



CHARTER SCHOOL PERFORMANCE IN ARIZONA

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INTRODUCTION

This report supplements the CREDO National Charter School Study *Multiple Choice: Charter School Performance in 16 States* with an in-depth examination of the results for charter schools in Arizona. This state-specific analysis follows the approach used for the pooled national study. Since the methods used to estimate the effects of charter schooling on student academic performance are detailed in the larger report, they will not be repeated here. For the interested reader, the full report is available at credo.stanford.edu.

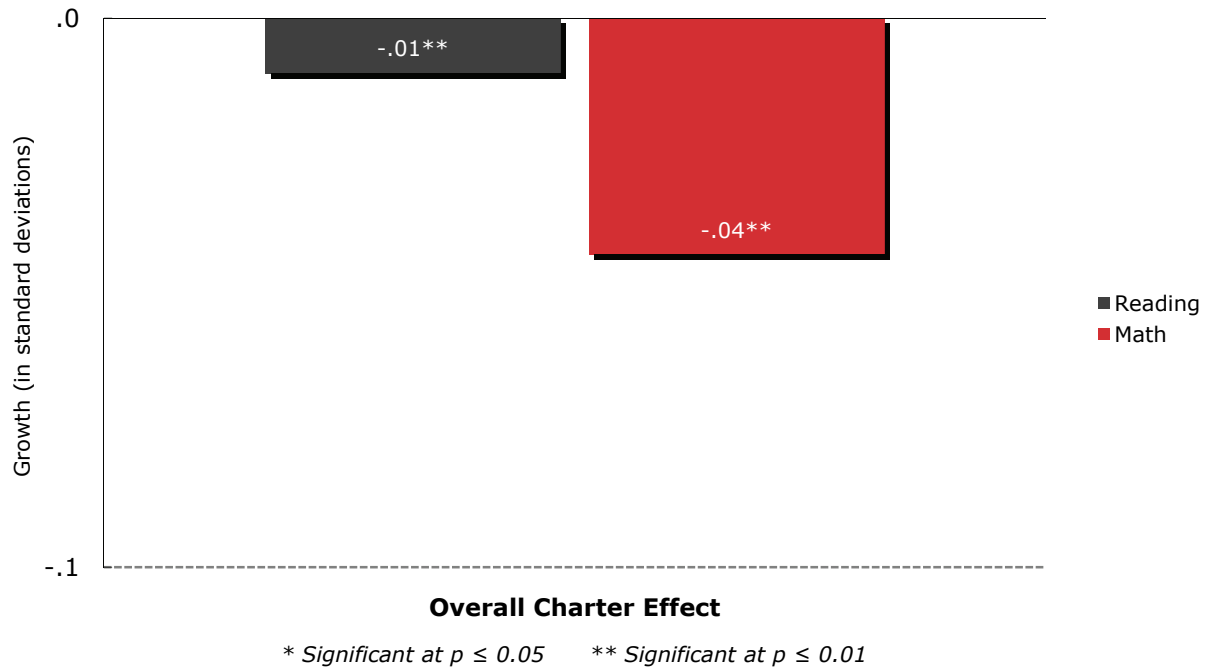
This document reports on the analysis of 4 years of schooling, beginning with the 2004-2005 school year and concluding with the 2007-2008 data. A total of 65,155 charter school students from 453 charter schools are followed for as many years as data are available. The students are drawn from Grades 3 - 8, since these are the grades that are covered by the state achievement testing program. An identical number of virtual comparison students are included in the analysis. The composite virtual student is based on students in competitor traditional public schools, known as the charter school's feeder pool. In Arizona, it was possible to create virtual matches for 82 percent of the charter schools students in reading and 81 percent in math. This proportion assures that the results reported here can be considered as indicative of the overall performance of charter schools in the state. 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 traditional school students at the $p < .05$ level.

Academic growth on state achievement tests is used as the outcome of interest. The analysis examines whether students in charter schools in Arizona outperform their traditional public school counterparts under a variety of scenarios. In all the scenarios, a number of control factors are applied to the estimation so that the contribution of the schools themselves can be isolated from other potentially confounding influences. Each of the scenarios is presented in the following sections of the report.

