

Ohio Charter Schools' Turnaround, 2007–2025:

The Role of Funding and Accountability
in their Performance Trajectory

By Stéphane Lavertu

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—Aaron Churchill and Chad L. Aldis
Thomas B. Fordham Institute



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Foreword

By Aaron Churchill and Chad L. Aldis

Public charter schools are one of the most enduring—and successful—educational innovations over the past three decades. Freed from suffocating union contracts and distracting school board politics, charter schools can create distinctive programs, assemble teams of mission-aligned educators, and maintain a clear focus on student needs. Today, approximately 4 million U.S. students attend the nation’s 8,000-plus charter schools; in Ohio, roughly 120,000 students attend the state’s 340 charters.

In exchange for these freedoms, charters are expected to deliver stronger academic outcomes. When they fall short, accountability mechanisms come into play, measures rarely found in the traditional district sector. These include corrective actions required by state officials or their sponsor (a.k.a., “authorizer,” the entity that allows a charter school to operate), immediate funding reductions when dissatisfied parents disenroll their children, and permanent closure by their sponsor or directly by state action if they chronically underperform.

The autonomy-in-return-for-accountability model has effectively served millions of American youngsters. According to the most recent national study by Stanford University’s Center for Research on Education Outcomes, the average charter student makes greater academic progress each year than a similar student attending a district school.¹ In Boston, researchers estimate that its finest charters close the yawning black-white achievement gap by one-fifth to one-third each year. New York City’s famed Success Academy charter schools consistently register near-perfect proficiency rates on state exams.² Ohio also has success stories, including well-regarded charters such as Dayton Early College Academy, KIPP Columbus, and the United Schools (all proudly sponsored by our sister organization, the Thomas B. Fordham Foundation).

Other charter schools, however, have struggled and many have closed due to accountability pressures and often-related fiscal challenges. In the early days of Ohio’s charter movement, too many schools were hastily launched, and others suffered from weak accountability and severe underfunding. Urged by choice-friendly and quality-centered advocates, including the Fordham Institute, Ohio has undertaken a decade-long turnaround effort via two main policy levers—both aimed at driving higher student achievement, an outcome the present report evaluates.³

- **Stronger state oversight of charter sponsors.** Ohio has long permitted various entities—e.g., local districts, educational service centers, and qualified nonprofits—to sponsor charter schools. A multi-sponsor system promotes competition and innovation, but without rigorous state oversight, it also allowed the growth of weak sponsors and lax accountability in Ohio’s charter sector. Enacted in 2015, House Bill 2 strengthened the state’s fledgling effort to hold sponsors more accountable for the performance of their schools. The legislation established consequences—including revocation—when sponsors turn a blind eye to quality. This tougher oversight had an immediate impact, with the number of sponsors falling from 66 in 2013 to just 19 by 2022 (18 are active today). The system also encouraged sponsors to shutter low-performing schools. Between 2016 and 2022, just over 100 Ohio charter schools closed (out of nearly 400 at baseline), largely done through sponsor action.

¹ Center for Research on Education Outcomes, *As A Matter of Fact, National Charter School Study III* (2023): <https://credo.stanford.edu/reports/item/national-charter-school-study-iii/>.

² Tom Kane, “The cost of the charter school cap,” *CommonWealth* (October 5, 2016): <https://commonwealthbeacon.org/education/the-cost-of-the-charter-school-cap/> and Jason L. Riley, “New York’s charter schools live up to their promise,” *Wall Street Journal* (February 3, 2026): <https://www.wsj.com/opinion/new-yorks-charter-schools-live-up-to-their-promise-0d880550>.

³ For additional policy detail, see Aaron Churchill, *Reinventing Ohio’s Charter School Sector, 2015–2023*, Thomas B. Fordham Institute (2023): <https://fordhaminstitute.org/ohio/research/reinventing-ohios-charter-school-sector-2015-2023-ohios-successful-charter-turnaround>.

- **More equitable funding for high-performing charter schools.** Charter schools in Ohio, as in most states, have long operated with far less funding per student than their district counterparts, making it far harder to maintain high-performing schools. With the accountability framework solidified, state leaders tackled this major challenge confronting the charter sector. First enacted through the biennial budget for fiscal 2020 and 2021, the Quality Community School Support Fund (QCSSF)⁴ has provided much-needed supplemental aid to qualifying schools, ranging from approximately \$1,000 to \$3,000 per pupil, depending on year (see page 13 for program details). The extra dollars have been a game-changer, narrowing the per-pupil funding gap between these high performers and their local district from an approximately 30 percent shortfall to 10 percent.⁵ In 2025–26, 116 of Ohio's 348 charters qualified for the program.

