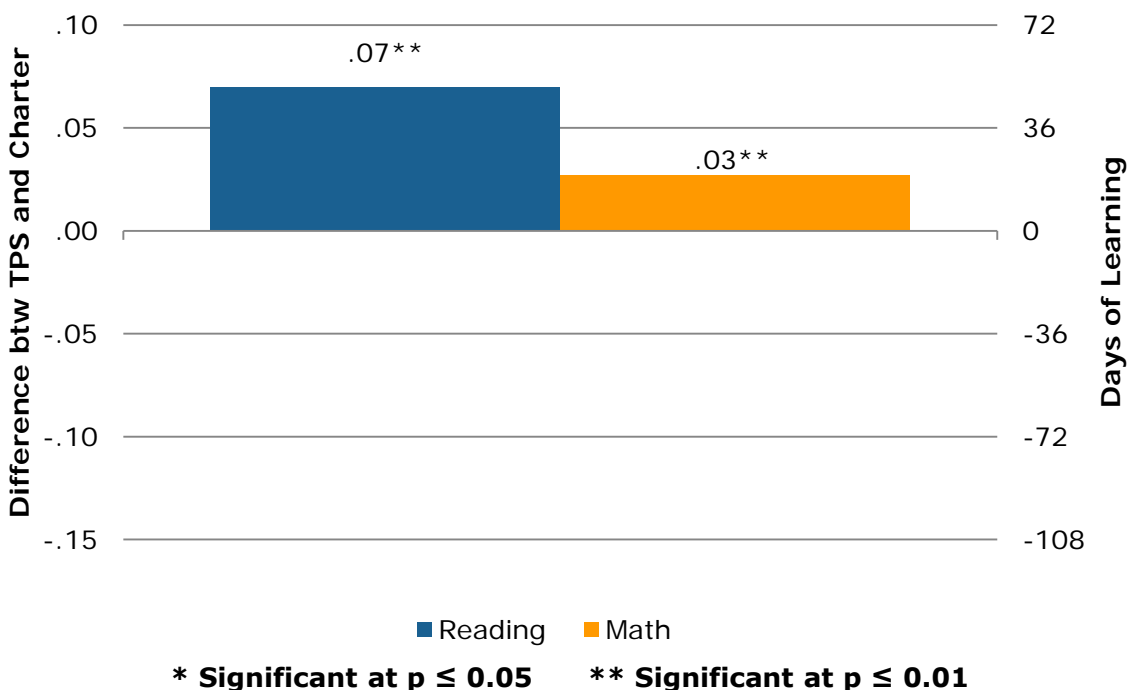
Charter School Impact by Student's Starting Decile

A general tenet of charter schools is a commitment to the education and development of every child regardless of prior educational endowments. Many charter schools have, as part of their mission, a specific emphasis on serving students who have not thrived academically in TPS and whose early performance is well below average. We examined the performance of charter schools to see if they produced equivalent results across the spectrum of student starting points and in relation to the results observed for equivalent students in TPS.

To do this, baseline achievement test scores in reading and math for charter students and their VCRs were disaggregated into deciles. In this analysis, the base of comparison is the average academic growth of the TPS students in the 5th decile, which corresponds to students in the 50th to 60th percentiles in the state. Student achievement growth in each decile for charter school students and their VCRs was then compared. The results appear in Figures 16, 16a, 17, and 17a below.

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Figure 16: TPS and Charter School Student Learning Gains by Students' Starting Decile Benchmarked by TPS Students in the 5th Decile— Reading
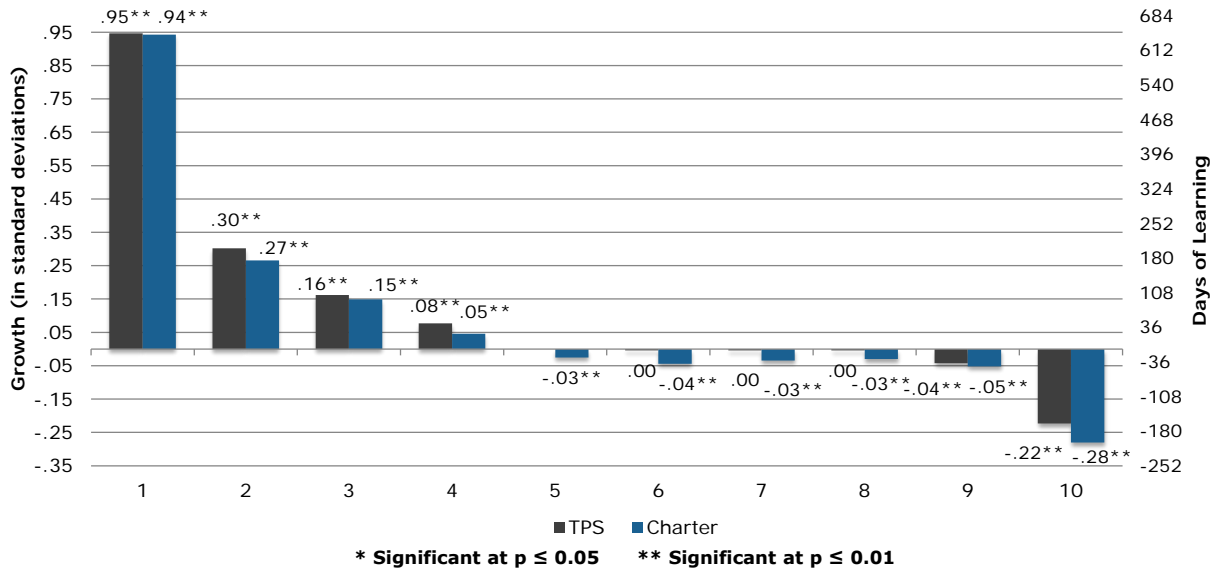
Figure 16a: Charter School Student Learning Gains by Students' Starting Decile Benchmarked against TPS Student Learning Gains — Reading
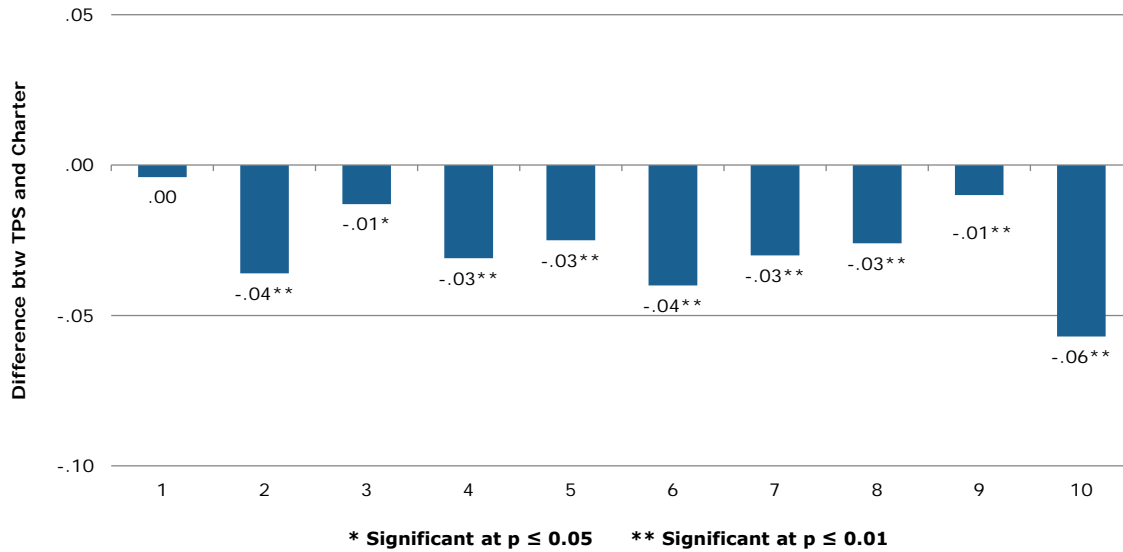
Figure 17: TPS and Charter School Student Learning Gains by Students' Starting Decile Benchmarked by TPS Students in the 5th Decile – Math

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
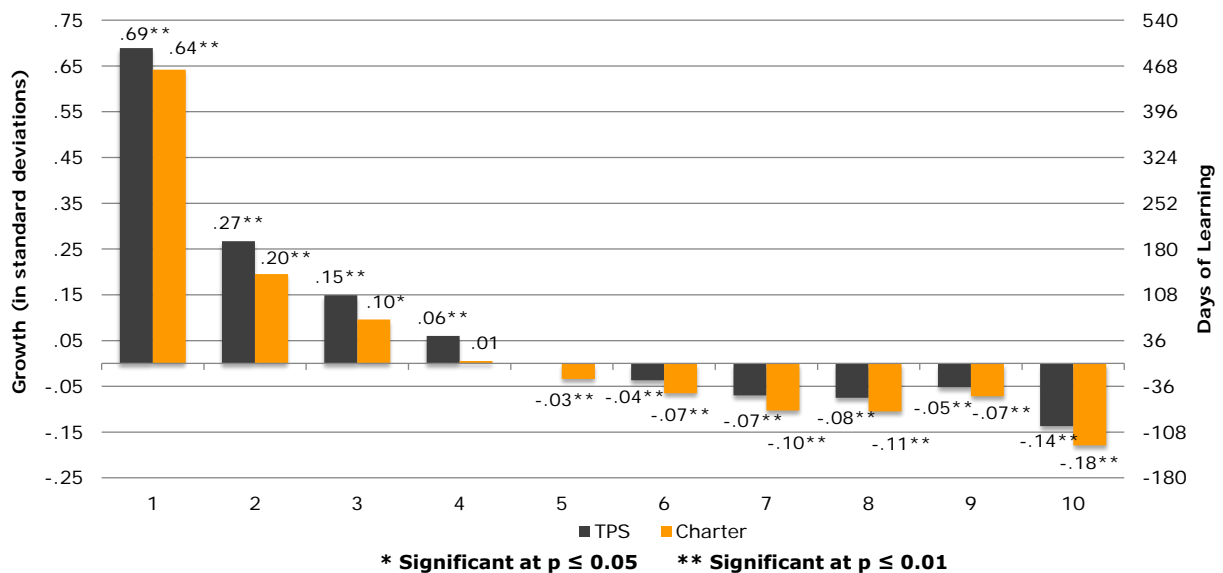
Figure 17a: Charter School Student Learning Gains by Students' Starting Decile Benchmarked against TPS Student Learning Gains – Math

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
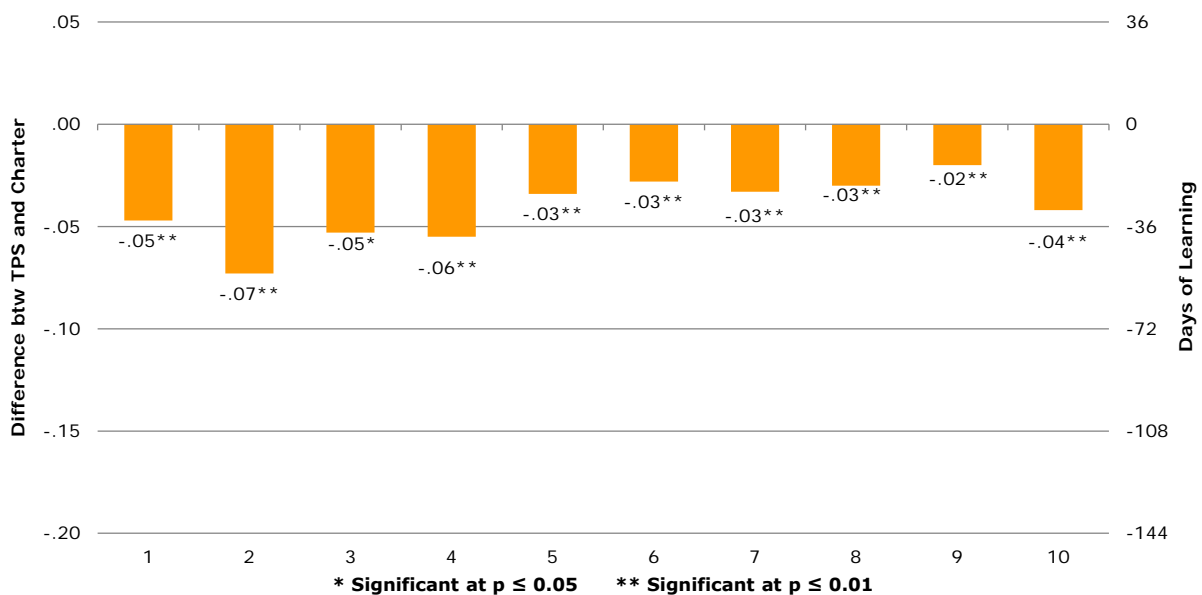
Both figures demonstrate the expected "S"-shaped curve to the results. The overall curve reflects the typical pattern of larger learning gains for students with lower prior scores and weaker learning gains for students with higher starting scores, a phenomenon known as "regression to the mean." Here, the relative magnitudes are important: Do charter schools produce relatively better growth results than TPS? If

so, the charter curve would have larger gains on the low end and smaller losses on the high end of the distribution.

For students in Texas, Figure 16 and 17 show that charter schools produce smaller learning gains than TPS at all levels of starting achievement. This is true for both reading and math. The largest gains for charter students are in the first through third deciles in both reading and math, which corresponds to starting scores below the 30th percentile of statewide achievement. For students in Texas, Figures 16a and 17a show that charter schools generally make less progress than TPS across the range of starting deciles.

