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# Urban Charter School Study
# Report on 41 Regions
# **2015**

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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.

## Acknowledgements

CREDO gratefully acknowledges the support of the State Education Agencies and School Districts who contributed their data to this partnership. Our data access partnerships form the foundation of CREDO's work, without which studies like this would be impossible. We strive daily to justify the confidence you have placed in us.

## Table of Contents

## Table of Tables

## Table of Figures

## Highlights of the Report

This report presents an investigation conducted by CREDO over the past two years. We examined charter school performance in urban areas, driven by our ongoing effort to identify successful models for educating America's students, particularly students of color and students living in poverty.

We sought to determine whether urban charter schools have different performance than other schools in their communities. In addition, we asked if urban charter schools present results that differ from the charter school landscape as a whole, as estimated in the 2013 National Charter School Study. Finally, if differences were identified in urban charter schools, could we provide any insight into which elements of the urban charter sectors might correlate with differences in results?

Using student level data obtained via data sharing agreements with our state education agency partners, we studied 41 urban areas in 22 states covering the school years 2006-07 through 2011-12. The outcome of interest was the academic advancement in one year's time of a typical student in a charter school compared to the same measure for a virtual peer from local traditional public schools in the same location as the charter school.

Highlights of the findings are presented below. Please see the full report for greater detail on each of these findings.

1. **Our findings show urban charter schools in the aggregate provide significantly higher levels of annual growth in both math and reading compared to their TPS peers.** Specifically, students enrolled in urban charter schools experience 0.055 standard deviations (s.d.'s) greater growth in math and 0.039 s.d.'s greater growth in reading per year than their matched peers in TPS. These results translate to urban charter students receiving the equivalent of roughly 40 days of additional learning per year in math and 28 additional days of learning per year in reading.
2. **When learning gains for urban charter students are presented for individual urban regions, regions with larger learning gains in charter schools outnumber those with smaller learning gains two-to-one.** In math, 26 urban regions post learning gains for charter school students that outpace their TPS counterparts. Charter schools in 11 urban areas have smaller math gains, and four regions have equivalent learning gains in math. In reading, charter school students in 23 of the 41 regions demonstrate larger learning gains than their TPS peers, while 10 regions have smaller gains. Charter schools in eight regions have similar student learning gains in reading compared to TPS peers.
3. **Learning gains for charter school students are larger by significant amounts for Black, Hispanic, low-income, and special education students in both math and reading.** Students who are both low-income and Black or Hispanic, or who are both Hispanic and English

Language Learners, especially benefit from charter schools, Gains for these subpopulations amount to months of additional learning per year.

4. **Positive results for charter school students increased on average over the period of the study.** In the 2008-09 school year, charter attendance on average produced 29 additional days of learning for students in math and 24 additional days of learning in reading. By the 2011-12 school year, charter students received 58 additional learning days in math and 41 additional days in reading relative to their TPS peers.
5. **Compared to the charter school landscape as a whole, (see CREDO's National Charter School Study 2013), the 41 urban charter regions have improved results at both ends of the quality spectrum: they have larger shares of schools that are better than TPS alternatives and smaller shares of under-performing schools.** Specifically, 43 percent of urban charter schools deliver larger learning gains in math than the local TPS alternative, with 33 percent showing equivalent results and 24 percent posting smaller learning gains. In reading, 38 percent of urban charter schools outpace their TPS peers, 46 percent fare the same, and only 16 percent of urban charter schools have smaller gains each year.
6. **Despite the overall positive learning impacts, there are urban communities in which the majority of the charter schools lag the learning gains of their TPS counterparts, some to distressingly large degrees.** In some urban areas, cities have no schools that post better gains than their TPS alternatives and more than half the schools are significantly worse.

The results reported in this study continue to build a record of many charter schools operating in challenging environments that repeatedly demonstrate the ability to educate all students to high levels. While some urban charter sectors continue to struggle, successful charter schools are growing in number and expand the evidence base that schools and communities can organize and operate public schools that deliver the academic progress their students need to be successful in school, work, and life.

# Urban Charter School Study Report on 41 Regions **2015**

## Introduction

Charter schools are a prominent and growing component of the public school system in the United States, with roughly 6,400 charters across the country enrolling over 2.5 million students[1]. The charter sector is regularly treated as a monolithic set of schools, but recent research has made clear that across the U.S. there are in fact distinct charter markets with dramatically different student profiles, governance and oversight structures, and academic quality[2]. Previous CREDO state level studies, in addition to other recent analyses of charter school performance, have identified individual charter markets substantially outperforming their traditional public school (TPS) peers, particularly those serving students in urban areas. CREDO decided to investigate whether urban charter schools do in fact have differential performance than that found in our 2013 National Charter School Study for the charter sector as a whole and, if so, what the drivers of these differences in quality might be.

In this report, CREDO used its unprecedented data holdings to investigate the student profiles and academic performance of a large portion of the major urban regions in the U.S. CREDO included in this analysis forty-one major urban regions for which we have student level administrative and school level data. A complete list of urban regions included in this analysis can be found in the section "Defining

[1] National Alliance for Public Charter Schools (2014). "Details from the Dashboard: Estimated Number of Public Charter Schools and Students," Washington D.C. Retrieved on 8 December, 2014 from: http://www.publiccharters.org/wp-content/uploads/2014/02/New-and-Closed-Report-February-20141.pdf

[2] Center for Research on Education Outcomes (2013). "National Charter School Study," retrieved on 8 December, 2014 from: http://credo.stanford.edu/documents/NCSS%202013%20Final%20Draft.pdf

Urbanity" below. In this document, as well as in the content found online at urbancharters.stanford.edu, we address the following major questions:

- Across the major urban school systems in the U.S., what is the range of performance of charters and traditional public schools (TPS)?
- Do urban charter schools tend to cause higher or lower growth with different student subgroups, and how do these results vary by region?
- Are there trends with respect to the quality of urban charter and TPS?
- Which students are being served by charters and TPS in urban school systems across the U.S., both with respect to their demographics and the initial (pre-enrollment) performance of their students?

Our findings show urban charter schools in the aggregate provide significantly higher levels of annual growth in both math and reading compared to their TPS peers. Specifically, students enrolled in urban charter schools experience 0.055 standard deviations (s.d.'s) greater growth in math and 0.039 s.d.'s greater growth in reading per year than their matched peers in TPS. These results translate to urban charter students receiving the equivalent of roughly 40 days of additional learning per year in math and 28 additional days of learning per year in reading[3]. See Table 1 below for an expanded look at how gains in learning are translated from standard deviations to days of learning.

The remainder of the Multi-Region Summary is organized as follows. The section "Defining Urbanity" details the process CREDO used to identify urban regions and schools for inclusion in this analysis. The following section, "Data and Methods," briefly discusses the data and analysis techniques used to compare academic attainment across urban regions and school sectors. Greater detail can be found in the technical appendix for interested readers. The next two sections, "Demographics" and "Performance," present major findings aggregated across all urban regions with respect to the characteristics of students served and their academic performance. The succeeding section, "Correlates of Charter School Performance" takes a broad view of the results and considers whether factors in the evolution of the charter schools or attributes of the communities themselves are associated with the performance results we estimate; while not causal in nature, the exercise is still suggestive of conditions that may elevate the performance of charter schools over time. The final section, "Implications," combines specific findings across each urban region to derive broader conclusions about the state of charter and TPS in urban school systems across the United States.

[3] Eric A. Hanushek, Paul E. Peterson and Ludger Woessmann. Is the US Catching Up? International and State Trends in Student Achievement. *Education Next*, Vol. 12, No. 4. Fall 2012.

## Defining Urbanity

The first challenge to conducting an investigation of urban school systems in the U.S. was to determine which school systems to include in the analysis. CREDO considered multiple factors when identifying regions for inclusion, including total population size of the metropolitan area[4], the size of each region's primary school district(s), the total number of charter schools in the region, and the growth of the charter sector over time. Included urban regions are listed below, grouped by state:

- Arizona (Mesa, Phoenix, Tucson),
- Colorado (Colorado Springs, Denver),
- California (Bay Area, Central CA, Southern CA, South Bay),
- District of Columbia,
- Florida (Fort Myers, Jacksonville, Miami, Orlando, St. Petersburg, Tampa, West Palm Beach),
- Georgia (Atlanta),
- Illinois (Chicago),
- Indiana (Indianapolis),
- Louisiana (New Orleans),
- Massachusetts (Boston),
- Michigan (Detroit),
- Minnesota (Minneapolis),
- Missouri (St. Louis),
- Nevada (Las Vegas),
- New Jersey (Newark),
- New Mexico (Albuquerque),
- New York (New York City),
- Ohio (Cleveland, Columbus),
- Pennsylvania (Philadelphia),
- Tennessee (Memphis, Nashville),
- Texas (Austin, Dallas, El Paso, Fort Worth, Houston, San Antonio),
- Wisconsin (Milwaukee).

The next step was to identify the specific schools for inclusion, which includes defining exactly what constitutes an "urban school," as well as defining the boundaries of an urban region. These may seem to be straightforward tasks, but doing so in a consistent manner across communities that differ in geography (disperse vs. compressed), population stability (high vs. low mobility), and permeability

[4] United States Census Bureau (2013). Population Estimates: Metropolitan and Micropolitan Statistical Areas, retrieved on 12 December 2014 from: http://www.census.gov/popest/data/metro/totals/2013/

(drawing only from other urban schools vs. drawing from suburban schools) required a consistent set of selection rules. The resulting rigorous and comprehensive criteria required the development of a multi-state process to address the often messy realities of urban regional and school classification. The specific approach CREDO developed to deal with these issues is covered in the Technical Appendix.

## Data and Methods

As evidenced by the list of included urban regions above, a large number of states are covered in this analysis. Including each of these urban regions required negotiated agreements and partnerships with the state education agencies (SEA) in each of the twenty-two states, ensuring compliance with the Family Education Records Privacy Act (FERPA) provisions, among others, to ensure the protection of student data.

Information provided by the states was used to create a matched student database containing 1,018,510 charter records and a matched group of comparison TPS students over the six years from the 2006/07 to the 2011/12 school year. CREDO's matching process uses the Virtual Control Record (VCR) protocol, matching each charter student with up to seven traditional public school students based on prior test scores and demographic characteristics.[5] The matched data set contains over 80% of all charter students in the forty-one urban regions in this analysis.

The impact analysis follows the approach used in prior CREDO studies of national charter performance, such as the National Charter School Study released in 2013. Similar statistical methods are used to control for differences in student demographics and eligibility for program supports, such as free and reduced price lunch programs and special education status. Use of the VCR method assures that the only remaining relevant difference between charter students and their comparison group is the decision to attend either a charter or TPS in the same urban region.

Results in the national analysis are presented in two formats. First, and most common to researchers, results are presented in standard deviation units, which allows for comparison of students across grades, states, and time. These results are also translated into "days of learning," to provide a reference by which non-technical readers can judge the "real world" impact of charter enrollment on different student subgroups. A crosswalk of standard deviation units to "days of learning" is provided in Table 1 below.

[5] For additional information on the Virtual Control Record method, please refer an explanatory infographic located here.

