Measuring the Impact of Charter Schools: Student Outcomes in 2024–25

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Preface

Washington law (RCW 28A.710.250) requires a report on the performance of the state's charter schools each year, comparing the performance of charter school students against the performance of "academically, ethnically, and economically comparable groups of students in other public schools." This report compares performance between charter students and other public school (OPS) students on two key measures: scale score of performance across Math, ELA, and Science tests and the rate at which students meet state standards on these tests.

For additional details, see the full RCW 28A.710.250 request, Resources and Reports, and the 2025 Report.

Disclaimer The research presented here uses confidential data from the Comprehensive Education Data and Research System (CEDARS), provided by the Office of Superintendent of Public Instruction (OSPI). CEDARS is a statewide longitudinal data system that includes de-identified data about students' school performance and individual characteristics. The views expressed here are those of the author and do not necessarily represent those of data contributors. Any errors are attributable to the author.

Executive Summary

This report focuses on the difference in test performance for charter school students and a matched group of students from other public schools. It finds that charter students scored better in both math and ELA test performance across a variety of grades and subgroups, including race and gender. However, these improvements center around 5th-grade charter school students, suggesting the need for further investigation into how and when charter schools are most beneficial to students.

Groups Compared

Charter students were matched with similar students in other public schools based on grade, race/ethnicity, income (Free and Reduced-Price Lunch [FRPL] eligibility), disability status, language, and, where available, prior test scores. As a result, the two groups were observably similar before outcomes were measured.

The report uses student-level data from the 2024–2025 school year, including test scores, individual characteristics, grade level, and other characteristics. The sample consists of students from 16 of the 17 charter schools that operated in Washington in the 2024–25 school year, as the remaining school did not have the necessary data to be included.

Because random assignment to charter schools is not feasible, this analysis uses a matching method to compare charter school students to other public school (OPS) peers with similar characteristics. This approach creates the opportunity to estimate the effect of charter school attendance while controlling for observable differences, such as race/ethnicity, gender, language, income, disability status, and, where available, prior test scores. To evaluate performance, the report compares the change in student test performance and likelihood of meeting state standards on math and English Language Arts (ELA) state tests. It also considers performance on state science assessments, but due to these tests only occurring in specific grades, we are not able to control for prior test performance, making these are exploratory in nature. All evaluations are done in aggregate by individual grade and by key demographic subgroups.

Key Findings

- **Overall performance**: Students in 4th through 8th grades attending charter schools scored higher than their OPS counterparts on statewide math and ELA assessments (see Figure ES 1).
    - On average, charter school students scored **0.047 standard deviations higher in math** and **0.071 standard deviations higher in ELA**—roughly equivalent to a 4- to 8-point increase on the state's scale score.
    - Charter students also had a **3.6-percentage-point increase in meeting math standards** and a **3.5-percentage-point increase in meeting ELA standards**.

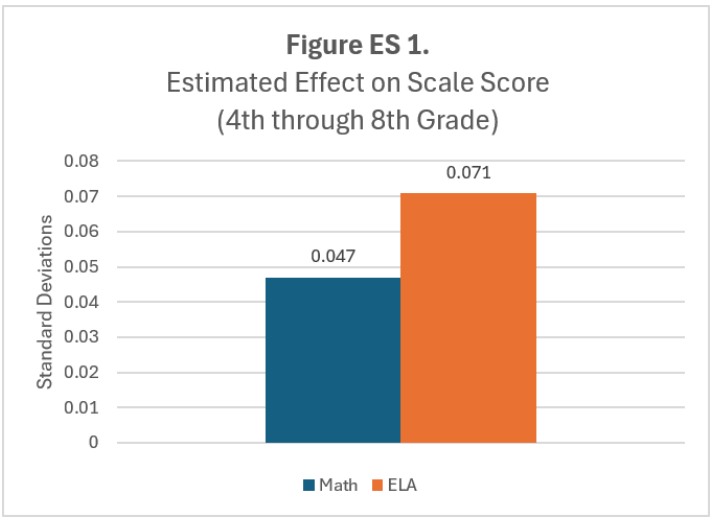

Figure ES 1: Charter school students outperformed their OPS peers in both math and ELA on average.

- **Effects by Grade Level (See Figure ES 2)**:
  - The strongest results appear in Grade 5, where students demonstrated statistically significant higher scores in both math and ELA.
  - Positive and statistically significant higher scores were also observed in Grade 8 for math.

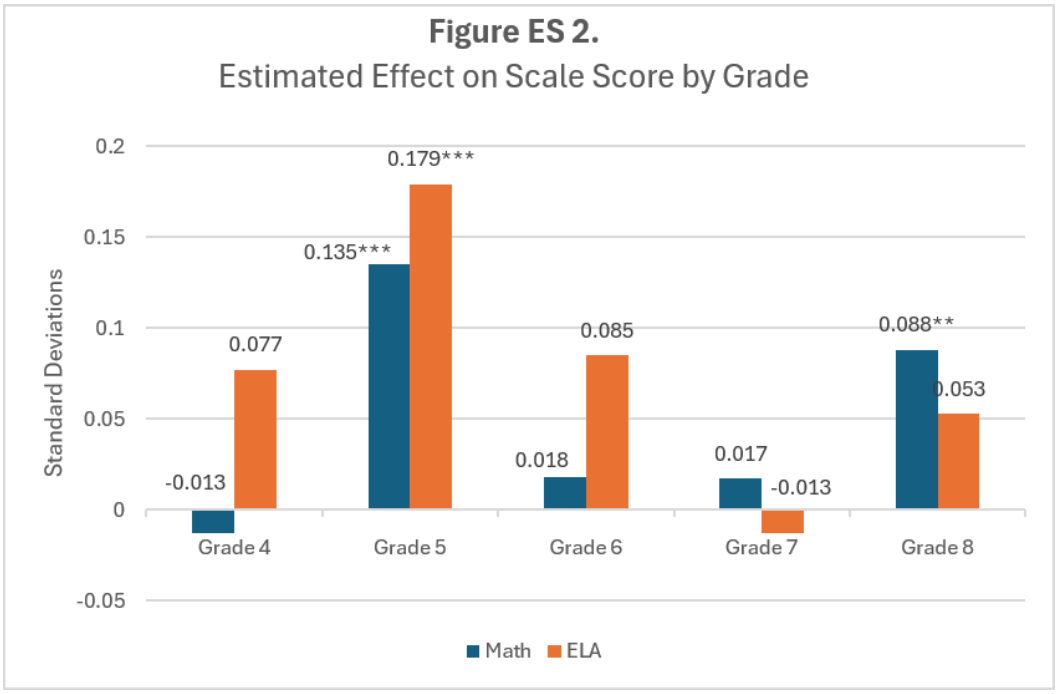

*Figure ES 2: Charter school students showed the largest gains in Grade 5, with improvements in Grade 8 in math. Statistically significant results are denoted by *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.*

- **Equity findings**:
  - Charter schools may provide strong benefits for historically underserved groups.
  - **Black and Latinx students**, **students eligible for Free and Reduced-Price Lunch (FRPL)**, and **female students** all showed larger improvements than their OPS peers.
  - For example, Latinx students improved by **0.118 standard deviations in math** while Black students improved by **0.122 standard deviations in ELA** (both findings showing strong statistical significance).

Closing Gaps

Underserved groups saw some of the greatest gains.