In Figures 1 and 2, the numbers inside the bars are the result of a test on whether there is a statistically significant difference between traditional public school and charter school performance. For Figures 3 through 8, the numbers inside the bars signify that the reported effect is significantly different from our baseline student. Where a statistically significant difference between traditional public school and charter school performance is present in Figures 3 through 8, the charter bars have a gradient shade.

First, we examine whether charter schools differ overall from traditional public schools in how much their students learn, all other factors held constant. The results appear in Figure 1. The typical student in an Arizona charter school learns less than their virtual counterparts in their feeder pool in reading and mathematics.

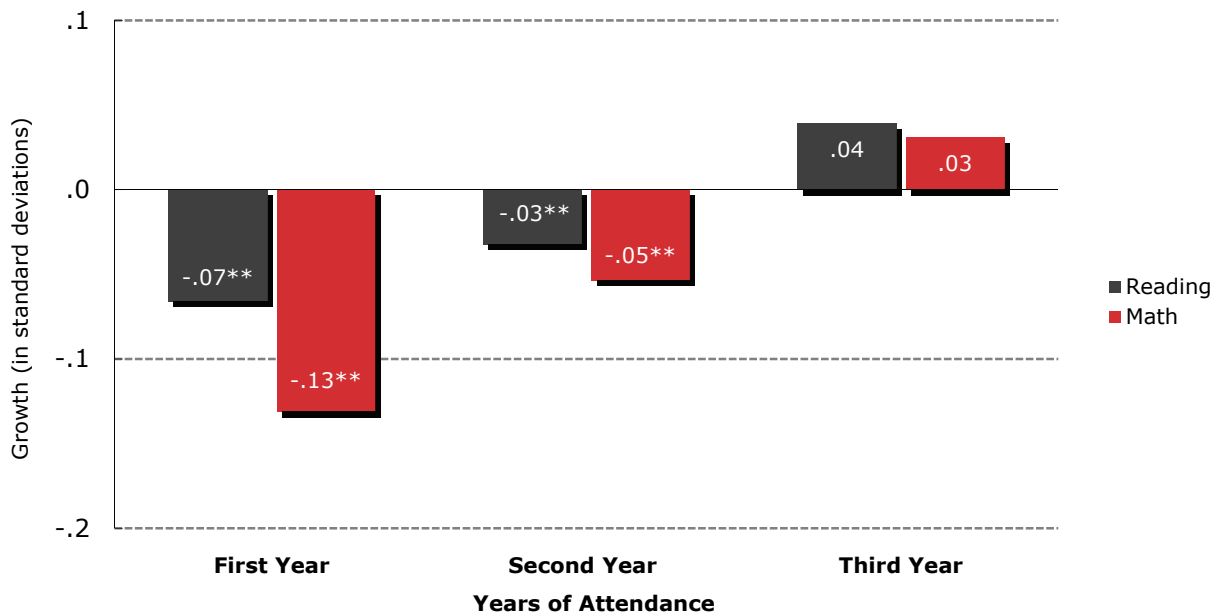
Figure 1: State Effects



CHARTER SCHOOL IMPACT BY STUDENTS' YEARS OF ENROLLMENT

To delve deeper into the charter school effects in Arizona, students were grouped by the number of consecutive years they were enrolled. In this scenario, we limit the analysis to the charter students who enrolled for the first time in the charter school between 2005-2006 and 2007-2008; although the number of students included will be smaller, it is the only way to make sure that the available test results align with the years of enrollment. This question examines whether the academic success of students who enroll in a charter school fluctuates as they continue their enrollment. The results appear in Figure 2 below.