As noted above, the goal of these reforms is to deliver better learning outcomes for students. Conducted by Dr. Stéphane Lavertu, an Ohio State University professor and Fordham Institute research fellow, this study offers hard evidence that they have indeed moved the achievement needle. Two findings stand out.

First, the overall performance of Ohio charter schools—the brick-and-mortar variety—has markedly improved. In 2007, the average charter student was *losing* ground in math and reading compared to a similar student attending a district school. The reverse is true today. In 2025, the average brick-and-mortar charter student *gained* the equivalent of 25 to 35 additional days of learning in both math and reading versus her district-attending counterpart. While the quality of individual charter schools still varies, the average Ohio charter today provides a superior education compared to students' typical district alternative.

Second, providing more equitable funding has bolstered achievement in the state's high-quality charters. Consistent with an earlier report examining the program's first four years,⁶ this study continues to uncover positive impacts of the additional funds into fiscal 2024 and 2025. To better isolate the impact of the program funds, this analysis compares narrowly qualifying to nonqualifying charters, rather than charter to district students. When doing this, we find that the extra dollars received by charter schools are associated with student gains worth about 50 to 60 days of additional learning.

Thanks to a decade of reform led by policymakers keen to ensure that charter schools serve students well, Ohio's charter pupils are reaping the benefits of a more responsible, more accountable, better-funded, and higher-performing charter sector. Although charter students make more progress than they would attending district schools, most charter students (largely from low-income families) still score below the statewide average: For instance, 45 percent of third-grade charter students achieved reading proficiency in 2024–25 versus 61 percent statewide. Given this still wide achievement gap, the work of helping every charter student reach their full potential remains unfinished.

What to do? On the policy side, state lawmakers must continue to insist on strong accountability measures even in the face of demands—sometimes, unfortunately, from the charter sector itself—to water them down. Lawmakers still have their work cut out to ensure that *all charter students* receive the benefits of fair and equitable funding—not just those fortunate enough to attend schools qualifying for the extra dollars. As we at the Fordham Institute have long contended, charter school students shouldn't get shortchanged simply because of their choice in public school. Lastly, state leaders should continue to protect the autonomy of charter schools, while balancing such independence with expectations to implement high-quality curricula, achieve student attendance targets, and hire top-notch teachers knowledgeable in their content area.

⁴ In Ohio legalese, charter schools are known as "community schools."

⁵ Aaron Churchill, "Has Ohio erased its charter funding gaps?" Thomas B. Fordham Institute (January 21, 2025): <https://fordhaminstitute.org/ohio/commentary/has-ohio-erased-its-charter-funding-gaps>.

⁶ Stéphane Lavertu, *The Impact of Increasing Funding for High-Performing Ohio Charter Schools*, Thomas B. Fordham Institute (2024): <https://fordhaminstitute.org/ohio/research/impact-increasing-funding-high-performing-ohio-charter-schools-quality-community>.

State lawmakers, including the next governor, should build on Ohio's legacy of school choice and local autonomy as well as its more recent moves toward charter accountability and equitable funding. A renewed push for excellent charter schools will further empower families and put a next generation of charter students on pathways to success.

Executive Summary

Charter schools (labeled “community schools” in Ohio law) are publicly funded but independently operated schools that serve students from kindergarten through grade 12. Since their authorization in 1997, Ohio policymakers have promoted charters as a way to expand educational opportunities for families—particularly those residing in underperforming school districts—while creating competition that incentivizes all schools to better meet students’ needs. But charters are not necessarily good schools, and lawmakers have enacted a series of reforms aimed at improving their quality by holding them accountable for results and increasing their funding.

This report examines the trajectory of Ohio’s charter school sector between 2007 and 2025 and considers the role that accountability and funding policies have played in shaping that trajectory. Using student-level administrative data and school-level spending information, the analysis compares the academic outcomes of charter students with those of similar students attending nearby district-operated schools. It also examines how recent funding initiatives—particularly the Quality Community School Support Fund (QCSSF)—have affected charter operations and student outcomes. To enable apples-to-apples comparisons, this analysis focuses on brick-and-mortar charter schools that serve a general student population, setting aside online “virtual” schools and those that focus on dropout prevention and recovery.⁷