- Black students: +0.122 in ELA
- Latinx students: +0.118 in math and +0.122 in ELA
- FRPL eligible students: +0.78 in Math and +0.114 in ELA

- **Limitations**:
  - Because this analysis relies on selecting a comparison group using observable characteristics, the results may be biased if there are unobservable differences, such as student motivation or engagement, between charter school students and their matched peers.
  - Results for 3rd and 10th grade in math and ELA, as well as 5th and 8th for science, should be viewed as exploratory, as prior test scores were unavailable for matching.
  - The presented estimates represent the **upper bound of potential charter school effects** and should be interpreted cautiously.
  - The analysis does not account for length of charter school attendance, which may affect outcomes.

Implications

The results of this analysis suggest that Washington charter schools have a positive impact on student achievement, particularly for certain subgroups. At the same time, methodological limitations and grade-level variation underscore the need for cautious interpretation. Additionally, given that these results may be primarily driven by 5th grade results, there is a need to further investigate how charter schools are related to student performance.

Introduction

Academic Performance of Charter School Students and Similar Students

This report focuses on the difference in test performance for charter school students and a matched group of students from other public schools. It finds that charter students scored better in both math and ELA test performance across a variety of grades and subgroups, including race and gender. However, improvements are centered around 5th-grade charter school students, suggesting that further investigation into how and when charter schools are most beneficial to students is needed.

Methods

Study Design (Nearest Neighbor, Mahalanobis)

RCW 28A.710.250 requires a comparison of charter school student performance with comparable students in other public schools. These students are to be similar across academic, ethnic, and socioeconomic characteristics. The best method to establish estimates of the effect of entering a charter school would be to compare the educational outcomes of students randomly assigned to a charter school with those same outcomes of students randomly assigned to a school in the other public schools (OPS) category. The random assignment would ensure that, on average, predetermined observable and unobservable characteristics of students would be the same in both groups. In particular, it would help to control for differences in either student motivation or parent involvement, as evidenced by both parents and/or students being willing to actively seek alternatives to OPS (Sass et al., 2016). Given the infeasibility of random assignment in the present context, this study instead employs a nearest neighbor one-to-one matching approach. Specifically, it constructs a comparison group of OPS students who are observably similar to charter school students across individual characteristics, using the Mahalanobis matching method (otherwise referred to as covariate matching). This method allows for the creation of an observably similar comparison group from among OPS students. The same approach has been commonly used in studies of charter schools as well as in evaluations of policies and programs in fields such as health, economics, and the social sciences (Sass et al., 2016; Stuart, 2010; Sun & Loeb, 2021). It is particularly appropriate in settings where balance is set on a limited number of characteristics (Stuart, 2010).

In the context of charter schools and standardized testing, the most important characteristic is the baseline test scores of students. While only observable characteristics can be matched to construct comparison groups, prior research has found that the incorporation of such characteristics alongside pretreatment assessment scores often produces similar estimates of efficacy rates as those estimated from randomized lottery settings (Bifulco, 2010; Fortson et al., 2012; Gill et al., 2013). The researchers cited here highlight that estimates from matched studies

are often unreliable when pretreatment assessments are not accounted for in the matching process.

Limitations of the Analysis

Although Mahalanobis matching with the inclusion of prior test scores is likely to provide the most reliable, rigorous, and transparent estimate of charter school effects with the available data, the estimated effects of charter schools may be biased in this study. The matching allows for comparisons in outcomes only between students who are observably similar, but it cannot address unobservable differences, such as motivation and parental support. Given the time and resources required to apply, transfer, and/or commute to a charter school, it is possible charter school students are still different in unobservable traits from their matched OPS counterparts. An unobserved ability to overcome barriers might be correlated with better performance. If that were the case, there could be a potential source of upward bias on the estimates in this report; in other words, the estimates should be treated as the upper bound of potential charter effects on test performance.

In addition, it is not possible to observe the history of a student's attendance at a charter school over the course of the student's academic career. Because of this limitation, this analysis cannot provide insights into the differences between students who attend charter schools for longer periods of time and students who attend for shorter periods. Students who pursue charter school education earlier may differ in unobserved ways from those students who make the decision to enter the charter system later. If charter schools have an impact on student performance, then a longer time within charter schools could strengthen that relationship.

Finally, while the impact estimates that rely on prior test scores (primarily for Grades 4 through 8) may be comparable to those generated from a randomized lottery setting, estimates that do not account for prior test scores may be substantially less reliable. Estimates that do not account for prior test scores include those for 3rd- and 10th- grade math and ELA test results and 5th- and 8th-grade science test results, all of which should be considered exploratory. For these estimates, it is not possible to control for differences in student ability and motivation in the same way as for the other estimates.

Data

Data Sources

This study relies on student-level data from the Comprehensive Education Data and Research System (CEDARS). CEDARS incorporates the data provided by each school district within Washington to the Office of Superintendent of Public Instruction (OSPI). The data used for this study include enrollment, demographic information, test performance, and program participation.

Sample Description

The sample used in the analysis consists of students from 16 of the 17 charter schools in the state and their matched Other Public School (OPS) counterparts.[1] OPS students are potentially drawn from any OPS in Washington state, so long as they matched the grade level of their charter counterpart. Charter and OPS students are limited to those who participated in, and received a score for, their grade-level assessment in the 2024–2025 school year. Students who were missing demographic information, had no days of attendance at their enrolled school, had a missing score in the subject being matched, or, for Grades 4 through 8, were missing their previous year's score were excluded from the analysis.

Critically, the data includes both the current and previous scores of students in Grades 4 through 8 for the Smarter Balanced Assessments (SBA) in math and ELA. Additionally, the data has students' results in Grades 3 and 10 for math and ELA as well as their performance in Grades 5 and 8 on the Washington Comprehensive Assessment of Science (WCAS). This means that the use of prior scores to control for unobserved differences in ability is possible only for the evaluation of math and ELA for Grades 4 through 8. As mentioned in the Methods section, the lack of prior scores for the other grades and subjects is important because research has shown that this method of analysis (e.g., without random assignment) is unlikely to be reliable without prior scores.

Student Characteristics

Student demographic information includes the following:

- Free and Reduced-Price Lunch (FRPL) eligibility
- primary language (English or Spanish)
- students with disabilities (SWD)
- race/ethnicity
- gender

These characteristics were chosen for their stability throughout a student's life; they work best as pre-charter school characteristics. For the analysis outlined in this report, they are the only matching characteristics for students in Grades 3 and 10, and they are used in addition to previous test scores for Grades 4 through 8 for math and ELA testing. For science, they are the only characteristics in both Grades 5 and 8.

[1] Lumen High School students within the grades of analysis did not have a prior test score and were excluded. A full list of the schools included in the analysis and the grades they cover is included in Appendix A.

Test Characteristics

Students are expected to take the Smarter Balanced Assessments (SBA) in both math and ELA tests in every grade from 3rd through 8th and in Grade 10. For science, they take the Washington Comprehensive Assessment of Science (WCAS) test in the 5th, 8th, and 11th grades.

For each SBA test, for both math and ELA, a scale score of approximately 2300 to 2800 is computed for a student.[2] A scale score of between 2432 to 2614 is required to meet standards, with the exact cutoff depending on subject and grade level. For WCAS, all grades require a scale score of 700 to meet standards.

To interpret effect sizes and to address differences in the calculation of scale scores and thresholds among grades, this analysis standardizes all test scores for the 2024–2025 school year within grade level and subject to have a mean of 0 and standard deviation (SD) of 1. This means that the average performance for a student in a given subject and grade equals 0, and each increase or decrease of 1 unit represents performance one SD above or below the average for that grade. Table 1 presents the standard deviations of each grade's test scores for the entire student population in the data set. A 1-standard-deviation increase in a 5th-grade math test score corresponds to an increase of approximately 109 scale-score points, while a 1-standard-deviation increase of an 8th-grade reading performance corresponds to an improvement of about 118 points.