Table 1. Transformation of Learning Gains[6]

| Growth (in standard deviations) | Gain (in days of learning) |
|---|---|
| 0.00 | 0.0 |
| 0.01 | 7.2 |
| 0.05 | 36.0 |
| 0.10 | 72.0 |
| 0.15 | 108.0 |
| 0.20 | 144.0 |
| 0.25 | 180.0 |
| 0.30 | 216.0 |

## Demographics

Because charter schools are schools of choice they may not have a student population that exactly mirrors the districts from which they draw students. These differences are important for understanding which families elect to enroll their students in charter schools. Any substantial differences are also important to note as they signal the need for careful control of student differences when examining the performance of charter schools compared to TPS.

Student demographics were compared between the charter and TPS sectors in each of the forty-one urban regions. In general, urban school systems serve a disproportionately low income and minority student body compared to the student distribution within their states. Given the variation in student demographics across urban sectors, comparing demographic averages in the charter and TPS sectors across all urban regions included in this analysis is less instructive than identifying trends found among multiple regions individually. In other words, statistical tests comparing pooled average student

[6] Eric A. Hanushek, Paul E. Peterson and Ludger Woessmann. Is the US Catching Up? International and State Trends in Student Achievement. *Education Next*, Vol. 12, No. 4. Fall 2012.

demographics across all regions may obscure results derived from the stronger point of comparison for each urban charter sector, which is the surrounding TPS in the same urban sector.

The percentages of English Language Learner (ELL) students, students in poverty, and students receiving special education services in the most recent year of available data are provided in Table 2 below. Note that all of the figures presented below are based on the number of tested students in our data and may differ from aggregate enrollment statistics in each urban region due to differences in testing practices and classification procedures across regions and sectors.

Table 2: Selected Student Demographics by Urban Region and School Sector (Tested Students)

| | % Special Education | | % English Language Learners | | % Students in Poverty | |
|---|---|---|---|---|---|---|
| Region | Charter | TPS | Charter | TPS | Charter | TPS |
| Albuquerque | 12 | 16 | 11 | 15 | 40 | 69 |
| Atlanta | 8 | 9 | 5 | 4 | 58 | 76 |
| Austin | 10 | 10 | 17 | 18 | 68 | 56 |
| Bay Area | 3 | 4 | 22 | 24 | 72 | 60 |
| Boston | 17 | 21 | 8 | 30 | 79 | 75 |
| Central CA | 3 | 3 | 15 | 18 | 72 | 75 |
| Chicago | 11 | 13 | 7 | 10 | 93 | 89 |
| Cleveland | 15 | 21 | 2 | 0 | 83 | 99 |
| Colorado Springs | 5 | 8 | 9 | 7 | 47 | 46 |
| Columbus | 16 | 15 | 5 | 5 | 76 | 72 |
| Dallas | 10 | 9 | 20 | 23 | 81 | 70 |
| DC | 16 | 19 | 6 | 6 | 76 | 68 |
| Denver | 10 | 12 | 34 | 29 | 77 | 71 |
| Detroit | 7 | 9 | 8 | 14 | 87 | 85 |
| El Paso | 6 | 8 | 12 | 16 | 72 | 74 |
| Fort Worth | 7 | 8 | 3 | 14 | 44 | 74 |
| Fort Myers | 10 | 14 | 1 | 3 | 35 | 65 |
| Houston | 6 | 8 | 13 | 19 | 78 | 74 |
| Indianapolis | 13 | 13 | 5 | 11 | 76 | 72 |
| Jacksonville | 9 | 13 | 3 | 2 | 52 | 56 |
| Las Vegas | 10 | 10 | 4 | 14 | 11 | 65 |
| Memphis | 6 | 5 | 1 | 4 | 45 | 45 |
| Mesa | 7 | 6 | 2 | 3 | 41 | 56 |
| Miami | 7 | 12 | 7 | 9 | 79 | 78 |
| Milwaukee | 15 | 21 | 11 | 10 | 81 | 83 |
| Minneapolis | 10 | 14 | 33 | 22 | 79 | 65 |
| Nashville | 2 | 1 | 6 | 8 | 91 | 72 |

| | % Special Education | | % English Language Learners | | % Students in Poverty | |
|---|---|---|---|---|---|---|
| Region | Charter | TPS | Charter | TPS | Charter | TPS |
| New Orleans | 6 | 6 | 1 | 1 | 82 | 97 |
| New York City | 14 | 14 | 5 | 12 | 81 | 82 |
| Newark | 10 | 15 | 0 | 4 | 85 | 86 |
| Orlando | 11 | 14 | 6 | 11 | 51 | 73 |
| Philadelphia | 11 | 13 | 3 | 7 | 77 | 87 |
| Phoenix | 6 | 5 | 4 | 4 | 56 | 64 |
| San Antonio | 11 | 10 | 13 | 9 | 82 | 65 |
| South Bay | 3 | 5 | 28 | 20 | 58 | 46 |
| Southern CA | 5 | 6 | 17 | 21 | 68 | 76 |
| St. Louis | 10 | 15 | 4 | 10 | 87 | 90 |
| St. Petersburg | 6 | 12 | 0 | 3 | 42 | 61 |
| Tampa | 27 | 14 | 3 | 7 | 44 | 66 |
| Tucson | 5 | 8 | 3 | 3 | 47 | 58 |
| West Palm Beach | 15 | 15 | 3 | 5 | 72 | 55 |

The urban regions with the largest share of students in poverty are Chicago, Cleveland, Detroit, Milwaukee, Newark, New York City, New Orleans, and St. Louis, where over 80% of students served by both the charter and TPS sectors qualify for free or reduced price lunches (according to tested student data). Comparing the charter and TPS sectors in each region, we see that charter schools enroll a disproportionately large number of students in poverty (greater than a 10% differential) in Austin, the Bay Area, Dallas, Minneapolis, Nashville, San Antonio, the South Bay and West Palm Beach. In contrast, the TPS sectors enroll substantially more students in poverty than do charters in Albuquerque, Atlanta, Cleveland, Fort Myers, Fort Worth, Las Vegas, Mesa, New Orleans, Orlando, Philadelphia, St. Petersburg, Tampa, and Tucson.

The urban regions with the largest share of ELL students are Austin, the Bay Area, Central California, Dallas, Denver, Minneapolis, the South Bay, and Southern California, where both the charter and TPS sectors serve at least 15% ELL students. Charter schools in Denver, Minneapolis, and the South Bay enroll at least 5 percentage points more ELL students than do the TPS in their regions. Conversely, the TPS sectors in Boston, Detroit, Fort Worth, Houston, Las Vegas, New York City, Indianapolis, Orlando, and St. Louis enroll at least 5 percentage points more ELL students than do the charter sectors in their regions.

The urban regions with the largest share of tested students receiving special education services are Albuquerque, Austin, Boston, Chicago, Cleveland, Columbus, Denver, Washington D.C., Fort Myers, Indianapolis, Milwaukee, Minneapolis, Newark, New York City, Orlando, Philadelphia, Tampa, San

Antonio, St. Louis, and West Palm Beach, where both the charter and TPS sectors serve at least 10% special education students. Tampa is the only urban region where the charter sector serves at least 5 percentage points more special education students than their local TPS (albeit by a lot, 27% for charter vs. 14% for TPS). However, the TPS sectors in Cleveland, Miami, Milwaukee, Newark, St. Louis, and St. Petersburg all serve at least 5 percentage points more special education students than the charter sectors in their regions.

It is also important to note that urban charter schools enroll a greater proportion of female students than urban TPS in nearly every region. While the difference is typically 1 or 2 percentage points, the gender difference is most significant among tested students in Newark, where the charter schools in our data enroll nearly 7% more girls than local TPS.

Detailed demographic information for each urban region can be found in the individual state workbooks located here.

## Performance

Since charter schools may have students who are not perfectly representative of the TPS populations in their communities, judgments about school performance require techniques that assure equivalent students are examined. Comparisons of academic growth made between charter and TPS students are conducted using CREDO's virtual control record (VCR) technique. Based on stringent external reviews and our own internal testing, confidence in both the internal and external validity of these findings is merited (see the Technical Appendix to this report for further explanation).

The analysis estimates the average one-year academic progress of charter school students compared to a similar period for matched TPS students. The impact of charter enrollment relative to local TPS for math and reading can be found in Figures 1 and 2 below.

Figure 1: Impact of Charter Enrollment on Average Annual Learning Gains by Region – Math