The analysis indicates that Ohio’s charter sector has improved substantially. The average annual achievement gains of charter students initially lagged the gains of similar students in nearby district schools, but the average charter now produces substantially larger achievement gains. Recent funding reforms also appear to have strengthened the performance of the charter sector’s most effective schools. Here are the key findings:

- *Ohio charter schools now produce substantially larger academic gains than nearby district schools.*
During the 2006–07 school year, the average charter student had annual achievement gains that were 0.05 standard deviations lower than those of similar district students. By the 2024–25 school year, the annual gains of the average charter student exceeded those of similar district students by approximately 0.06 standard deviations. This advantage equates to roughly 25–35 additional days of learning per school year—and the gains compound for students who attend charter schools for multiple years. Quality varies, however. During the 2024–25 school year, 26 percent of charters posted average achievement gains in English that were statistically significantly lower than those of nearby district-run schools, and 40 percent of charters posted lower average gains in math.
- *Accountability reforms likely contributed to the sector’s improvement.*
Ohio’s automatic charter school closure law—enacted in 2006—requires persistently low-performing charter schools to shut down, removing schools with weak academic results from the sector. Additional reforms enacted in 2015 strengthened oversight of charter school sponsors and operators. Together, these policies toughened the consequences for poor performance and appear to have contributed significantly to the steady improvement in charter school outcomes over time. For example, during the 2023–24 school year, 96 of the 226 charter schools for which gains could be calculated demonstrated statistically significantly lower gains than nearby district schools in at least one subject—and 10 of these schools were no longer in operation during the 2024–25 school year. On the other hand, 130 of these 226 charters posted higher annual achievement gains than nearby district schools in at least one subject, and all were still in operation the following year.

⁷ The analysis includes all site-based, brick-and-mortar charter schools, including “special education” charters in which a majority of students have independent education plans.

➤ Charter schools continue to operate with fewer resources than nearby district schools.

Charter schools generally spend far less per pupil than district schools serving students from the same communities, as they receive less public funding. Recent policy changes have narrowed this gap by directing additional funding to higher-performing charter schools via the Quality Community School Support Fund (QCSSF). Nevertheless, the average charter school still spends approximately \$4,000 less per pupil than the district schools where they are located, and the average school receiving QCSSF funding spends approximately \$2,500 less per pupil.

➤ Charter schools bringing in additional revenue from the Quality Community School Support Fund produce exceptionally strong academic outcomes.

After one or two years in a QCSSF-funded school, students experience large test-score gains of approximately 0.3 standard deviations in math and 0.2 standard deviations in English, roughly equivalent to their getting an extra 100–130 days of instruction relative to their charter-school peers who did not attend a QCSSF school. These schools also employ teachers with higher salaries and lower turnover and absenteeism, and their students exhibit lower rates of chronic absenteeism. The above results do not speak to the effectiveness of providing QCSSF charters with more funding, however, since Ohio selects QCSSF schools *because* they are highly performing.

➤ Additional funding accounts for a substantial share of these improvements.

To isolate the impact of additional funding from the impact of selection based on quality, the analysis compares charters that narrowly qualified for QCSSF funding with those that narrowly failed to do so. In other words, it compares schools of similar quality that did and did not receive the additional QCSSF funding. The results suggest that roughly half of the achievement advantage associated with QCSSF schools is attributable to the additional funding, whereas the reductions in chronic absenteeism are primarily driven by the additional resources. Finally, the results indicate that QCSSF funding led to higher teacher salaries, lower teacher turnover, and lower teacher absence rates, providing clues on how funding might translate to improved outcomes.

The average academic gains in Ohio's brick-and-mortar charter schools are large relative to those typically observed in education policy research. Average student performance masks considerable variation, however, as approximately 40 percent of charters post significantly lower annual gains in at least one subject than nearby district schools. Moreover, charters disproportionately serve economically disadvantaged urban students with academic achievement and attendance rates well below Ohio averages. The charter school advantages documented in this report are not sufficient to overcome the substantial academic headwinds these students face.

Nevertheless, the annual academic gains of the average charter school student are comparable to those produced by some of the most effective—and often far more costly—educational interventions. The policy implications are straightforward. Accountability policies appear to play an important role in sustaining quality in the charter sector as a whole, and targeted investments in effective schools can amplify the impact of these high performers. Together, these policies should enable Ohio's charter sector to continue expanding high-quality educational opportunities for students, particularly those in communities where strong public-school options are limited.