Table 1. Test Scores by Grade Level for All Washington Students

Grade Level	**Math**		**ELA**	
	Mean	S.D.	Mean	S.D.
4th	2,480	101.09	2,470	108.75
5th	2,504	109.03	2,510	111.10
6th	2,515	122.98	2,523	109.09
7th	2,533	129.56	2,550	116.25
8th	2,542	137.25	2,561	118.44

Matching

Process for Constructing Matched Samples

Matches were assessed by comparing the observable characteristics of charter school students with those of their matched OPS counterparts. Following prior studies, student characteristics are evaluated to see if they have a statistically significant difference between the treatment and matched control (Becker & Ichino, 2002; Bifulco, 2010; Gleason et al., 2014). If charter school students are observably similar to their matched OPS counterparts, that similarity increases

[2] Scale Scores State Assessments and their exact cutoffs can be seen here.

confidence that the matching process was well executed and that selection bias between treatment and control groups has been minimized.

The matching characteristics used for this study include race, gender, primary language of the student, and FRPL eligibility status, as well as previous test scores where possible. The study also required an exact match of grade level of a charter student and their OPS counterpart, as standardized tests have differing scoring depending on grade.

Once matched samples were constructed, differences in student outcomes between charter school students and their matched OPS counterparts were evaluated to estimate charter school effectiveness. The outcome used to measure effectiveness was student performance on standardized tests. Student test performance is commonly used as an indicator of school effectiveness (e.g., Ackerman & Egalite, 2017; Baude et al., 2014; CREDO, 2013; Fortson et al., 2012; Hanushek et al., 2007). This approach follows prior studies of charter schools that employed one-to-one matching to evaluate the impact of charter school attendance on academic performance (Warner & Bluestone, 2018). Statistical significance was estimated using Abadie & Imbens's robust standard errors, which are specifically designed to accommodate the Mahalanobis matching approach implemented in this analysis (Abadie & Imbens, 2006, 2011).

Impact Model

After matching charter students and their OPS counterparts, charter school impact effects were estimated through a regression model which included student characteristics as covariates. While matching results in observable similar characteristics between the two groups, the inclusion of these characteristics improves the precision of the estimates and control for any remaining differences in the matched sample. Because of differences in sample sizes for the various subgroups, regression estimates are limited to subgroups large enough for statistical analysis. This restriction helps ensure consistent precision across estimates.

The following model was utilized for the overall 4th- through 8th-grade math and ELA sample:

$$(1) \qquad y_i = \beta Charter_i + \delta' X_i + \varepsilon_i$$

where y_i is the outcome of interest for student i; $Charter_i$ indicate a student being in a charter school in the 2024-25 school year; X_i is the vector of student characteristics for student i; ε_i is the error term; β is the coefficient of interest and represents the impact of charter school attendance on test performance in terms of scale score or meeting standards on a given standardized test.

Balance Tests and Comparability of Groups

Table 2 shows that the matched sample achieved good balance, with no statistically significant differences between the treatment and control group for any variable, including prior ELA and math scores. In addition to statistical significance, Table 2 reports the mean values and

differences in characteristics between OPS and charter school students in the analytic sample for Grades 4 through 8.[3]

Table 2. Mean Values of Student Characteristics for Charter Students and their matched OPS counterparts (Grades 4 through 8)

	Math			ELA		
	Charter	OPS	Diff	Charter	OPS	Diff
Standardized Prior Test Score	-0.018	-0.021	0.003	-0.033	-0.038	0.005
Free or Reduced Price Lunch Eligible	0.591	0.591	-0.001	0.592	0.593	-0.001
Primary Language: English	0.747	0.748	-0.001	0.745	0.745	-0.001
Primary Language: Spanish	0.115	0.115	0.000	0.117	0.117	0.000
Students with Disabilities	0.156	0.156	0.000	0.154	0.154	0.000
American Indian/Alaskan Native	^	^	^	^	^	^
Asian	0.061	0.061	0.000	0.062	0.062	0.000
Black	0.245	0.245	0.000	0.245	0.245	0.000
Latinx	0.231	0.231	0.000	0.233	0.233	0.000
Native Hawaiian/Other Pacific Islander	^	^	^	^	^	^
White	0.356	0.356	0.000	0.355	0.355	0.000
Male	0.488	0.488	0.000	0.491	0.491	0.000
Female	0.507	0.507	0.000	0.504	0.504	0.000
Number of Students	1,517	1,517		1,528	1,528	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

This balance table also provides insights into the composition of students attending charter schools and their matched OPS counterparts. Approximately 59% of students in both groups are eligible for FRPL and 16% are students with disabilities (SWD)[4]. The racial composition of both groups is diverse, with the largest group being White students, who make up approximately 36% of the student population, followed by Black students (25%) and Latinx students (23%). In comparison, the racial composition of all OPS students in the state is 48% White, 5% Black, and 26% Latinx.[5] (The American Indian/Alaskan Native and Native Hawaiian/Pacific Islander populations are too small for potential effects to be directly calculated; their demographic information is therefore suppressed.)

Results

Evaluating test score changes across grade levels and test forms presents challenges because standardized tests often differ in scoring scales and score ranges depending on the grade, subject, or testing organization. Expressing changes in student performance in terms of standard deviation units allows for more meaningful comparisons between education programs. Effect

[3] This sample covers 9 of the 17 charter schools in the state. The other 8 either do not serve students in this grade range, or do not have the required testing data to be included.
[4] This includes all students who are recorded as disabled and have been assessed for the special education program.
[5] All population-level characteristics are shown in Table A19 of Appendix A.

sizes for achievement outcomes can be interpreted as small (less than 0.05 SD), medium (0.05 to < 0.20 SD), and large (greater than or equal to 0.20 SD; Kraft, 2020).

For reference, Table 1 presents the standard deviation of each test. A hypothetical increase of 0.12 standard deviations in math for a 7th grader corresponds to an increase of approximately 16 points in the test scale score. For meeting standards, the results represent the increase in the probability that a student meets the standard on the given test on average. Thus, an estimate of 0.05 indicates that, on average, a student attending a charter school has a 5-percentage-point higher probability of meeting standards on a standardized test compared with a similar student attending an OPS. This increase is in addition to the student's original probability of meeting standards. For example, if an OPS student originally had a 50% probability of meeting standards, attendance at a charter school would raise that probability to 55% on average.

Overall Effects on Student Achievement

Table 3 reports the estimated effects of charter school attendance on math and ELA test performance. Students attending charter schools are estimated to score 0.047 and 0.071 standard deviations higher than OPS students on the math and ELA tests, respectively. Figure 1 illustrates these results, while Figure 2 translates them into approximate scale-score effects for 5th-grade students, using standard deviations of 109 for math and 111 for ELA (as reported in Table 1 and rounded to the nearest point). These estimated effects correspond to estimated average improvements of 5.12 points in math and 7.88 points in ELA for 5th graders.

Figure 1.
Estimated Effect on Scale Score
(4th through 8th Grade)

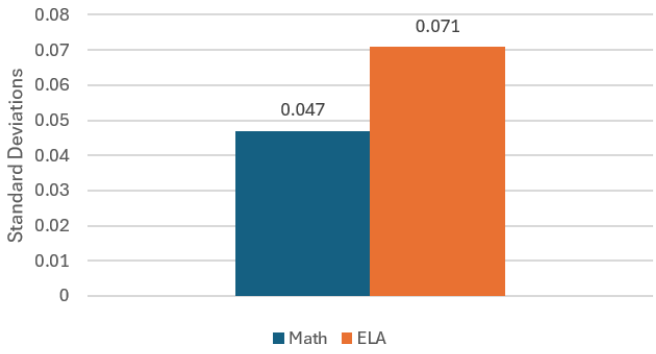

Figure 1: Estimated effect of charter school attendance on math and ELA test performance (Grades 4–8).

