Charter School Performance in Los Angeles

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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 their start in Minnesota two decades ago. Similar debate has occurred in California, particularly in Los Angeles, 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 their impact on student outcomes. This report contributes to the discussion by providing evidence for charter students' performance in Los Angeles for four years of schooling, beginning with the 2008-2009 school year and concluding in 2011-2012.

With the cooperation of the California Department of Education (CDE), CREDO obtained the historical sets of student-level administrative records. The support of CDE 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 CDE dealt with technical issues related to the data. CREDO has developed the findings and conclusions independently.

This report provides an in-depth examination of the results for charter schools physically located within the Los Angeles Unified School District boundary. It is the first separate analysis by CREDO of the performance of Los Angeles' charter schools. However, charter schools in Los Angeles were included in the CREDO report on all California charter schools, which can be found on our website.[1] This report has two main benefits. First, it provides a rigorous and independent view of the performance of the city'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 being benchmarked against those nationally and in other states and cities.

The analysis presented here takes two forms. 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 Los Angeles would realize from a year of enrollment in a charter school. 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

[1] CREDO. *Charter School Performance in California* (2009). http://credo.stanford.edu. An update to the full state analysis will be released later in 2014.

understand the range of performance for the schools. These findings look at the performance of students by school and present school average results.

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, students in Los Angeles charter schools make larger learning gains in reading and mathematics. Results for Hispanic charter students, especially Hispanic students in poverty, are particularly notable. At the school level, we compare the average performance over two growth periods to the average results for the school's control group. The results in Los Angeles are among the strongest observed in any of the previous CREDO studies. Larger shares of schools outperform their local market in reading and math than was reported in the national study that was released in 2013.[2]

[2] Cremata, Edward, D. Davis, K. Dickey, K. Lawyer, Y. Negassi, M. Raymond and J.Woodworth. *National Charter School Study 2013* (2013). p.57. http://credo.stanford.edu.

Study Approach

This study of charter schools in Los Angeles focuses on the academic progress of their 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 citywide analysis uses the Virtual Control Record (VCR) methodology that has been used in previous CREDO publications.[3, 4, 5] 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 Los Angeles 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 the estimate of charter schooling to be tainted by other effects. In its most basic form, the analysis included controls for student characteristics: prior academic achievement, race/ethnicity, special education and lunch program participation, English proficiency, grade level, and repeating a 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.

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

[4] 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.

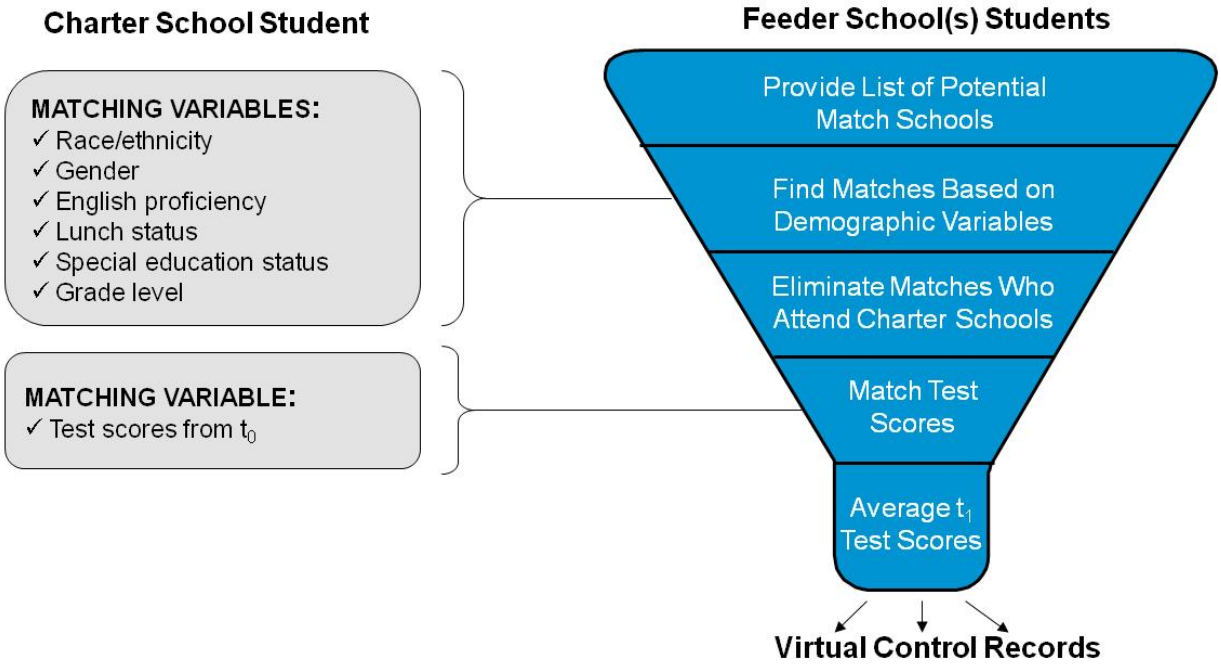
[5] Cremata, Edward, D. Davis, K. Dickey, K. Lawyer, Y. Negassi, M. Raymond and J.Woodworth. *National Charter School Study 2013* (2013). http://credo.stanford.edu.

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 four years of student records in Los Angeles, it is possible to create three 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 "2010" covers academic growth that occurred between the end of the 2008-2009 and the end of the 2009-2010 school years. Similarly, the time period denoted "2012" corresponds to the year of growth between the 2010-2011 and 2011-2012 school years.

With four years of data, and ten tested grades (2nd – 11th) including end-of-course exams (EOCs), there are 40 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.

The analysis is helped by transforming the test scores for all these separate tests to a common scale. All test scores have been converted to "bell curve" standardized scores so that year-to-year computations of growth can be made.[6]

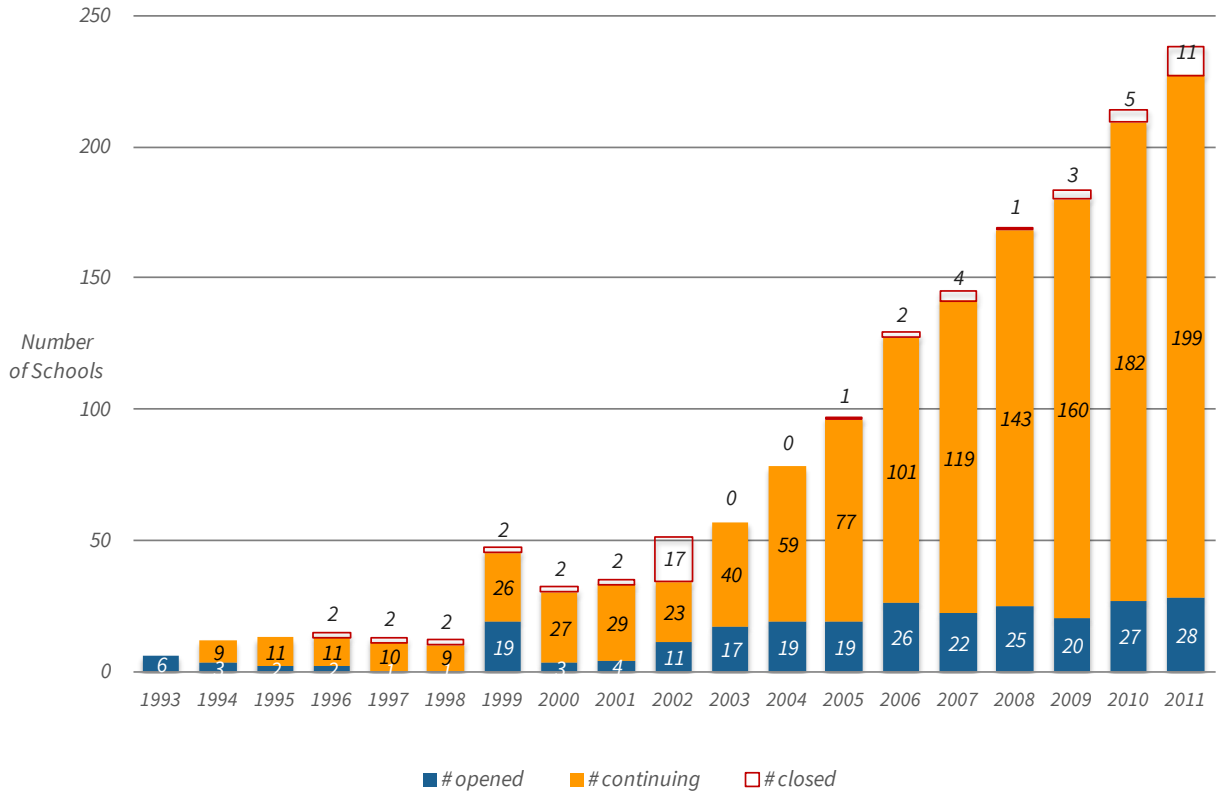
[6] For each subject-grade-year set of scores, scores are centered around a standardized midpoint of zero, which corresponds to the actual average score of the test before transformation. Then each score of the original test is recast as a measure of deviation around that new score of zero, so that scores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

When scores are thus standardized into z-scores, every student is placed relative to his peers in the entire state of California. A z-score of zero, for example, would be held by a student at the 50th percentile in California, 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.

Los Angeles Charter School Demographics

The Los Angeles charter school sector has grown markedly since its inception in 1993. Figure 2 below notes the new, continuing and closed charter school campuses from the fall of 1993 to the fall of 2011.

Figure 2: Opened and Closed Charter Campuses, 1993-2011



According to the National Center for Education Statistics (NCES), there were 195 charter schools open in Los Angeles in the 2010-11 school year.[7] 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 attract students differently than 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 the traditional public schools in the Los Angeles Unified School District (LAUSD), the Los Angeles traditional public schools that serve as feeder schools for charter schools, and the charter schools themselves.