School–level Analysis

Comparative School-level Quality While the numbers reported above represent the average learning gains for charter school students across the state, the pooled average effects tell only part of the story. Parents and policymakers are primarily interested in school-level performance. In order to determine the current distribution of charter school performance, the average effect of charter schools on student learning over the two most recent growth periods (2012 and 2013) is compared to the experience students would have realized in their local traditional public schools.[14] The educational market consists of VCR students matched with each student in a given charter school. This analysis provides an average contribution to student learning gains for each charter school. This measure is called the school's "effect size"; as for the overall and by-year impacts, it is expressed in standard deviations of growth.

As noted in Table 1, charter schools are slightly smaller on average than their corresponding feeder schools. In addition, some charter schools elect to open with a single grade and mature one grade at a time. Consequently, care is needed when making school-level comparisons to ensure that the number of tested students in a school is sufficient to provide a fair test of the school's impact. Our criteria for inclusion were at least 60 matched charter student records over the two years, or, for new schools with only one year of data, at least 30 matched charter records. Our total sample consists of 512 schools with reading test scores and 506 schools with math scores in the 2012 and 2013 growth periods. Table 4 below shows the breakout of performance for the Texas charter schools that meet our criteria for inclusion by having a sufficient number of charter student records.

Table 4: Performance of Charter Schools Compared to Their Local Schools in Texas

	Significantly Worse		Not Significantly Different		Significantly Better	
Subject	Number	Percent	Number	Percent	Number	Percent
Reading	149	29%	256	50%	108	21%
Math	219	43%	167	33%	121	24%

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[14] We chose to include only the two most recent growth periods in this analysis for two reasons. First, we wanted a highly relevant contemporary distribution of charter school performance. Second, using only two periods of data ensured that all schools' effect sizes were measured fairly; they are all based on one or two periods of data instead of one period for some schools and five periods for others.

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In reading, 21 percent of charter schools perform significantly better than their peer traditional public schools, while 24 percent perform significantly better in math. Both of these results lag slightly behind the national average (nationally, 25 percent of charter schools outperform their local counterparts in reading and 29 percent do so in math[15]). Twenty-nine percent of Texas charter schools post reading results that are significantly smaller than the local TPS option. We see the largest discrepancy between the performance of charter schools and TPS in math where 43 percent of charter schools post learning gains that are significantly smaller than their peer TPS. In reading, the largest proportion of charter schools in Texas do not differ significantly from traditional public schools in their communities, 50 percent. In math, only 33 percent of charter schools have growth performance that is indistinguishable from TPS.

Table 4a below shows the breakout of performance for the Texas charter schools by urban region as reported in CREDO's 2015 Urban Charter School study [16]. As noted above, the analyses for this report covered the 2006-2007 to 2011-2012 school years.

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[15] CREDO (2013). *National Charter School Study 2013*. http://credo.stanford.edu.
[16] CREDO (2015). Urban Charter School Study. http://urbancharters.stanford.edu/

Table 4a: Performance of Charter Schools Compared to Their Local TPS by Urban Region in Texas

	Significantly Worse	Not Significantly Different	Significantly Better
Austin	**Percent**	**Percent**	**Percent**
Reading	38%	42%	21%
Math	46%	38%	17%
Dallas	**Percent**	**Percent**	**Percent**
Reading	10%	45%	45%
Math	16%	31%	53%
El Paso	**Percent**	**Percent**	**Percent**
Reading	33%	67%	0%
Math	56%	44%	0%
Fort Worth	**Percent**	**Percent**	**Percent**
Reading	30%	70%	0%
Math	50%	50%	0%
Houston	**Percent**	**Percent**	**Percent**
Reading	21%	45%	34%
Math	35%	31%	34%
San Antonio	**Percent**	**Percent**	**Percent**
Reading	19%	72%	9%
Math	41%	31%	28%

Impact of Growth on Achievement While the impacts of charter schools on academic growth relative to their local competitors is informative, these analyses do not indicate how well these students perform in absolute terms. Because many of the students served by charter schools start at low levels of achievement, their absolute achievement, in addition to their relative growth, is vital to understanding student success. To do this, each school's average growth is placed in the context of their school wide achievement level compared to the rest of the state, as in Tables 5 and 6 below. We use the effect sizes discussed above to measure growth. The school's average achievement level is the mean achievement of the students over the same two periods covered by the effect size (2012 and 2013).[17] The 50th percentile indicates statewide average performance for all public school students (traditional and charter). A school achievement level above the 50th percentile indicates that the school's overall achievement exceeds the statewide average.

A Note about Tables 6 and 7

There are four quadrants in each table. We have expanded on the usual quadrant analysis by dividing each quadrant into four sections. The value in each box is the percentage of charter schools with the corresponding combination of growth and achievement. These percentages are generated from the 2012 and 2013 periods.

The uppermost box on the left denotes the percentage of charters with very low average growth but very high average achievement. The box in the bottom left corner is for low-growth, low-achieving schools.

Similarly, the topmost box on the right contains the percentage of charters with very high average growth and very high average achievement, while the bottom right corner contains high-growth, low-achieving schools.

The major quadrants were delineated using national charter school data. We would expect about 46% of schools to have an effect size between -0.15 and 0.15 standard deviations of growth (the two middle columns). Similarly, we would expect about 50% of schools to achieve between the 30th and 70th percentiles. Therefore, if schools were randomly distributed, we would expect about 6% in any small square and about 25% of the schools to appear in the middle four squares.

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[17] Average achievement was computed using students' z-scores from the end of the growth period (e.g., spring 2011 and spring 2012), and the resulting school-level mean was then converted into a percentile.

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Table 5: Reading Growth and Achievement

	Low Growth, High Achievement		High Growth, High Achievement		
Growth *(in Standard* *Deviations)*	-0.15	0	0.15		
	0.0%	0.8%	3.5%	1.6%	70th Percentile
	1.2%	7.2%	12.3%	7.4%	50th Percentile
	5.7%	12.5%	14.3%	4.9%	30th Percentile
	20.3%	6.6%	1.2%	0.6%	

Low Growth,   High Growth,
Low Achievement Low Achievement

In Texas, 234 of the 512 charter schools (about 46 percent) had positive average growth in reading (this percentage is the sum of the squares in the blue and purple quadrants on the right half of the table). About 25 percent of charters had positive growth and average achievement above the 50th percentile of the state (i.e., the total for the blue quadrant on the top right) with 21 percent posting above average gains but remaining below the state average in absolute achievement. Fifty-four percent of schools posted smaller learning gains than their local peer schools (the sum of light gray and dark grey quadrants.) Roughly 66 percent of charters perform below the 50th percentile of achievement (the sum of the gray and purple cells in the lower portion of the table). The area of greatest concern is the 45 percent of school that fall into the lower left quadrant of the figure. These schools are characterized by both low achievement and low growth.

Table 6: Math Growth and Achievement

	Low Growth, High Achievement		High Growth, High Achievement		
Growth (in Standard Deviations)	-0.15	0	0.15		
	0.0%	1.4%	1.2%	1.6%	*70th Percentile*
	6.1%	4.9%	7.5%	6.3%	*50th Percentile*
	8.3%	10.1%	9.5%	4.9%	*30th Percentile*
	21.9%	7.7%	4.9%	3.2%	
	Low Growth, Low Achievement		High Growth, Low Achievement		

In Texas, 198 of the 506 charter schools (about 39 percent) had positive average growth in math, as seen in the combined orange and pink quadrants. Only 17 percent of charters had positive growth and average achievement above the 50th percentile (the orange quadrant). Similar to the results for reading in the previous table, approximately 71 percent of charters have achievement results below the 50th percentile of the state (the sum of cells in the lower half of the table). Of the 357 schools classified as having low achievement, 114 schools, or 23 percent, (those in the pink quadrant) have high growth and appear to be on an upward trajectory. As with reading, the schools of greatest concern are those schools in the lower left (brown) quadrant that have both low achievement and low growth; they account for 243 (48 percent) of the charter schools in Texas.

Alternative Education Campuses

During the 1995-1996 school year, a set of alternative performance measures for campuses serving at-risk students were implemented. In Texas, Alternative Education Campuses (AEC) have the option to be evaluated under alternative education accountability (AEA) provisions. During the 2011-2012 school year, 369 schools were pre-registered for evaluation under AEA provisions. There are two ways

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in which a school can be identified as a pre-registered AEA campus. The campus can either meet criteria **one and two** below **or** meet criteria **three**.

1.   75% of the student population within the campus meet at least one of the at-risk of dropping out of school criteria (as specific by the TEA).
2.   50% of the student population must be enrolled in grades 6-12.
3.   Dropout Recovery Schools (DRS) are considered to be AEC if at least 50 percent of their student population is 17 years of age or older.[18]

As with the preceding analysis, this analysis included just charter schools who were operational during the two most recent growth periods (2012 and 2013), and who had at least 60 matched charter student records over the two growth periods, or, for new schools with only one growth period, at least 30 matched charter records. Table 7 presents the number of charters by AEC and non-AEC during the 2011-2012 school year, the average growth for AEC and non-AEC charter students, the average number of tested students during the last two growth periods, and the average number of matched students. In both cases, the virtual twin match is drawn from a non-AEC traditional public school.

Table 7: Comparison of Charters by AEC and Non-AEC within the State of Texas

	AEC Campus		Non-AEC Campus	
	Reading	Math	Reading	Math
Number of schools	120	120	390	384
Average One Year Growth	-0.25	-0.22	0.02	-0.03
Average Number of Tested Students	138	136	259	261
Average Number of Matched Students	77	78	203	201

The results presented in Table 7 demonstrate that there are statistically significant differences between charter students enrolled in AECs and non-AECs. Students enrolled in AECs post significantly smaller learning gains than their TPS peers in both reading and math. Conversely, once the groups are separated, the average one-year learning gain for reading is .02 standard deviations or about 14 days of learning larger for non-AEC charter school students than for their TPS peers. Their learning gains in math still lag, but to a smaller degree than for the sector combined.

Impact of Charter Management Organizations

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[18]

http://tea.texas.gov/About_TEA/News_and_Multimedia/Correspondence/TAA_Letters/2014_AEA_Registration/

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Charter Management Organizations (CMOs) are networks of schools that share a common leadership and operate multiple schools. We define CMOs as those organizations (a) operating three or more schools and (b) holding the charters for the schools they operate. The first criterion focuses the analysis on groups that have intention to either provide expertise in the schools they run and the second eliminates education management groups that contract with charter holding entities to operate charter schools under contracts. We include in our analysis both not-for-profit and for-profit entities. CMOs have some operational advantages in their ability to spread administrative fixed costs over a larger number of schools or students, thus providing the possibility of greater efficiency. In addition, with more schools and students than a single charter school, CMOs may be able to support additional programs and more robust staffing in their networks. Whether these organizations lead to better student outcomes is a matter of interest across the United States.

Identifying all the CMOs in Texas and associating them with their schools and students is not straightforward. This analysis only includes schools located in Texas, even if a CMO also operates schools in other states. The CMO analysis includes 349 charter schools from 56 CMOs. Tables 3 and 4 in the Appendix list the top charter management organizations and bottom charter management organizations with charter schools in Texas. The analysis looks at the comparative performance of charter schools that belong to charter management organizations (CMOs) and those that do not belong to CMOs. As with the earlier statewide graphs, each graph in this section displays two distinct comparisons:

1. The first graph compares the performance of charter students whose schools belong to CMOs, as well as charter students whose schools do not, to the average performance of the "average statewide student in TPS." The values that appear in each vertical bar indicate the magnitude of difference from this comparison student, and the stars indicate the level of statistical significance. Thus, if there is no difference in the learning gains, the bar would be missing entirely; if the learning of the CMO charter student group is not as great as the statewide comparison baseline, the bar is below the line; and if the learning gains exceed the comparison, the bar is above the line.

2. The second graph compares the difference in learning between charter students who attend CMO charter schools and those who do not attend CMO charter schools. As with the first graph, stars indicate the level of statistical significance.

Figures 18 and 18a compare the difference in learning by school level between charter students who attend CMO charter schools and those who do not attend CMO charter schools. As with the above graphs, stars indicate the level of statistical significance.