Figure 2.
Estimated Effect on Scale Score
(5th-Grade Standard Deviation)

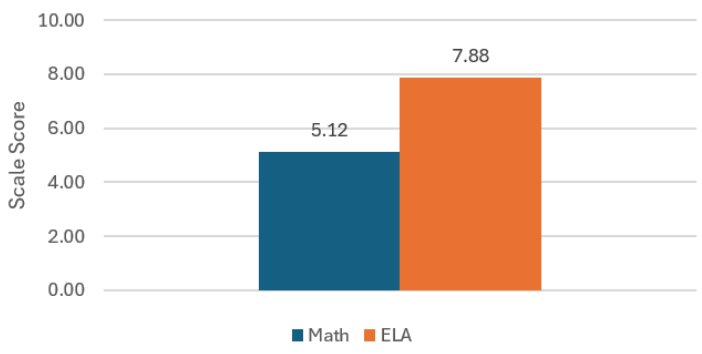

Figure 2: Estimated effect of charter school attendance on math and ELA test performance expressed in scale-score points (using 5th-grade standard deviations).

A similar effect is estimated for meeting standards, with a 3.6 percentage point increase for math, and 3.5 percentage points for ELA, as seen in both Table 3 and Figure 3.

Policy Implications

While charter school students show only small improvements in overall math and ELA scores, they are more likely to meet state standards, suggesting that charter schools may be particularly helpful for students whose scores are close to the proficiency threshold.

Figure 3.
Estimated Effect on Meeting Standards
(4th through 8th Grade)

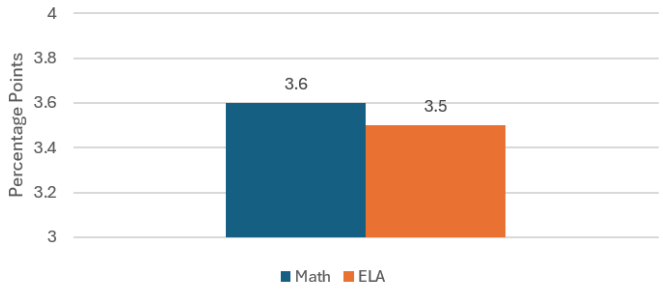

Figure 3: Estimated effect of charter school attendance on the probability of meeting state standards in math and ELA (Grades 4 through 8).

Table 3. Estimated Charter School Effects by Subject
(Grades 4 through 8)

	Math		ELA	
	Test Score	Met Standards	Test Score	Met Standards
Estimated Effect	0.047**	0.036***	0.071***	0.035***
	(0.019)	(0.012)	(0.021)	(0.013)
Number of Students	3,034	3,034	3,056	3,056

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: prior test score in subject, free and/or reduced price lunch status, primary language, disabled, race, gender, and grade level. Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if either current or prior year test score are not available.*

Grade Level Effects

Policy Implications

These results indicate that charter schools might benefit student performance on both math and ELA tests. However, given the number of statistically insignificant effects across grades, further exploration of the effects is needed to explain why they center around one grade level.

Table 4 presents grade-level estimates, showing a range from -0.013 to 0.135 standard deviation differences in math performance and a range from -0.013 to 0.179 in ELA. The negative effects are not statistically significant. In contrast, math scores for Grades 5 and 8 and ELA scores for Grade 5 show positive, statistically significant effects. The overall charter school effect on test performance appears to be driven primarily by 5th-grade students, for whom estimated effects exceed 0.05 standard deviations in both subjects and are therefore considered medium effects on test performance. The effect for Grade 8 in math is smaller, at a 0.088 standard deviation increase.

Table 4. Estimated Charter School Effects on Test Performance by Grade

	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Panel A: Math					
Estimated Effects	-0.013	0.135***	0.018	0.017	0.088**
	(0.043)	(0.046)	(0.041)	(0.040)	(0.039)
Number of Students	552	536	638	652	656
Panel B: ELA					
Estimated Effect	0.077	0.179***	0.085	-0.013	0.053
	(0.051)	(0.048)	(0.048)	(0.044)	(0.045)
Number of Students	558	538	642	660	658

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: prior test score in subject, free and/or reduced price lunch status, primary language, disabled, race, gender, and grade level (excluding the subgroup of interest for each column). Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if either current or prior year test score are not available.*

Probability of Meeting Standards

Policy Implications

The relatively large increase in probability of meeting standards may suggest that charter school attendance has its greatest impact on students whose scores are near the state testing cutoff, helping more of them cross the threshold for proficiency.

The finding that the overall effect is driven by 5th-grade improvement is further supported by Table 5 which shows that 5th-grade students are 10.4 and 14.5 percentage points more likely to meet standards in math and ELA, respectively. Charter school students in Grade 7 also show an increased likelihood of meeting standards in math. However, there is no corresponding increase in probability for Grade 8 students in math to correspond with their improved test performance illustrated above.

Table 5. Estimated Charter School Effects on Meeting Test Standards by Grade Level

	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Panel B: Math					
Estimated Effects	-0.011	0.104***	0.013	0.049**	0.027
	(0.030)	(0.029)	(0.027)	(0.025)	(0.027)
Number of Students	552	536	638	652	656
Panel B: ELA					
Estimated Effects	0.0108	0.145***	0.013	-0.003	0.024
	(0.030)	(0.033)	(0.030)	(0.025)	(0.027)
Number of Students	558	538	642	660	658

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: prior test score in subject, free and/or reduced price lunch status, primary language, disabled, race, and gender. Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if either current or prior year test score are not available.*

Subgroup Analysis

Benefits of attending a charter school are also evident among key subgroups. Table 6 reports estimated impact on student test scores for charter school attendance based on race, gender, disability, and eligibility for FRPL. Because of sample size constraints, impacts cannot be estimated for American Indian and Alaskan Native, Asian, and Native Hawaiian and Other Pacific Islander students. Estimates of statistically significant improved student test performance range from 0.052 to 0.122 standard deviations. The only negative estimates are for White students, students with disabilities and non-FRPL eligible students. The differences were all statistically insignificant.

Policy Implications

These results point towards charter schools as a potential source of improvement, both in direct test results and for students who would otherwise not meet state standards in their testing.

Notably, Black (ELA only), Latinx, girls, boys (ELA only), non-SWD, and FRPL-eligible students show higher estimated performance than the same subgroup counterparts who attend OPS. Among these groups, FRPL-eligible and Latinx students (0.078 and 0.118 standard deviation increase) demonstrate the largest gains in math performance, while Black students improve by 0.122 and Latinx students by 0.122 standard deviations on ELA tests. Table 7 presents changes in the probability of meeting standards for each subgroup, showing that Black and Latinx students, girls, boys, non-SWD and FRPL eligible students have higher probabilities of meeting test standards than their OPS counterparts.