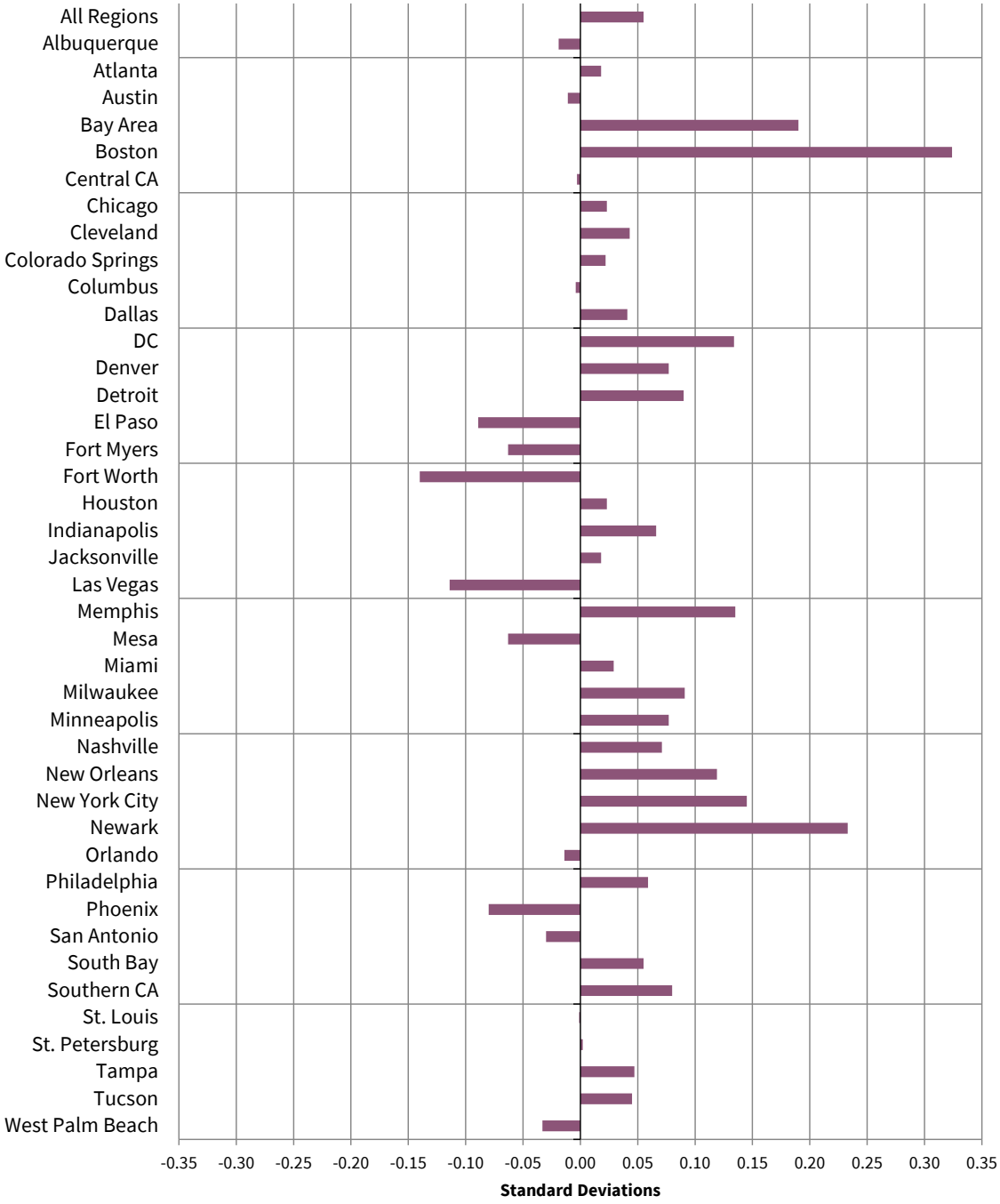
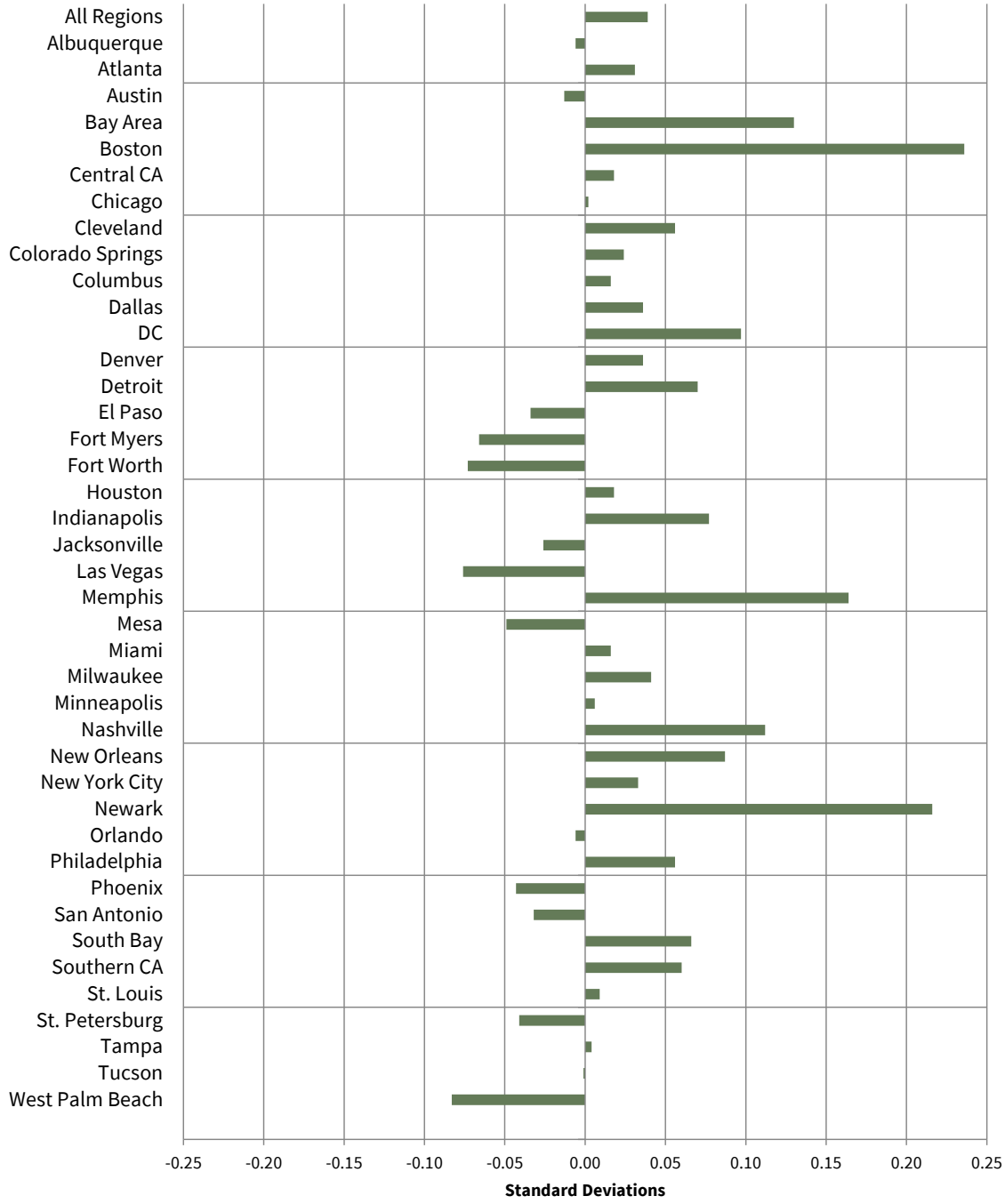


Figure 2: Impact of Charter Enrollment on Average Annual Learning Gains by Region – Reading



When all of the urban regions are pooled together, urban charter schools on average have significantly greater growth in math and reading than urban TPS.

**Click here to see an infographic on Math results for all regions combined.**

**Click here to see an infographic on Reading results for all regions combined.**

Specifically, students enrolled in urban charter schools receive the equivalent of 40 additional days of learning growth (0.055 s.d.'s) in math and 28 days of additional growth (0.039 s.d.'s) in reading compared to their matched peers in TPS. These figures compare favorably to those found for the national charter sector as a whole, where CREDO's National Charter School Study found the national average impact of charter enrollment was 7 additional days of learning per year in reading (0.01 s.d.'s) and no significant difference in math.

As with earlier studies of charter school performance, the aggregated results mask a more nuanced pattern. Figures 1 and 2 above show there is great variation in student results across regions. For math, the effect of attending charter schools ranges from a negative effect of -.14 s.d.'s in Las Vegas to a positive effect of .32 in Boston compared to the learning of TPS peers.

The pattern of charter school performance across the urban regions is positive on balance. There are more regions where urban charter school students outpace their TPS counterparts than regions where charter students lag behind them. Twenty-six urban regions have noticeably better learning gains in a year's time compared to 11 regions whose results lag behind their local yearly TPS gains in math. For reading, students in 23 regions outpace the learning gains of their TPS peers while in 10 regions their learning gains are smaller. In both subjects there are regions where the marginal improvement of charter school learning over TPS is dramatic: gains for charter students in the Bay Area, Boston, D.C., Memphis, New Orleans, New York City and Newark are much stronger than their TPS peers in Math. The Bay Area, Boston, Memphis, Nashville and Newark also stand out with respect to annual gains for charter school students in reading.

To put the magnitude of the gain or loss associated with enrollment in a charter school in perspective, it is valuable to consider the absolute level of academic achievement of each urban region relative to the

rest of their state. For example, if a region's charter sector achieves modest positive gains relative to their local TPS, to what extent should we expect students enrolled in this charter sector to "catch up" over time with other students in their state? By considering the marginal charter effect in each region in relation to the average achievement of their urban region as a whole, we can get a sense of the extent to which charter students will catch up (or fall behind) relative to the rest of their state. (Note that the measures of growth cannot be added directly to the achievement measures, as they are created from different distributions.) Estimated charter impacts are presented in the first column, color coded to aid identification of patterns of performance across urban regions. Lighter colored cells represent a larger advantage for the charter sector. This comparison can be seen in Tables 3 and 4 below.

Table 3: Impact of Charter Enrollment on Learning Gains Relative to Average Achievement of All Schools in Region – Math

| | Marginal Charter Effect | Average Achievement in Region at Start of Study |
|---|---|---|
| Albuquerque | -0.019* | 0.038 |
| Atlanta | 0.018** | -0.182 |
| Austin | -0.011 | 0.016 |
| Bay Area | 0.190** | -0.039 |
| Boston | 0.324** | -0.498 |
| Central CA | -0.003 | -0.163 |
| Chicago | 0.023** | -0.404 |
| Cleveland | 0.043** | -0.716 |
| Colorado Springs | 0.022** | 0.111 |
| Columbus | -0.004 | -0.472 |
| Dallas | 0.041** | -0.030 |
| DC | 0.134** | 0.002 |
| Denver | 0.077** | -0.536 |
| Detroit | 0.090** | -0.688 |
| El Paso | -0.089** | -0.020 |
| Fort Worth | -0.140** | -0.232 |
| Fort Myers | -0.063** | 0.013 |
| Houston | 0.023** | -0.048 |
| Indianapolis | 0.066** | -0.265 |

| Key |
|---|
| greater than 0.08 |
| .02 to .08 |
| -.02 to .02 |
| -.08 to -.02 |
| less than -.08 |

| | Marginal Charter Effect | Average Achievement in Region at Start of Study | Key |
|---|---|---|---|
| Jacksonville | 0.018 | -0.157 | greater than 0.08 |
| Las Vegas | -0.114** | -0.051 | .02 to .08 |
| Memphis | 0.135** | -0.472 | -.02 to .02 |
| Mesa | -0.063** | 0.198 | -.08 to -.02 |
| Miami | 0.029** | -0.271 | less than -.08 |
| Milwaukee | 0.091** | -0.841 | |
| Minneapolis | 0.077** | -0.493 | |
| Nashville | 0.071** | -0.380 | |
| New Orleans | 0.119** | -0.412 | |
| New York City | 0.145** | -0.190 | |
| Newark | 0.233** | -0.675 | |
| Orlando | -0.014 | -0.220 | |
| Philadelphia | 0.059** | -0.595 | |
| Phoenix | -0.080** | -0.036 | |
| San Antonio | -0.030** | -0.061 | |
| South Bay | 0.055** | 0.135 | |
| Southern CA | 0.080** | -0.170 | |
| St. Louis | -0.001 | -0.034 | |
| St. Petersburg | 0.002 | -0.081 | |
| Tampa | 0.047** | -0.108 | |
| Tucson | 0.045** | -0.230 | |
| West Palm Beach | -0.033** | 0.065 | |