Figure 18: Average Student Learning Gains of Charter Management Organizations and Non-Network Charter Schools Benchmarked Against the Statewide Average TPS Student Learning Gains

* **Significant at p ≤ .05** ** **Significant at p ≤ .01**
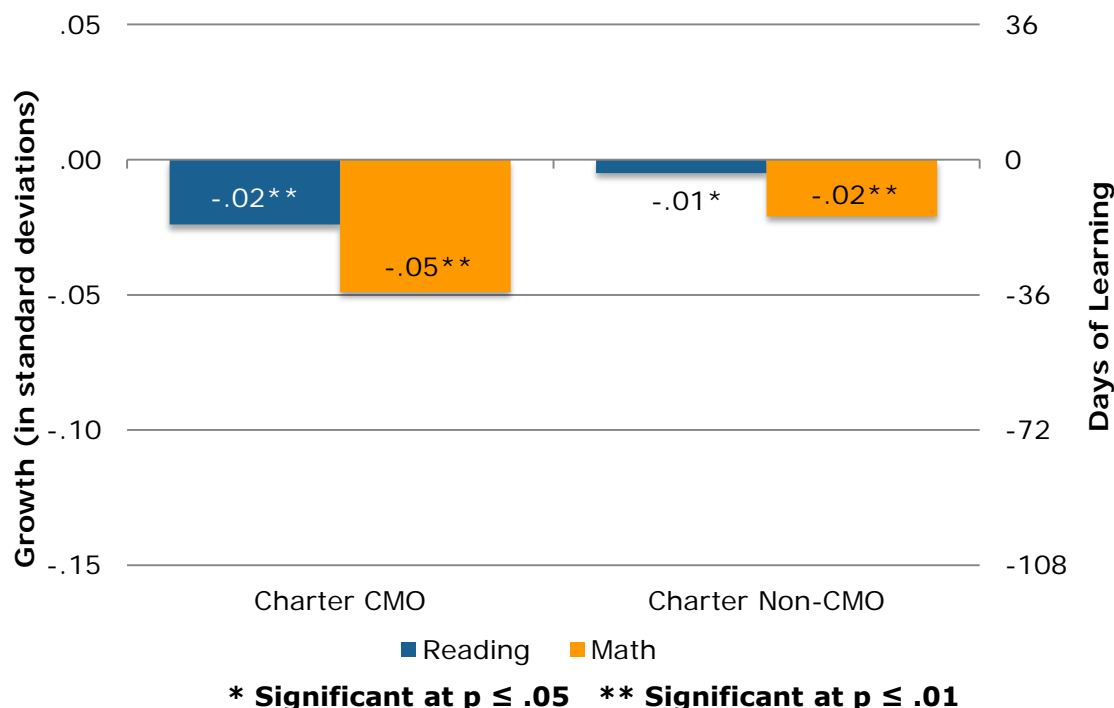
Regardless of CMO affiliation, charter school students do not perform as well as the average TPS student in Texas. CMO charter students are approximately 14 days of learning behind their peers in TPS in reading and 36 days behind in math. Non-CMO charter students are about 7 days of learning behind in reading and about 14 days behind in math. The results depicted in Figure 18 suggest that on average, students enrolled in CMO charters are more disadvantaged in both reading and math learning gains than students in non-CMO charters schools.

Figure 18a displays the learning difference between students enrolled in non-CMO charters and those enrolled in CMO charters. CMO charter students have significantly lower growth in both math and reading than non-CMO charter students. In a year's time, CMO students are the equivalent of 14 days of learning behind non-CMO charter students in reading and 22 days behind in math.

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Figure 18a: Comparison of Charter CMOs Learning Gains Benchmarked Against Charter Non-CMOs Learning Gains
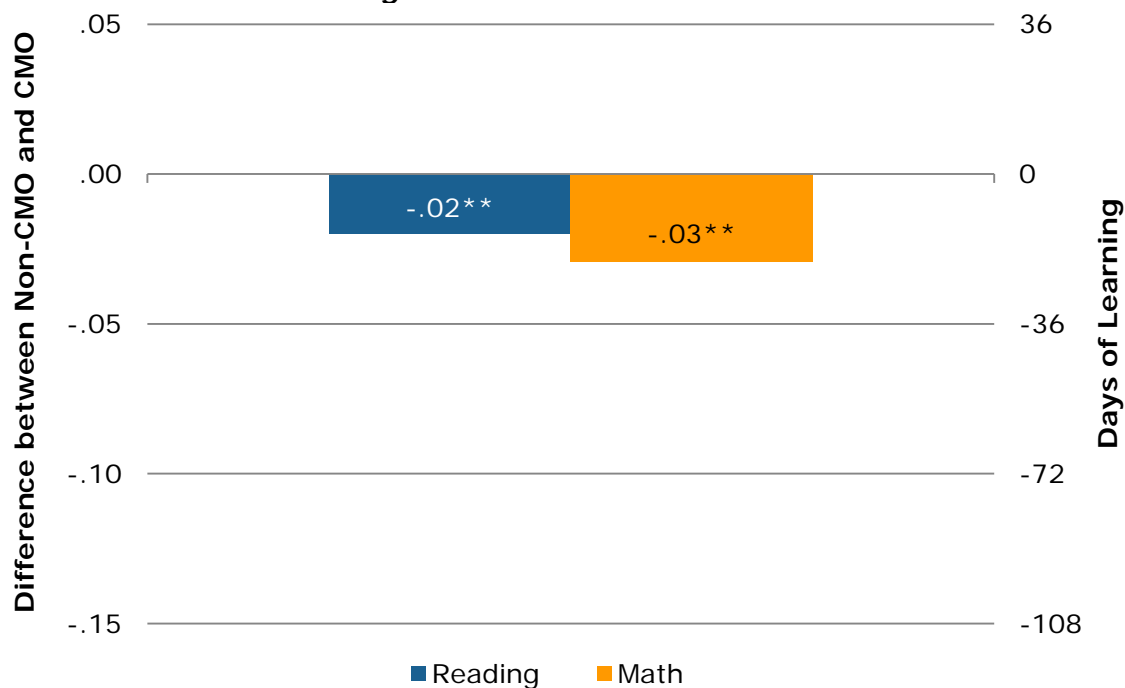
* Significant at p ≤ .05   ** Significant at p ≤ .01

The results presented in Figure 18 and Figure 18a are not consistent across all charter schools. Differences in performance were identified by grade span of the school. As shown in Figure 19, charter middle school students, both CMO and non-CMO, perform better than students in TPS middle schools in both math and reading. This finding aligns with the school level analysis discussed previously.

In elementary, high school, and multi-level schools TPS students outperform both CMO and non-CMO charter students with a few exceptions. There are no statistically significant differences between non-CMO and TPS students in elementary school in reading. In high school, non-CMO students perform significantly better than students in TPS in reading. Lastly, CMO students in multi-level schools outperform students in TPS in reading.

Figure 19: CMO and Non-CMO Student Learning Gains by School Level Benchmarked Against TPS Learning Gains by School Level
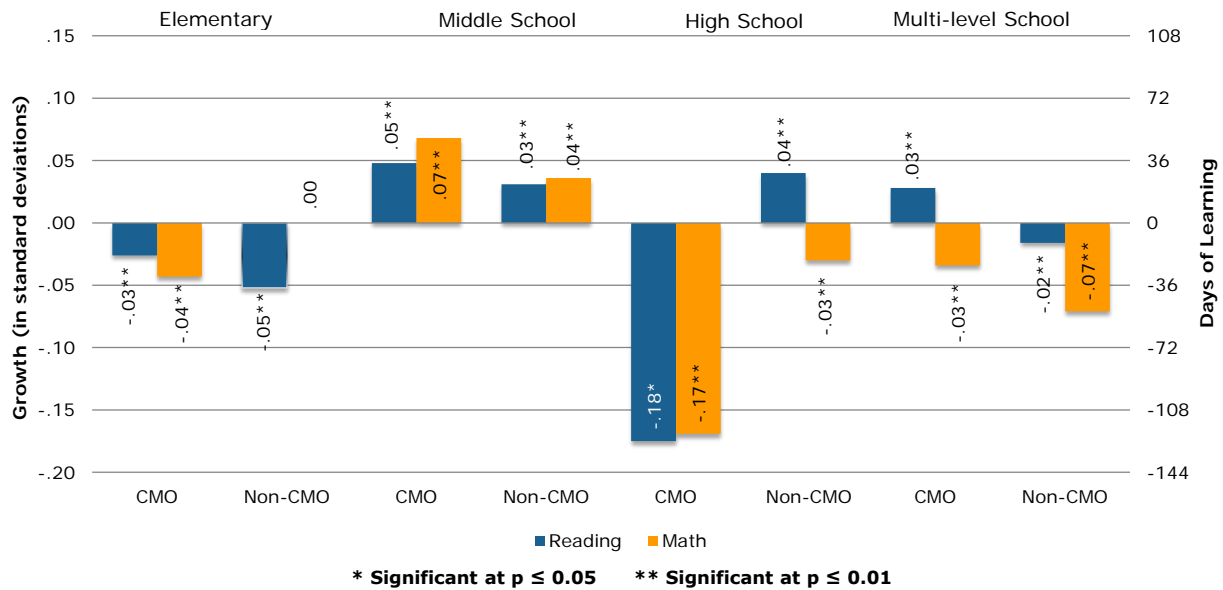
As shown in Figure 19a, in both reading and math, students in charter middle schools and multi-level schools which belong to CMOs outperform students in charter middle and multi-level schools which do not belong to CMOs. Middle school students in CMOs realize 14 more days of learning in reading and 22 more days in math, and multi-level students realize 36 more days of learning in reading and 29 more days in math. Conversely, students in independent charter elementary schools outperform students in CMO-affiliated charter schools in math amounting to a difference of 28 days of learning. For high school, students in CMO-affiliated charter schools lag those in independent charter schools by 158 days of learning in reading and 101 days of learning in math.

Figure 19a: Comparison of Student learning Gains in CMOs by School-Level Benchmarked against Non-CMO Charter School Learning Gains
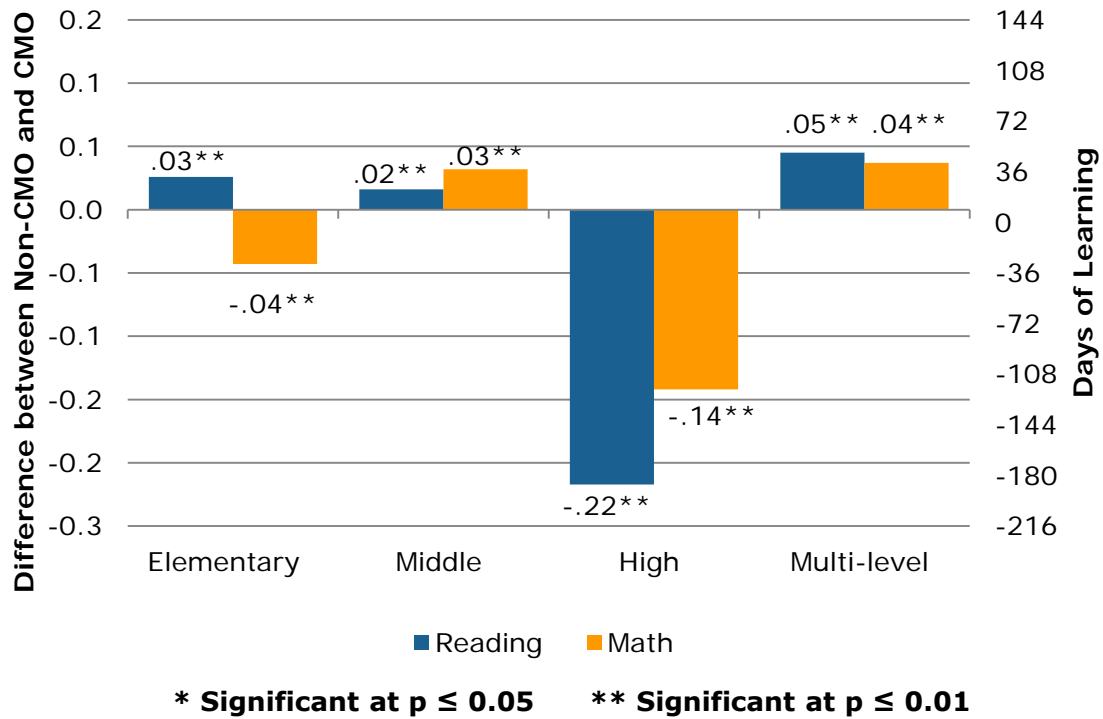
Authorizer Analysis

In Texas, there are two types of charter school authorizers: The State Board of Education (SBOE) and Local Education Agencies (LEA).[19] Open-enrollment charter schools are authorized by the SBOE and campus charter schools are authorized LEAs. There are substantial differences in the number of schools authorized by each authorizer, the number of years charters are granted for, and the governance of the charters under each authorizer. Given differences between open-enrollment and campus charter schools, questions naturally arise about the absolute and comparative performance between the different authorizers in Texas.

Open-enrollment charter schools account for nearly 88 percent (576) of all charter schools in Texas in the final growth year of the current study. For all open-enrollment charter schools included in the current study, The State Board of Education (SBOE) served as the authorizer. During the 2013 state legislative session, Senate Bill (SB) 2 passed designating the commissioner of the state education agency as the authorizer for open-enrollment charter schools opening as of the 2014-2015 school year. The SBOE could grant a charter for an open-enrollment charter school to an institution of higher education, a private or independent institution of higher learning, a non-profit organization, or a government entity. These charters are authorized for a five-year period. Students from any school district in Texas may attend an open-enrollment charter school.

Conversely, campus charter schools account for a small portion of charter schools in the state. Texas permits traditional districts to operate charter schools by a process of converting an existing school **_or_** creating a new school. Conversion campus charters arise when a group of parents or teachers at a school sign a petition in support of the conversion. In this instance, the charter designates an educational program and governing structure. In addition, the charter specifies the conditions under which revocation of the charter will occur. Through the second process of opening a campus charter school, districts may open new schools that operate under the terms of a charter. In those cases, districts contract with an education service provider or with district staff to operate at a facility within the district. With campus charter schools, the academic and financial performance of the campus is included in performance assessment of the district for accountability purposes.[20] The term of a campus charter school is ten years unless the school does not meet the specified

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[19] Current legislation also provides for Home Rule Charter Schools; however at the time of this report no district had sought home-rule conversion.
[20] Texas Association of School Board (2009).*Charter Schools in Texas: Facts and Figures.* https://www.tasb.org/Legislative/Issue-Based-Resources/documents/charters.aspx

goals of the board of trustees. Students who live in the school district in which the campus charter school is authorized have first priority in the admission process.