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

	LAUSD TPS	Feeders	Charters
Number of schools	730	633	195
Average enrollment per school	807	889	423
Total number of students enrolled	588,957	562,577	82,531
Students in Poverty	75%	75%	70%
English Language Learners	30%	29%	21%
Special Education Students	11%	11%	7%
White Students	8%	8%	14%
Black Students	9%	9%	15%
Hispanic Students	75%	75%	58%
Asian/Pacific Islander Students	6%	6%	4%
Native American Students	0.4%	0.4%	0.2%

Source: NCES Common Core of Data, 2010-11

The data from Table 1 show that the majority of traditional public schools in Los Angeles Unified School District are feeder schools for the city's charters. Therefore, the demographics for the feeders are nearly identical to the LAUSD TPS population as a whole. However, the charter school population in Los Angeles differs from both the LAUSD TPS and feeder populations. The schools themselves are about half as large. Charter schools have slightly smaller proportions of Asian students and students in poverty than the other public schools. The proportion of Hispanics enrolled in charter schools is substantially smaller. Conversely, charter schools have larger proportions of Black and White students than are found in the district TPS and feeder populations.

[7] This is the most recent year available from the NCES Common Core of Data Public School Universe.

The share of students in charter schools who are receiving Special Education services or who are English Language Learners has been a topic of focus and debate. As shown in Table 1, feeders and TPS as a whole have equal shares of special education students. In contrast, a lower proportion of the Los Angeles charter school population is designated as special education. The cause of this difference is unknown, but a number of factors may be at work. Parents of children with special needs may believe the TPS sector is better equipped to educate their children and therefore will be less likely to opt for a charter. Alternatively, charter schools and traditional public schools may have different criteria for making referrals for assessment, categorizing students as needing special education, or removing the designation over time.

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.

The profile for English Language Learners also shows that, in the aggregate, charter schools enroll a smaller share than both the feeder schools and LAUSD TPS. As with Special Education students, it is not possible to discern the underlying causes for these figures. For example, charter schools may be able to use their curricular freedom to move students to English proficiency faster than the TPS sector. It is also possible that non-English-speaking parents have limited access to information about available school options and the process for enrolling in charter schools.

Clearly, the reasons for lower proportions of special education students and English Language Learners in charter schools are areas that need further study and are beyond the scope of this report.

Table 2: Demographic Composition of Charter Students in the Study

Student Group	All Charter Students Tested		Matched Charter Students	
	Number	Percent	Number	Percent
Los Angeles Charter Students	93,551		86,981	
% Matched	86,981	93%		
Black Students	15,422	16%	14,318	16%
Hispanic Students	57,758	62%	55,343	64%
White Students	13,594	15%	12,629	15%
Students in Poverty	64,263	69%	60,339	69%
Special Education Students	5,187	6%	3,537	4%
English Language Learners	16,905	18%	15,650	18%
Grade Repeating Students	2,517	3%	1,548	2%

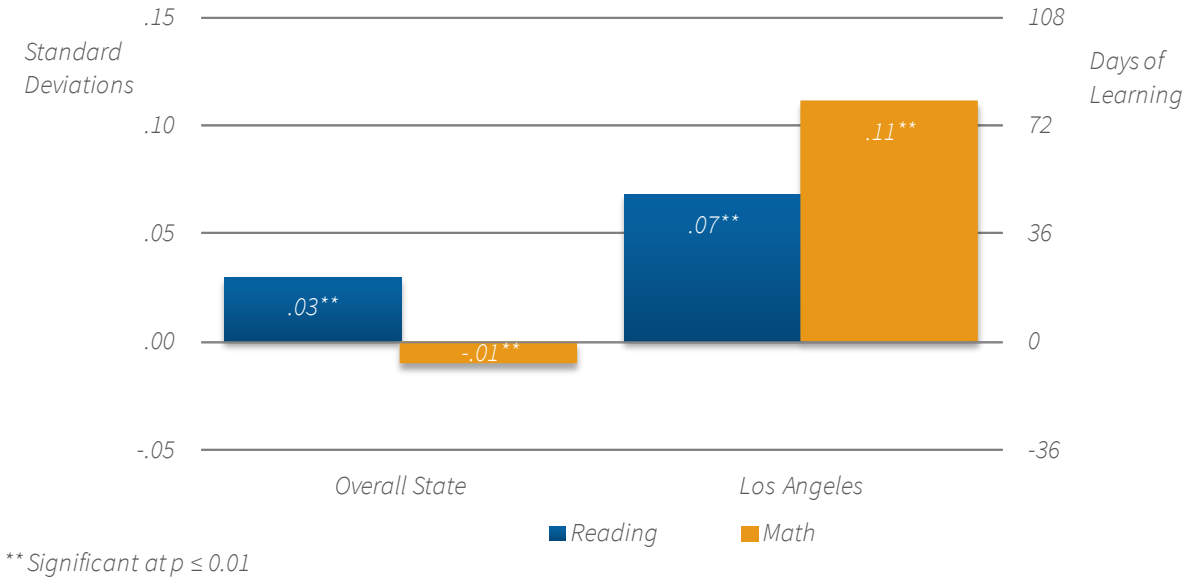
For this analysis, a total of 86,981 charter school students (with 152,190 observations across three growth periods) from 232 charter schools are followed for as many years as data are available.[8] The students are drawn from Grades 2 – 11, since these are the continuous grades that are covered by the state achievement testing program for reading and math. High school students are included for math whenever they take the end-of-course exam sequence in consecutive years, e.g., Algebra I in 9th grade and Algebra II in 10th grade. An identical number of virtual comparison records are included in the analysis. In Los Angeles, it was possible to create virtual matches for **93 percent** of the tested charter school students.[9] This high proportion assures that the results reported here can be considered indicative of the overall performance of charter schools in the city. The total number of observations is large enough to be confident that the tests of effect will be sensitive enough to detect real differences between charter school and TPS student performance at the statistically acceptable standard of $p<.05$. This is also true for each student subgroup examined, as can be seen in Table 2 above by the large number of students included in each student group. Additional descriptive demographics can be found in the Appendix.

[8] Schools that have opened recently or that have only recently begun serving tested grades will not have enough years of data to compute three growth periods.
[9] 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 three growth periods and compare it 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 comparison VCR peers from the feeder schools nearby. The results appear in Figure 3 along with the results for all of California that were reported in the *National Charter School Study 2013*.[10] On average, students in Los Angeles charter schools learned significantly more than their virtual counterparts in both reading and mathematics.

Figure 3: Average Learning Gains in California & Los Angeles Charter Schools Compared to Gains for VCR Students



** Significant at $p \leq 0.01$

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

[10] The three growth periods used for the California results were 2009, 2010, and 2011. This is a slightly different set of growth periods than are being reported here for Los Angeles (2010, 2011, and 2012).

below, which presents a translation of various outcomes, should be interpreted cautiously.[11]

Table 3: Transformation of Average Learning Gains[12]

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.

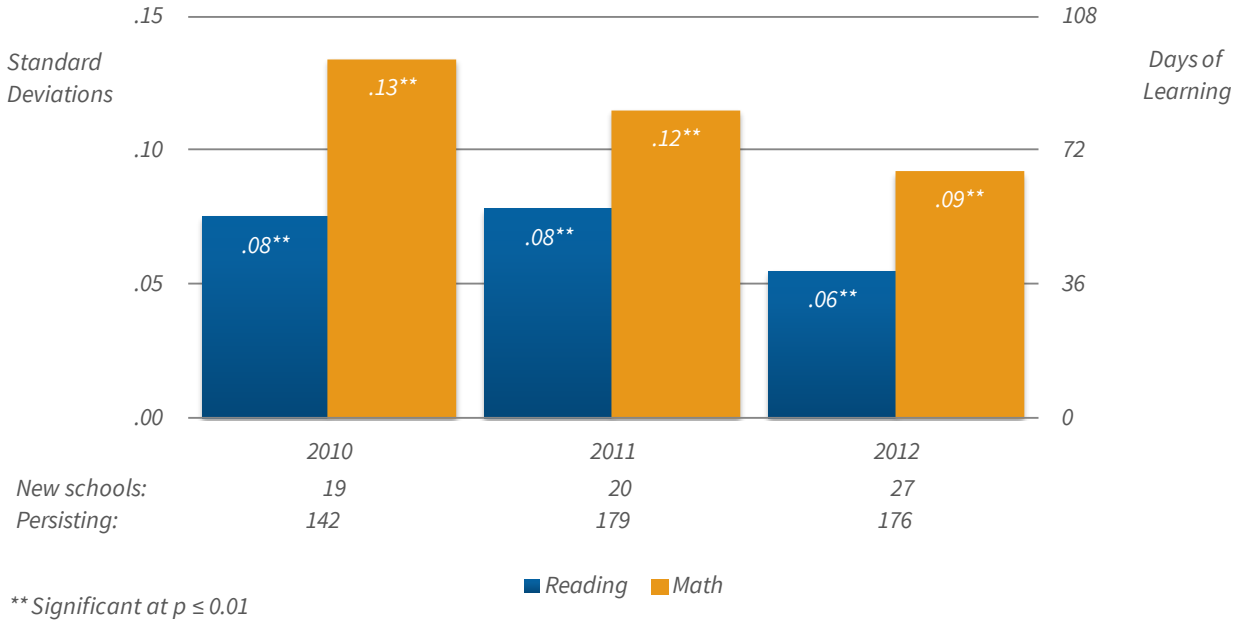
Using the results from Figure 3 and the transformations from Table 3, per year of schooling, we can see that, on average, charter students in Los Angeles gain an additional 50 days of learning in reading and an additional 79 days of learning in math over their TPS counterparts.

[11] Hanushek, Eric A. and Steven G. Rivkin. Teacher quality. In *Handbook of the Economics of Education*, Vol. 2, ed. EA Hanushek, F Welch, (2006): 1051–1078. Amsterdam: North Holland.
[12] Note: One month of learning constitutes 20 school days of learning.

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 three growth periods. Results are shown in Figure 4 along with the number of newly opened and persisting schools for each growth period.[13]

Figure 4: Impact by Growth Period, 2010-2012



In both reading and math, charter students in Los Angeles learned significantly more than their virtual peers in all three of the periods analyzed. Reading results for charter schools were steady from 2010 to 2011 and then declined in 2012. For the first two periods, charter school students posted 58 more days of learning than TPS, while in 2012, charter students had 43 more days of learning than their peers in TPS. In math, there has been a downward trend for charters over the three growth periods from 94 additional days of learning in 2010 to 65 additional days of learning in 2012 compared to TPS students.[14]

[13] Note: These numbers report only charters with tested students, so they are a subset of the counts in Figure 2, Opened and Closed Charter Campuses.