Table 6. Estimated Charter School Effects on Test Performance by Subgroup
(Grades 4 through 8)

	Black	Latinx	White	Female	Male	Non-SWD	SWD	Non-FRPL	FRPL
Panel A: Math									
Estimated Effect	0.062	0.118***	-0.016	0.058**	0.042	0.061***	-0.032	0.001	0.078***
	(0.041)	(0.037)	(0.030)	(0.026)	(0.027)	(0.020)	(0.056)	(0.029)	(0.025)
Number of Students	744	700	1,080	1,538	1,482	2,562	472	1,242	1,792
Panel B: ELA									
Estimated Effect	0.122***	0.122***	0.017	0.057**	0.083***	0.079***	0.029	0.009	0.114***
	(0.042)	(0.045)	(0.035)	(0.029)	(0.031)	(0.023)	(0.056)	(0.032)	(0.028)
Number of Students	748	712	1,084	1,540	1,502	2,586	470	1,246	1,810

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: prior test score in subject, free and/or reduced price lunch status, primary language, disabled, race, gender, and grade level (excluding the subgroup of interest for each column). Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if either current or prior year test score are not available.*

Table 7. Estimated Charter School Effects on Meeting Test Standards by Subgroup
(Grades 4 through 8)

	Black	Latinx	White	Female	Male	Non-SWD	SWD	Non-FRPL	FRPL
Panel A: Math									
Estimated Effect	0.057***	0.063***	-0.006	0.040**	0.032*	0.045***	-0.008	0.023	0.044***
	(0.026)	(0.024)	(0.021)	(0.017)	(0.018)	(0.014)	(0.025)	(0.020)	(0.015)
Number of Students	744	700	1,080	1,538	1,482	2,562	472	1,242	1,792
Panel B: ELA									
Estimated Effect	0.075***	0.051*	-0.009	0.033*	0.037**	0.038***	0.017	-0.013	0.070***
	(0.027)	(0.027)	(0.021)	(0.018)	(0.014)	(0.014)	(0.028)	(0.020)	(0.017)
Number of Students	748	712	1,084	1,540	1,502	2,586	470	1,246	1,810

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: prior test score in subject, free and/or reduced price lunch status, primary language, disabled, race, gender, and grade level (excluding the subgroup of interest for each column). Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if either current or prior year test score are not available.*

Discussion

Interpretation of Effect Sizes

Effects with statistical significance are consistently positive, although they are considered small to medium in magnitude, as no effect is greater than .2 standard deviations and many are below .05. In instances where negative effects are estimated, they are consistently insignificant statistically and should therefore be interpreted as zero. The primary estimates are for Grades 4 through 8, where prior scores provide the best match and most accurately account for ability, are statistically significant. These estimates are small to medium in magnitude in terms of test performance but do come with a higher probability of meeting state standards, suggesting that student improvement is occurring for those nearest the cutoff to meet standards. Understanding the exact nature of the improvement would require further investigation. Regardless, charter school students demonstrate better test performance than their OPS counterparts, which indicates that charter schools may help to bolster student performance in math and ELA testing.

Equity Implications

Higher test scores and higher probabilities of meeting standards are observed for most student subgroups, with historically underserved students (Black students in ELA, Latinx students, girls, and FRPL-eligible students) often showing gains. The magnitude of these improvements varies, ranging from nearly identical to notably higher gains compared with peers. While evidence suggests charter schools can help students improve performance overall, there is a need to identify how charter schools improve the performance of underserved students, as well as whether the gains persist into future educational activities.

Caveats and Caution in Interpretation

The analysis finds that charter schools, overall, have a positive impact on student test performance. Across grades, subgroups and aggregate measures, the estimates with the highest

statistical confidence indicate improvements in performance. However, the available data do not allow for controls related to the length of student enrollment in charter schools or potential differences in parental involvement and student motivation that might be associated with charter school attendance. Given these limitations, the estimates should be interpreted as representing the upper bounds of potential effects. The lack of declines in student performance is promising, but the resulting benefits might be lower than anticipated.

Conclusion

Information about charter school performance can help students and families choose the school that best meets their needs. The stronger standardized-test performance of charter school students—both higher scores and a greater likelihood of meeting standards—suggests that charter schools may offer an opportunity to improve student outcomes. However, the modest gains and variation in benefits across student groups warrant further investigation into how and when charter schools benefit students.

Further research could examine how charter schools differ from OPS schools, how charter school students differ from OPS students, and whether the effects of charter school attendance vary across grade levels. Answering these questions could help identify ways to improve both charter schools and OPS schools and better support students across the state.

Glossary

Abadie & Imbens Robust Standard Errors
A method of calculating standard errors that accurately accounts for matching, in particular Mahalanobis nearest neighbor matching, allowing for proper calculations of statistical significance.

Baseline Test Scores
A student's test results from the 2023–24 school year, used to account for prior academic achievement when comparing charter students against their OPS counterparts.

Charter School
A public school that operates independently of a school district, under a performance contract (or "charter") that outlines its mission, program, and goals.

Comprehensive Education Data and Research System (CEDARS)
Washington State's longitudinal student data system, maintained by the Office of Superintendent of Public Instruction (OSPI).

Effect Size (Standard Deviation Units)
A way to measure changes in test scores that makes results comparable across different grades, tests, and studies. For example, a 0.10 effect size means a student scored one-tenth of a standard deviation above the average for the assessment that they participated in.

Free and Reduced-Price Lunch (FRPL)
A federal program that provides low-cost or free school meals to students from low-income families. FRPL eligibility is commonly used as a measure of socioeconomic status.

Mahalanobis Nearest-Neighbor Matching
A statistical method used to pair observations from two groups together based on observable characteristics. This study uses it to pair charter school students with similar students in other public schools (OPS) based on characteristics like race, gender, income, and prior test scores. Doing so allows for the creation of a comparable group when randomized trials are not feasible or desirable.

Matches are based on minimizing the "distance" between two observations, with an emphasis on the closest match across all characteristics without any modification/adjustment by the researcher.

Office of Superintendent of Public Instruction (OSPI)
The state agency overseeing K–12 public education in Washington.

Other Public Schools (OPS)
All non-charter public schools, used as the comparison group in this study.

Scale Score
A score on a standardized test that allows comparison across different versions of the test. For the Smarter Balanced Assessments (SBA), scale scores typically range from 2300 to 2800.

Smarter Balanced Assessment (SBA)
Washington's statewide test in math and English Language Arts (ELA), administered annually in Grades 3 through 8 and 10.

Standard Deviation (SD)
A statistical measure of how spread out scores are around the average. In this report, test results are expressed in standard deviation units so that results can be compared across grades and subjects.

Washington Comprehensive Assessment of Science (WCAS)
Washington's statewide science test, administered in Grades 5, 8, and 11.

Appendix A: Balance Tables and Summary Statistics

The tables below provide the characteristics of matched charter and OPS students, both for Grades 3 and 10 combined and for each individual grade. For WCAS, Grades 5 and 8 are matched both as a combined group and separately by grade for exploratory analysis. The final tables provide summary statistics for the full student population included in the original data set, as well as the average test scores for the matched samples by grade and subgroup.

Table A1. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grades 3 and 10)

	Math			ELA		
	Charter	TPS	Diff	Charter	TPS	Diff
Male	0.523	0.523	0.000	0.522	0.522	0.000
Female	0.468	0.468	0.000	0.469	0.469	0.000
Primary Language: English	0.811	0.811	0.000	0.816	0.816	0.000
Primary Language: Spanish	0.094	0.094	0.000	0.089	0.089	0.000
Students with Disabilities	0.215	0.215	0.000	0.211	0.211	0.000
American Indian/Alaskan Native	^	^	^	^	^	^
Asian	0.055	0.055	0.000	0.055	0.055	0.000
Black	0.250	0.250	0.000	0.254	0.254	0.000
Latinx	0.192	0.192	0.000	0.188	0.188	0.000
Native Hawaiian/Other Pacific Islander	^	^	^	^	^	^
White	0.379	0.379	0.000	0.377	0.377	0.000
Eligible for Free or Reduced-Price Lunch	0.577	0.577	0.000	0.580	0.580	0.000
Number of Students	673	673		674	674	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A2. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grades 5 and 8: Science Test)