Table 4: Impact of Charter Enrollment on Learning Gains Relative to Average Achievement of All Schools in Region - Reading

| | Marginal Charter Effect | Average Achievement in Region at Start of Study | Key |
|---|---|---|---|
| Albuquerque | -0.006 | 0.066 | greater than 0.08 |
| Atlanta | 0.031** | -0.145 | .02 to .08 |
| Austin | -0.013 | -0.027 | -.02 to .02 |
| Bay Area | 0.130** | -0.067 | -.08 to -.02 |
| Boston | 0.236** | -0.587 | less than -.08 |
| Central CA | 0.018* | -0.204 | |
| Chicago | 0.002 | -0.373 | |
| Cleveland | 0.056** | -0.624 | |
| Colorado Springs | 0.024** | 0.094 | |
| Columbus | 0.016* | -0.48 | |
| Dallas | 0.036** | -0.069 | |
| DC | 0.097** | 0.002 | |
| Denver | 0.036** | -0.575 | |
| Detroit | 0.070** | -0.638 | |
| El Paso | -0.034** | -0.069 | |
| Fort Worth | -0.073** | -0.164 | |
| Fort Myers | -0.066** | 0.038 | |
| Houston | 0.018** | -0.093 | |
| Indianapolis | 0.077** | -0.271 | |
| Jacksonville | -0.026* | -0.085 | |
| Las Vegas | -0.076** | -0.079 | |
| Memphis | 0.164** | -0.424 | |
| Mesa | -0.049** | 0.133 | |
| Miami | 0.016** | -0.318 | |

| | Marginal Charter Effect | Average Achievement in Region at Start of Study | Key |
|---|---|---|---|
| Milwaukee | 0.041** | -0.743 | greater than 0.08 |
| Minneapolis | 0.006 | -0.525 | .02 to .08 |
| Nashville | 0.112** | -0.275 | -.02 to .02 |
| New Orleans | 0.087** | -0.414 | -.08 to -.02 |
| New York City | 0.033** | -0.29 | less than -.08 |
| Newark | 0.216** | -0.722 | |
| Orlando | -0.006 | -0.184 | |
| Philadelphia | 0.056** | -0.628 | |
| Phoenix | -0.043** | -0.064 | |
| San Antonio | -0.032** | -0.009 | |
| South Bay | 0.066** | 0.136 | |
| Southern CA | 0.060** | -0.152 | |
| St. Louis | 0.009 | -0.037 | |
| St. Petersburg | -0.041** | -0.054 | |
| Tampa | 0.004 | -0.147 | |
| Tucson | -0.001 | -0.194 | |
| West Palm Beach | -0.083** | 0.018 | |

**Click here to see an infographic regional association of achievement and charter effects for Math.**

**Click here to see an infographic regional association of achievement and charter effects for Reading.**

As can be seen in the infographics and Tables 3 and 4 above, by comparing the annual learning gains associated with charter enrollment to the average achievement of each urban region, multiple scenarios become apparent. Many urban regions (TPS and charter schools combined), such as Boston, Detroit, Indianapolis, Memphis, and Nashville, find themselves faced with large region-wide achievement deficits relative to their state's average but within the region have high quality charter sectors compared to their region's local TPS. These charter sectors appear to provide their students with strong enough annual growth in both math and reading that continuous enrollment in an average charter school can erase the typical deficit seen among students in their region (Annual Charter Impact by Years of Enrollment, presented in Table 9 below, suggest yearly growth increases as students persist in charter schools, increasing the likelihood of students "catching up" in these regions).

Another set of urban charter sectors find themselves in regions with large region-wide achievement deficits relative to their state's average and relatively moderate positive impacts on student growth relative to local TPS. For example, students enrolled in charter schools in Cleveland, Miami, and Milwaukee can expect to see higher levels of academic growth than expected in their region's local TPS, but this charter lift is not enough for the average charter student to offset the achievement deficit of the region relative to the rest of the state in both math and reading.

Two urban charter sectors, New York City and South Bay, stand out for providing positive gains for their students in both math and reading and serving a student body with achievement equal to or higher than the average achievement within their state. Continuous enrollment in these charter sectors can be expected to result in steady movement up the state's distribution of academic achievement.

Alternatively, the charter sectors in Las Vegas and Fort Worth provide their students, already achieving below the state average, with lower levels of academic growth in math and reading each year relative local TPS. Continuous enrollment in these charter schools will cause an already low achieving student base to fall further behind the average student in their state each year.

A final subset of charter sectors, such as those in Fort Myers, Mesa, and West Palm Beach, provide their students with lower levels of annual growth in math and reading and serve a student body that performs similarly to or better than their state's average achievement level. If these charter sectors do not find a way to increase the average level of academic growth among their students, they risk allowing their students to fall behind the rest of their state in academic achievement.

## Learning Gains by Student Subgroups

When the impact of urban charter schools is studied for students in different subgroups, we see that nearly every group of students experiences greater growth in charter schools than they would have

otherwise realized in their local TPS. Mirroring the findings for the charter sector at large, disadvantaged students tend to receive the strongest positive benefits from enrollment in urban charter schools. Black and Hispanic students, students in poverty, English language learners, and students receiving special education services all see stronger growth in urban charters than their matched peers in urban TPS. These results are partially offset, however, by the negative impact on math and reading growth experienced by White students enrolled in urban charter schools and for Native American students in math. The math results for white urban charter students compare favorably to the impact nationally, which was -.07 s.d.'s; the reading results were the same. Asian students and retained students see mixed impacts on math and reading growth as a result of enrollment in charter schools. The impact of urban charter enrollment relative to local TPS for each subgroup can be seen in Table 5 below.

Table 5: Impact of Charter Enrollment on Annual Average Learning Gains for All Urban Regions

| Group | MATH | | READING | |
|---|---|---|---|---|
| | EFFECT SIZE | DAYS OF LEARNING | EFFECT SIZE | DAYS OF LEARNING |
| Overall | 0.055** | 40 | 0.039** | 28 |
| Black | 0.051** | 36 | 0.036** | 26 |
| Hispanic | 0.029** | 22 | 0.008** | 6 |
| White | -0.047** | -36 | -0.021** | -14 |
| Asian | 0.012** | 9 | 0.001 | 0 |
| Native American | -0.097** | -70 | -0.033 | 0 |
| Poverty | 0.033** | 24 | 0.024** | 17 |
| ELL | 0.041 | 0 | 0.071 | 0 |
| Retained | 0.012* | 9 | 0.007 | 0 |
| Special Ed | 0.013** | 9 | 0.018** | 13 |

| Group | MATH | | READING | |
|---|---|---|---|---|
| | EFFECT SIZE | DAYS OF LEARNING | EFFECT SIZE | DAYS OF LEARNING |
| Black Students in Poverty | 0.082** | 59 | 0.061** | 44 |
| Hispanic Students in Poverty | 0.067** | 48 | 0.035** | 25 |
| Hispanic Students with ELL Status | 0.10** | 72 | 0.11** | 79 |

Compared to the results found for all charter schools in CREDO's 2013 national report, urban charter schools achieve higher levels of average growth by reducing or eliminating educational deficits found in the charter sector more generally. For example, Asian students enrolled in urban charter schools receive small positive benefits in math (~ 8 days of additional growth) and no significant impact in reading relative to their peers in TPS. Across all charter schools in the 2013 National report, Asian students were found to receive the equivalent of 29 fewer days of learning relative to their peers in math, while also showing no significant difference in reading performance compared to their peers in TPS.

Continuing a trend found in CREDO's 2013 National Charter School Study, urban charter schools tend to do best in serving students with multiple disadvantages. This can be seen by comparing the average academic growth of Black and Hispanic students in poverty in charters and TPS. Across all urban regions, Black students in poverty receive the equivalent of 59 days of additional learning in math and 44 days of additional learning in reading compared to their peers in TPS. Hispanic students in poverty experience the equivalent of 48 days of additional learning in math and 25 days of additional learning in reading in charter schools relative to their peers in TPS.

Of particular note is the fact that, across all urban charter sectors, Hispanic English Language Learner (ELL) students advance each year in math on par with White, non-ELL students in TPS; in other words, Hispanic ELL charter students realize no learning gap each year. Reading gains for this group, like many other subgroups, lags White, non-ELL students in TPS, but their performance relative to their TPS Hispanic ELL peers is positive. Hispanic ELL students enrolled in charter schools receiving the

equivalent of only 22 days less growth in reading compared to White, non-ELL students enrolled in TPS. By comparison, Hispanic ELL students enrolled in urban TPS receive 29 fewer days of learning growth in math and 65 fewer days of learning in reading per year compared to that of White, non-ELL TPS students.

Compared to the national charter sector, urban charter schools also perform significantly better with three additional subgroups whose performance depressed the aggregate performance of Black and Hispanic students in the 2013 report: Black students not in poverty, Hispanic students not in poverty, and Hispanic students who are not ELL. Nationally, charter schools perform no differently than TPS in either math or reading with Black students who are not in poverty. Urban charter schools, however, provide significantly higher gains in both math (43 days additional learning) and reading (29 days additional learning) compared to local urban TPS with Black students not in poverty. Hispanic students not in poverty perform no differently in urban charters and TPS. This compares favorably to the national charter sector, where Hispanic non-poverty charter students saw significantly lower performance in both math (29 fewer days of learning) and reading (9 fewer days of learning) relative to their peers in TPS. Finally, Hispanic non-ELL students in urban charter schools perform significantly better than their peers in urban TPS, receiving the equivalent of 40 additional days of learning in math and 22 additional days of learning in reading per year of enrollment. In the national charter sector, Hispanic non-ELL students receive no benefit in math and only 7 additional days of learning in reading per year.

Table 6 below shows the impact of charter enrollment on math achievement, broken down by urban region. Estimated impacts are presented in each cell, which are color coded as well to aid identification of patterns of performance within and across urban regions. Lighter colored cells represent a larger advantage for the charter sector for that subgroup. Charter sectors with positive impacts greater than 0.08 standard deviations (s.d.'s) per year receive the lightest coloring, followed by those with positive impacts between 0.02 and 0.08 s.d.'s. Charter sectors with yearly impacts between -0.02 s.d.'s and 0.02 s.d.'s receive a neutral color, charter sectors with impacts between -0.02 and -0.08 s.d.'s receive a darker shade, and charter sectors with annual negative growth impacts greater than -0.08 s.d.'s receive the darkest shade. For example, the column presenting marginal charter effects for White students is generally "darker" than the column for students in poverty, suggesting that urban charter sectors tend to perform better among students in poverty than for White students generally. Results for reading are similar and can be found in Table 7 below.

In light of the substantial variation in sample sizes between included urban regions, and to aid the reader's ability to identify patterns in charter impact across regions, estimates of charter impact are shaded without regard to statistical significance. For readers interested in p values associated with each of the estimates presented below, they can be found in the state level workbooks presented here.