[14] Given that charter impacts are compared to the virtual twins in TPS, one possible explanation for these trends is that the virtual twin comparisons are posting bigger gains over time. Further analysis indicated that TPS growth was stable in reading. Although TPS growth in math improved slightly, this improvement did not account for the full amount of declining charter performance over the same time periods.

For every growth period, the charter impact can be disaggregated into performance for new charter schools and for persisting charters that have been in operation longer than one year. The counts of new and persisting charter schools with test results in each period are listed above in Figure 4. Because the number of persisting charter schools is substantially greater than the new charter schools in every period, their impacts dominate the aggregated results. Their separate contributions for each of the three growth periods are displayed in Table 4, below.

Table 4: Impact by Growth Period for New and Persisting Charter Schools, 2010-2012

	2010		2011		2012	
Charter Schools	**Reading**	**Math**	**Reading**	**Math**	**Reading**	**Math**
New Schools	.09**	.17**	.08**	.10**	.02**	.11**
Persisting	.08**	.13**	.08**	.12**	.06**	.09**
All Charters	.08**	.13**	.08**	.12**	.06**	.09**

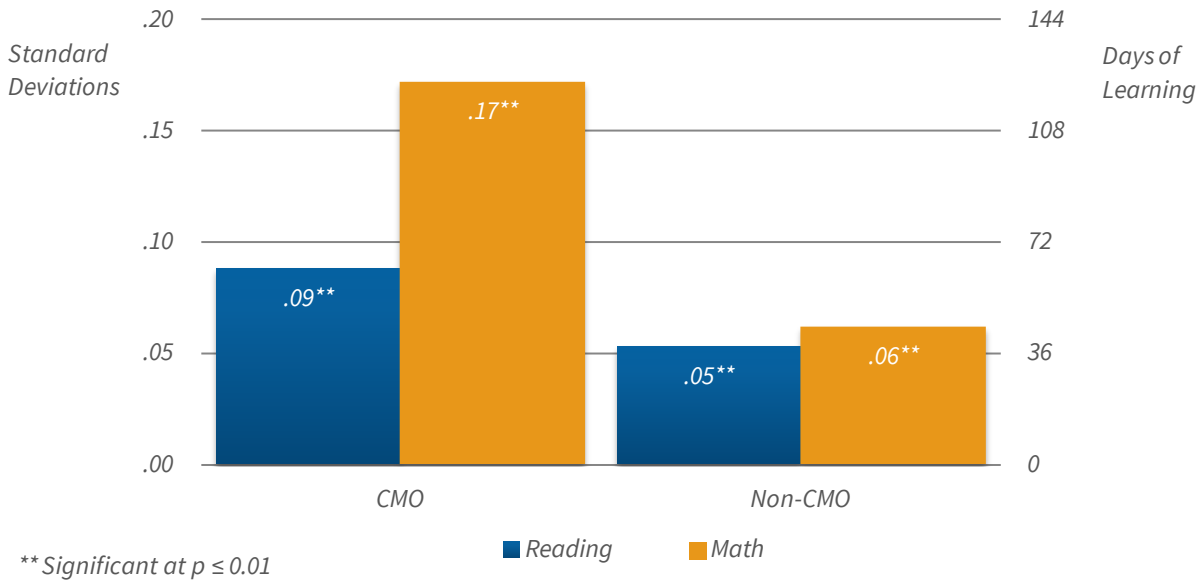
Table 4 shows that students attending new charter schools in Los Angeles learned significantly more than their TPS counterparts in each of the three growth periods in both reading and math.[15] In reading, new charter schools posted impacts that were similar to persisting schools in 2010 and 2011. In 2012, however, reading impacts for new charter schools were much smaller than for persisting charter schools. For math, new charter school impacts were larger than the impacts at persisting charter schools in 2010 and 2012 but smaller in 2011.

[15] Comparison with the weaker results for new charter schools in the rest of California makes the strong positive results for new charter schools in Los Angeles especially noteworthy.

Charter School Impact by CMO Affiliation

Charter management organizations (CMOs), which directly operate charter schools within a network of affiliated schools, have maintained a steady presence in Los Angeles for many years. Figure 5 below shows the charter impacts for students at schools that are part of a CMO and schools with no CMO affiliation.[16]

Figure 5: Impact by CMO Affiliation



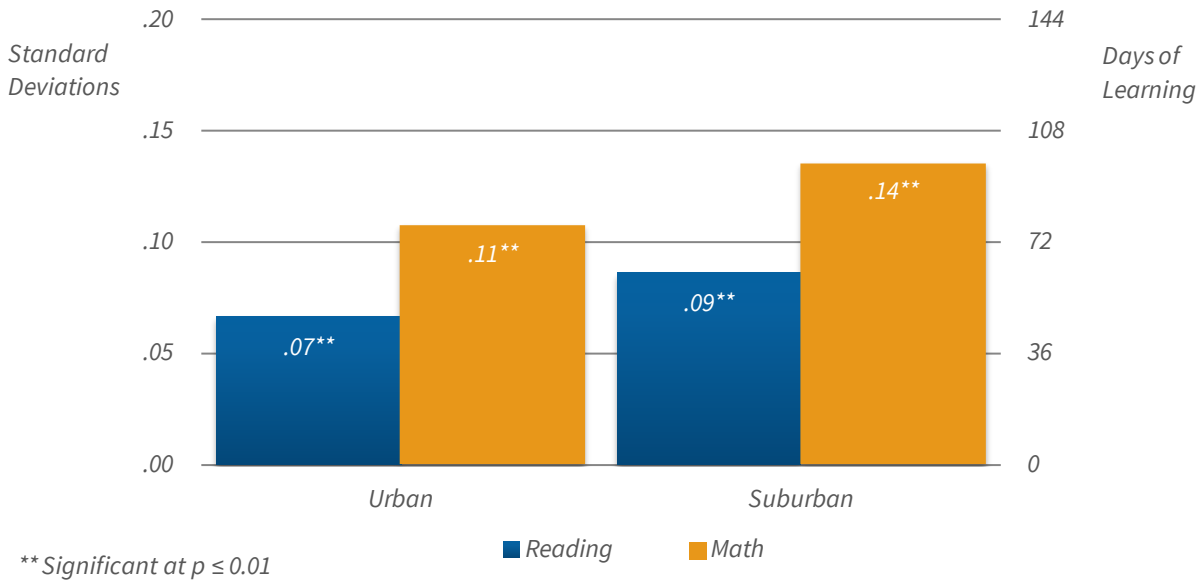
The results in Figure 5 illustrate that the positive impacts that were reported in the aggregate for charter schools occur in both CMO-affiliated schools and non-CMO schools. Charter school students in both sets have learning gains that are larger than TPS students realize. Figure 5 shows that CMO-affiliated schools have a larger impact on student growth than non-CMO schools. The differences, which are more pronounced in math than in reading, are statistically significant in both subjects. The positive impact for Los Angeles charter students attending a CMO-affiliated school is equivalent to about 65 additional days of learning in reading and 122 more days in math than their TPS peers. Charter students at non-affiliated schools have better learning gains in reading and math than TPS – by about 36 additional days in reading and 43 more days in math.

[16] Approximately 42% of Los Angeles charter students attend schools affiliated with a CMO.

Charter School Impact by Location

Although charter schools in urban areas receive the bulk of media attention, charter schools can and do choose to serve other locales. Even within Los Angeles, differences in location within the city may correlate to different average charter school effects. Approximately 90 percent of charter students in Los Angeles attend school in an urban setting and 10 percent attend suburban schools within the Los Angeles Unified boundaries.[17] The results in Figure 6 represent the disaggregated impacts for urban and suburban charter schools in Los Angeles.

Figure 6: Impact by School Location



Students enrolled in urban charter schools in Los Angeles learn significantly more in both reading and math each year compared to their peers in TPS. The benefit for urban charter students is 50 additional days of learning in reading and 79 more days of learning in math. Students in suburban charter schools within the Los Angeles Unified School District also have better learning gains than their TPS counterparts in reading and math – about 65 more days in reading and 101 additional days in math. In both reading and math, students in suburban charter schools learn significantly more than students in urban charter schools.

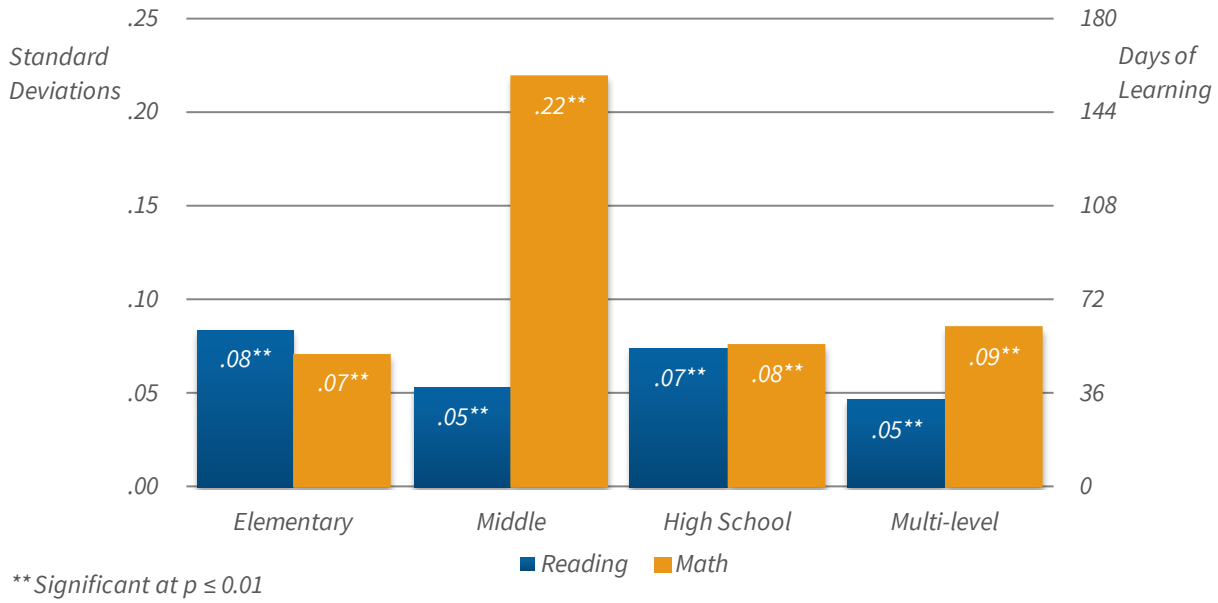
[17] Urban and suburban designations for schools in Los Angeles are from the National Center for Education Statistics.