	Charter	OPS	Diff
Male	0.508	0.508	0.000
Female	0.491	0.491	0.000
Primary Language: English	0.711	0.712	-0.002
Primary Language: Spanish	0.110	0.110	0.000
Students with Disabilities	0.139	0.139	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.074	0.074	0.000
Black	0.277	0.277	0.000
Latinx	0.220	0.220	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.313	0.313	0.000
Eligible for Free or Reduced-Price Lunch	0.617	0.617	0.000
Number of Students	664	664	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A3. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 4: Math Test)

	Charter	OPS	Diff
Standardized Prior Test Score	-0.101	-0.103	0.002
Eligible for Free or Reduced-Price Lunch	0.645	0.649	-0.004
Primary Language: English	0.812	0.812	0.000
Primary Language: Spanish	0.069	0.069	0.000
Students with Disabilities	0.145	0.145	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.058	0.058	0.000
Black	0.264	0.264	0.000
Latinx	0.192	0.192	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.366	0.366	0.000
Male	0.446	0.446	0.000
Female	0.554	0.554	0.000
Number of Students	276	276	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A4. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 5: Math Test)

	Charter	OPS	Diff
Standardized Prior Test Score	-0.020	-0.023	0.003
Eligible for Free or Reduced-Price Lunch	0.619	0.619	0.000
Primary Language: English	0.713	0.713	0.000
Primary Language: Spanish	0.097	0.097	0.000
Students with Disabilities	0.127	0.127	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.093	0.093	0.000
Black	0.265	0.265	0.000
Latinx	0.235	0.235	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.295	0.295	0.000
Male	0.474	0.474	0.000
Female	0.526	0.526	0.000
Number of Students	268	268	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A5. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 6: Math Test)

	Charter	OPS	Diff
Standardized Prior Test Score	0.070	0.072	-0.002
Eligible for Free or Reduced-Price Lunch	0.558	0.558	0.000
Primary Language: English	0.755	0.755	0.000
Primary Language: Spanish	0.135	0.135	0.000
Students with Disabilities	0.185	0.185	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.044	0.044	0.000
Black	0.238	0.238	0.000
Latinx	0.263	0.263	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.373	0.373	0.000
Male	0.492	0.492	0.000
Female	0.502	0.502	0.000
Number of Students	319	319	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A6. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 7: Math Test)

	Charter	OPS	Diff
Standardized Prior Test Score	0.017	0.017	0.000
Eligible for Free or Reduced-Price Lunch	0.543	0.543	0.000
Primary Language: English	0.733	0.733	0.000
Primary Language: Spanish	0.129	0.129	0.000
Students with Disabilities	0.156	0.156	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.052	0.052	0.000
Black	0.224	0.224	0.000
Latinx	0.236	0.236	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.402	0.402	0.000
Male	0.482	0.482	0.000
Female	0.506	0.506	0.000
Number of Students	326	326	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A7. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 8: Math Test)

	Charter	OPS	Diff
Standardized Prior Test Score	-0.067	-0.079	0.012
Eligible for Free or Reduced-Price Lunch	0.601	0.601	0.000
Primary Language: English	0.726	0.729	-0.003
Primary Language: Spanish	0.134	0.134	0.000
Students with Disabilities	0.159	0.159	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.064	0.064	0.000
Black	0.241	0.241	0.000
Latinx	0.223	0.223	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.335	0.335	0.000
Male	0.540	0.540	0.000
Female	0.457	0.457	0.000
Number of Students	328	328	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A8. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 4: ELA Test)

	Charter	OPS	Diff
Standardized Prior Test Score	-0.058	-0.071	0.013
Eligible for Free or Reduced-Price Lunch	0.645	0.649	-0.004
Primary Language: English	0.814	0.814	0.000
Primary Language: Spanish	0.068	0.068	0.000
Students with Disabilities	0.147	0.147	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.057	0.057	0.000
Black	0.265	0.265	0.000
Latinx	0.194	0.194	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.366	0.366	0.000
Male	0.444	0.444	0.000
Female	0.556	0.556	0.000
Number of Students	279	279	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A9. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 5: ELA Test)

	Charter	OPS	Diff
Standardized Prior Test Score	-0.066	-0.069	0.002
Eligible for Free or Reduced-Price Lunch	0.621	0.621	0.000
Primary Language: English	0.717	0.717	0.000
Primary Language: Spanish	0.097	0.097	0.000
Students with Disabilities	0.126	0.126	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.093	0.093	0.000
Black	0.264	0.264	0.000
Latinx	0.238	0.238	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.297	0.297	0.000
Male	0.472	0.472	0.000
Female	0.528	0.528	0.000
Number of Students	269	269	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A10. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 6: ELA Test)

	Charter	OPS	Diff
Standardized Prior Test Score	0.075	0.071	0.004
Eligible for Free or Reduced-Price Lunch	0.555	0.555	0.000
Primary Language: English	0.760	0.760	0.000
Primary Language: Spanish	0.134	0.134	0.000
Students with Disabilities	0.187	0.187	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.044	0.044	0.000
Black	0.237	0.237	0.000
Latinx	0.265	0.265	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.377	0.377	0.000
Male	0.498	0.498	0.000
Female	0.495	0.495	0.000
Number of Students	321	321	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A11. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 7: ELA Test)

	Charter	OPS	Diff
Standardized Prior Test Score	0.019	0.018	0.001
Eligible for Free or Reduced-Price Lunch	0.552	0.552	0.000
Primary Language: English	0.724	0.724	0.000
Primary Language: Spanish	0.136	0.136	0.000
Students with Disabilities	0.148	0.148	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.052	0.052	0.000
Black	0.227	0.227	0.000
Latinx	0.239	0.239	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.391	0.391	0.000
Male	0.494	0.494	0.000
Female	0.494	0.494	0.000
Number of Students	330	330	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A12. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 8: ELA Test)

	Charter	OPS	Diff
Standardized Prior Test Score	-0.144	-0.150	0.006
Eligible for Free or Reduced-Price Lunch	0.602	0.602	0.000
Primary Language: English	0.714	0.714	0.000
Primary Language: Spanish	0.140	0.140	0.000
Students with Disabilities	0.155	0.155	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.067	0.067	0.000
Black	0.237	0.237	0.000
Latinx	0.225	0.225	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.334	0.334	0.000
Male	0.538	0.538	0.000
Female	0.459	0.459	0.000
Number of Students	329	329	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A13. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 3: Math Test)

	Charter	OPS	Diff
Eligible for Free or Reduced-Price Lunch	0.628	0.628	0.000
Primary Language: English	0.811	0.811	0.000
Primary Language: Spanish	0.094	0.094	0.000
Students with Disabilities	0.186	0.186	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.075	0.075	0.000
Black	0.297	0.297	0.000
Latinx	0.186	0.186	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.308	0.308	0.000
Male	0.517	0.517	0.000
Female	0.483	0.483	0.000
Number of Students	360	360	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A14. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 10: Math Test)

	Charter	OPS	Diff
Eligible for Free or Reduced-Price Lunch	0.518	0.518	0.000
Primary Language: English	0.812	0.812	0.000
Primary Language: Spanish	0.093	0.093	0.000
Students with Disabilities	0.249	0.249	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.032	0.032	0.000
Black	0.195	0.195	0.000
Latinx	0.198	0.198	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.460	0.460	0.000
Male	0.530	0.530	0.000
Female	0.450	0.450	0.000
Number of Students	313	313	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A15. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 3: ELA Test)

	Charter	OPS	Diff
Eligible for Free or Reduced-Price Lunch	0.625	0.625	0.000
Primary Language: English	0.821	0.821	0.000
Primary Language: Spanish	0.087	0.087	0.000
Students with Disabilities	0.190	0.190	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.076	0.076	0.000
Black	0.294	0.294	0.000
Latinx	0.179	0.179	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.314	0.314	0.000
Male	0.518	0.518	0.000
Female	0.482	0.482	0.000
Number of Students	357	357	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A16. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 10: ELA Test)