Table 6: Impact of Charter Enrollment on Annual Learning Gains in Math by Region and Sub-population

| Urban Regions | Overall | Poverty Students | ELL | SPED | Black | Hispanic | Asian | White |
|---|---|---|---|---|---|---|---|---|
| All Regions | 0.055 | 0.033 | 0.041 | 0.013 | 0.051 | 0.029 | 0.012 | -0.047 |
| Albuquerque | -0.019 | 0.016 | 0.088 | 0.023 | -0.058 | -0.031 | -0.040 | -0.021 |
| Atlanta | 0.018 | 0.041 | -0.048 | 0.105 | -0.005 | -0.043 | -0.041 | -0.025 |
| Austin | -0.011 | 0.124 | -0.036 | -0.006 | -0.082 | -0.078 | -0.077 | -0.161 |
| Bay Area | 0.190 | 0.060 | 0.006 | -0.100 | 0.160 | 0.160 | 0.160 | -0.010 |
| Boston | 0.324 | 0.043 | 0.114 | 0.051 | 0.272 | 0.290 | 0.175 | 0.208 |
| Central CA | -0.003 | 0.039 | 0.085 | -0.040 | 0.072 | -0.059 | -0.076 | -0.184 |
| Chicago | 0.023 | 0.039 | -0.007 | 0.004 | -0.042 | 0.029 | -0.074 | 0.013 |
| Cleveland | 0.043 | 0.022 | -0.059 | -0.043 | 0.050 | -0.100 | * | -0.057 |
| Colorado Springs | 0.022 | -0.007 | 0.021 | 0.088 | 0.068 | 0.007 | 0.048 | 0.019 |
| Columbus | -0.004 | 0.043 | -0.067 | -0.013 | 0.009 | 0.020 | -0.031 | -0.095 |
| Dallas | 0.041 | 0.034 | 0.005 | 0.039 | -0.003 | 0.006 | -0.086 | -0.050 |
| DC | 0.134 | 0.071 | 0.059 | 0.107 | 0.072 | 0.020 | -0.089 | -0.100 |
| Denver | 0.077 | 0.037 | 0.026 | -0.051 | -0.044 | 0.061 | -0.067 | -0.045 |
| Detroit | 0.090 | 0.031 | -0.059 | -0.058 | 0.070 | 0.051 | 0.072 | 0.187 |
| El Paso | -0.089 | -0.007 | -0.069 | 0.080 | -0.231 | -0.102 | 0.023 | -0.208 |
| Fort Myers | -0.063 | -0.029 | -0.753 | 0.013 | -0.086 | -0.039 | -0.023 | -0.048 |
| Fort Worth | -0.140 | -0.068 | 0.027 | 0.196 | -0.170 | -0.132 | -0.080 | -0.131 |
| Houston | 0.023 | -0.018 | 0.019 | 0.017 | -0.027 | 0.069 | 0.004 | -0.017 |
| Indianapolis | 0.066 | 0.026 | 0.096 | 0.011 | 0.084 | -0.009 | * | -0.047 |
| Jacksonville | 0.018 | 0.017 | -0.051 | -0.026 | 0.014 | 0.005 | -0.041 | 0.021 |
| Las Vegas | -0.114 | 0.080 | 0.034 | 0.055 | -0.067 | -0.178 | -0.105 | -0.119 |
| Memphis | 0.135 | -0.037 | -0.012 | 0.016 | 0.149 | 0.147 | * | -0.020 |
| Mesa | -0.063 | -0.002 | 0.096 | 0.039 | -0.039 | -0.034 | 0.012 | -0.081 |
| Miami | 0.029 | 0.036 | 0.156 | -0.033 | 0.006 | -0.007 | * | -0.039 |

| Urban Regions | Overall | Poverty Students | ELL | SPED | Black | Hispanic | Asian | White |
|---|---|---|---|---|---|---|---|---|
| Milwaukee | 0.091 | 0.016 | -0.020 | -0.022 | 0.094 | 0.052 | 0.148 | 0.050 |
| Minneapolis | 0.077 | 0.091 | 0.011 | 0.045 | 0.071 | 0.138 | 0.051 | -0.164 |
| Nashville | 0.071 | 0.006 | 0.049 | -0.065 | 0.059 | 0.104 | 0.179 | 0.096 |
| New Orleans | 0.119 | 0.002 | -0.044 | 0.032 | 0.109 | 0.076 | 0.096 | 0.126 |
| New York City | 0.145 | 0.028 | -0.013 | 0.040 | 0.134 | 0.102 | -0.019 | -0.005 |
| Newark | 0.233 | 0.013 | 1.933 | -0.002 | 0.217 | 0.171 | 0.046 | 0.127 |
| Orlando | -0.014 | -0.069 | -0.031 | -0.019 | 0.048 | 0.121 | * | -0.042 |
| Philadelphia | 0.059 | 0.024 | 0.100 | -0.005 | 0.039 | 0.037 | -0.022 | 0.050 |
| Phoenix | -0.080 | -0.010 | 0.051 | 0.011 | -0.058 | -0.017 | -0.146 | -0.117 |
| San Antonio | -0.030 | 0.078 | 0.013 | 0.057 | -0.110 | -0.103 | -0.054 | -0.123 |
| South Bay | 0.055 | 0.114 | 0.073 | -0.053 | -0.102 | 0.010 | -0.043 | -0.053 |
| Southern CA | 0.080 | 0.037 | 0.025 | -0.014 | 0.034 | 0.067 | 0.015 | -0.035 |
| St. Louis | -0.001 | -0.023 | 0.123 | 0.074 | 0.010 | 0.001 | 0.006 | 0.031 |
| St. Petersburg | 0.002 | 0.008 |  | 0.028 | -0.051 | 0.001 | 0.038 | 0.010 |
| Tampa | 0.047 | 0.026 | -0.146 | 0.076 | 0.107 | -0.018 | 0.258 | -0.048 |
| Tucson | 0.045 | -0.078 | -0.006 | -0.020 | 0.093 | 0.058 | 0.198 | 0.090 |
| West Palm Beach | -0.033 | 0.049 | -0.017 | 0.042 | -0.057 | -0.088 | -0.159 | -0.040 |

Color indicates size of charter impact on growth in standard deviations.

* Value not reported due to small N.

| Key | less than -.08 | -.08 to -.02 | -.02 to .02 | .02 to .08 | greater than .08 |
|---|---|---|---|---|---|

Table 7: Impact of Charter Enrollment on Annual Learning Gains in Reading by Region and Sub-population

| Urban Regions | Overall | Poverty Students | ELL | SPED | Black | Hispanic | Asian | White |
|---|---|---|---|---|---|---|---|---|
| All Regions | 0.039 | 0.024 | 0.071 | 0.018 | 0.036 | 0.008 | 0.001 | -0.021 |
| Albuquerque | -0.006 | 0.017 | 0.075 | -0.029 | -0.102 | -0.016 | 0.040 | -0.005 |
| Atlanta | 0.031 | 0.068 | -0.064 | 0.079 | 0.005 | -0.066 | -0.200 | -0.046 |
| Austin | -0.013 | 0.072 | 0.042 | 0.061 | -0.079 | -0.040 | -0.038 | -0.123 |
| Bay Area | 0.130 | 0.031 | 0.076 | -0.005 | 0.119 | 0.076 | 0.113 | 0.037 |
| Boston | 0.236 | 0.082 | 0.161 | 0.057 | 0.140 | 0.196 | 0.074 | 0.131 |
| Central CA | 0.018 | -0.004 | 0.106 | 0.022 | 0.080 | -0.023 | -0.052 | -0.015 |
| Chicago | 0.002 | 0.049 | -0.016 | 0.005 | -0.046 | -0.041 | -0.104 | -0.148 |
| Cleveland | 0.056 | -0.096 | 0.032 | -0.002 | 0.170 | 0.062 | 0.307 | 0.052 |
| Colorado Springs | 0.024 | -0.011 | 0.012 | 0.143 | 0.035 | 0.010 | 0.022 | 0.031 |
| Columbus | 0.016 | 0.065 | 0.000 | -0.043 | -0.015 | 0.020 | -0.115 | -0.067 |
| Dallas | 0.036 | 0.039 | 0.038 | 0.099 | -0.013 | -0.009 | -0.042 | -0.064 |
| DC | 0.097 | 0.048 | 0.029 | 0.104 | 0.051 | 0.033 | -0.056 | -0.063 |
| Denver | 0.036 | 0.030 | 0.040 | 0.072 | -0.019 | 0.000 | -0.009 | -0.046 |
| Detroit | 0.070 | 0.035 | -0.054 | -0.049 | 0.047 | -0.041 | -0.356 | 0.133 |
| El Paso | -0.034 | 0.021 | 0.010 | 0.108 | -0.160 | -0.076 | 0.113 | 0.041 |
| Fort Myers | -0.066 | -0.005 | -0.813 | 0.045 | -0.141 | -0.075 | -0.217 | -0.046 |
| Fort Worth | -0.073 | -0.045 | 0.260 | 0.075 | -0.113 | -0.094 | -0.021 | -0.071 |
| Houston | 0.018 | 0.001 | 0.087 | 0.004 | -0.022 | 0.030 | 0.017 | -0.006 |
| Indianapolis | 0.077 | 0.022 | 0.087 | 0.040 | 0.063 | -0.021 | 0.132 | 0.039 |
| Jacksonville | -0.026 | -0.008 | -0.251 | -0.010 | -0.011 | -0.097 | 0.025 | -0.010 |
| Las Vegas | -0.076 | 0.006 | 0.022 | -0.041 | -0.065 | -0.086 | -0.047 | -0.058 |
| Memphis | 0.164 | -0.004 | 0.010 | 0.014 | 0.152 | -0.015 | * | -0.019 |
| Mesa | -0.049 | -0.007 | 0.174 | 0.084 | -0.045 | -0.032 | -0.036 | -0.057 |

| Urban Regions | Overall | Poverty Students | ELL | SPED | Black | Hispanic | Asian | White |
|---|---|---|---|---|---|---|---|---|
| Miami | 0.016 | 0.046 | 0.040 | -0.021 | -0.036 | -0.016 | * | -0.040 |
| Milwaukee | 0.041 | -0.015 | 0.023 | 0.061 | 0.057 | 0.027 | 0.054 | 0.022 |
| Minneapolis | 0.006 | 0.053 | -0.015 | 0.036 | 0.019 | 0.044 | -0.090 | -0.166 |
| Nashville | 0.112 | 0.063 | 0.210 | 0.023 | 0.041 | 0.088 | 0.434 | 0.022 |
| New Orleans | 0.087 | -0.001 | 0.041 | 0.071 | 0.075 | 0.066 | 0.061 | 0.141 |
| New York City | 0.033 | 0.039 | 0.001 | 0.029 | 0.003 | 0.000 | -0.130 | -0.099 |
| Newark | 0.216 | 0.020 | -0.005 | 0.009 | 0.186 | 0.170 | * | 0.063 |
| Orlando | -0.006 | -0.005 | -0.018 | -0.127 | 0.060 | 0.016 | -0.140 | -0.029 |
| Philadelphia | 0.056 | 0.027 | 0.042 | -0.006 | 0.040 | 0.004 | 0.047 | 0.028 |
| Phoenix | -0.043 | 0.002 | 0.053 | 0.028 | -0.039 | -0.020 | -0.024 | -0.066 |
| San Antonio | -0.032 | 0.061 | 0.062 | 0.091 | -0.135 | -0.097 | 0.022 | -0.060 |
| South Bay | 0.066 | 0.037 | 0.054 | -0.034 | 0.047 | 0.048 | -0.009 | 0.004 |
| Southern CA | 0.060 | 0.024 | 0.070 | 0.001 | 0.016 | 0.033 | 0.007 | -0.001 |
| St. Louis | 0.009 | -0.010 | 0.066 | -0.031 | 0.020 | -0.035 | -0.130 | 0.052 |
| St. Petersburg | -0.041 | -0.006 | 0.818 | -0.037 | -0.061 | -0.012 | 0.107 | -0.028 |
| Tampa | 0.004 | 0.024 | -0.122 | 0.018 | 0.042 | -0.035 | * | -0.067 |
| Tucson | -0.001 | 0.004 | -0.072 | 0.010 | 0.055 | -0.019 | -0.022 | 0.010 |
| West Palm Beach | -0.083 | 0.041 | -0.074 | -0.025 | -0.078 | -0.112 | -0.097 | -0.122 |

Color indicates size of charter impact on growth in standard deviations.