In the final growth year of the current study, campus charter schools accounted for 12 percent (75 schools) of all charter schools. Sixteen school districts have issued charters for campus charter schools since the first year of the study in 2009. These districts are identified in Table 7. One district, Nacogdoches Independent School District had one charter school in the 2007-2008 school year. The school closed in the 2008-2009 school year, and therefore was not included in the current analysis as it did not have a growth period. Among districts, Houston ISD accounts for the largest number of campus charter schools. In the final growth year of the study, Houston ISD authorized 44 percent (33 schools) of campus charter schools.

The number of schools authorized by the LEA and the SBOE in each year of this study is presented in Table 8. Table 9 presents the number of schools authorized by the LEA and SBOE by locale[21]. Most of the charter schools that are authorized by the SBOE and LEA are located in urban areas (66 percent and 92 percent respectively). This is not surprising as the charter movement has traditionally been most active in urban areas. In some urban locales, there are open-enrollment charter schools as well campus charter schools. In these areas, there is a competitive market for authorizers. Table 9a presents the number of campuses authorized by SBOE and LEA in four urban locales: Austin, Dallas, San Antonio, and Houston. In all the analyses in this section, the benchmark for comparison is the one-year academic learning of the TPS comparison twin. The analysis in this section compares the academic growth of charter students by type of authorizer (open-enrollment campuses versus charter campuses).

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[21] Clear Creek ISD has two schools one of which is physically located in Houston the other of which is physically located in Webster, a city just outside of Houston. The schools are about eight miles apart.

[c] credo

Table 8: Count of Schools by Authorizer by Growth Period 2009-2013

Name of Authorizer	Number of Schools				
	2009	2010	2011	2012	2013
Austin ISD	0	0	0	0	5
Bryan ISD	1	1	1	1	1
Canutillo ISD	1	1	1	1	1
Carrollton-Farmers Branch ISD	1	1	1	1	1
Cedar Hill ISD	1	1	1	1	1
Clear Creek ISD	2	2	2	2	2
Colorado ISD	1	1	1	1	1
Corpus Christi ISD	1	1	1	1	1
Dallas ISD	1	1	1	1	1
Galveston ISD	0	3	4	4	5
Houston ISD	33	42	42	35	33
Laredo ISD	1	1	1	1	1
North Forest ISD	0	0	1	1	1
San Antonio ISD	15	16	16	19	19
Spring Branch ISD	2	2	2	2	2
State Board of Education	435	464	481	484	576

Table 9: Count of Schools by Authorizer and Locale in the Final Growth Year of the Study

Name of Authorizer	Number of Schools			
	Urban	Suburban	Town	Rural
Austin ISD	5	0	0	0
Bryan ISD	1	0	0	0
Canutillo ISD	1	0	0	0
Carrollton-Farmers Branch ISD	0	1	0	0
Cedar Hill ISD	0	0	0	1
Clear Creek ISD	1	1	0	0
Colorado ISD	0	0	0	1
Corpus Christi ISD	1	0	0	0
Dallas ISD	1	0	0	0
Galveston ISD	5	0	0	0
Houston ISD	33	0	0	0
Laredo ISD	0	0	0	1
North Forest ISD	1	0	0	0
San Antonio ISD	19	0	0	0
Spring Branch ISD	1	1	0	0
State Board of Education	379	94	31	72

Table 9a: Urban Regions with SBOE and LEA Authorized Charter Schools

Name of Authorizer	Number of Schools		
	SBOE	LEA	Total
Austin ISD	31	5	36
Dallas ISD	53	1	54
Houston ISD	108	35	143
San Antonio ISD	62	19	81

The findings for open-enrollment charter students and campus charter students are presented in Figure 20. The students enrolled in TEA-authorized open-enrollment charter schools are outperformed by TPS students across all years of the current study with one exception, students in open-enrollment charter schools outperformed TPS students in reading in 2013. Conversely, the students enrolled in LEA-authorized campus charter schools outperformed TPS students across all years on the current study with two exceptions, (1) in 2012 there were no significant differences between campus charter school students and TPS students in reading, and (2) in 2013 campus charter school students were outperformed by TPS students in math.

The largest gap in math between students in open-enrollment charter schools and students in TPS occurred in the growth period for the 2010-2011 to 2011-2012 growth year (2012). This gap represents about 72 fewer days of learning for open-enrollment charter school students relative to their TPS peers. The largest gap in reading, nearly 58 days of learning, occurred during the 2008-2009 to 2009-2010 growth period (2010). Conversely, students in campus charter schools have an advantage of 58 days of learning in math and 72 days in reading in the 2007-2008 to 2008-2009 growth period. In 2012, campus charter school students did not progress as far as their TPS counterparts in math, experiencing a lag of 43 days of learning.

Figure 20: Comparison of Student Learning Gains in Open-enrollment and Campus Charter Schools Benchmarked against TPS Learning Gains
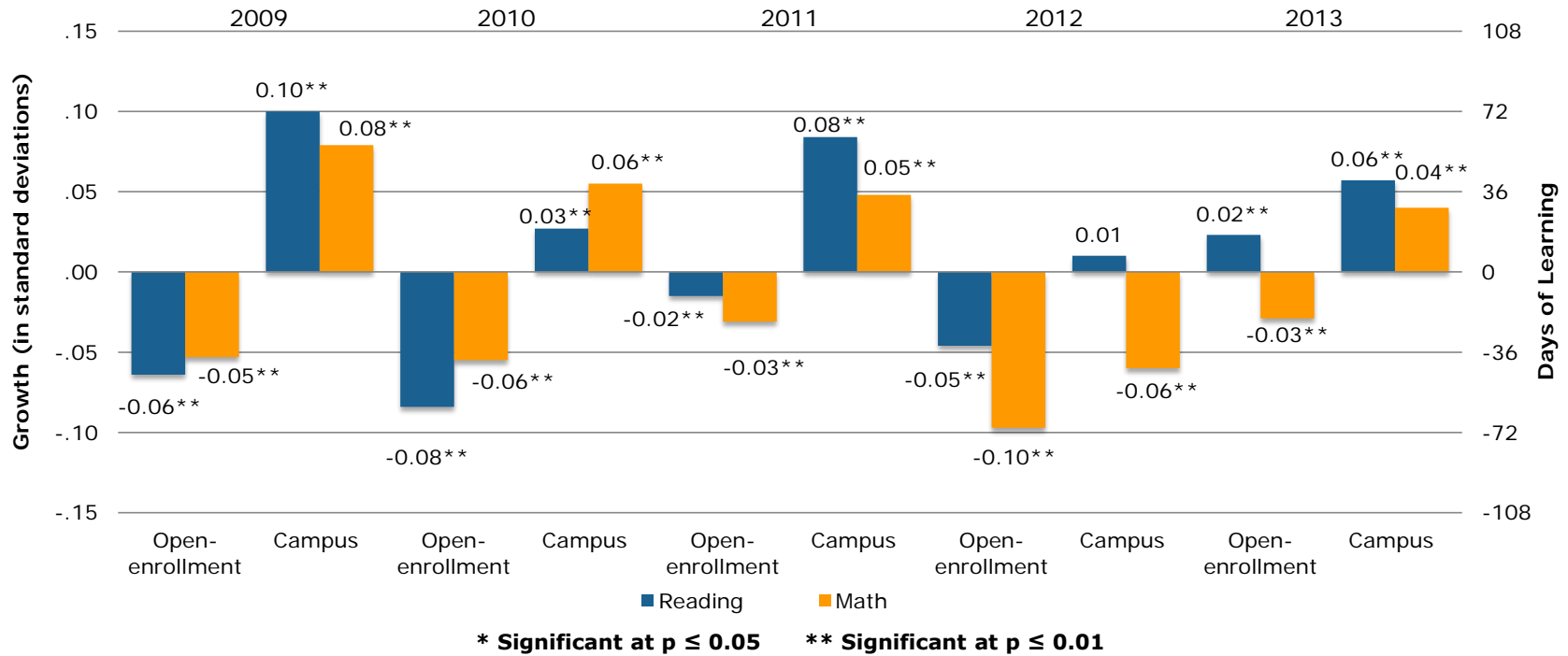
School Closure and Replication

In 2013, CREDO released a national report on charter school performance. A portion of this report simulated the potential impact of closing bad schools on the overall quality of the sector[22]. For the current study, this simulation was recreated with a specific focus on Texas charter schools. In addition to exploring the impact of school closure on the quality of the sector, we also utilized a simulation to explore the potential impact of replicating good schools.

The two different simulations require different approaches. To illustrate the sector shifts we would expect to result from stronger policies on school closure, we have created a set of five closure scenarios. Each scenario involves removing a portion of the charter schools drawn from the population of schools covered by this report. The criteria for closure differ – some sort on academic growth, some on persistently low achievement, and others on underperformance relative to the local TPS alternatives. The five closure scenarios are presented below.

Closure Scenarios

1. Every charter school with growth less than -0.4 standard deviation units is closed.
2. Every charter school with significantly lower growth than TPS is closed.
3. Every charter school in the bottom 10 percent of schools by growth and quality level is closed. In other words, starting at the bottom of the quality curve and moving to the right, this scenario drops schools with significantly lower growth than TPS until we reach 10% of the total number of charter schools.
4. Every charter school with achievement less than -0.4 standard deviations is closed.
5. Every charter school in the bottom 10 percent of achievement is closed.

Each of the five scenarios described above was explored independently. If a school met the criteria for closure as specified by each scenario, then students from that school were not included to determine the potential impact of closing schools which met identified closure criteria.

Table 10 below displays the alternative criteria for closure, and how many schools included in this analysis would be affected if selection was based on either their reading or math performance.

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[22] CREDO. 2013.
https://credo.stanford.edu/documents/NCSS%202013%20Final%20Draft.pdf

Table 10: Number of Schools Closed Under Each Scenario

Closure Scenarios	Reading	Math
1 Growth Less Than -0.4 Standard Deviation Units	36	46
2 Significantly Lower Growth Than TPS	106	166
3 Bottom 10% of Schools By Growth and Quality Level	41	37
4 Achievement Less than -0.4 Standard Deviation Units	167	202
5 Bottom 10% of Achievement	181	202

The range of impacts of each closure scenario on the overall quality of the charter sector is striking. Figure 21 below maps the current measure of charter school impact in reading on the left to the resulting value under each scenario on the right. From the current sector-wide average reading advantage of -.02 standard deviations of growth, every closure scenario results in an increase in average growth. As with the prior analyses, the comparison group consists of TPS students. The new average levels of growth range from -.01 standard deviations under Scenarios 1 and 3 to about .04 standard deviations under Scenario 2, a substantial gain of 29 more days of learning per year than in comparable TPS.

credo

Figure 21: Closure Scenarios: Reading

Figure 22 below maps the current measure of charter school impact in math on the left to the resulting value under each scenario on the right. From the current sector-wide average math advantage of -.04 standard deviations of growth, most closure scenarios result in an increase in average growth, with the exception of Scenario 1. The new average levels of growth range from -.03 standard deviations under Scenario 3 to nearly .03 standard deviations under Scenario 4, a gain of 22 more days of learning per year than in comparable TPS.

Figure 22: Closure Scenarios: Math
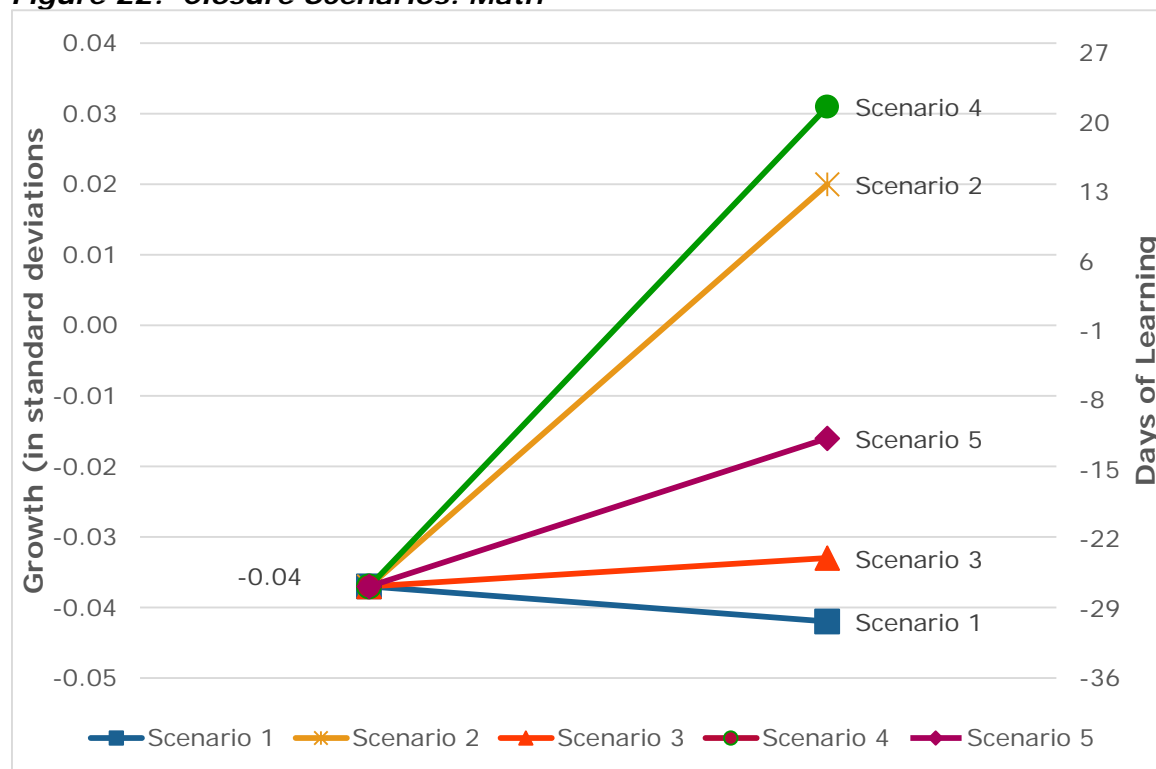
Another way to improve the overall quality of the charter schools in Texas would be to stimulate the expansion of schools that are posting positive academic gains for their students. To illustrate the sector shifts we would expect to result from replicating schools with strong performance, we created five replication scenarios. Each scenario involves replicating a different subset of the charter schools included in this report. As with the closure scenarios, the criteria for replication differ – some sort on academic growth, some on persistently high achievement, and others on outperforming the local TPS. The five replication scenarios are presented below.