Background

A. Brick-and-Mortar Charter Schools

Ohio law authorized the establishment of charter schools in 1997 to provide additional public schooling options to families trapped in poorly performing school districts. These charter schools (called “community schools” in state law) are tuition-free, open to all Ohio students, and independent of school districts. This independence provides charters some freedom to innovate but, in exchange, they are held accountable for outcomes. School authorizers (or “sponsors”) and state law hold charters formally accountable for their performance. And, because public funding follows students, charters must satisfy the demands of parents to remain financially viable. By expanding educational options for parents, lawmakers created incentives for all public schools—both charter and district—to meet the educational needs of children.⁸

During the 2024–25 school year there were 340 charter schools serving 119,310 Ohio students in grades K–12, approximately 6.3 percent of Ohio’s school-age children and 7.3 percent of its public-school students.⁹ This analysis focuses on the 251 site-based, brick-and-mortar charter schools (excluding schools focused on dropout prevention and recovery as well as “virtual” schools) as these schools are most comparable to traditional district schools and were those eligible for the QCSSF program that is the focus of this report.¹⁰ Consistent with policymakers’ intent to provide options to families trapped in struggling districts, Ohio’s charter schools serve primarily low-income and low-achieving students who reside in densely populated urban school districts. As Table 1 indicates, during the 2024–25 school year, the average charter school had 274 students who were predominantly economically disadvantaged (94 percent), Black or Hispanic (69 percent), scored well below average on state tests (between the 28th and 30th percentiles), and struggled with attendance (48 percent missed 10 percent or more of instructional hours).

Table 1 provides a high-level comparison of charter and district schools statewide during the 2024–25 school year. However, because charter schools serve primarily economically disadvantaged children in urban areas, as well as a mix of students who reside outside of Ohio’s largest urban districts (the “Urban Eight”), the birds-eye view in Table 1 does not properly portray the relative funding and performance of charter and district schools. The subsections below provide a more nuanced account of how charters have performed over time and some factors that likely influenced their trajectory.

⁸ Ohio lawmakers have also expanded school options by providing families vouchers to send their children to private schools. This study, however, focuses on charter schools, which are public school options and do not require a voucher.

⁹ These statistics are unlikely to match official statistics perfectly, as they are based on the author’s calculations using student-level data and include students in K–12 only.

¹⁰ There are also seven online “virtual” schools and 82 schools that focus on dropout prevention and recovery that are legally charter schools, but they are not comparable to traditional public schools.

Table 1. Characteristics of charter schools that are the focus of this study in 2024–25

	All Ohio District Schools	“Urban Eight” District Schools	Charters Schools
School Count	3,281	437	251
Student Count	1,533,273	178,938	68,372
Average school characteristics			
Enrollment (FTE students)	467	409	274
Economically disadvantaged (percent)	63	99	94
Black (percent)	15	55	56
Hispanic (percent)	8	15	13
Math Scores (percentile)	48	26	28
English Scores (percentile)	50	28	30
Attendance Rate (percent)	92	85	87
Chronic Absence Rate (percent)	23	46	48
Expenditures per pupil (dollars)	17,512	24,943	17,066

Note. The table presents descriptive statistics for brick-and-mortar charter schools that are the focus of this report and, to provide a benchmark for comparison, traditional district schools and “urban eight” district schools (Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Toledo, and Youngstown). Calculations are based on student-level data for students in grades K–12 and, thus, may not match official statistics exactly. Note that the averages characterize the average school as opposed to the average student in each sector, which would require weighting the statistics by school enrollment.