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 broader range of students. 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. These school levels are tracked 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.

Figure 7: Impact by School Level



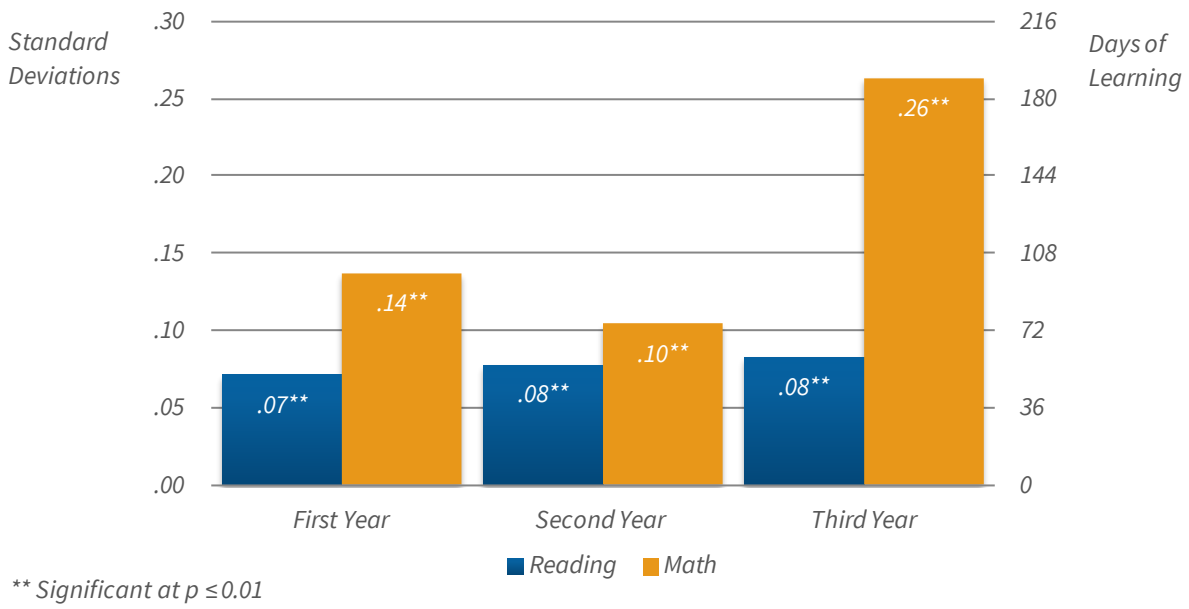
The results show that when disaggregated, charter school students post significantly more gains in reading and math compared to their TPS counterparts regardless of the grade span of their school. There are differences in the amount of learning gains for charter students depending on their grade span, however. The largest gains in reading are at charter elementary schools, where students have 58 more days of learning than TPS. Charter students in high school have 50 more days of reading learning than TPS, while the gain at middle and multi-level charters

is 36 more days. In math, charter middle school students have the largest learning gains – 158 additional days compared to TPS students. Charter students at multi-level schools have 65 more days of learning in math than TPS. High school students have 58 more days of learning in math at charters than at TPS. Charter students attending elementary schools have 50 additional days of math learning compared to TPS peers.

Charter School Impact by Students' Years of Enrollment

Student growth in charter schools may change as students continue their enrollment over time. To test this, students were grouped 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 2009-2010 and 2011-2012. Although the number of students included will be smaller than for the other analyses presented, it is the only way to make sure that the available test results align with the years of enrollment. For this reason, the results of this analysis 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 $p \leq 0.01$

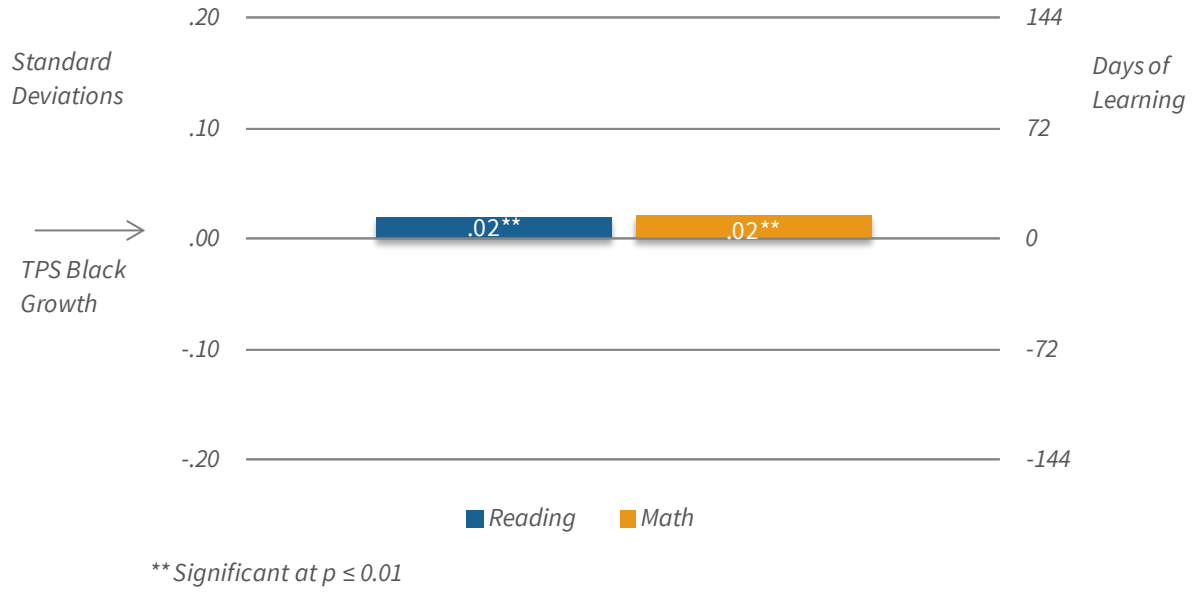
The results show that, in Los Angeles, new charter school students have an initial gain in reading and math learning compared to their counterparts in traditional public schools. Charter school students in their first year have 50 additional days of learning in reading; in math, the gain is 101 more days of learning. This contrasts with national results, which showed fewer days of learning in both reading and math for first-year charter students compared to TPS peers.[18] After the first year, Los Angeles charter students continue to experience better learning gains than their TPS peers each year they attend charters. By the third year of attendance, charter students have an additional 58 days of learning in reading and 187 more days in math than TPS students.

[18] Cremata, Edward, D. Davis, K. Dickey, K. Lawyer, Y. Negassi, M. Raymond and J.Woodworth. *National Charter School Study 2013* (2013). p.79. http://credo.stanford.edu.

Charter School Impact by Race/Ethnicity

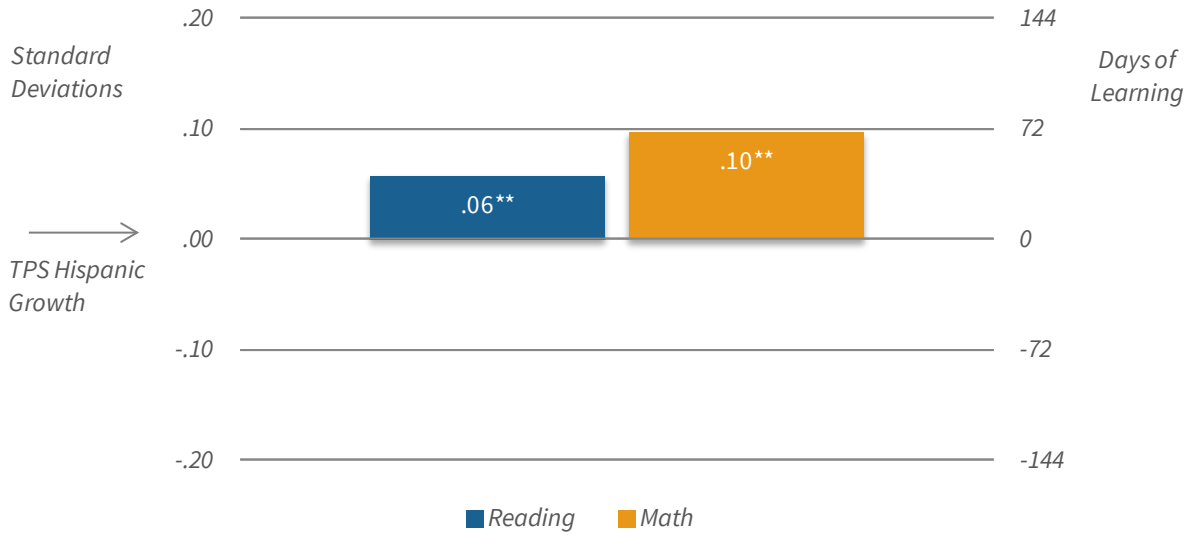
Attention in US public education to achievement differences by racial and ethnic backgrounds has increased since the passage of the *No Child Left Behind* Act in 2001. The effectiveness of charter schools across ethnic and racial groups is especially important given the proportion of charter schools that are focused on serving historically underserved students. The impact of charter schools on the academic gains of Black, Hispanic, Asian and White students are presented in Figures 9 through 12 below.

Figure 9: Impact with Black Students



As seen in Table 1, 15 percent of charter school students are Black. On average, Black students enrolled in charter schools show significantly better performance in reading and math compared to Black students in traditional public schools. Black charter students gain 14 more days of learning in a year's time in both reading and math compared to their peers in TPS.