Replication Scenarios

1. Every charter school with growth more than 0.2 standard deviation units is replicated.
2. Every charter school with significantly higher growth than TPS is replicated.
3. Every charter school in the top 25 percent of schools by growth and quality level is replicated. In other words, starting at the top of the quality curve and moving to the left, replicating schools with significantly better growth than TPS until we reach 25% of the total charters.
4. Every charter school with achievement more than 0.2 standard deviations is replicated.
5. Every charter school in the top 25 percent of achievement is replicated.

Each of the five scenarios described above was explored independently. Students attending schools who met the criteria of each replication scenario were included in this analysis to determine the potential impact of replicating schools which met identified replication criteria.

Table 11 below displays the alternative criteria for replication, and how many schools included in this analysis would be affected if selection was based on either their reading or math performance.

Table 11: Number of Schools Replicated Under Each Scenario

	Replication Scenarios	Reading	Math
1	Growth More Than 0.2 Standard Deviation Units	20	53
2	Significantly Higher Growth Than TPS	72	104
3	Top 25% of Schools By Growth and Quality Level	69	99
4	Achievement More than 0.2 Standard Deviation Units	119	97
5	Top 25% of Achievement	148	123

The range of impacts of each replication scenario on the overall quality of the charter sector is displayed in Figure 22. Figure 22 below maps the current measure of charter school impact in reading on the left to the resulting value under each scenario on the right. From the current sector-wide average reading advantage of -.02 standard deviations of growth, every replication scenario results in an increase in average growth. The new average levels of growth range from 0.00 standard deviations under Scenario 1 to nearly .13 standard deviations under Scenarios 2 and 3, a gain of 94 more days of learning per year than in comparable TPS.
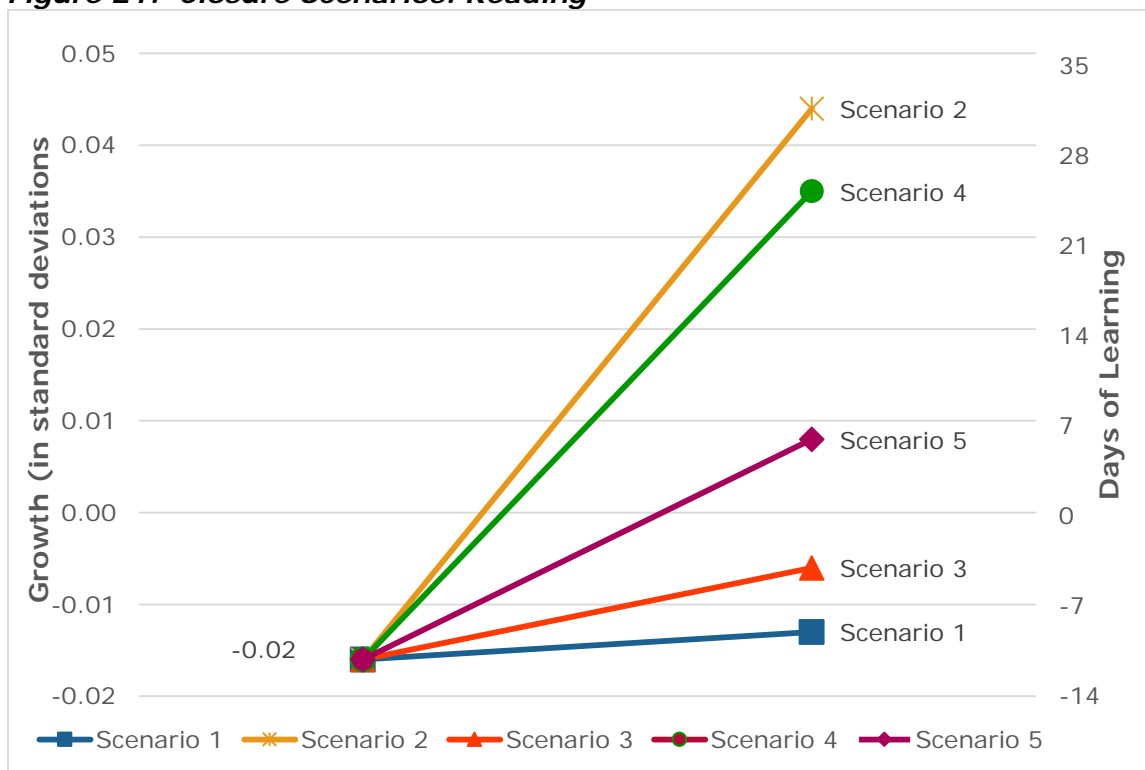
Figure 23: Replication Scenarios: Reading
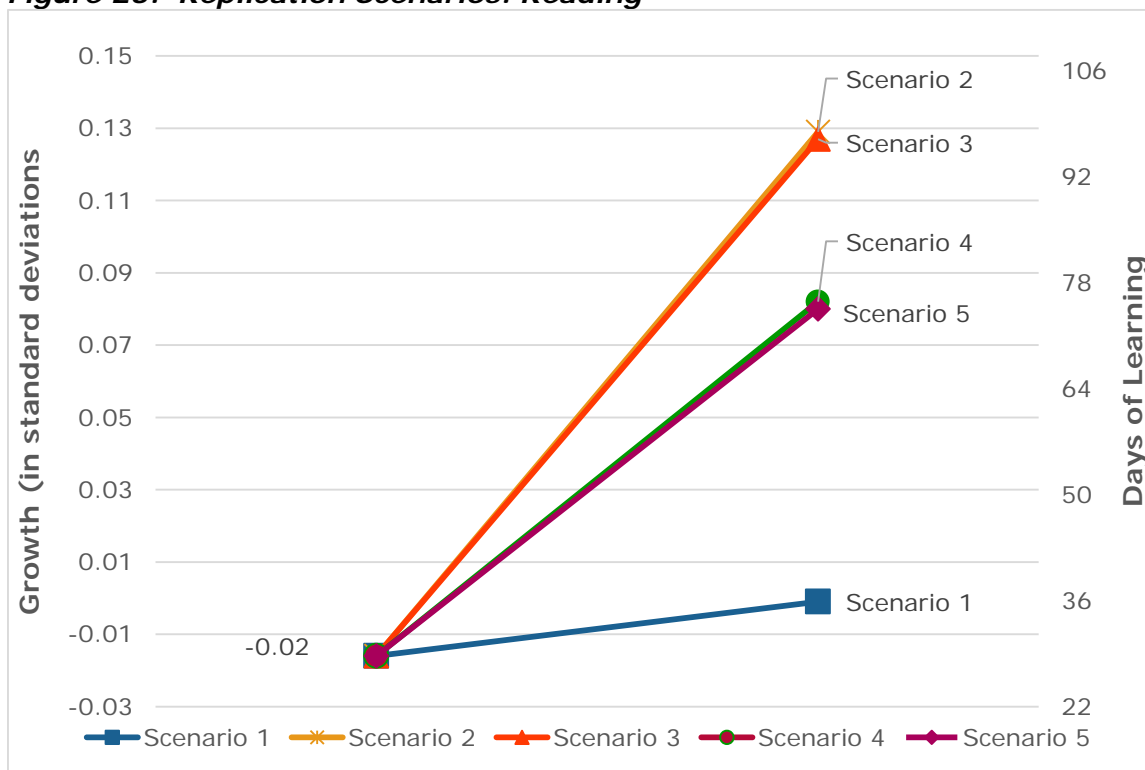
Figure 24 below maps the current measure of charter school impact in math on the left to the resulting value under each scenario on the right. From the current sector-wide average math advantage of -.04 standard deviations of growth, every replication scenario results in an increase in average growth. As with the prior analyses, the comparison group is TPS students. The new average levels of growth range from 0.00 standard deviations under Scenario 1 to nearly .12 standard deviations under Scenario 3, a gain of 86 more days of learning per year than in comparable TPS. As seen in Figure 23, Scenarios 2 through 5 all have significant impacts on student growth.

c: credo

Figure 24: Replication Scenarios: Math
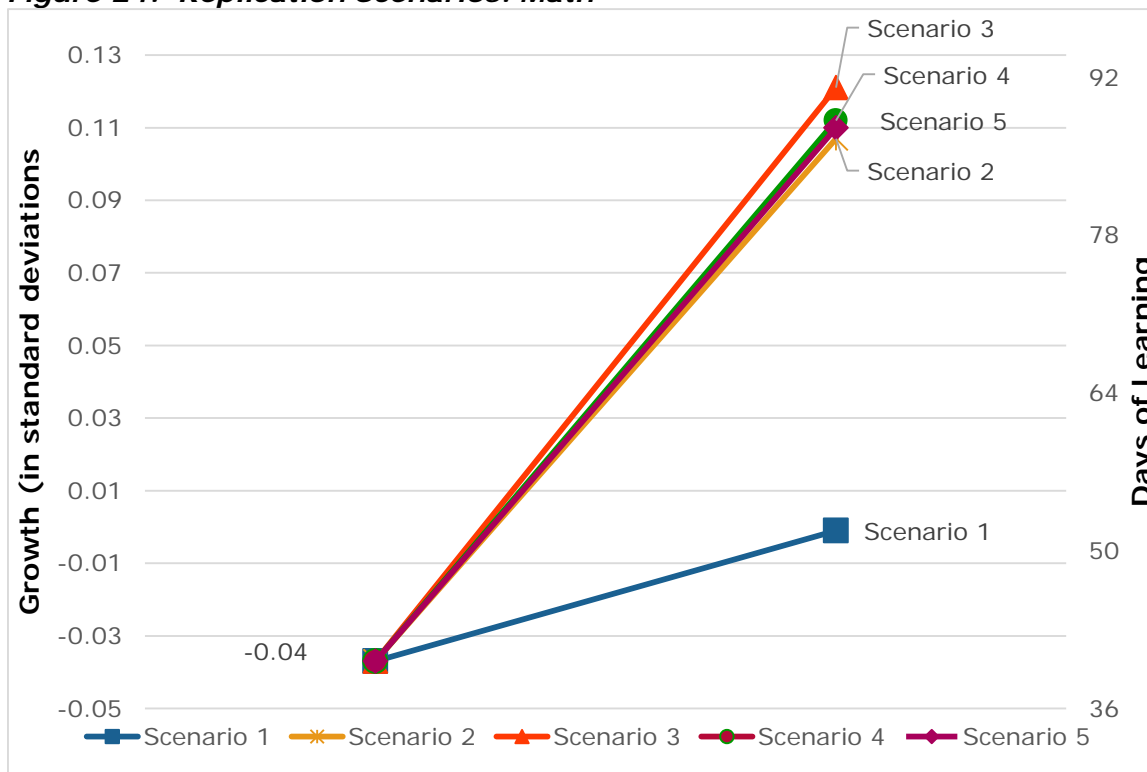
Table 12 displays the potential impact of each replication scenario once we have incorporated the replicated schools back into the full charter sector in Texas. Results from Table 12 suggest that under Scenario 1 there would be no difference in the overall quality of the sector. This is related to the small number of schools (20 schools in reading and 53 schools in math) which would be impacted under this scenario. In reading, charter school students could be on pace with their TPS peers; however, in math, charter school students are still outperformed by their TPS peers.

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Table 12: Impact of Replication Scenarios on Overall Impact for Charter Schools in Texas

	Impact of Replication Scenarios on Overall Impact for Charter Schools in TX	Reading	Math
	Overall Impact for Charter Schools in Texas	-0.02	-0.04
1	Growth More Than 0.2 Standard Deviation Units	-0.02	-0.04
2	Significantly Higher Growth Than TPS	0.00	-0.01
3	Top 25% of Schools By Growth and Quality Level	0.00	-0.01
4	Achievement More than 0.2 Standard Deviation Units	0.00	-0.02
5	Top 25% of Achievement	0.00	-0.01

Each scenario seems to have surface plausibility as a means to improving the sector, though we take no stand on any individual scenario. The results presented above would suggest that a combination of closure and replication within the current sector would have the greatest impact on the overall quality of the sector. Since the 2012-2013 school year, the TEA has closed 22 charter schools for failing to meet academic or financial performance ratings for the three school years.