B. Charter School Performance, 2007–2025

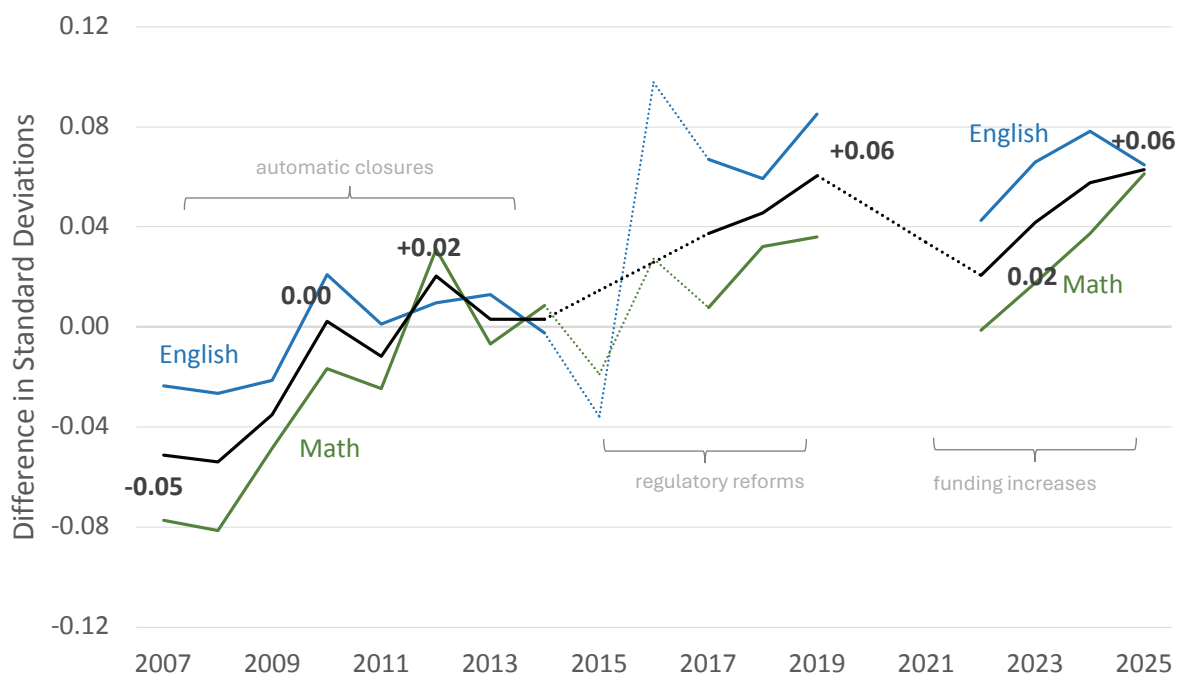
Assessing whether charter schools provide parents with quality educational options, relative to other public schools serving children in their area, requires a statistical methodology that adjusts for the differences in students across sectors. Researchers have converged on a statistical method that does so reliably: schools’ test-score value-added. It captures how much higher or lower student achievement is than one would have anticipated given students’ achievement trajectories in prior school years.¹¹ In other words, this method assesses the “gains” that schools provide relative to other schools. That’s what I did in this study: estimated statistical models that compare the annual test-score gains of charter schools to the gains of district schools serving similar students who reside in the same school districts.¹²

¹¹ For an accessible review, see Cory Koedel, “Value-Added and Growth Models in Education,” in *Live Handbook of Education Policy Research*, ed. Douglas Harris (Association for Education Finance and Policy, 2025), accessed December 2, 2025. For a technical review, see Andrew Bacher-Hicks and Cory Koedel, “Estimation and Interpretation of Teacher Value Added in Research Applications,” in *Handbook of the Economics of Education*, vol. 6, ed. Eric A. Hanushek, Stephen Machin, and Ludger Woessmann (Amsterdam: Elsevier, 2023), 93–134.

¹² See Appendix C, section titled School Value-added #1, for details of the statistical procedure.

Figure 1 below provides relative gain estimates across charters (weighted by each school's enrollment) for grades 4–8, as tests were administered most consistently in those grades.¹³ It reveals a steep upward trajectory of charter school performance. Charter students' average annual gains on English and math tests (the black line) were 0.05 standard deviations below that of nearby district schools during the 2006–07 school year (labeled “2007”). By the 2024–25 school year, however, charter school students outpaced those in district schools by 0.06 standard deviations, on average. These are *annual* achievement gains. They compound as students progress through school. The estimate for the 2024–25 school year implies that, if a student attended a charter school from grade 4 to grade 8, by grade 8 that student's test scores would be 0.3 standard deviations higher than they would have been had they attended a nearby district school. This estimated difference is roughly equivalent to charter students getting an additional 75 percent of a school year (130 days of additional instruction) over those five years.¹⁴

Figure 1. Difference in annual test-score gains between charters and district schools



Note. The figure presents the estimated differences in annual test-score gains between charter schools and nearby district schools. Estimates are reported in standard deviation units, such that positive (negative) numbers indicate that students in charter schools increase their achievement more (less) than similar students in nearby district schools. Dashed portions of the average achievement trends (in black) capture imputed linear trends created by connecting with a line estimates from 2013–14 to 2016–17 (i.e., excluding the wild estimates due to PARCC, reported as dashed blue and green lines) and connecting estimates from 2018–19 and 2021–22 (because missing test score data from 2019–20 preclude the estimation of gains for two years).

Though few students attend a consistently high-performing school for five years, the cumulative effects are likely still large for the average student. Even if the cumulative effects were 0.2 standard deviations (two-thirds of the

¹³ These estimates are distinct from but comparable to Ohio's official school value-added estimates.