Figure 2: Impact by Students' Years of Enrollment



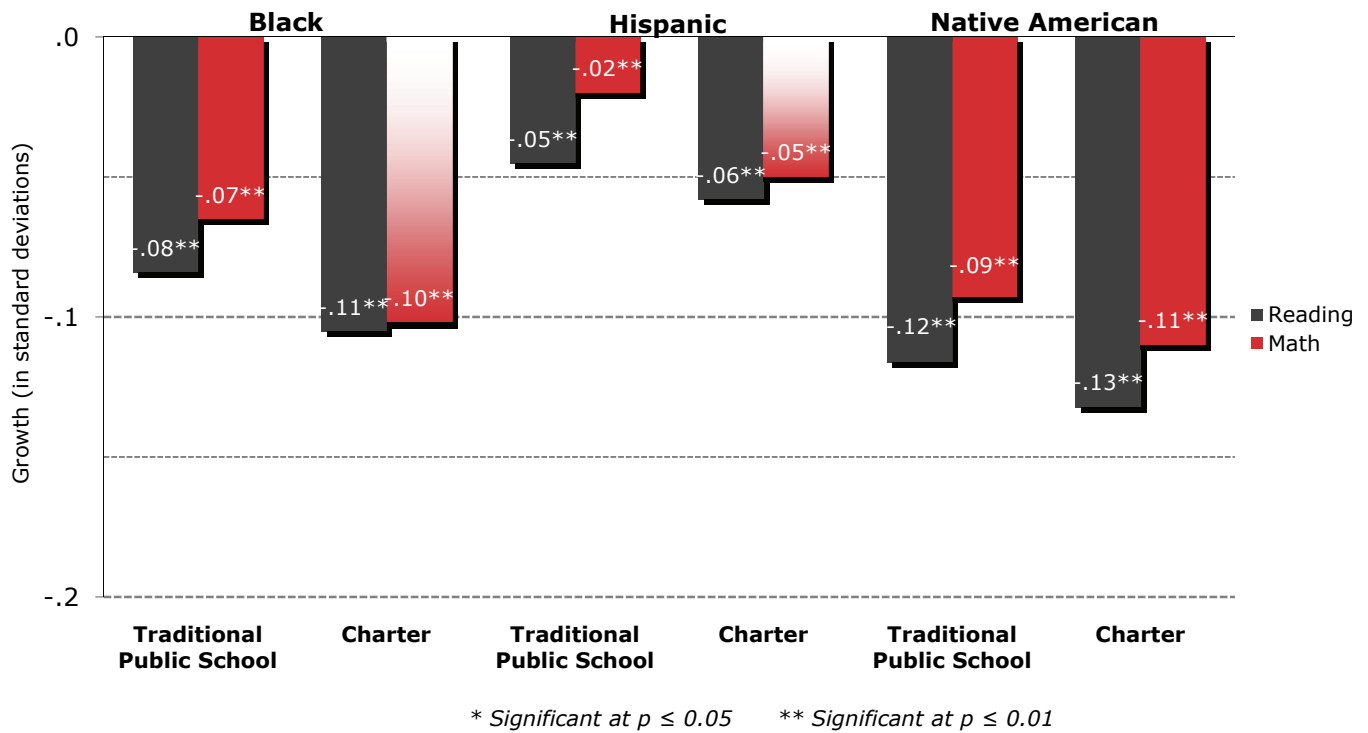
* Significant at $p \leq 0.05$ ** Significant at $p \leq 0.01$

The results suggest that new charter school students have an initial loss of learning compared to their counterparts in traditional public schools in reading and math. In subsequent years, the impact is variable over this period, with charter school students experiencing further losses in learning in reading and math compared to their counterparts in traditional public schools. By the third year of attendance, the impact of charter school attendance is insignificant for both math and reading.

CHARTER SCHOOL IMPACT BY RACE/ETHNICITY

Attention in US public education to achievement differences by racial and ethnic backgrounds has increased in recent years. The effectiveness of charter schools across ethnic and racial dimensions is especially important since so many charter schools are focused on serving historically underserved minority students. This impact of charter schools on academic gains of Black, Hispanic and Native American students is presented in Figure 3 below. The graphics show the differences between charter school students and their virtual peers. The baseline of comparison in every comparison is the performance of the average white student who does not qualify for Free or Reduced Price Lunch subsidies, Special Education services or English Language Learner support.

Figure 3: Impact by Race/Ethnicity



The results show that in Arizona Blacks enrolled in charter schools do about the same in reading compared to their counterparts in traditional public schools. Black students do significantly worse as a result of charter school attendance compared to their counterparts in traditional public schools in math.

Hispanics enrolled in charter schools do about the same in reading compared to their counterparts in traditional public schools. However, Hispanic students do significantly worse in math from charter school attendance compared to their counterparts in traditional public schools.