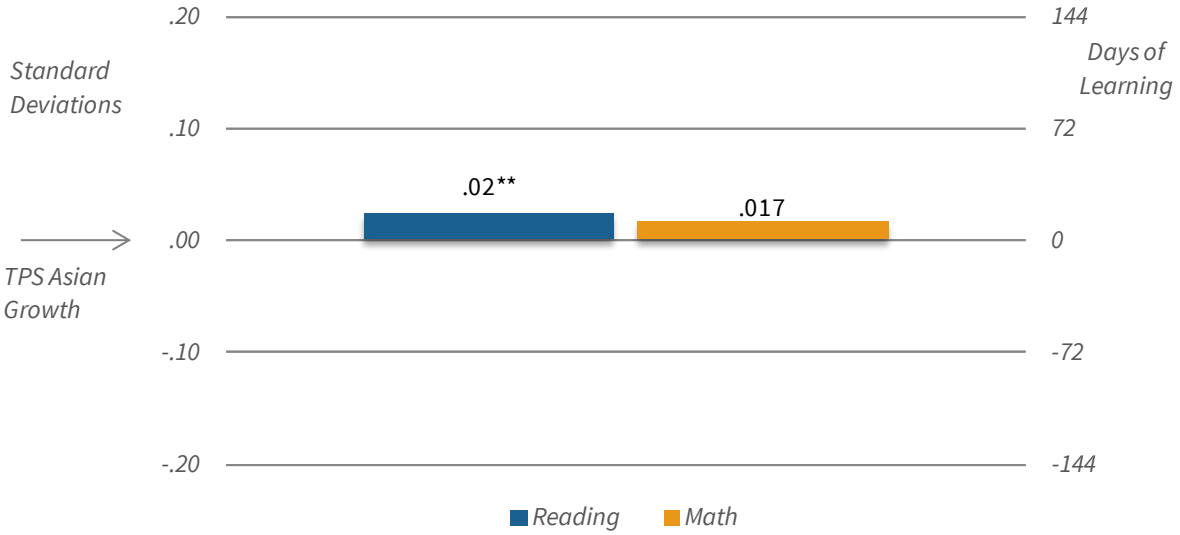
Figure 10: Impact with Hispanic Students



** Significant at $p \leq 0.01$

Hispanics comprise 58 percent of all Los Angeles charter students, making it the largest student group in of those student subgroups that are regularly highlighted for special analysis. In reading, Hispanic students in Los Angeles charter schools have about 43 more days of learning than Hispanic students in TPS. Hispanic charter students have 72 more days of learning in math than their TPS peers.

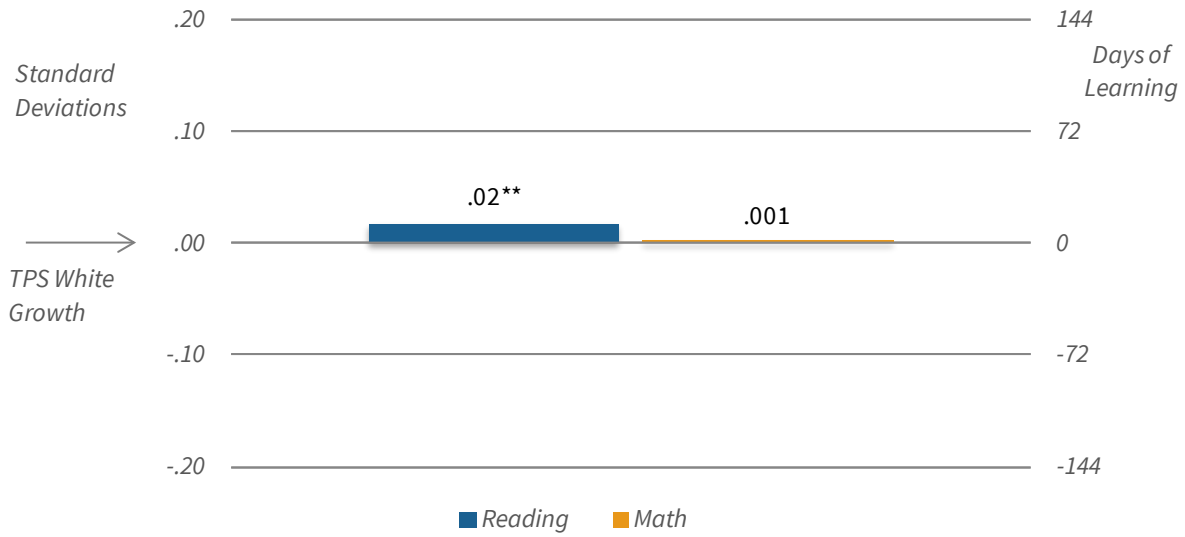
Figure 11: Impact with Asian Students



** Significant at $p \leq 0.01$

In Los Angeles, four percent of charter students are Asian. Compared to their counterparts in TPS, Asian charter school students have about 14 more days of learning in reading. In math, the results for Asian students are not significantly different between charter schools and TPS.

Figure 12: Impact with White Students



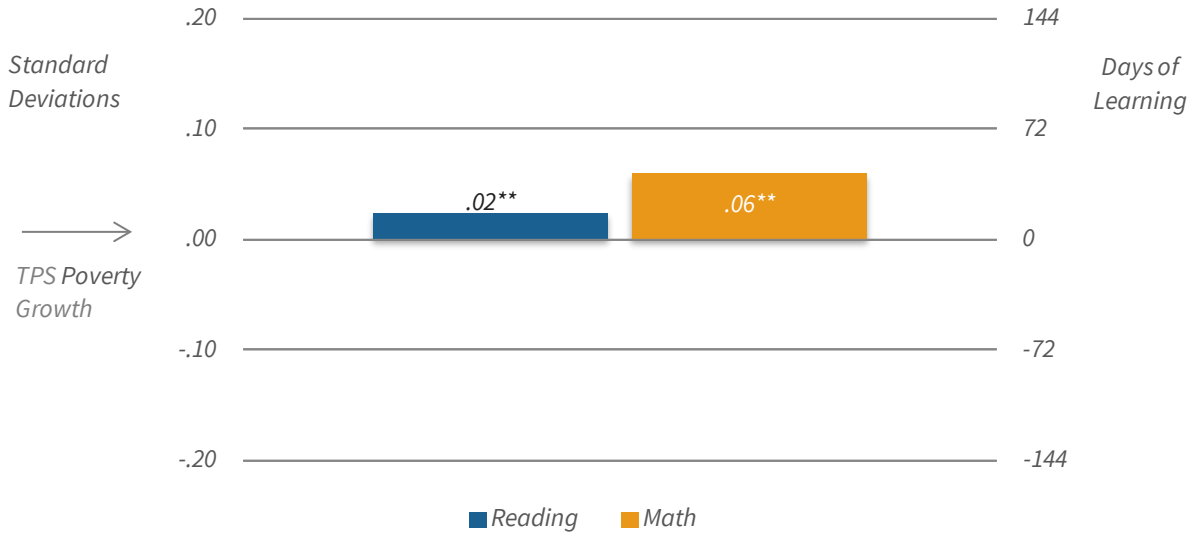
** Significant at $p \leq 0.01$

As shown in Figure 12, White students attending charter schools have more days of learning in reading and the same learning gains in math compared to White students at TPS in Los Angeles. The gain in reading is about 14 additional days of learning at charter schools in the course of a school year.

Charter School Impact with Students in Poverty

Much of the motivation for developing charter schools aims at improving education outcomes for students in poverty. In Los Angeles, 70 percent of charter students are eligible for subsidized school meals, a proxy for low-income households. Thus, the impact of charter schools on the learning of students in poverty is important in terms of student outcomes and as a test of the commitment of charter school leaders and teachers to address the needs of this population. Figure 13 presents the results for Los Angeles charter school students in poverty.

Figure 13: Impact with Students in Poverty



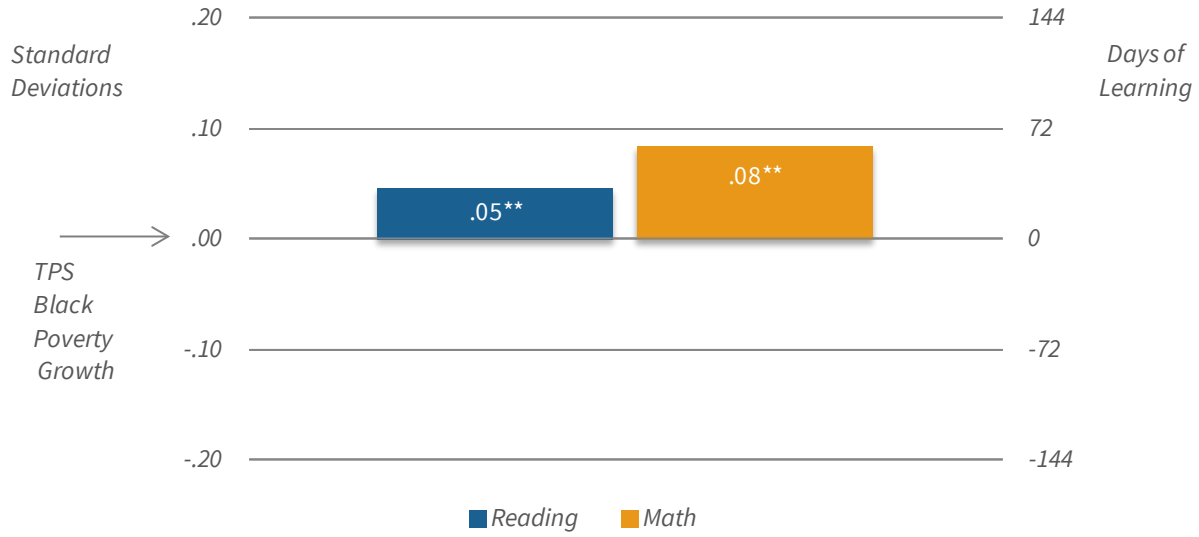
** Significant at $p \leq 0.01$

Students in poverty who are enrolled in Los Angeles charter schools perform significantly better both in reading and in math compared to students in poverty in TPS. Charter students in poverty have growth equivalent to 14 more days of learning in reading and 43 more days of learning in math than their TPS peers.