* Value not reported due to small N.

| Key | less than -.08 | -.08 to -.02 | -.02 to .02 | .02 to .08 | greater than .08 |
|---|---|---|---|---|---|

## Impact of Urban Charter Attendance on Annual Learning Gains by School Level, Growth Period, and Years of Enrollment

In addition to analyzing the aggregate yearly impact of charter enrollment across all urban regions, we were interested to see if charter school impacts were consistent across grade spans, the results of which are presented in Table 8 below. Table 9 presents the impact of charter attendance by growth period. Growth periods cover two successive school years and use test scores from each to observe the change from one year to the next. Progressing across several periods can reveal trends in quality among urban charter schools over time. Table 10 provides the impact of charter attendance separated by year of enrollment. Disaggregating the average charter effect by year of enrollment allows us to identify changes in the impact of urban charter schools between a student's first year of enrollment and subsequent years in the charter sector.

Table 8: Impact of Urban Charter Attendance on Annual Learning Gains by School Level

| | MATH | | READING | |
|---|---|---|---|---|
| | EFFECT SIZE | DAYS OF LEARNING | EFFECT SIZE | DAYS OF LEARNING |
| Charter Elementary | 0.056** | 40 | 0.046** | 33 |
| Charter Middle | 0.101** | 73 | 0.063** | 45 |
| Charter High School | 0.044** | 32 | 0.012** | 9 |
| Charter Multilevel | 0.01** | 7 | 0.016** | 12 |

Table 8 above separates out the impact of urban charter attendance by school level. While urban charter schools provide higher levels of annual learning growth at all school levels, the strongest positive impacts come from charter middle schools (73 additional days of learning per year in math and 45 additional days of learning per year in reading). Urban charter elementary schools are also found to provide strong positive impacts in both math and reading, while urban charter high schools are strongest in math.

Another view of the impact of charter schools on student learning addresses their performance over time. As the charter schools gain experience and the community gains understanding of schools of choice, performance could change. For example, charter schools could adapt over time to the needs of their students, or families could more readily identify schools that meet the needs of their children; both of these possibilities might translate into better results over time. Alternatively, as more charter schools open and attract later adopters, there is a chance that the quality of the schools could move to more closely reflect the overall quality of the broader range of schools. A study of the performance of charter schools in the urban regions over time appears below in Table 9.

Table 9: Impact of Urban Charter Attendance on Annual Learning Gains by Growth Period

| Growth Period Ending in: | MATH | | READING | |
|---|---|---|---|---|
| | EFFECT SIZE | DAYS OF LEARNING | EFFECT SIZE | DAYS OF LEARNING |
| 2008-2009 | 0.040** | 29 | 0.033** | 24 |
| 2009-2010 | 0.058** | 42 | 0.042** | 30 |
| 2010-2011 | 0.057** | 41 | 0.037** | 27 |
| 2011-2012 | 0.081** | 58 | 0.057** | 41 |

Similar to the national charter sector, urban charter schools show a general upward trend in quality over time, achieving positive annual impacts of 58 additional days of learning in math and 41 additional days of learning in reading by the final growth period in this analysis. This is consistent with both the findings for the national charter sector in CREDO's 2013 National Charter School Study and the recent emphasis on quality improvement in the sector[7]. It is important to note that results presented above control for changes in student demographics and achievement each year and therefore isolate the real charter impact in separate growth periods. A single school can also be represented in each growth period if it was open and had tested students each year of analysis. That said, the charter sector is dynamic and thus the cohort of charter schools is not the same in each year, due to a combination of the establishment of new urban charter schools and the closure of existing ones.

[7] For example, National Association of Charter School Authorizers: http://www.qualitycharters.org/one-million-lives/one-million-lives.html

Table 10 below provides the annual impact of charter attendance separated by year of enrollment. Specifically, the average annual impact of charter enrollment presented earlier is broken down in to a "1st year in charter" effect, a "2nd year in charter effect," a "3rd year in charter effect," and a "4+ years in charter effect."

Table 10: Impact of Urban Charter Attendance on Annual Learning Gains by Years of Enrollment

| | MATH | | READING | |
|---|---|---|---|---|
| | EFFECT SIZE | DAYS OF LEARNING | EFFECT SIZE | DAYS OF LEARNING |
| 1st Year in Charter | 0.01** | 7 | -0.01** | -7 |
| 2nd Year in Charter | 0.08** | 58 | 0.06** | 43 |
| 3rd Year in Charter | 0.12** | 86 | 0.06** | 43 |
| 4+ Years in Charter | 0.15** | 108 | 0.10** | 72 |

The impact of urban charter attendance shows a strong positive trajectory by year of enrollment (Table 10). The longer students stay enrolled in charter schools, the larger the annual benefit of charter attendance becomes. These trends are strong enough that by the time a student spends four or more years enrolled in an urban charter school, we can expect their annual academic growth to be 108 days greater in math and 72 days greater in reading per year than their peers in TPS. Given these trends, it is not unreasonable to expect many urban charter sectors to continue to improve in quality. Trends in charter quality are also presented for each urban region, which can be found in individual state workbooks here.

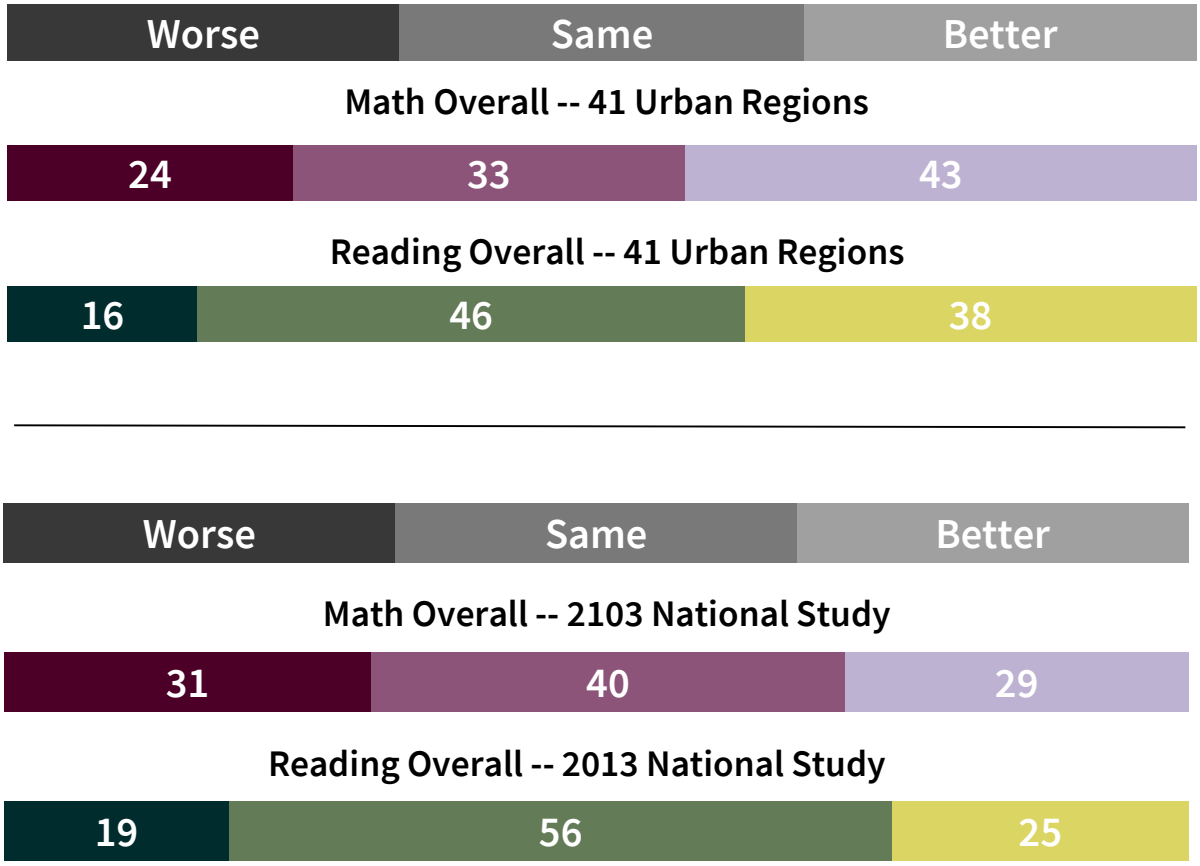
## School-level Quality Comparisons

Much of the discussion about CREDO's earlier work has centered on school-level comparisons of the performance of charter schools versus the alternative schooling options their students face. These computations group charter school students by their school of enrollment each year and compare the

average academic progress to the average of their similarly-grouped virtual peers. These school-level measures are then statistically tested in pairs to see if the charter school is performing better, worse or no different than its corresponding school.

Consistent with the general tenor of findings earlier in this report, the school quality comparisons for urban charter schools are more positive than was found for the sector as a whole in the 2013 National Charter School Study. The relative comparisons appear in Table 11 below.

Table 11: School-level Quality Comparisons – 41-Region Urban Charter School Study Results and 2013 National Charter School Study Results



At both ends of the quality scale, urban charter schools post more positive results than was found across the national scene in 2013. The proportion of the urban schools that have significantly poorer results than the TPS alternative is decresed in both math and reading. The more notable improvement occurs at the high end of the quality spectrum. In both tested subjects, the proportion of urban charter schools that out-perform their local TPS is more than 10 percentage points larger than was found in the 2013 national study.

The school-level quality comparisons for individual regions take the aggregate results into even sharper relief. These comparisons appear in Tables 12 and 13.