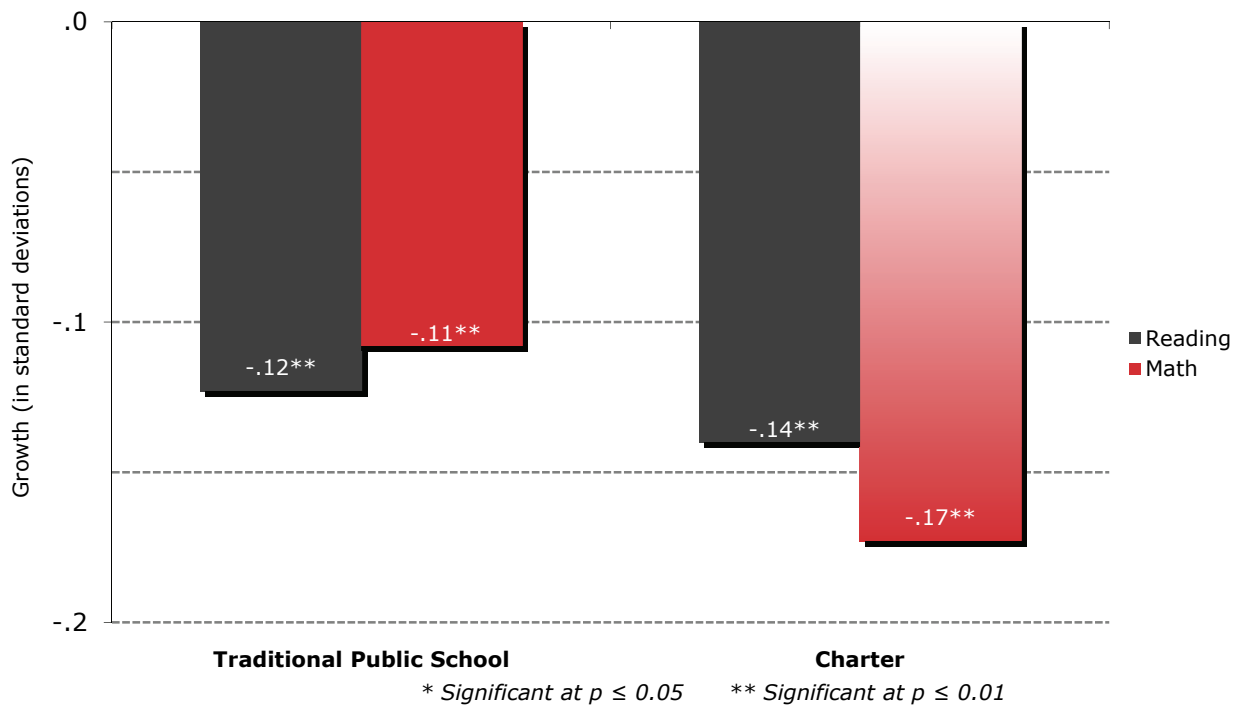
Native Americans enrolled in charter schools do about the same in both reading and math compared to their counterparts in traditional public schools.

IMPACT OF CHARTER SCHOOLING ON STUDENTS IN POVERTY

Much of the motivation for developing charter schools aims at improving education outcomes for students who are in poverty. The enrollment profiles of charter schools across the country underscore this fact; in the pooled sample 49 percent of the students are eligible for Free or Reduced Price Lunch, a proxy for low income households.¹ Thus, the impact of charter schools on the learning of students in poverty is important both in terms of student outcomes and as a test of the commitment of charter school leaders and teachers to address the needs of the population in better ways than in other settings. Figure 4 presents the results for Arizona.

¹ Claims by other researchers that charter schools under-report their proportions of FRPL eligible students appear to be unfounded in our study.