Charter School Impact with Race/Ethnicity and Poverty

The most academically needy students in public education are those who are both living in poverty and a member of a racial or ethnic minority that has been historically underserved. These students represent the most challenging subgroup, and their case has been the focus of decades of attention. Within the national charter school community, this group receives special attention. The impact of charter schools on the academic gains of Black students living in poverty and Hispanic students living in poverty are presented in Figures 14 and 15 below.

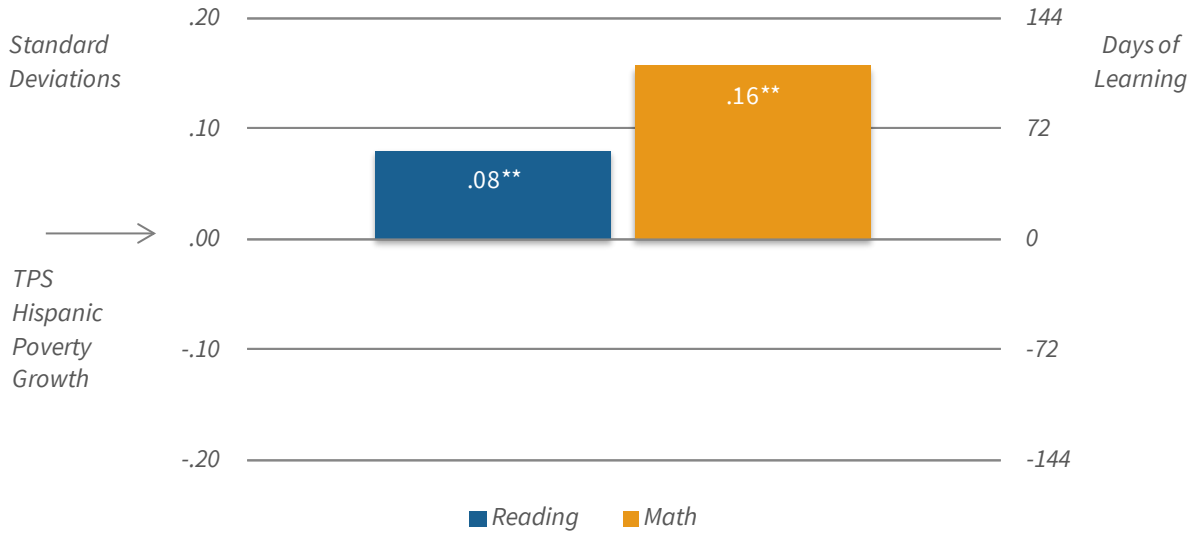
Figure 14: Impact with Black Students in Poverty



** Significant at $p \leq 0.01$

Black students in poverty who are enrolled in charter schools show significantly stronger growth in reading and math compared to Black students in poverty in TPS. Black charter students in poverty have 36 more days of learning in reading and 58 more days of learning in math than their counterparts in TPS.

Figure 15: Impact with Hispanic Students in Poverty



** Significant at $p \leq 0.01$

In both reading and math, Hispanic students in poverty in charter schools have better learning gains than Hispanic students in poverty at TPS. This amounts to 58 additional days of learning in reading and 115 additional days in math for the charter students.

Charter Impacts in Context For many students groups, the impact of attending a charter school in Los Angeles is positive. However, these results need to be considered in the context of the academic learning gaps between most student populations and the average White TPS student in the study. For example, Black students in poverty experience positive benefits from attending charter schools, which lead to stronger growth than their Black TPS peers. However, even with this boost, Black students in poverty at charters still have lower learning gains than White students at TPS.

Table 5 below displays the relative growth of students in various subgroups compared to White TPS students. A negative number means the student group has fewer days of learning than White students attending TPS. This yearly learning gap increases the achievement gap over time. Positive values in the table represent additional days of learning for the student group compared to the average White TPS student. Over time, these learning gains reduce the achievement gap.

Table 5: Relative Growth of Student Groups Compared to White Non-Poverty TPS Students

Student Group	Reading	Reading Days of Learning	Math	Math Days of Learning
TPS Black	-.25**	-182	-.34**	-245
Charter Black	-.23**	-168	-.32**	-230
Charter Black Poverty	-.29**	-209	-.35**	-254
Charter Black Non-Poverty	-.22**	-156	-.28**	-199
TPS Hispanic	-.15**	-107	-.21**	-153
Charter Hispanic	-.09**	-66	-.12**	-83
Charter Hispanic Poverty	-.14**	-99	-.13**	-92
Charter Hispanic Non-Poverty	-.11**	-81	-.15**	-104
TPS Asian	.03**	22	.09**	65
Charter Asian	.05**	36	.11**	79
TPS White Non-Poverty	.00	0	.00	0
Charter White(1)	.02**	14	.001	0

*** Significant at p<.01*

** Significant at p<.05*

(1) *The aggregate results for Charter White students include students who are in poverty and those who are not. When disaggregated, White charter students in poverty post reading gains of -.05** in reading and -.04* in math; both are statistically significantly different that the results for TPS White Non-Poverty students. Their TPS White poverty peers show -.08** in reading and -.10** in math, which are also markedly different from the baseline of White TPS Non-Poverty students. Charter students who are White and not in poverty – the charter group directly comparable to the baseline group in this table – show gains relative to TPS White Non-Poverty students of .02** in reading and no different performance in math.*

Regardless of whether they attend a charter or TPS, Black students have significantly lower learning gains than White TPS students in both reading and math. This is also true for Hispanic students, although the learning gap is not as large as for Black students. Asian students at both TPS and charter schools have better learning gains than White students in TPS.

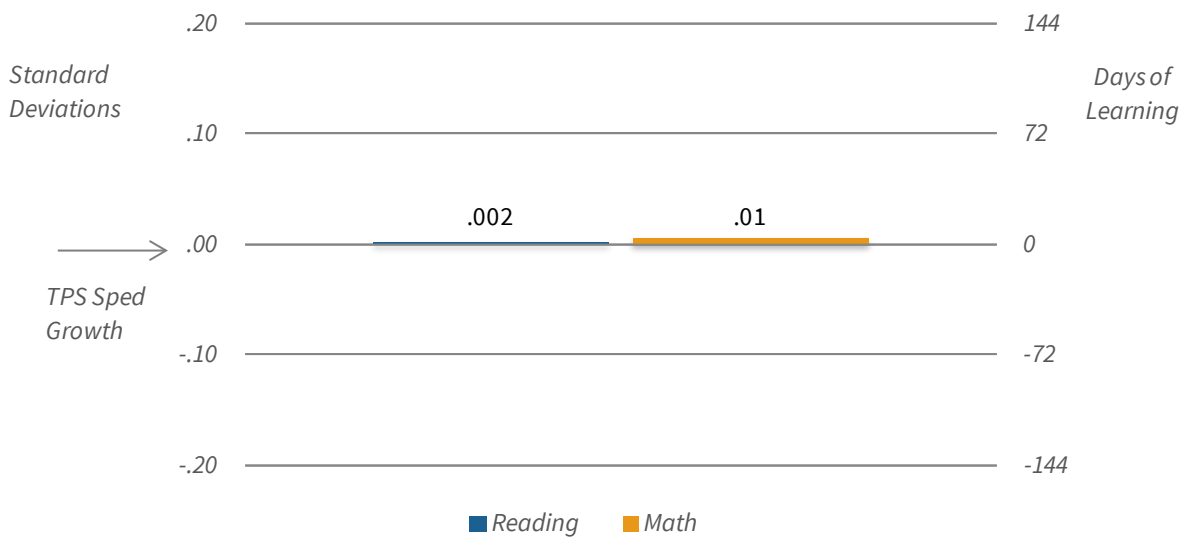
Charter School Impact with Special Education Students

The demographic comparisons in the CREDO *National Charter School Study 2013* 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, based on a balance of meeting the needs of the students and a consideration of cost-effective strategies for doing so. In Los Angeles, the overall proportion of charter school students who are Special Education is seven percent, compared to eleven percent in TPS citywide and in the charter schools' feeder schools. Research by the Center for Reinventing Public Education in New York City suggests that TPS and charters may differ in their criteria for designating students as needing to be assessed for special education services.[19]

It is especially difficult to compare the outcomes of Special Education students, regardless of where they enroll. The most serious challenge arises from the small numbers of Special Education students enrolled in Los Angeles schools. It is necessary to group Special Education students together if any analysis is to be done. Consequently, there is tremendous variation when all categories are aggregated, a necessary and messy requirement for comparison purposes. Of all the facets of the current study, this one deserves the greatest degree of skepticism. With this cautionary note, the results are presented in Figure 16 below.

[19] Winters, Marcus A. *Why the Gap? Special Education and New York City Charter Schools* (2013). Seattle, WA: Center on Reinventing Public Education. http://www.crpe.org/publications/why-gap-special-education-and-new-york-city-charter-schools

Figure 16: Impact with Special Education Students



*** Significant at p ≤ 0.01*

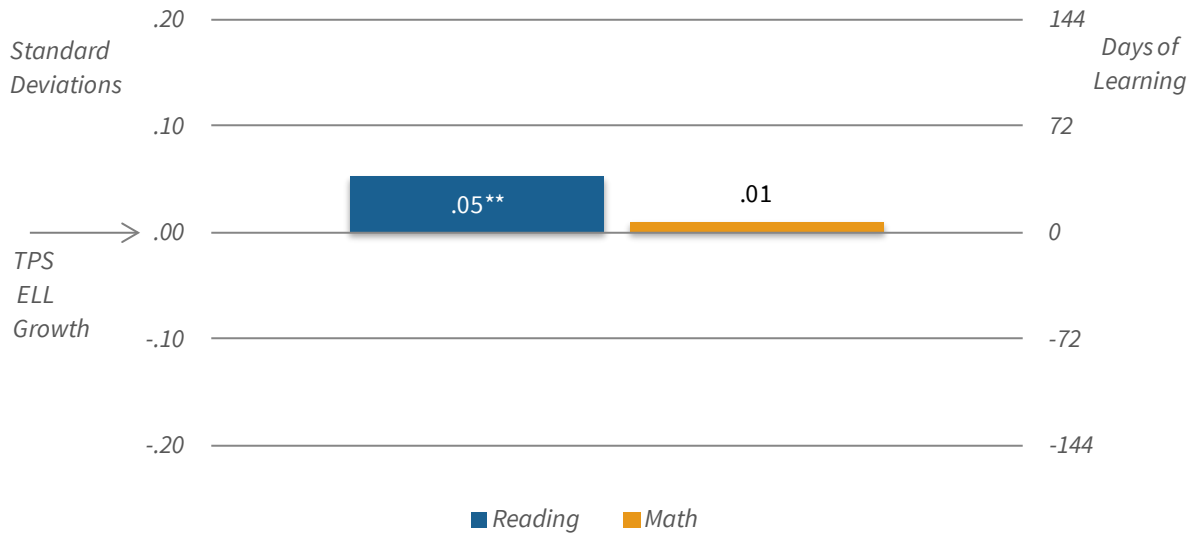
In charter schools in Los Angeles, Special Education students have similar learning gains as their counterparts in TPS in both reading and math.