Table 12: School-Level Quality Comparisons by Region - Math

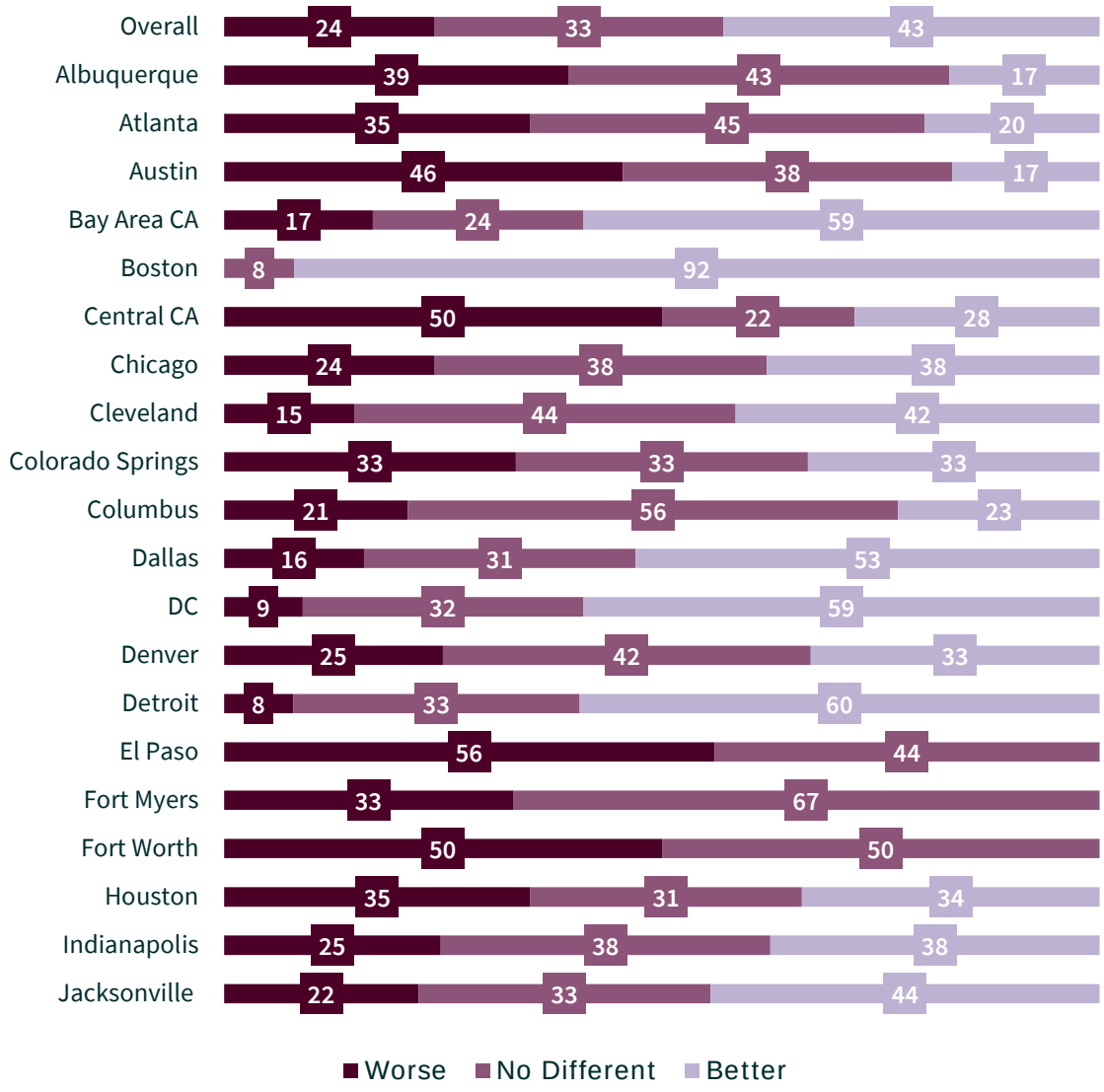


Table 12 (Continued)

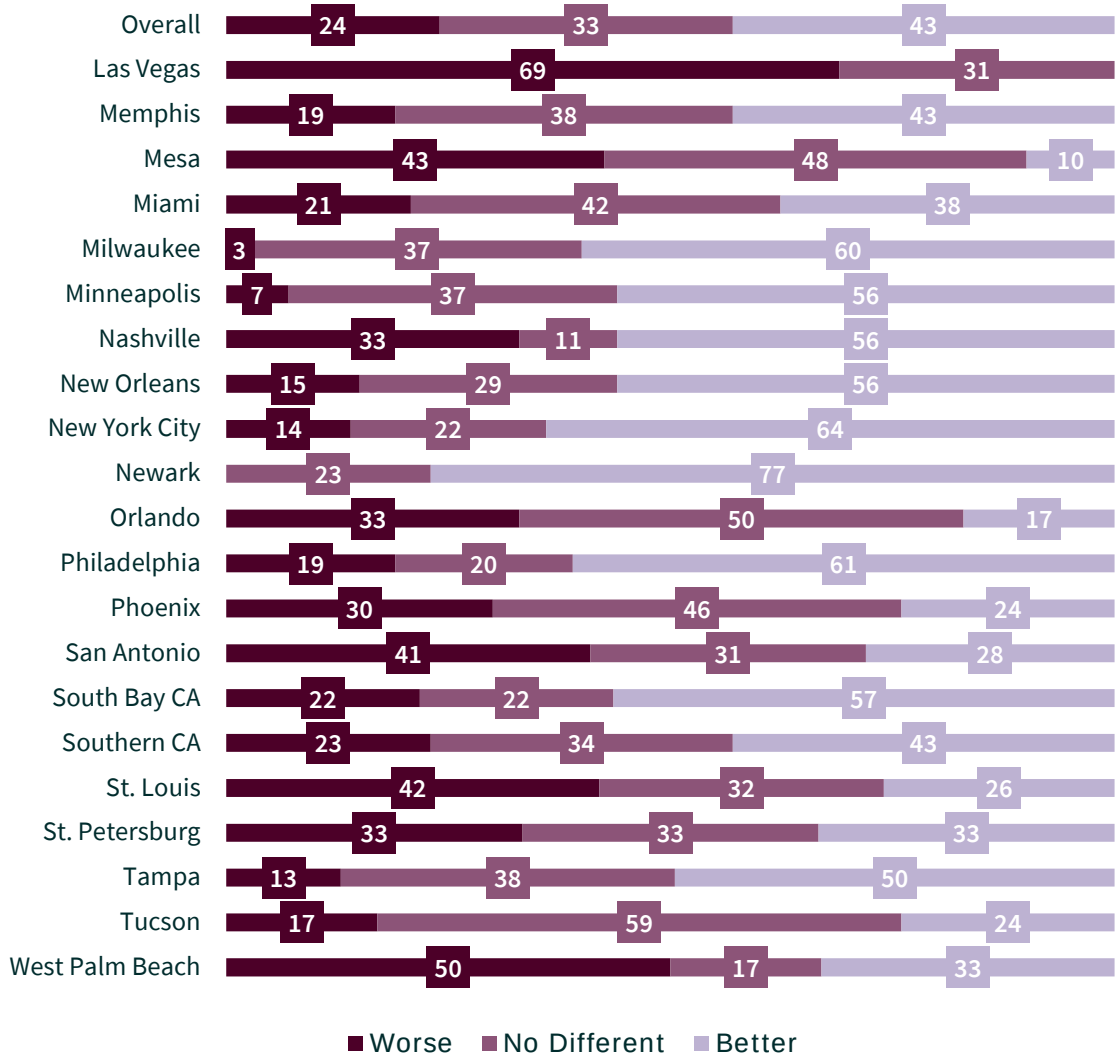


Table 13: School-Level Quality Comparisons by Region – Reading

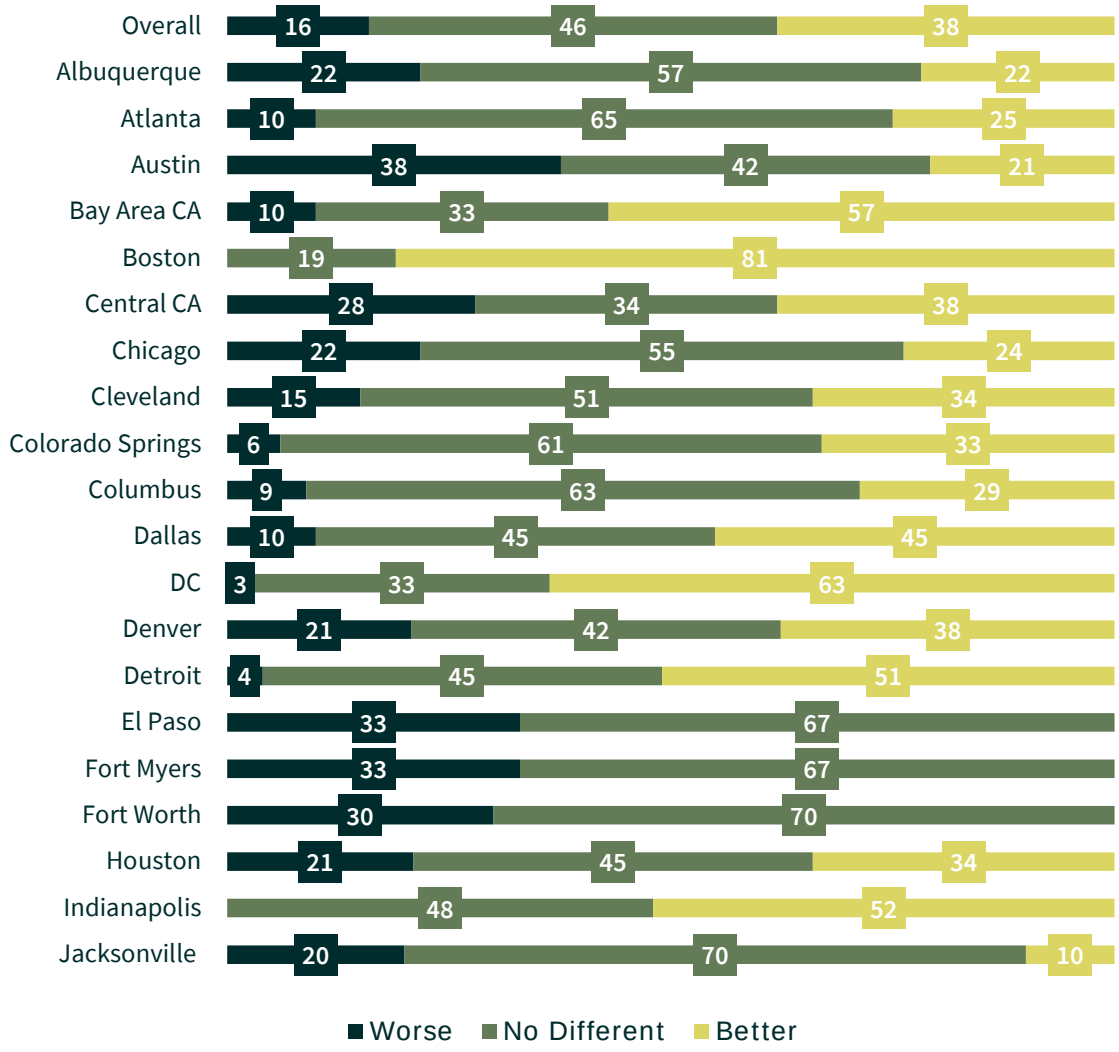
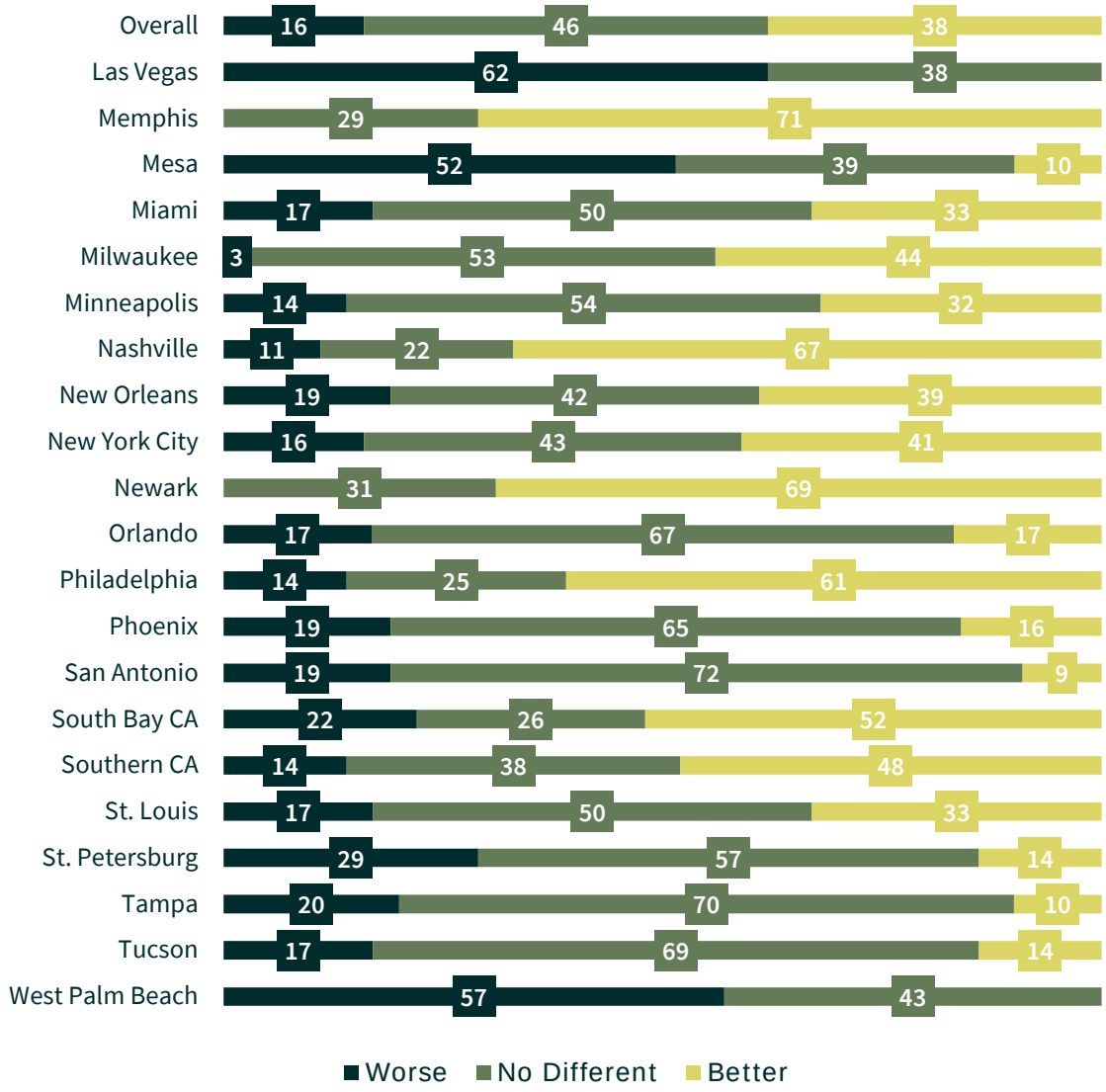