Figure 4: Impact on Students in Poverty



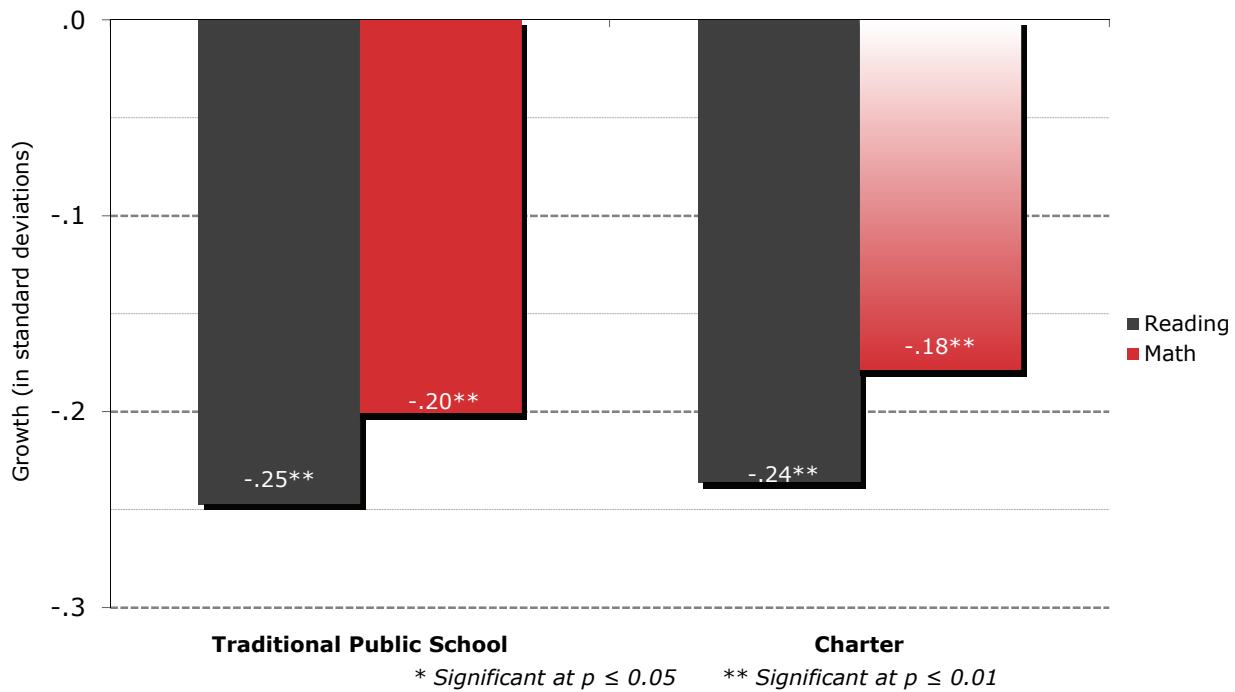
As shown in the figure above, students in poverty enrolled in charter schools do about the same in reading and significantly worse in math compared to their counterparts in traditional public schools.

CHARTER SCHOOL IMPACTS WITH SPECIAL EDUCATION

The demographic comparisons in the full report indicate that across the charter sector, schools serve fewer Special Education students and in smaller proportions of their enrollment base than the traditional public schools. In some cases, this result is a deliberate and coordinated response with local districts, based on a balance of meeting the needs of the students and consideration of cost-effective strategies for doing so. In Arizona, however, the overall proportion of charter school students who are Special Education is 6 percent, compared to 4 percent in traditional public schools.

It is especially difficult to compare outcomes of Special Education students, regardless of where they enroll. The most serious problem is caused by small numbers and diverse typologies in use across states; the result is that there is tremendous variation when all categories are aggregated, a necessary and messy requirement. Of all the facets of the study, this one deserves the greatest degree of skepticism. With this cautionary note, the results are presented in Figure 5 below.