At-risk of Dropping Out

Since the late 1980's the TEA has demonstrated an interest in students at-risk of dropping out, short-handed to "at-risk". In 1987, the Texas state legislature passed House Bill 1010 mandating the collection of dropout data. Since then, the TEA has collected data on dropout rates and information on students who dropout. In addition, the TEA has implemented a range of dropout prevention programs. In recent years, the TEA has taken a proactive approach to prevent dropouts through the funding of statewide programs. The State Compensatory Education Programs (SCE) were designed to supplement education programs for students who have been identified at-risk of exiting the K-12 system without a high school credential. The SCE program aims to improve scores on the State of Texas Assessments of Academic Readiness (STAAR)/ Texas Assessment of Knowledge and Skills (TAKS) for students who have been identified as at-risk and also aims to reduce dropout rates among these students by offering accelerated instruction in public and charter schools. To be identified as at-risk, a student must be under the age of 26 and meet one or more of the following 13 criteria:

1. Is in prekindergarten, kindergarten, or first through third grade and does not perform satisfactorily on a readiness test or assessment administered during the current school year.

2. Is in seventh through twelfth grade and does not maintain an average grade of 70 on a scale of 100 in two or more subjects in the foundation curriculum during a semester in the preceding or current school year or is not maintaining such an average in two or more subjects in the foundation curriculum in the current semester.
3. Has not advanced from one grade level to the next for one or more school years (the student was retained).
4. Has failed a state assessment given during the current or preceding school year.
5. Is pregnant or is a parent.
6. Is sentenced to a Disciplinary Alternative Education Program (DAEP) during the current or preceding school year.
7. Is expelled.
8. Is placed on probation.
9. Has previously been reported as a drop-out through The Public Education Information Management System (PEIMS).
10. Is an English Language Learner.
11. Is in the custody or care of the Department of Family and Protective Services or has, during the current school year, been referred to the department by a school official, officer of the juvenile court, or law enforcement official.
12. Is homeless.
13. Has resided in the preceding school year or resides in the current school year in a residential placement facility in the district, including a detention facility, substance abuse treatment facility, emergency shelter, psychiatric hospital, halfway house, or foster group home.

As evident from the list above, a student can meet the criteria for at-risk in many ways. In addition, some of the criteria persist through the students' educational career even if their academic performance changes over time. For example, once a student has been retained or reported as a dropout, the student remains at-risk for dropping out of school for the rest of his/her academic career regardless of later promotion or reconnection to the school. The diversity of eligibility criteria raises a number of important policy issues. The first is that the entry thresholds -- that is, how disrupted a student is in order to meet a given criterion -- vary widely. In addition, at first thought, it is likely that the degree to which a student's academic progress is diminished based on a given criterion also varies considerably. While the data needed to test many criteria do not exist or are not readily available, the data that is available offers the opportunity to test specific at-risk criteria on education outcomes.

The following analysis utilized a different methodology then the preceding analyses in this report. In order to capture a complete picture of at-risk students in the state

of Texas, a panel data set, consisting of student-level data from the 2007-2008 to the 2012-2013 school year was utilized. This panel data set included students in grades three through eleven who had at least one year of academic growth. Similar to the other analyses for this study, the first potential year of growth is the Spring of 2009, which would include student growth from the 2007-2008 to the 2008-2009 school year. This panel data was utilized for three purposes (1.) To describe the at-risk population in the state of Texas; (2.) To determine the impact of being at-risk on student growth across time; And (3.) To determine if there are different impacts of being at-risk for charter school and TPS students. With our current data, we were able to isolate the impacts of several of the at-risk criteria. Specifically, we were able to look at outcomes for students identified as English Language Learners, students retained in grade, and students not proficient on an assessment during the preceding school year. In addition, we were able to bring in the at-risk variable from the TEA. Importantly, this variable simply indicates whether a student meets at least one criteria for at-risk. With this variable we are not able to identify the specific at-risk criteria the student met or if a student met multiple criteria. Given the lack of information provided in the at-risk variable, it is impossible for us to know if there are substantial differences between at-risk students who enroll in charter schools and TPS. Lastly, for the current analysis we were interested in the cumulative effects of being at-risk. For example, what is the potential impact of being retained one year versus two years during the time frame of the current study? Figure 25 provides information regarding the percentage of students who are at-risk by school setting in the current analysis.

It is difficult to compare the outcomes of students at-risk of dropping out regardless of where they enroll. In an ideal setting, we would restrict the comparison by the at-risk criteria the student met as well as the services the student is offered based on this designation. This approach faces real challenges due to data limitations. Accordingly, it is necessary to aggregate across all at-risk criteria. As a result, the findings presented in the tables and figures below should be interpreted with caution. In addition, the days of learning are presented for each finding; however, transforming the results into more accessible units is challenging and can be done only imprecisely. Therefore, these transformations should be interpreted with caution.

As seen in Figure 25, students at-risk of dropping out account for a large portion of students enrolled in public schools in Texas. In the 2008-2009 school year, 46 percent of students met at least one of the criteria for at-risk of dropping. This number declined over the course of the study: by 2012-2013 nearly 40 percent of students met at least one of the criteria for at-risk of dropping out. In the 2008-2009 school year, 1% of students enrolled in charter schools were identified as at-risk and 45% of students enrolled in TPS were identified as at-risk.

Figure 25: At-Risk Students in the State of Texas

Overall At-Risk Impact

First, we examine whether at-risk students differ overall from students not at-risk in how much they learn, holding other factors constant. To answer this question, we average the pooled performance for all at-risk students across all five growth periods and compare it with the same pooled performance of the not at-risk students. The result is a measure of the typical learning of at-risk students in one year compared to peers who are not at-risk who provide the basis of comparison; their progress is equated to zero. The results appear in Figure 26. On average, at-risk students in Texas learned less than students not at-risk in increments that were statistically significant. At-risk students lagged behind students not at-risk 216 days of learning in reading and 151 days of learning in math.

Figure 26: Average Learning Gains for At-Risk Students in Texas

* **Significant at p ≤ 0.05**   ** **Significant at p ≤ 0.01**
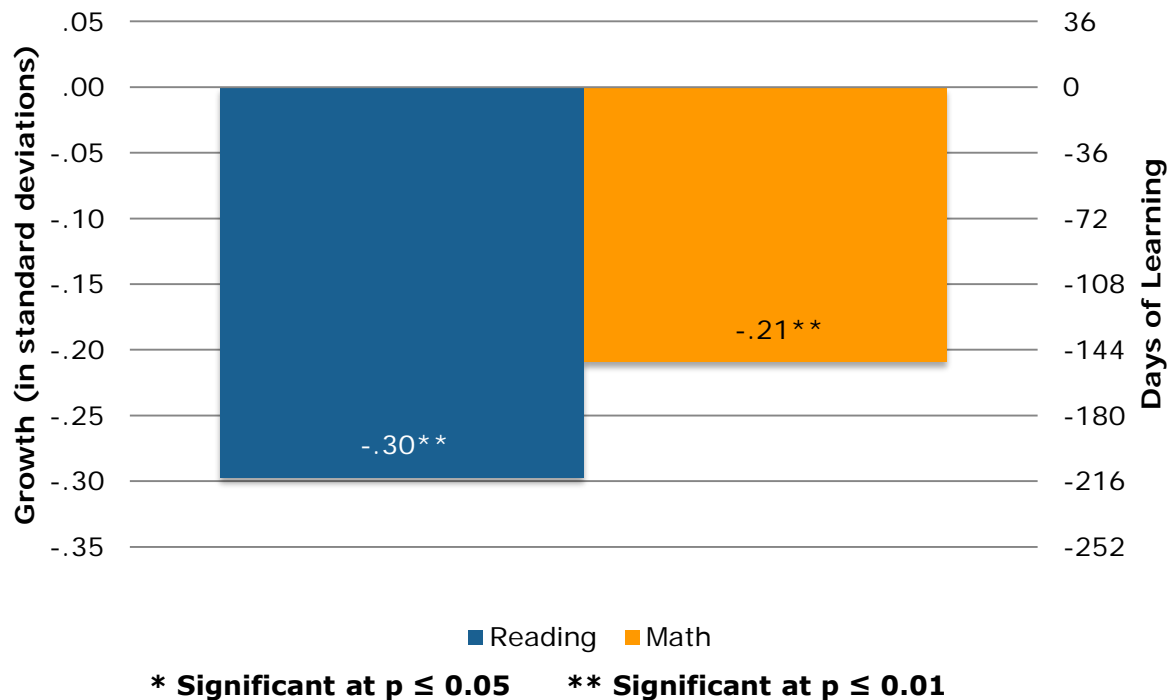
Next, we examine whether at-risk students in charter schools differ from at-risk students in TPS in learning gains, holding other factors constant. The results appear in Figure 27. Overall in Texas, at-risk students in both TPS and charter schools have significantly weaker academic growth in both reading and math when compared to students who are not at-risk.

Figure 27: Average Learning Gains for At-Risk Students TPS and Charter School Students in Texas
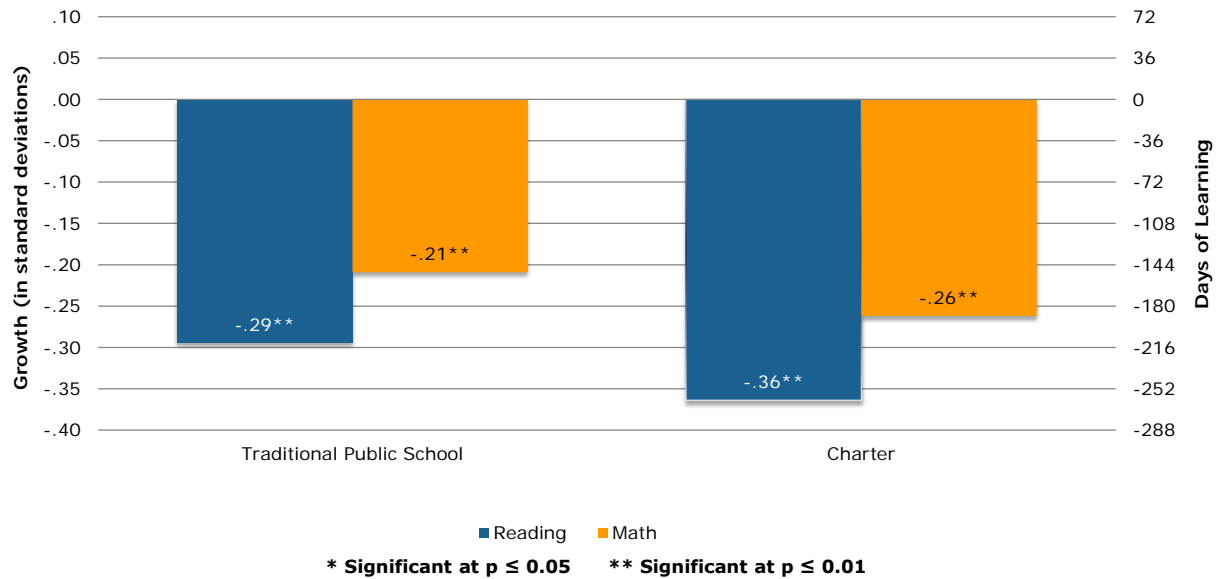
Figure 27a displays the differences in learning between at-risk students enrolled in charter schools and TPS.

Figure 27a: Relative Learning Gains for At-Risk Charter School Students Benchmarked Against their TPS At-Risk Peers

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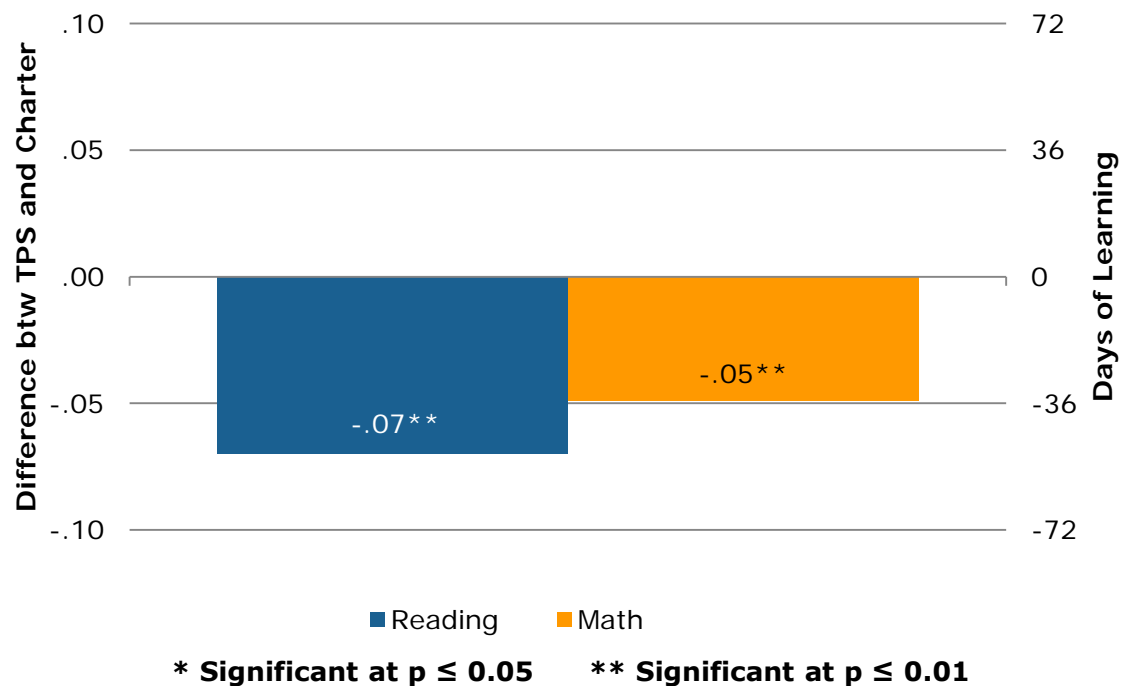
In Texas, at-risk students in charter schools make significantly less academic progress in reading and math than at-risk students in TPS. In a typical year, learning for at-risk charter students lags that of at-risk TPS students by 50 days of learning in reading and 36 days of learning in math.