Table 13 (Continued)




The individual region results show cause for concern and for celebration. six of the 41 regions are dramatically lower performing than their TPS counterparts in one or both subjects. In math, more than 50 percent of the charter schools in Central California, El Paso, Fort Worth, Las Vegas and West Palm Beach have significantly lower learning gains. The same is true for Las Vegas, Mesa and West Palm

Beach in reading. The fact that only six regions have these results is cold comfort. There is an urgent need to address the primacy of academic rigor in the charter schools in these communities

A more positive way to summarize the regional differences is to consider the number that have minimized the share of schools performing badly and/or have a majority of their schools performing at levels superior to the local TPS alternatives. These regions demonstrate the quality can focus at either end of the spectrum to achieve overall strength in the region. Looking at math results, seven regions have less than 10 percent of their schools significantly underperforming their TPS alternatives. Fourteen regions have more than 50 percent of their schools outperforming their local TPS options. In reading, twelve regions have less than 10 percent performing worse than the local TPS and ten regions have 50 percent or more of their schools showing results that are superior to TPS.

Importantly, a substantial number regions manage to accomplish both targets: small shares of low performing schools and a majority of charters outperforming their local TPS. For reading, the Bay Area in California, Boston, DC, Detroit, Indianapolis, Memphis and Newark accomplish this result. For math, the Bay Area in California, Boston, DC, Detroit, Milwaukee, Minneapolis and Newark do the same. Charter schools in Boston, Detroit, the District of Columbia and Newark stand out for meeting the dual standard in both math and reading. These four communities of charter schools provide essential examples of school-level and system-level commitments to quality that can serve as models to other communities.

## Correlates of Performance

Knowing the charter effect sizes of so many regions naturally raises the question, "Can we explain why the differences across regions exist?" Proving a causal relationship between the performance of districts and any potential explanatory factors is impossible -- there is no way to systematically alter some regions to see if their performance changes as a result. Regardless, it is still interesting to consider if size of the charter community, maturity of the movement in the state, or other observable factors track with performance.

We computed Spearman Rank Order correlations of a number of descriptors of the charter schools in each region. Spearman Rank correlations are a variant of the better know Pearson correlations; the test of association is based on the rank order of the regions on the two variables under consideration. In other words, we ranked the regions by their charter academic growth effects and then tested how closely the rank order of other factors, such as the overall number of K-12 students in a region or the percent of students enrolled in charter schools, matched the performance ranking. The resulting correlation coefficients appear in Table 14.

Table 14: Correlations between Math or Reading Effect Sizes and Other Factors

| VARIABLES | MATH | READING |
|---|---|---|
| Reading | 0.89* | |
| **Structure of the Charter Sector** | | |
| Year State Charter Law Enacted | -0.10 | -0.07 |
| State Charter Law Ranking in 2012 | 0.09 | -0.07 |
| Number of Schools | 0.24 | 0.23 |
| Number of TPS | 0.20 | 0.20 |
| Number of Charter Schools | 0.34* | 0.27 |
| Student Population | | |
| Total Students in 2006 | -0.08 | 0.01 |

| VARIABLES | MATH | READING |
|---|---|---|
| Total Charter Students in 2006 | 0.26 | 0.30 |
| Total Students in 2010 | -0.07 | -0.01 |
| Total Charter Students in 2010 | 0.36* | 0.40* |
| Percent Special Education Students in 2010 | 0.05 | -0.08 |
| Percent English Language Learners in 2010 | 0.14 | 0.16 |
| Percent Students in Poverty in 2010 | 0.32* | 0.38* |
| Percent White in 2010 | -0.52* | -0.54* |
| Percent Black in 2010 | 0.50* | 0.49* |
| Percent Hispanic in 2010 | -0.31 | -0.31* |
| Percent Asian/Pacific Islander in 2010 | 0.15 | 0.06 |
| Percent Native American in 2012 | -0.25 | -0.40* |
| Percent Multi-racial in 2010 | -0.22 | -0.13 |
| Student Count of Primary School Districts | 0.02 | -0.14 |
| Charter Student Count of Primary Schools | 0.21 | 0.17 |
| **Market Share** | | |
| Percent Charter Schools | 0.12 | 0.06 |
| Charter Share of Largest School District in Region | 0.16 | 0.31 |
| Percent Charter Students in 2006 | 0.27 | 0.30 |
| Percent Charter Students in 2010 | 0.46* | 0.48* |
| Difference in Percent Charter Students (d=2010-2006) | 0.45* | 0.51* |

The factors we considered group into four clusters: Structure of the Charter Sector, Student Populations, and Market Share. As far as variables pertaining to the structure of the charter sector, such as the maturity of the sector or the perceived quality of the charter law (using the National Alliance for Public Charter Schools State Charter Law rankings), neither factor had a significant correlation with the comparative student learning gains over TPS peers. However, the Student Population variables suggest that increased maturity of the sector in a given region may have an influence, because the absolute number of charter students was not significant in 2006, but became significant in 2010. Similarly, the share of a region's students who were enrolled in a charter school followed a similar trend, not significant in 2006 but becoming significant in 2010. The pattern suggests that there may be some role of critical mass in fostering better performance across the charters in a region. This idea is supported by the finding that the larger the jump in charter share of public students, the higher the region's performance.

Several school-level student profile variables were found to be significant. The percent of students in each region who are in poverty or who were Black or Hispanic was positively associated with learning gains in both math and reading across the regions. While the results might be counter-intuitive -- these groups are typically considered less academically prepared -- the correlations are consistent with the expressed mission of many urban charter school operators to provide high-quality education choices specifically for these students. Finally, the larger the share of White students in a region, the less advantage charter schools bestow on them compared to their TPS peers. Tracing back through region-specific findings, the result makes sense: regions with large shares of White students tended to have above average starting achievement in TPS and weaker annual academic progress in charter schools.

## Implications

1. Urban charter schools vary in quality, but that variation clusters around a higher average level of performance than the national charter sector as a whole.

   Compared to the results found for the national charter sector in CREDO's 2013 National Charter School Study, urban charter schools on average achieve substantially greater levels of growth in math and reading relative to local TPS. Despite this advantage in aggregate performance, urban charter sectors exhibit similar levels of variation in academic quality around this average, both across sectors and often within each sector as well. While a handful of the highest performing charter sectors have figured out a way to provide superior, or at least equivalent, levels of academic growth relative to local TPS for every student subgroup (e.g. Boston and Newark), many strong charter sectors nonetheless fail to provide strong growth for every sector of their student population.

2. Urban charter schools tend to reflect the strengths and weaknesses of the national charter sector.

   In many respects, urban charter schools achieve their high average levels of performance by essentially "doubling down" on the strengths of the broader charter movement. In most urban regions with strong charter sectors, the major drivers of these effects are their high performance with students in poverty, Black and Hispanic students, and English Language Learners. Also similar to the national charter sector, urban charter schools tend to see their aggregate performance dragged down by relatively low levels of growth provided to their White and Asian students, although these deficits are typically smaller than those found for the national sector.

3. Attempts to identify correlates of performance point to two themes.

   The first was accumulated success over time, both in attracting larger numbers of students into the region's charter schools and maintaining a strong pace of growth in the region. The second was the focus on students of color and poverty; where regions had schools that enrolled larger shares of these students, the regional results were stronger. This suggests a focused model with continuing success in providing students who are often disenfranchised in local schools better opportunities to grow academically.

4. Many urban regions could benefit by finding a "sister city."

   Many urban regions stand to benefit from identifying and learning from an urban charter sector that has figured out how to achieve substantially higher levels of growth with similar students. For example, cities like Orlando and Fort Myers can look to and learn from the success of Miami's charter sector with ELL students, who see the equivalent of 112 additional days of learning per year in math relative to their peers in TPS. Similarly, members of the charter sector in Denver could benefit from taking a drive to Colorado Springs to see how they achieve such strong results with their special education population. Many schools, in both the charter and TPS sector, pride themselves on their willingness to experiment, refine, and develop best practices in education. We hope the findings in this report can serve as a road map to guide that process.

5. The best urban charter sectors provide extraordinary opportunities to learn how best to serve the most disadvantaged students.

   The results presented throughout this document (and online at urbancharters.stanford.edu) provide ample evidence that some urban charter sectors have figured out how to create dramatically higher levels of academic growth to their most disadvantaged students. This is important for at least two reasons. First, these urban regions can serve as models from which all public schools serving disadvantaged student populations may learn. Second, and perhaps more important, these charter sectors clearly refute the idea that some groups of students cannot achieve high levels of academic success. They need only to be given the opportunity.