Charter School Impact with English Language Learners

Students who enroll in school without sufficient English proficiency 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 and in California. This is especially true in Los Angeles, where over 20 percent of charter students are English Language Learners.

The comparison of learning gains of charter school English Language Learners and their TPS counterparts appears in Figure 17. The baseline of comparison is the typical learning gains of English language learners in traditional public schools.

Figure 17: Impact with English Language Learners



** Significant at $p \leq 0.01$

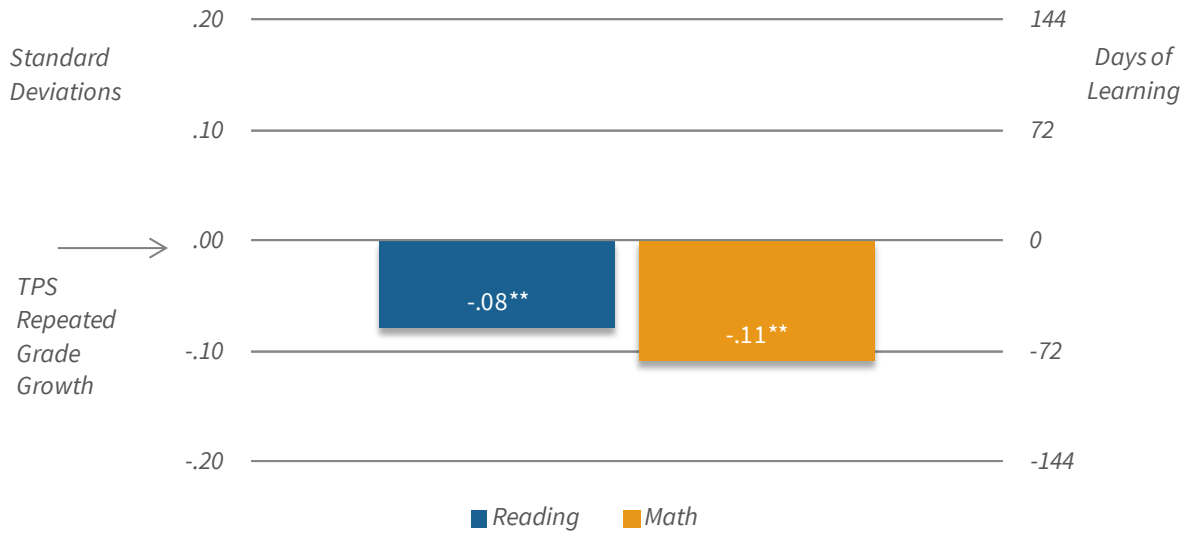
English Language Learners in charter schools have significantly better results in reading than ELL students in TPS. The benefit for ELL charter students amounts to 36 days of learning in reading. Students who are English Language Learners have similar learning gains in math at charter and traditional public schools.

Charter School Impact with Grade-Repeating Students

This study examined the outcomes of students who were retained in grade. Often a highly charged topic, the underlying premise is that additional time in grade can help students by remediating deficits and shoring up grade-level competencies. Existing research on the outcomes of students who have been retained is limited.

Retention practices differ widely across the country and between the charter and TPS sectors. The fact that retained charter students have the lowest match rate (62 percent) of any subgroup in our study suggests that charter schools may be more likely to retain academically low-performing students.

Figure 18: Impact with Grade-Repeating Students



** Significant at $p \leq 0.01$

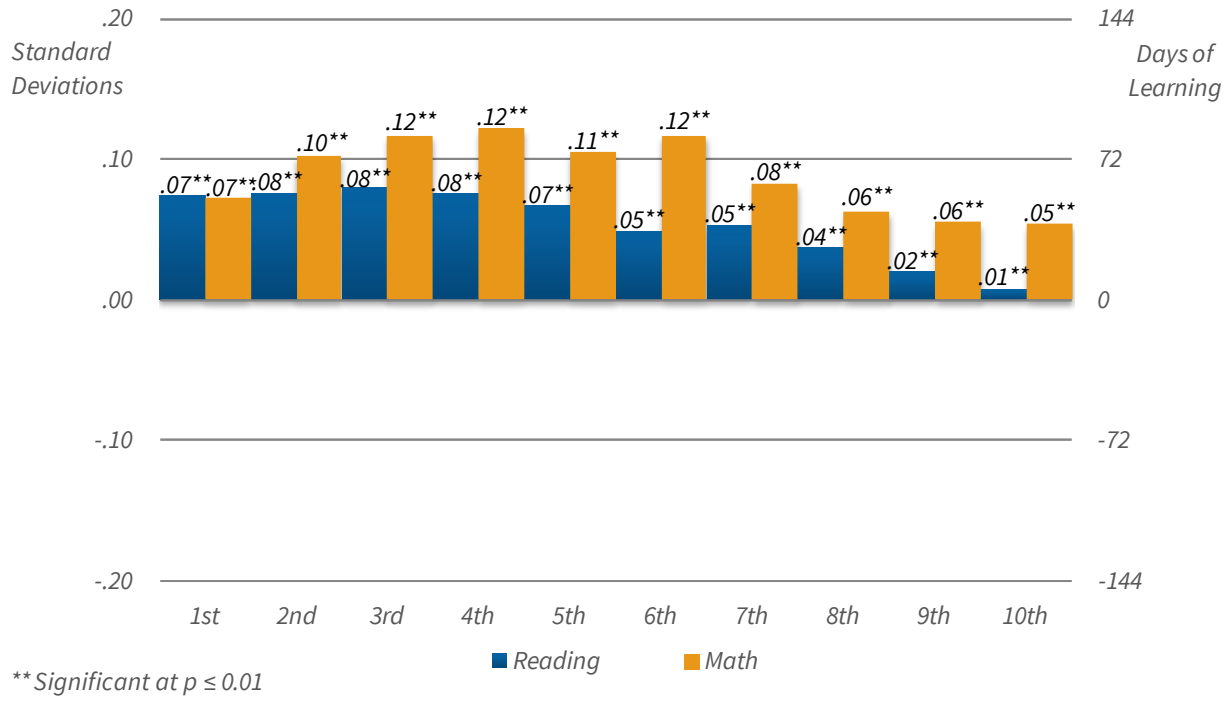
Retained students at charter schools learned significantly less in reading and math than their peers in TPS. Charter students repeating a grade have 58 fewer days of learning in reading than TPS students repeating a grade. In math, retained charter students have 79 fewer days of learning than similar TPS students.

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. Further, many charter schools, including several in Los Angeles, 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. To determine whether this emphasis translates into better learning gains, we examined the learning gains for charter students across the spectrum of starting points and in relation to the results observed for equivalent students in TPS.

To do this, for charter school students and their VCRs, baseline achievement test scores in reading and math were disaggregated into percentiles and grouped into deciles. For example, Decile 5 corresponds to students in the 40th to 50th percentiles in the state. Student achievement growth in each decile for charter school students and their VCRs was then compared. The results appear in Figure 19 below.

Figure 19: Impact by Students' Starting Decile



** Significant at $p \leq 0.01$

For students in Los Angeles, Figure 19 show that charter schools do better 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 fourth deciles in reading, which corresponds to starting scores below the 40th percentile of statewide achievement. In math, the largest gains for charter students are found in the second through sixth deciles, corresponding to starting scores from the 20th to the 60th percentile.

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 also 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 (2011 and 2012) is compared to the experience the students would have realized in their local traditional public schools.[20] The performance of the VCR students associated with each charter school comprises this measure of the local educational market. 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 generally smaller than their corresponding feeder schools. In addition, some charter schools elect to open with a single grade and mature one grade at a time.

A Note about Tables 7 and 8

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 2011 and 2012 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.

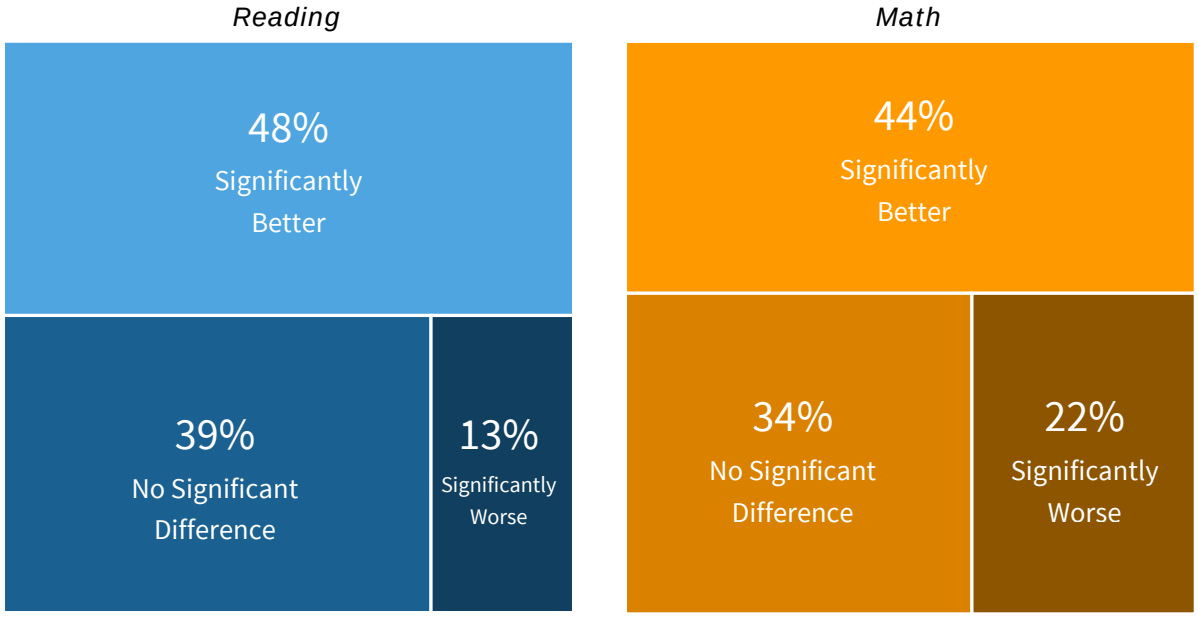
Similarly, the topmost box on the right contains the percentage of charters with very high average growth and very high average achievement, while the bottom right corner contains high-growth, low-achieving schools.