At-Risk Impact by Years of At-Risk

At-risk students may suffer cumulative effects of meeting at-risk criteria across multiple years. To test this idea we grouped students by the number of years they met the criteria for at-risk starting with the first year of the study. This question examines whether the academic success is impacted by the number of years a student met at least one at-risk criteria.

First, we examine whether at-risk students who meet at least one at-risk criteria across multiple years differ overall from students not at-risk in how much they learn. The results appear in Figure 28.

Figure 28: Impact by Students' Years of At-Risk

* **Significant at p ≤ 0.05** ** **Significant at p ≤ 0.01**
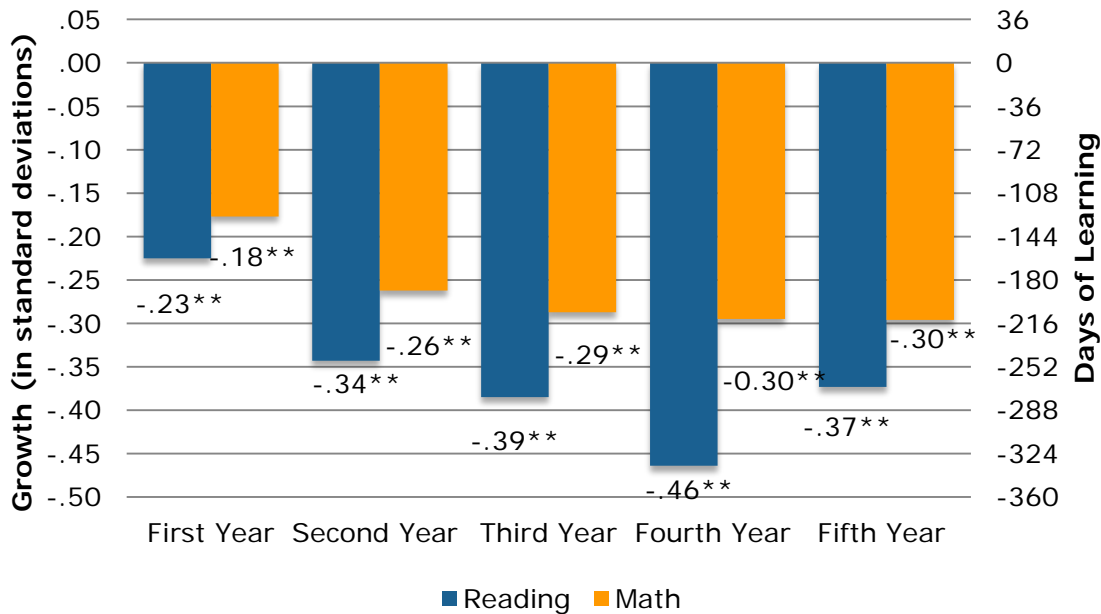
The results in Figure 28 suggest that at-risk students in Texas experience consistent lags in growth in both reading and math compared to students not at-risk. At-risk students experience their greatest deficit in academic growth during their fourth year

of meeting a criteria for at-risk. By the fourth year, at-risk students lag 331 days in reading and 216 days in math.

Next, we examine whether at-risk students who meet at least one at-risk criteria across multiple years in charter schools and TPS differ from students not at-risk in learning gains, holding other factors constant. The results appear in Figure 29.

Figure 29: Impact by Students' Years of At-Risk (TPS and Charter)

* Significant at p ≤ 0.05   ** Significant at p ≤ 0.01
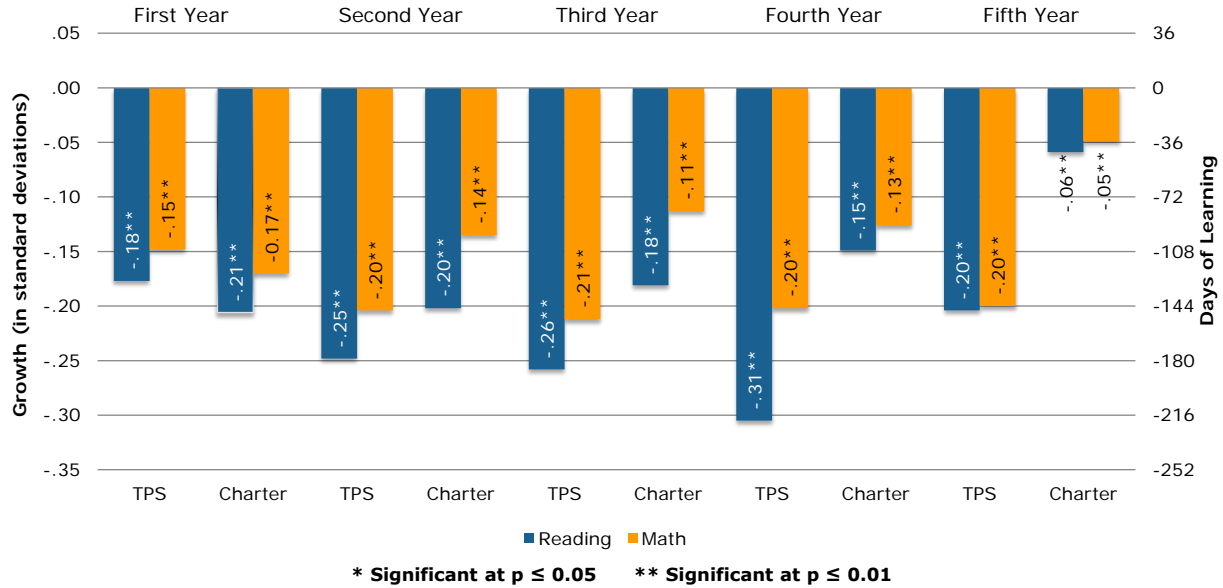
At-risk students enrolled in TPS see negative growth relative to students not at-risk across all years of meeting the criteria for at-risk, with the greatest impact occurring in the fourth year. By the fourth year, at-risk TPS students lag by 232 days in reading and 144 days in math. Charter students experience fewer deficits than students who remain in TPS settings across all five years. Although charter students still experience lags relative to students not at-risk, we see these deficits decrease over time.

At-Risk Impact by At-Risk Criteria

In order to see how specific at-risk criteria impact student growth, we explore the at-risk variables which we were able to isolate; English Language Learners, retention in grade, and lack of proficiency on the state assessment in the prior year. We examine whether charter and TPS students who meet a specific at-risk criteria differ from students not at-risk. The results are presented in Table 13.

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Table 13: Impact of At-Risk by Isolated Criteria

	TPS Students		Charter Schools	
At-risk variable	**Reading**	**Math**	**Reading**	**Math**
At-risk: English Language Learners	-0.32**	-0.15**	-0.25**	-0.11**
At-risk: Retained	-0.36**	-0.34**	-0.29**	-0.32**
At-risk: Not proficient in prior year	-0.12**	0.004**	-0.18**	-0.07**

As with the above analysis, at-risk students are outperformed by students who are not at-risk for each of the criteria with one exception: TPS students who were not proficient on the state assessment in the prior year (math). English language learners who are at-risk in both charter schools and TPS lag behind not at-risk students in both reading (230 days of learning and 180 days of learning respectively) and math (108 days of learning and 79 days of learning respectively). This finding also holds for TPS and charter students who are not proficient in the prior year in reading (87 days of learning and 130 days of learning respectively). At-risk students in charter schools who were not proficient in the prior year lag 50 days in learning relative to students not at-risk. Among the at-risk criteria, retention in grade appears to have the greatest negative impact on students. Students in TPS and charter schools who were retained lag behind in both reading (260 days of learning and 209 days of learning respectively) and math (245 days of learning and 230 days of learning respectively). Importantly, the results presented in Table 13 indicate that the isolated at-risk criteria have unique impacts student growth. Further research is needed to understand the potential impact of the thirteen unique at-risk criteria specified by the TEA.

Next, we explore the cumulative effect of the at-risk variables we were able to isolate; English Language Learner status, retention in grade, and lack of proficiency on the state assessment in the prior year. To test the cumulative effect we grouped students by the number of years they met the isolated criteria for at-risk starting with the first year of the study. For example, a student who was retained in his/her grade three times during the study window would be identified at-risk for three years. This question examines whether the academic success is impacted by the number of years a student meets the isolated at-risk criteria. Results are presented in Table 14.

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Table 14: Impact of Years At-Risk by Isolated Criteria

At-risk variable	TPS Students		Charter Schools	
	Reading	Math	Reading	Math
1 year at-risk: English Language Learner	-0.23**	-0.10**	-0.09**	-0.07**
2 years at-risk: English Language Learner	-0.27**	-0.14**	0.04**	0.04**
3 years at-risk: English Language Learner	-0.20**	-0.12**	0.15**	0.09**
4 years at-risk: English Language Learner	-0.14**	-0.08**	0.17**	0.05**
5 years at-risk: English Language Learner	-0.01*	-0.03**	0.24**	0.19**
1 year at-risk: retained in prior year	-0.28**	-0.24**	-0.24**	-0.22**
2 years at-risk: retained in prior year	-0.70**	-0.57**	-0.37**	-0.37**
3 years at-risk: retained in prior year	-0.97**	-0.73**	-0.21	-0.85**
4 years at-risk: retained in prior year	‡	‡	‡	‡
5 years at-risk: retained in prior year	‡	‡	‡	‡
1 year at-risk: not proficient in prior year	-0.13**	-0.05**	-0.14**	-0.08**
2 years at-risk: not proficient in prior year	-0.21**	-0.05**	-0.24**	-0.07**
3 years at-risk: not proficient in prior year	-0.24**	-0.03**	-0.27**	-0.02*
4 years at-risk: not proficient in prior year	-0.29**	-0.03**	-0.30**	0.00
5 years at-risk: not proficient in prior year	-0.36**	-0.08**	-0.54**	0.01

As with the above analysis, at-risk students are outperformed by students who are not at-risk for each of the criteria with one exception, English language learners who are enrolled in charter schools. Although English language learners experience lags in their first year in both reading and math, by year five they have experienced learning gains. English language learners in charter schools have a learning advantage of 173 days of learning in reading and 137 days of learning in math. As with the above analysis, the results presented in Table 14 indicate that the isolated at-risk criteria have unique impacts student growth, with a student being retained multiple times during the study window having the greatest impact on student growth.

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Synthesis and Conclusions

Over the six years from the 2007-2008 school year to the 2012-2013 school year, the typical charter school student in Texas had less academic growth in a year than his or her TPS counterpart. The difference in learning amounted to just over 14 days in reading and 29 days in math. The learning gains for charter school students rose slightly over the five growth periods included in the study, suggesting a continuing trend of improvement.

The overall results, however, mask important differences when comparing different groups of schools. Of particular interest are the results when students are clustered geographically. Charter students in all locales have less academic progress than their peers in local district schools, with one exception. The most drastic deficit is for charter students in towns. The differences are on the order of about four fewer months of learning in charter schools. Importantly, as seen in Table 9, all charter schools in towns are authorized by the SBOE. Thus, the findings related to charter schools in town are driven by schools authorized by the SBOE. The study is not able to confirm the reasons for these dramatic gaps in learning; however, public schools located within towns tend to serve dramatically fewer students throughout the state of Texas. The majority of Texas's charter school population is in urban areas. In Texas, 74 percent of the state's charter school population attends urban charter schools, which also represent the fastest growing segment of charters. Therefore, the performance of urban charters holds distinct and special interest. For an in-depth look at urban charter schools in the state of Texas, please visit http://urbancharters.stanford.edu/index.php.

Other groups of students also showed advantageous outcomes compared to their TPS comparisons. Students in poverty and particularly Hispanic students in poverty have greater academic progress in charter schools compared to the same groups in traditional public schools. The findings are of note considering that three-quarters of Texas' charter school students are in poverty, and 53 percent of students in urban charter schools are both Hispanic and in poverty.[23] The finding did not hold for Black students in general or for the subset of Black students who are in poverty.

Two other student groups receive much attention in discussions about charter schools: English Language Learners and students with Special Education needs. Interestingly, Texas charter schools enroll the same proportion of these student types as the district schools nearby and as the state as a whole, which is uncommon in the states we have studied to date. For students with Special Education needs, enrollment in charter schools carries no significant benefit or disadvantage; their academic progress is on par with students with Special Education needs in TPS schools. The

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[23] Based on the students in our sample.

difference between the sectors for students with Special Education needs is not significant. A different picture was revealed for English Language Learners. Although English Language Learners are outperformed in both TPS and charter schools by fluent English speakers in reading and math, English Language Learners enrolled in charter schools outperform their counterparts in TPS in both reading and math.

The findings of the "school-types" (i.e. elementary, middle, high and multi-level schools) analyses revealed that, while charter students have lower achievement overall compared to TPS students, charter students in middle school outperform their peers in TPS in both math and reading. Charter students attending elementary and high schools make less progress than their TPS counterparts. The pattern of results implies that charter students attending elementary and high schools are driving the TPS/charter achievement gap in Texas.