Figure 5: Impact with Special Education Students



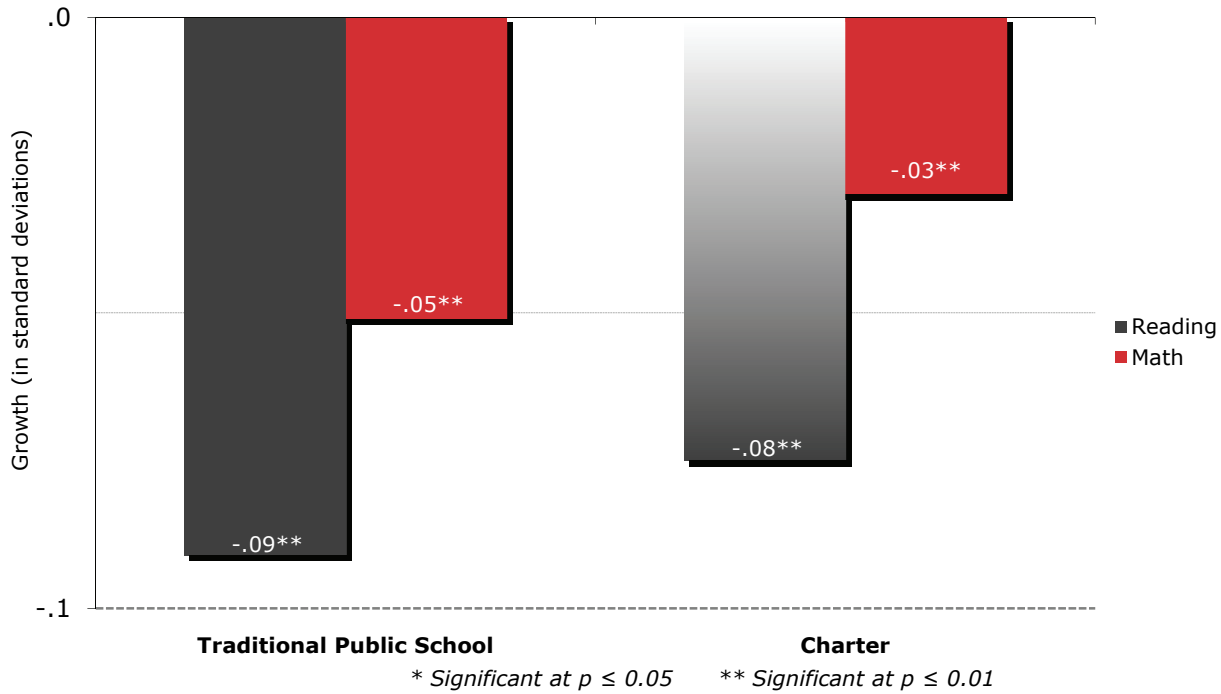
Special Education students in charter schools in Arizona receive no significant benefit from charter school attendance compared to their counterparts in traditional public schools in reading. However, Special Education students in charter schools do significantly better in math compared to their counterparts in traditional public schools.

EFFECTS OF CHARTER SCHOOLING ON 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 has lagged well behind that of their English proficient peers, their learning gains are a matter of increasing focus and concern.

The comparison of learning gains of charter school English Language Learners and their traditional school counterparts in Arizona appears in Figure 6.

Figure 6: Effect on English Language Learners



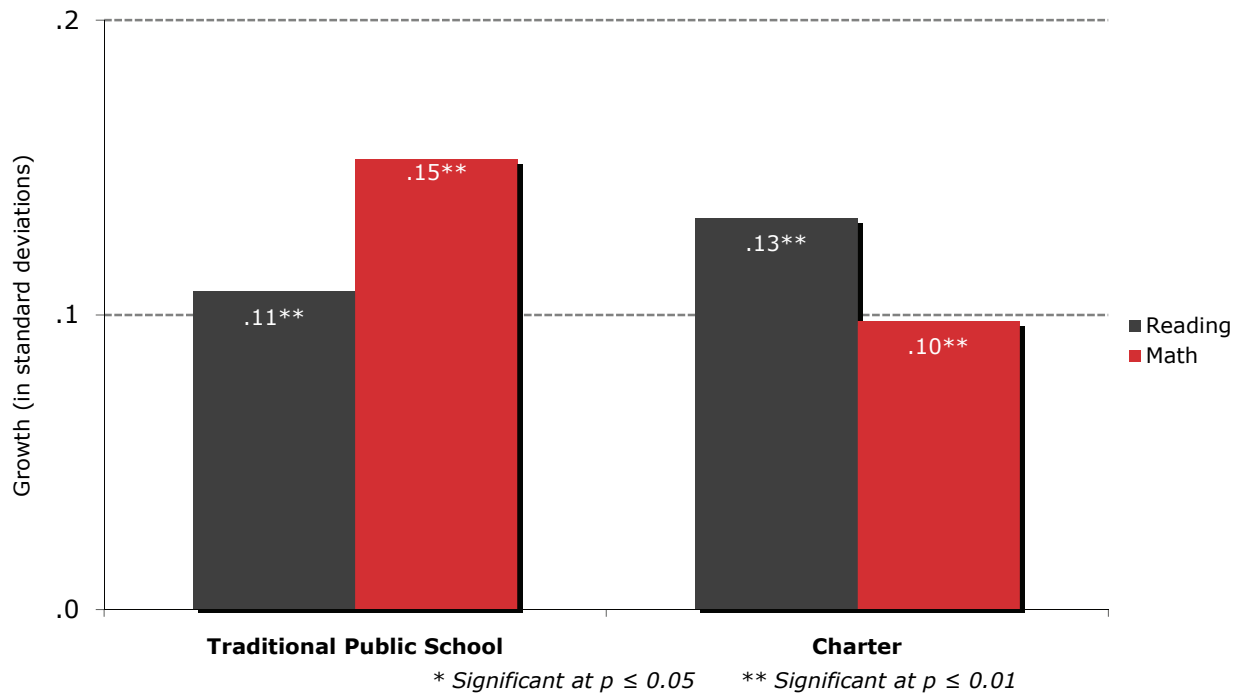
English Language Learner students in charter schools in Arizona do significantly better compared to their counterparts in traditional public schools in reading and about the same in math.