	Charter	OPS	Diff
Eligible for Free or Reduced-Price Lunch	0.530	0.530	0.000
Primary Language: English	0.811	0.811	0.000
Primary Language: Spanish	0.091	0.091	0.000
Students with Disabilities	0.233	0.233	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.032	0.032	0.000
Black	0.208	0.208	0.000
Latinx	0.199	0.199	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.448	0.448	0.000
Male	0.527	0.527	0.000
Female	0.454	0.454	0.000
Number of Students	317	317	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A17. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 5: Science Test)

	Charter	OPS	Diff
Eligible for Free or Reduced-Price Lunch	0.631	0.631	0.000
Primary Language: English	0.693	0.693	0.000
Primary Language: Spanish	0.092	0.092	0.000
Students with Disabilities	0.126	0.126	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.092	0.092	0.000
Black	0.290	0.290	0.000
Latinx	0.222	0.222	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.290	0.290	0.000
Male	0.457	0.457	0.000
Female	0.543	0.543	0
Number of Students	293	293	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A18. Mean Values of Student Characteristics for Charter Students and Their Matched OPS Counterparts (Grade 8: Science Test)

	Charter	OPS	Diff
Eligible for Free or Reduced-Price Lunch	0.606	0.606	0.000
Primary Language: English	0.725	0.728	-0.003
Primary Language: Spanish	0.124	0.124	0.000
Students with Disabilities	0.148	0.148	0.000
American Indian/Alaskan Native	^	^	^
Asian	0.059	0.059	0.000
Black	0.267	0.267	0.000
Latinx	0.218	0.218	0.000
Native Hawaiian/Other Pacific Islander	^	^	^
White	0.332	0.332	0.000
Male	0.547	0.547	0.000
Female	0.450	0.450	0.000
Number of Students	371	371	

*Note: *Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent; ^ indicates that student count is below reporting threshold (< 10).*

Table A19. Student Characteristics for all OPS Students
(Includes those not matched)

	Mean
Male	51%
Female	48%
Primary Language: English	75%
Primary Language: Spanish	14%
Students with Disabilities	16%
American Indian/Alaskan Native	1%
Asian	9%
Black	5%
Latinx	26%
Native Hawaiian/Other Pacific Islander	2%
White	48%
Eligible for Free or Reduced-Price Lunch	50%
Number of Students	670,305

Table A20. Mean Student Population Math Test Scores by Grade Level and Charter Enrollment

	Charter Students		**OPS Students**	
	Prior Year Score	Current Year Score	Prior Year Score	Current Year Score
3rd Grade	N/A	2,424.85	N/A	2,436.40
4th Grade	2,429.16	2,466.86	2,439.10	2,479.57
5th Grade	2,477.83	2,517.13	2,480.09	2,503.73
6th Grade	2,512.43	2,516.47	2,505.19	2,514.78
7th Grade	2,517.08	2,543.65	2,515.45	2,533.07
8th Grade	2,523.56	2,534.81	2,531.88	2,541.72
10th Grade	N/A	2,537.94	N/A	2,559.05

Table A21. Mean Student Population ELA Test Scores by Grade Level and Charter Enrollment

	Charter Students		**OPS Students**	
	Prior Year Score	Current Year Score	Prior Year Score	Current Year Score
3rd Grade	N/A	2,411.29	N/A	2,426.58
4th Grade	2,421.10	2,468.04	2,427.13	2,470.13
5th Grade	2,461.79	2,520.94	2,469.00	2,509.75
6th Grade	2,516.30	2,528.84	2,508.34	2,523.22
7th Grade	2,523.74	2,555.13	2,522.07	2,550.19
8th Grade	2,533.96	2,551.18	2,549.81	2,560.92
10th Grade	N/A	2,593.01	N/A	2,609.13

Table A22. Mean Student Population Math Test Scores by Subgroup and Charter Enrollment (Grades 4 through 8)

	Charter Students		OPS Students	
	Prior Year Score	Current Year Score	Prior Year Score	Current Year Score
American Indian/Alaskan Native	2,493.10	2,546.73	2,425.89	2,442.66
Asian	2,532.26	2,563.01	2,565.19	2,592.72
Black	2,479.78	2,501.35	2,444.22	2,459.05
Latinx	2,472.17	2,496.78	2,447.88	2,463.09
Native Hawaiian/Other Pacific Islander	^	^	^	^
White	2,508.31	2,529.49	2,512.17	2,535.00
Female	2,485.84	2,508.97	2,488.46	2,509.13
Male	2,503.11	2,525.90	2,499.72	2,519.47
Non-SWD	2,509.80	2,534.16	2,510.44	2,530.73
SWD	2,411.94	2,426.13	2,399.58	2,419.15
Ineligible for Free or Reduced-Price Lunch	2,522.16	2,546.79	2,535.93	2,561.20
Eligible for Free or Reduced-Price Lunch	2,475.45	2,497.36	2,451.90	2,468.00

^ *indicates student count is below reporting threshold (<10)*

Table A23. Mean Student Population ELA Test Scores by Subgroup and Charter Enrollment (Grades 4 through 8)

	Charter Students		OPS Students	
	Prior Year Score	Current Year Score	Prior Year Score	Current Year Score
American Indian/Alaskan Native	2,527.80	2,530.82	2,425.50	2,454.18
Asian	2,509.17	2,561.33	2,549.66	2,580.23
Black	2,477.46	2,514.88	2,457.26	2,482.581
Latinx	2,473.07	2,506.47	2,451.96	2,476.94
Native Hawaiian/Other Pacific Islander	^	^	^	^
White	2,512.54	2,538.98	2,512.90	2,541.92
Female	2,499.58	2,532.94	2,504.99	2,534.63
Male	2,489.19	2,521.08	2,485.73	2,511.46
Non-SWD	2,507.88	2,541.94	2,510.77	2,538.47
SWD	2,422.36	2,446.92	2,404.32	2,431.62
Ineligible for Free or Reduced-Price Lunch	2,530.61	2,556.63	2,535.34	2,565.34
Eligible for Free or Reduced-Price Lunch	2,470.03	2,507.07	2,454.45	2,480.25

^ *indicates student count is below reporting threshold (<10)*

Table A24. Percentage of Sample Student Population Meeting Standards in Math & ELA by Grade Level and Charter Enrollment (Grades 4 through 8)

	Charter Students		OPS Students	
	Math	ELA	Math	ELA
4th Grade	45.51	49.16	49.15	50.57
5th Grade	50.68	60.07	42.69	54.10
6th Grade	42.37	51.12	39.84	49.42
7th Grade	46.63	54.32	40.93	52.62
8th Grade	34.15	47.30	37.14	50.94
4th through 8th	43.48	52.18	41.95	51.54

Table A25. Student Population Count by Subgroup and Grade Level
(Matched Sample for Math)

	Grade Level					
Group	4th	5th	6th	7th	8th	Total
Eligible for Free or Reduced-Price Lunch	356	332	356	354	394	1,792
Primary Language: English	448	382	482	478	476	2,266
Primary Language: Spanish	38	52	86	84	88	348
Students with Disabilities	80	68	118	102	104	472
American Indian/Alaskan Native	^	^	^	^	^	20
Asian	32	50	28	34	42	186
Black	146	142	152	146	158	744
Latinx	106	126	168	154	146	700
Native Hawaiian/Other Pacific Islander	^	^	^	^	^	14
White	202	158	238	262	220	1,080
Male	246	254	314	314	354	1,482
Female	306	282	320	330	300	1,538