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.

[20] We chose to include only the two most recent growth periods because we wanted a highly relevant contemporary distribution of charter school performance.

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 stable test of the school impact. Our criteria for inclusion was 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. Of our total sample of 230 schools with reading test scores in 2011 and 2012, eight schools had an insufficient number of individual student records to calculate a representative school-wide average growth score. Of 230 schools with math test scores in 2011 and 2012, 14 had an insufficient number. Table 6 below shows the breakout of performance for the California charter schools that meet our criteria for inclusion by having a sufficient number of charter student records.

Table 6: Performance of Los Angeles Charter Schools Compared to Their Local Markets



In reading, 48 percent of charter schools perform significantly better than their traditional public school market, while 44 percent perform significantly better in math. Both of these results are better than the national average proportion of better-performing charters (25% in reading and 29% in math).[21] The lowest charter school effect size in reading was -0.49 standard deviations of growth, while the highest effect size was 0.52. This spread in reading amounts to a full year of progress difference between the worst and the best schools. The gap between the lowest and highest effect sizes was larger in math; they were -0.61 and 1.01, respectivel, amounting to more than a year and a half difference in performance. A larger proportion of charter schools were not significantly different from their

[21] Cremata, Edward et al. *National Charter School Study 2013* (2013). http://credo.stanford.edu.

market in reading than in math. At the charter schools with significantly better results than their local market in reading, students had, on average, 108 more days of learning than their TPS peers. In math, students experienced 202 additional days of learning at the charter schools with significantly better results than their local TPS market.

Impact of Growth on Achievement While the impact of charter schools on academic growth relative to their local competitors is instructive, it is necessary to take a wide-angle view to determine how well these students are being prepared. Because many of the students served by charter schools start at low levels of achievement, it is vital to understand how well their academic growth advances them in absolute achievement. To do this, each school's average growth is placed in the context of their average achievement level compared to the rest of the state, as in Tables 7 and 8 below. For growth, we use the effect sizes discussed above. The school's average achievement level is the mean achievement of the students over the same two periods covered by the effect size (2011 and 2012).[22] The 50th percentile indicates statewide average performance for all California public school students (traditional and charter). A school achievement level above the 50th percentile indicates that the school performs above the state average.

Table 7: Reading Growth and Achievement

	Low Growth, High Achievement		High Growth, High Achievement		
Growth (in Standard Deviations)	*-0.15*	0	*0.15*		
	0.0%	2.3%	6.3%	0.9%	*70th Percentile*
	0.5%	4.5%	12.6%	10.4%	*50th Percentile*
	1.8%	12.6%	20.7%	9.9%	*30th Percentile*
	3.2%	7.7%	6.8%	0.0%	
	Low Growth, Low Achievement		High Growth, Low Achievement		

[22] Average achievement was computed using students' z-scores from the end of the growth period (e.g., spring 2010 and spring 2011), and the resulting school-level mean was then converted into a percentile.

In Los Angeles, 150 of the 222 charter schools (about 68 percent) had positive average growth in reading, regardless of their average achievement (this percentage is the sum of the squares in the blue and purple quadrants, i.e., the right half of the table). About 30 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.)

Nearly 63 percent of charters perform below the 50th percentile of achievement (the sum of the gray and purple in the lower portion of the table). About 37 percent of Los Angeles charter schools have positive growth and achievement below the 50th percentile in the state, as seen in the lower right, pink quadrant. If those schools continue their trends of positive academic growth, their achievement would be expected to rise over time.

Of concern, however, are the 25 percent of charters in the lower left gray quadrant, which represents low growth and low achievement.

Table 8: 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%	3.7%	6.0%	*70th Percentile*
	0.9%	5.1%	8.8%	18.1%	*50th Percentile*
	5.1%	7.9%	9.7%	7.9%	*30th Percentile*
	6.9%	10.6%	5.1%	2.8%	
	Low Growth, Low Achievement		High Growth, Low Achievement		

For math, 134 of the 216 charter schools (62 percent) had positive average growth, as seen in the orange and pink quadrants. Over 36 percent of charters had positive growth and average achievement above the 50th percentile (the top right, orange quadrant). About 56 percent of charters have achievement results below the 50th percentile of the state (the sum of lower half of the table). Of great concern are the

30 percent of schools that are in the lower left brown quadrant, which represents low growth and low achievement.

Synthesis and Conclusions

Based on the findings presented here, the typical student in a Los Angeles charter school gains more learning in a year than her TPS counterpart, equal to about 50 additional days in reading and 79 additional days in math. These positive patterns emerge in a student's first year of charter attendance and persist over time. Black and Hispanic students in poverty especially benefit from attendance at charter schools.

A substantial share of Los Angeles charter schools appear to outpace TPS in how well they support academic learning gains in their students in both reading and math. Over 48 percent of Los Angeles charters outpace the learning impacts of TPS in reading, and 44 percent do so in math. Across Los Angeles, about 13 percent of charter schools have results that are significantly worse than TPS for reading, and 22 percent of charter schools in math are underperforming. These results show that a relaxed regulatory environment does not guarantee that every charter school will outperform its traditional public school competitors. It merely establishes conditions that can be fruitful. However, a refined policy environment combined with careful authorizing and strong accountability, such as is seen in Los Angeles, can produce a large proportion of charter schools with superior results.

The student-to-student and school-to-school results show that Los Angeles charter schools are performing well relative to the local alternatives. The larger question of whether charter schools are helping students achieve at high levels is also important. One-quarter of Los Angeles charter schools have below-average growth and achievement in reading, and the same is true for 30 percent of the charter schools in math. Students in these schools will not only have inadequate progress in their overall achievement but will fall further and further behind their peers over time.

The share of underperforming charter schools is balanced, however, by the proportion of charter schools that are achieving at high levels and have positive growth. For reading, the proportion is about 30 percent, and for math it exceeds 36 percent. Should the positive growth trends seen in this report persist, the share of schools that currently lag the state average for absolute achievement would be expected to decline. These absolute improvements are within sight for Los Angeles charter schools.

Table 9 presents a summary of the results.

Table 9: Summary of Statistically Significant Findings for Los Angeles Charter School Students

	Reading	Math
Los Angeles Charter Students	Positive	Positive
Charters in 2010	Positive	Positive
Charters in 2011	Positive	Positive
Charters in 2012	Positive	Positive
Charter Schools affiliated with CMOs	Positive	Positive
Charter Schools not affiliated with CMOs	Positive	Positive
Urban Charter Students	Positive	Positive
Suburban Charter Students	Positive	Positive
Elementary Charter Schools	Positive	Positive
Middle Charter Schools	Positive	Positive
Charter High Schools	Positive	Positive
Multi-Level Charter Schools	Positive	Positive
First Year Enrolled in Charter School	Positive	Positive
Second Year Enrolled in Charter School	Positive	Positive
Third Year Enrolled in Charter School	Positive	Positive
Black Charter School Students	Positive	Positive
Hispanic Charter School Students	Positive	Positive
Asian Charter School Students	Positive	
White Charter School Students	Positive	
Charter School Students in Poverty	Positive	Positive
Black Charter School Students in Poverty	Positive	Positive
Hispanic Charter School Students in Poverty	Positive	Positive
English Language Learner Charter School Students	Positive	
Retained	Negative	Negative

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.

Student Group	Matched Charter Students	
	Reading	Math
Los Angeles Charter Students	152,190	138,997
Students in Charters in 2008	40,444	36,945
Students in Charters in 2009	51,469	47,344
Students in Charters in 2010	60,277	54,708
Students in Charters operated by CMOs	67,546	61,743
Students in Urban Schools	137,698	125,329
Students in Suburban Schools	14,142	13,314
Students in Rural Schools	350	354
Students in Elementary Schools	40,150	40,628
Students in Middle Schools	33,889	33,892
Students in High Schools	58,486	46,909
Students in Multi-level Schools	19,665	17,568
Students First Year Enrolled in Charter School	54,543	50,330
Students Second Year Enrolled in Charter School	23,121	18,988
Students Third Year Enrolled in Charter School	6,461	4,803
Black Students	23,639	21,309
Hispanic Students	98,911	91,594
White Students	21,566	19,553
Asian Students	6,797	5,678
Students in Poverty	107,900	100,090
Black Students in Poverty	17,123	15,753
Hispanic Students in Poverty	85,145	79,948
Special Education Students	5,554	4,757
English Language Learners	25,395	23,493
Grade Repeating Students	2,358	1,552

Student Group	Matched Charter Students	
	Reading	Math
Students in Decile 1	20,233	11,464
Students in Decile 2	15,255	16,900
Students in Decile 3	12,272	13,633
Students in Decile 4	12,601	11,020
Students in Decile 5	12,549	11,126
Students in Decile 6	13,770	11,370
Students in Decile 7	15,404	13,138
Students in Decile 8	18,122	15,978
Students in Decile 9	22,699	21,952
Students in Decile 10	9,285	12,416