CHARTER SCHOOL IMPACTS WITH GRADE-REPEATING STUDENTS

This study examined the outcomes of students who were retained. 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; the breadth of states included in this study provides an opportunity to examine the results generally and the difference between charter school students and those in traditional public schools in particular.

Retention practices differ widely across the country and between the charter and traditional public school sectors. The fact that retained charter students have among the lowest match rates of any subgroup in our study suggests that charter schools are more likely to retain academically low-performing students. Regardless, in both the national and pooled data and in the observations of Arizona students, sufficient numbers of matches were found to enable the learning gains following retention to be estimated. The results appear in Figure 7.

Figure 7: Impact with Grade-Repeating Students



Retained students in charter schools in Arizona receive no significant benefit from charter school attendance compared to their counterparts in traditional public schools in math or reading.

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 Arizona, have as part of their mission a specific emphasis on students who have not thrived academically in traditional public schools 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 traditional public schools.

To do this, students were grouped into deciles based on their baseline test scores in reading and math on Arizona's achievement tests. The average growth of student achievement in each decile was then computed and compared. The results appear in Figures 8.a and 8.b below.

Figure 8.a: Impact by Students' Starting Decile - Reading

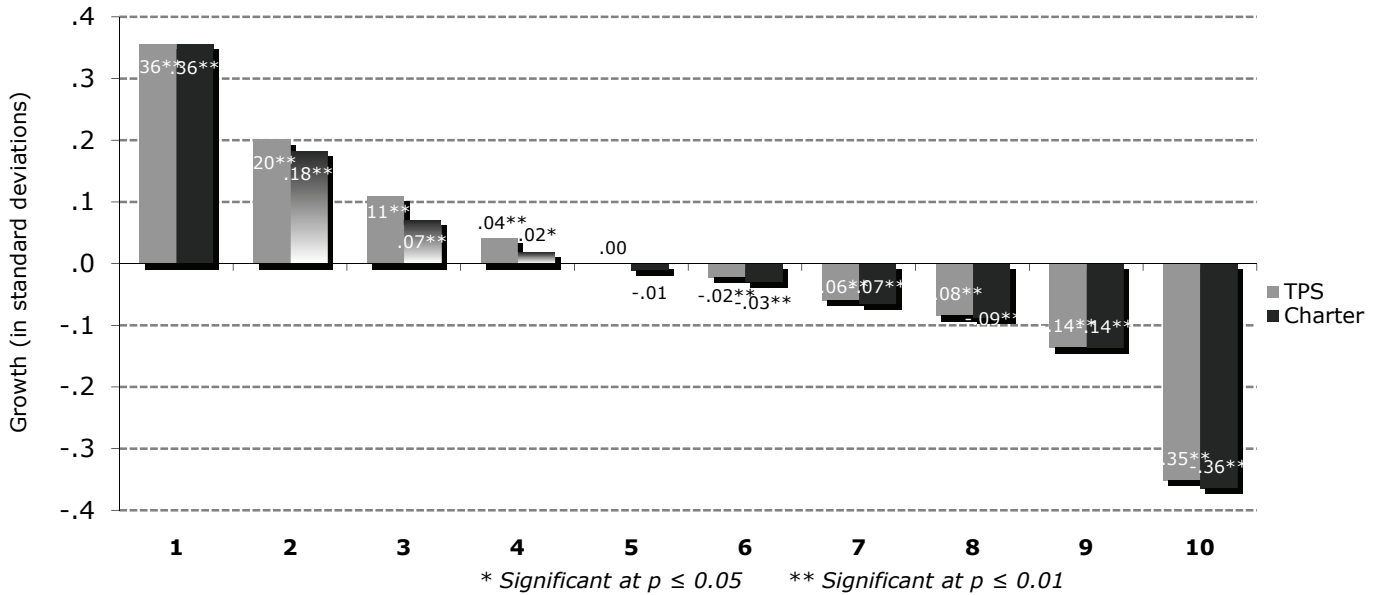