^ *indicates that count was suppressed due to sample size restrictions (<10)*

Table A26. Student Population Count by Subgroup and Grade Level
(Matched Sample for ELA)

	Grade Level					
Group	4th	5th	6th	7th	8th	Total
Eligible for Free or Reduced-Price Lunch	360	334	356	364	396	1,810
Primary Language: English	454	386	488	478	470	2,276
Primary Language: Spanish	38	52	86	90	92	358
Students with Disabilities	82	68	120	98	102	470
American Indian/Alaskan Native	^	^	^	^	^	20
Asian	32	50	28	34	44	188
Black	148	142	152	150	156	748
Latinx	108	128	170	158	148	712
Native Hawaiian/Other Pacific Islander	^	^	^	^	^	14
White	204	160	242	258	220	1,084
Male	248	254	320	326	354	1,502
Female	310	284	318	326	302	1,540

^ *indicates that count was suppressed due to sample size restrictions (<10)*

Table A27. Charter Schools Included in Analysis

School Name	Grades 4 through 8	Grade 3	Grade 10
Catalyst Public Schools	Yes	Yes	No
Impact: Black River	No	Yes	No
Impact: Commencement Bay Elementary	Yes	Yes	No
Impact: Puget Sound Elementary	Yes	Yes	No
Impact: Salish Sea Elementary	Yes	Yes	No
Innovation High School	No	No	Yes
Lumen High School	No	No	No
Pinnacles Prep	Yes	No	Yes
Rainier Prep	Yes	No	No
Rainier Valley Leadership Academy	Yes	No	Yes
Rooted Vancouver	No	No	Yes
Spokane International Academy	Yes	Yes	Yes
Summit Public School: Atlas	Yes	No	Yes
Summit Public School: Olympus	No	No	Yes
Summit Public School: Sierra	No	No	Yes
Whatcom Intergenerational High School	No	No	Yes
Why Not You Academy	No	No	Yes

Appendix B: Additional Outcome Tables

The tables in this appendix present exploratory estimates for 3rd and 10th grades (math and ELA tests) and for 5th and 8th grades (science). Because prior test scores are unavailable for these grades, students cannot be matched; as a result, there may bias in the estimates.

Table B1. Estimated Charter School Effects by Subject
(Grades 3 and 10 for Math and ELA; Grades 5 and 8 for Science)

	Math		ELA		Science	
	Test Score	Met Standards	Test Score	Met Standards	Test Score	Met Standards
Estimated Effects	0.054	0.019	0.01	0.001	0.03	0.005
	(0.046)	(0.024)	(0.046)	(0.026)	(0.046)	(0.025)
Number of Students	1,346		1,348		1,328	

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: free and/or reduced price lunch status, primary language, disabled, race, gender, and grade level. Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if current is not available.*

Table B2. Estimated Charter School Effects on Math Test Performance by Grade Level

	Grade 3	Grade 10
Panel A: Test Score		
Estimated Effects	0.061	0.046
	(0.062)	(0.068)
Number of Students	720	570
Panel B: Met Standards		
Estimated Effects	0.017	0.022
	(0.035)	(0.032)
Number of Students	720	570

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: free and/or reduced price lunch status, primary language, disabled, race, and gender. Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if current test score is not available.*

Table B3. Estimated Charter School Effects on ELA Test Performance by Grade Level

	Grade 3	Grade 10
Panel A: Test Score		
Estimated Effects	-0.022	0.046
	(0.063)	(0.067)
Number of Students	714	578
Panel B: Met Standards		
Estimated Effects	0.025	-0.025
	(0.036)	(0.037)
Number of Students	714	578

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: free and/or reduced price lunch status, primary language, disabled, race, and gender. Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if current test score is not available.*

Table B4. Estimated Charter School Effects on Science Test Performance by Grade Level

	Grade 5	Grade 8
Panel A: Test Score		
Estimated Effects	0.097	-0.023
	(0.070)	(0.060)
Number of Students	586	742
Panel B: Met Standards		
Estimated Effects	0.061	-0.04
	(0.038)	(0.033)
Number of Students	586	742

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: free and/or reduced price lunch status, primary language, disabled, race, and gender. Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if current test score is not available.*

Table B5. Estimated Charter School Effects on Math Test Performance by Subgroup
(Grades 3 and 10)

	Black	Latinx	White	Female	Male	Non-SWD	SWD	Non-FRPL	FRPL
Panel A: Test Score									
Estimated Effect	-0.043	0.003	0.156**	0.094	0.029	-0.002	0.260***	0.081	0.034
	(0.090)	(0.108)	(0.076)	(0.063)	(0.068)	(0.052)	(0.100)	(0.070)	(0.061)
Number of Students	336	258	510	642	704	1,056	290	570	776
Panel B: Met Standards									
Estimated Effect	-0.006	-0.023	0.063*	0.038	0.006	0.013	0.041	0.042	0.003
	(0.050)	(0.046)	(0.041)	(0.035)	(0.033)	(0.029)	(0.035)	(0.039)	(0.030)
Number of Students	336	258	510	642	704	1,056	290	570	776

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: free and/or reduced price lunch status, primary language, disabled, race, gender, and grade level (excluding the subgroup of interest for each column). Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if current year test score is not available.*

Table B6. Estimated Charter School Effects on ELA Test Performance by Subgroup
(Grades 3 and 10)

	Black	Latinx	White	Female	Male	Non-SWD	SWD	Non-FRPL	FRPL
Panel A: Test Score									
Estimated Effect	-0.129	-0.002	0.131*	0.037	-0.004	-0.055	0.283***	-0.036	0.053
	(0.092)	(0.105)	(0.074)	(0.066)	(0.064)	(0.052)	(0.094)	(0.071)	(0.060)
Number of Students	342	254	508	644	704	1,064	284	566	782
Panel B: Met Standards									
Estimated Effect	-0.047	-0.024	0.059	0.032	-0.028	-0.021	0.085*	-0.057	0.044
	(0.053)	(0.058)	(0.041)	(0.039)	(0.034)	(0.030)	(0.044)	(0.038)	(0.034)
Number of Students	342	254	508	644	704	1,064	284	566	782

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: free and/or reduced price lunch status, primary language, disabled, race, gender, and grade level (excluding the subgroup of interest for each column). Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if current year test score is not available.*

Table B7. Estimated Charter School Effects on Science Test Performance by Subgroup
(Grades 5 and 8)

	Black	Latinx	White	Female	Male	Non-SWD	SWD	Non-FRPL	FRPL
Panel A: Test Score									
Estimated Effect	-0.035	0.190*	-0.002	-0.017	0.068	0.023	0.074	0.003	0.047
	(0.076)	(0.101)	(0.083)	(0.059)	(0.069)	(0.049)	(0.131)	(0.079)	(0.055)
Number of Students	368	292	416	654	674	1,144	184	508	810
Panel B: Met Standards									
Estimated Effect	0.005	0.055	-0.034	-0.025	0.030	0.002	0.022	-0.047	0.037
	(0.047)	(0.049)	(0.046)	(0.035)	(0.036)	(0.027)	(0.058)	(0.041)	(0.032)
Number of Students	368	292	416	654	674	1,144	184	508	810

*Notes: *significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent. Robust Abadie-Imbens standard errors are reported in parentheses. The following charactersitics are used as match criteria: free and/or reduced price lunch status, primary language, disabled, race, gender, and grade level (excluding the subgroup of interest for each column). Observations are the sum of charter students and their matched control observations (tied matches are broken via a randomly assigned value with a uniform distribution). Students are excluded if current year test score is not available.*

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