Another important breakout of schools is the designation of Alternate Education Campuses (AEC) which are reviewed under an alternate system of accountability. The analysis examined the performance of 120 of the 140 campuses classified as AECs and contrasted their gains to those in non-AECs. The average learning impacts for AEC-enrolled students were significantly behind those of their TPS peers, even with equivalent education endowments. The analysis also showed that the non-AECs posted positive learning gains for their students in reading compared to their TPS peers, though they continued to lag in math.

Across the state, students in Charter Management Organizations (CMOs) have academic gains that are smaller than students who enroll in non-network charter schools, who in turn lag behind their TPS peers. However, students enrolled in CMO middle and multi-level schools have comparatively larger gains than their independent charter school peers. There are isolated CMO organizations that create strong and positive results for their students, but the typical student does not enjoy superior academic progress by attending a Texas CMO-affiliated school.

When considering school-level academic performance, 21 percent of Texas charters outpace the learning impacts of TPS in reading, and 24 percent do so in math. In Texas, 29 percent of charter schools perform worse than their TPS markets in reading and 43 percent of charter schools perform worse than their TPS markets in math.

The student-to-student and school-to-school results show charter schools to be either behind or on par, respectively, with TPS. The larger question of whether charter schools are helping students achieve at high levels is also important. Sixty-six percent of charter schools in Texas fall below the 50th percentile in achievement in reading and 71 percent of charters fall below the 50th percentile in achievement in math. A total of 45 percent of Texas charter schools have below-average growth and below-average achievement in reading, and the same is true for 48 percent of

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the charter schools in math. The number of schools that have below-average growth and below-average achievement are a source of great concern in Texas. Students in these schools will not only have inadequate progress in their overall achievement but will fall further and further behind their peers in the state over time.

The share of underperforming charter schools is partially offset, however, by the proportion of charter schools that are either already achieving at high levels or are positioned to reach those levels. In Texas, 234 charter schools (about 46 percent) have positive academic growth in reading and 198 (about 39 percent) have positive academic growth in math (irrespective of achievement). Of the schools below the 50th percentile of achievement, just over half have positive growth in reading and math. Should these trends continue, the number of schools that currently lag behind the state average for absolute achievement would be expected to decline. In addition, this study has offered ten unique closure and replication scenarios, which if implemented, could have notable impacts on the current market.

Authorizers in the state of Texas vary in their ability to provide monitoring and oversight to the schools in their individual portfolios. As referenced above, the majority of charter schools in Texas are open-enrollment charter schools which are authorized by the TEA. Although there are 15 authorizers who authorize campus charter schools, Houston ISD authorizes nearly half of the campus charter schools in the state. The combined group of LEA authorized schools produce the most positive outcomes with students. Across all years of the study (with one exception, the 2012 growth year), students enrolled in these charter schools outperformed their TPS counterparts. When comparing charter students enrolled in open-enrollment and campus charter schools, students enrolled in charter campus schools have significant gains over their TPS counterparts. This finding was not true for students enrolled in open-enrollment charter schools, where students make less progress than their TPS counterparts, with one exception.

The results for students at-risk of dropping out also offer valuable information to be considered by the TEA and policymakers. As referenced in the report, there are a myriad of ways in which a student can meet the criteria for at-risk. Overall, at-risk students lag behind students not at-risk; however, there are several positive notes particularly within the charter sector. First, charter students do not experience the same negative impacts as TPS students when they are at-risk for multiple years. Although they still lag behind students not at-risk, they make marked improvements across the study. In addition, English Language Learners enrolled in charter schools see positive growth across their years of receiving specialized services. One noteworthy item from the at-risk analysis to be considered by the TEA is that there seems to a differential effect for the at-risk criteria which we were able to isolate. Being retained seems to have the greatest negative impact on students regardless of setting (TPS or charter). In its current state, the at-risk

variable allows us to identify that a student is at-risk; however, it does not include valuable information such as (a.) why the student is at-risk (b.) if the student meets multiple criteria for being at-risk. This lack of information prevents us from knowing which factors most hamper a student's ability to achieve in school. In addition, as noted above, this lack of information makes it difficult to decipher if particular groups of at-risk students seek out charter schools.

Conclusions

Several conclusions emerge from a synthesis of the preceding summary of results. First, recent efforts across Texas to improve the quality of charter school performance are only dimly discernible in the analysis. Overall performance trends are marginally positive, but the gains that Texas charter school students achieve even in the most recent periods studied still lag the progress of their TPS peers. More work is needed to ensure that charter schools are serving their students well.

Second, high growth areas for charter schools (the overlapping categories of urban schools and schools working with Hispanic students in poverty) offer the best comparative performance for charter school outcomes. Thus, efforts to enhance performance and expand the supply of these charter schools must focus on how well students progress each year. Strong examples of high performance do exist in Texas. These schools have designs, staff recruiting practices, and operations management that could offer important lessons to other operators.

Despite exemplars of strong results, over 40 percent of Texas charter schools are in urgent need of improvement: they post smaller student academic gains each year *and* their overall achievement levels are below the average for the state. If their current performance is permitted to continue, the students enrolled in these schools will fall even further behind over time. The long-term prospects for their students dim with every year they remain in these schools.

As suggested above, there has been some improvement in charter schools in the state of Texas since the publication of CREDO's 2009 report. We also find an established pattern of improvement from the 2007-2008 to 2012-2013 school year, particularly in reading. Additionally, the Texas legislature passed Senate Bill 2 during the 2013-2014 legislative session. SB2 requires the TEA to revoke a school's charter if that school fails to meet academic or financial accountability benchmarks for three years. Since the passage of SB2, 22 charter schools have been closed, with 19 of these charters revoked as a direct result of SB2. Senate Bill 2 has established conditions for stricter evaluation of school performance which may lead to eventual improvement across the sector.

Despite the potential of Senate Bill 2 to impact the overall quality of the sector, ensuring academic performance of any individual school remains a responsibility shared among the charter school leaders, the charter school Boards of Directors, and the charter school authorizer that grants the school's charter and oversees the school's performance. . More research is needed to better understand the organizational factors that explain the performance patterns revealed in this authorizer analysis. Capacity for oversight, the number and/or types of schools

overseen by a single operator, and authorization decision-making processes may all impact the effectiveness of any authorizer to oversee the schools under its aegis.

Charter school Boards of Directors also need self-reflection and improvement. The question naturally arises about the efficacy of the Boards of the low-growth / low-achievement charter schools: what do they actually know about their schools' results and what are they doing to address such poor performance? As with any public school, the Boards have a legal and fiduciary responsibility to manage the performance of the school. Moreover, they are or ought to be in closer and more regular contact with school leaders to have a better chance of gaining "on the ground" knowledge of school performance.

Perhaps the most encouraging conclusion about charter schools in Texas is that progress is already underway. State legislative and Texas Education Agency regulatory changes were implemented during the years of this study and continue to evolve. The changes have emphasized academic quality as a priority, and discretionary resources have been tied to operating requirements that move schools to higher levels of autonomy and discretion. With continued attention and commitment, more of Texas' charter school students will receive the education they need to become successful future citizens in Texas, the US, and across the globe.

Table 15 presents a summary of the results.

Table 15: Summary of Statistically Significant Findings for Texas Charter School Students

	Reading	Math
Texas Charter Students	Negative	Negative
Charters in 2009	Negative	Negative
Charters in 2010	Negative	Negative
Charters in 2011	Negative	Negative
Charters in 2012		Negative
Charters in 2013		Negative
Urban Students	Negative	Negative
Suburban Students	Negative	Negative
Rural Students	Positive	Negative
Town Students	Negative	Negative
Elementary Charter Schools	Negative	Negative
Middle Charter Schools	Positive	Positive
High Charter Schools	Negative	Negative
Multilevel Charter Schools	Positive	Negative
First Year Enrolled in Charter School	Negative	Negative
Second Year Enrolled in Charter School	Positive	Positive
Third Year Enrolled in Charter School	Positive	Positive
Fourth Year Enrolled in Charter School	Positive	Positive
Black Charter School Students	Negative	Negative
Hispanic Charter School Students	Negative	Negative
Charter School Students in Poverty	Negative	Negative
Black Charter School Students in Poverty	Negative	Negative
Hispanic Charter School Students in Poverty	Negative	Negative
Special Education Charter School Students	Negative	Negative
English Language Learner Charter School Students	Negative	Negative
Charter CMO	Negative	Negative
Charter Non-CMO	Negative	Negative
Charter CMO Elementary Charter Schools	Negative	Negative
Charter Non-CMO Elementary Charter Schools	Negative	
Charter CMO Middle Charter Schools	Positive	Positive
Charter Non-CMO Middle Charter Schools	Positive	Positive
Charter CMO High Charter Schools	Negative	Negative
Charter Non-CMO High Charter Schools	Positive	Negative
Charter CMO Multilevel Charter Schools	Positive	Negative
Charter Non-CMO Multilevel Charter Schools	Negative	Negative

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Appendix

The numbers in the table below represent the number of charter observations associated with the corresponding results in the report. An equal number of VCRs were included in each analysis.

Appendix Table 1: Number of Observations for All Results

Student Group	Matched Charter Students	
	Reading	Math
Texas Charter Students	394,550	392,339
Students in Charters in 2009	58,588	59,194
Students in Charters in 2010	71,385	71,679
Students in Charters in 2011	78,907	77,479
Students in Charters in 2012	88,472	87,589
Students in Charters in 2013	97,198	96,398
Students in Urban Schools	293,009	291,869
Students in Suburban Schools	57,667	57,063
Students in Town Schools	8,537	8,585
Students in Rural Schools	35,330	34,815
Students in Elementary Schools	79,203	77,755
Students in Middle Schools	76,255	76,050
Students in High Schools	86,273	87,095
Students in Multi-level Schools	150,449	149,085
Students First Year Enrolled in Charter School	131,963	133,780
Students Second Year Enrolled in Charter School	49,659	37,738
Students Third Year Enrolled in Charter School	21,119	20,096
Students Fourth Year Enrolled in Charter School	4,605	4,254
Black Students	75,777	75,745
Hispanic Students	240,473	239,729
White Students	61,865	61,128
Students in Poverty	275,472	275,076
Black Students in Poverty	55,004	55,225
Hispanic Students in Poverty	196,577	196,319
Special Education Students	25,223	26,236
English Language Learners	32,201	32,297
Grade Repeating Students	16,197	17,293

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Appendix Table 2: Starting Deciles in Texas Charter Schools

Student Group	Matched Charter Students	
	Reading	Math
Students in Decile 1	33,025	46,057
Students in Decile 2	24,482	38,780
Students in Decile 3	27,950	34,385
Students in Decile 4	29,708	32,066
Students in Decile 5	41,682	31,953
Students in Decile 6	42,034	34,718
Students in Decile 7	64,557	43,003
Students in Decile 8	77,290	52,983
Students in Decile 9	50,646	67,784
Students in Decile 10	3,176	10,610

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Appendix Table 3: Top Charter Management Organizations in Texas

Network Name	Growth Effect Size	Number of TX Schools	Number of Students
Reading			
KIPP Austin	0.19	5	2,278
Varnett Schools, Inc.	0.18*	3	853
‡	0.17*	2	689
Houston Gateway Academy Charter School Inc.	0.16**	3	1,400
‡	0.13**	2	768
KIPP San Antonio	0.13*	3	1,844
YES Prep Public Schools	0.12*	8	10,204
Math			
‡	0.50**	1	235
‡	0.28*	2	689
Varnett Schools, Inc.	0.24**	3	853
‡	0.24**	1	663
KIPP San Antonio	0.16	3	1,844
Houston Gateway Academy Charter School Inc.	0.14**	3	1,405
‡	0.12*	1	294
KIPP Austin	0.11	3	2,059
Life School	0.11*	4	5,059

‡ The Charter Management Organization is not identified because it has less than three charter schools within the state of Texas.

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Network Name	Growth Effect Size	Number of Schools	Number of Students
Reading			
KIPP Austin	0.19	5	2,278
Varnett Schools, Inc.	0.18*	3	853
‡	0.17*	2	689
Houston Gateway Academy Charter School Inc.	0.16**	3	1,400
‡	0.13**	2	768
KIPP San Antonio	0.13*	3	1,844
YES Prep Public Schools	0.12*	8	10,204
Math			
‡	0.50**	1	235
‡	0.28*	2	689
Varnett Schools, Inc.	0.24**	3	853
‡	0.24**	1	663
KIPP San Antonio	0.16	3	1,844
Houston Gateway Academy Charter School Inc.	0.14**	3	1,405
‡	0.12*	1	294
KIPP Austin	0.11	3	2,059
Life School	0.11*	4	5,059

Appendix Table 4: Bottom Charter Management Organizations in Texas

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‡ The Charter Management Organization is not identified because it has less than

Network Name	Growth Effect Size	Number of TX Schools	Number of Students
Reading			
Excel Academy	-0.55**	3	665
One Stop Multiservice Charter School	-0.49**	5	827
Winfree Academy Charter Schools	-0.48**	6	2,036
‡	-0.43**	1	471
The University of Texas at Tyler	-0.39**	3	236
Por Vida Inc.	-0.39**	3	486
Math			
‡	-0.85**	1	535
Excel Academy	-0.56**	3	641
Por Vida Inc.	-0.46	3	487
Winfree Academy Charter Schools	-0.45**	6	2,030
Education Resource Center	-0.43**	4	691
One Stop Multiservice Charter School	-0.43**	5	809

three charter schools within the state of Texas.

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