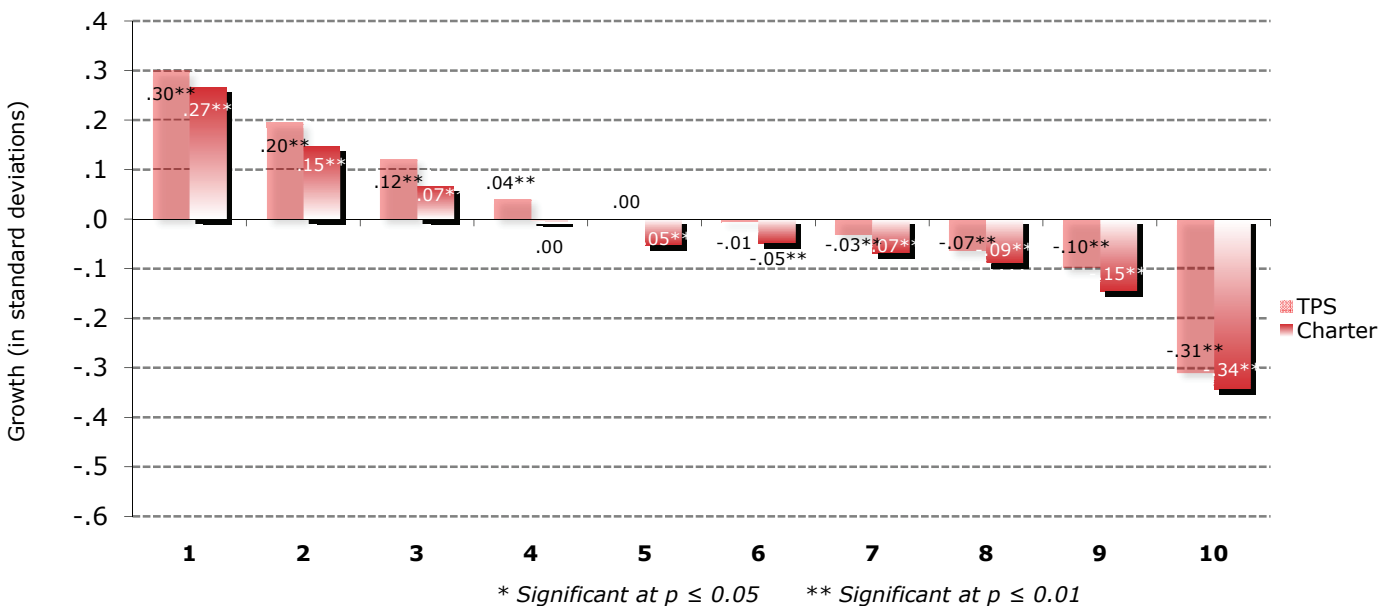


Figure 9.b: Impact by Students' Starting Decile - Math



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 larger learning losses for students with higher starting scores, a phenomenon known as “regression to the mean”. Here, the relative magnitudes are what is important: Do charter schools produce relatively better growth results than traditional public schools? 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 Arizona, Figures 8.a and 8.b show that charter schools do worse than traditional public schools in most respects. The effect of charter school attendance on growth results in math is mostly negative across the deciles. However, charter schools are not creating significantly different results for students compared to their virtual peers from traditional public schools in reading, apart from a few of the lower deciles in which the impact of charter school attendance is negative and significant.

SUMMARY OF FINDINGS

With the students they have enrolled, Arizona charter schools provide **significantly better** results for the following groups of students:

Reading

English Language Learners

Math

Special Education Students

At the same time, the analysis showed they performed **significantly worse** with the following groups of students:

Reading

All Students

Students enrolled for 1 year

Students enrolled for 2 years

Students in the lowest starting deciles

Math

All Students

Students enrolled for 1 year

Students enrolled for 2 years

Blacks

Hispanics

Students in poverty

Students in the lowest starting deciles

Students in the highest starting deciles

For the remaining groups in the analysis, there was no discernable difference between charter school and traditional public school performance.