¹⁴ Research indicates that students typically experience annual test-score growth of 0.314 of a standard deviation in reading and 0.422 of a standard deviation in math in grades 4–8. Dividing these gain estimates by the typical growth rates yields a fraction of a school year, which can be multiplied by 180 (the typical number of instructional days in a school year) to estimate additional days of learning. See Carolyn J. Hill, Howard S. Bloom, Alison R. Black, and Mark W. Lipsey, “Empirical Benchmarks for Interpreting Effect Sizes in Research,” *Child Development Perspectives* 2, no. 3 (2008): 172–77.

implied cumulative achievement advantage in charter schools today) such effects would be large compared to those of other education interventions.¹⁵ With this benchmark in mind, the improvement of 0.11 standard deviations in average annual test-score gains between 2006–07 and 2024–25 is enormous. Quality varies by individual school, however. For example, during the 2024–25 school year, 26 percent of charters posted average achievement gains in English that were statistically significantly lower than those of nearby district-run schools, and 40 percent of charters posted lower average gains in math.¹⁶

Note that the historical estimates of charter school performance are like those found in other rigorous studies that assess Ohio's charter sector, demonstrating steady improvement since 2006–07, a peak in performance in 2018–19, and a steep decline during the pandemic.¹⁷ This analysis is the most recent and, thus, the first to document a complete rebound from 2021–22 to 2024–25. The average charter school is, once again, performing at its 2018–19 peak. Interestingly, achievement gains in math are now at their highest ever.

C. Charter School Accountability, 2007–2025

Notable changes in charter school accountability have contributed to the steep improvements in their performance over time. First, Ohio's automatic charter school closure law, enacted in 2006, requires poorly performing charter schools—determined in large part based on students' annual test-score gains—to shut down. This law eliminated schools with low achievement gains (which mechanically contributes to the positive trend in Figure 1) and significantly improved the achievement of students who were displaced by school closure between 2008–09 and 2012–13.¹⁸

Figure 2 (below) illustrates the force of the closure law by comparing the closure rates of charter schools that had below-average test-score gains in the prior school year (blue line) and those that had above-average value-added estimates in the prior school year (green line).¹⁹ The rate of school closure (for any reason, not just the closure law) for below-average schools quickly climbed to 11 percent by 2010, significantly outpacing the closure rate for schools with above-average test-score gains, which peaked at 4 percent during the 2007–2013 period. This gap in closure rates is remarkable when one considers that the identification of schools as being below- or above-average is a rough approximation.²⁰ The gap is often higher if this comparison is limited to only those schools

¹⁵ Matthew A. Kraft, "Interpreting Effect Sizes of Education Interventions," *Educational Researcher* 49, no. 4 (2020): 241–253.

¹⁶ Specifically, the difference between a charter school's gain estimate and the gain estimate among nearby district schools was negative and statistically significant at the 5 percent level.

¹⁷ These estimates are comparable to those found in past Fordham Institute reports as well as to CREDO's estimates for brick-and-mortar charter schools. See Stéphane Lavertu, *The Impact of Ohio Charter Schools on Student Outcomes, 2016–19* (Columbus, OH: Thomas B. Fordham Institute, 2020); and Stéphane Lavertu, *Ohio Charter Schools After the Pandemic: Are Their Students Still Learning More Than They Would in District Schools?* (Columbus, OH: Thomas B. Fordham Institute, 2024). For 2018–19 estimates using a credibly causal quasi-experimental design, see Stéphane Lavertu and Long Tran, "For-Profit Milk in Nonprofit Cartons? The Case of Nonprofit Charter Schools Subcontracting with For-Profit Education Management Organizations," *Journal of Policy Analysis and Management* 44, no. 1 (2025): 236–265. For CREDO's estimates, see Center for Research on Education Outcomes (CREDO), *Charter School Performance in Ohio* (Stanford, CA: Stanford University, 2014); and Margaret E. Raymond et al., *As a Matter of Fact: The National Charter School Study III 2023* (Stanford, CA: Center for Research on Education Outcomes, 2023). As explained elsewhere, CREDO's main statewide estimates can be misleading because they include schools focused on dropout prevention and recovery as well as virtual schools, which serve very different student populations; see Stéphane Lavertu, "CREDO Got It Wrong: Ohio's Charter Sector Is Strong and Getting Better," *Thomas B. Fordham Institute* (commentary).

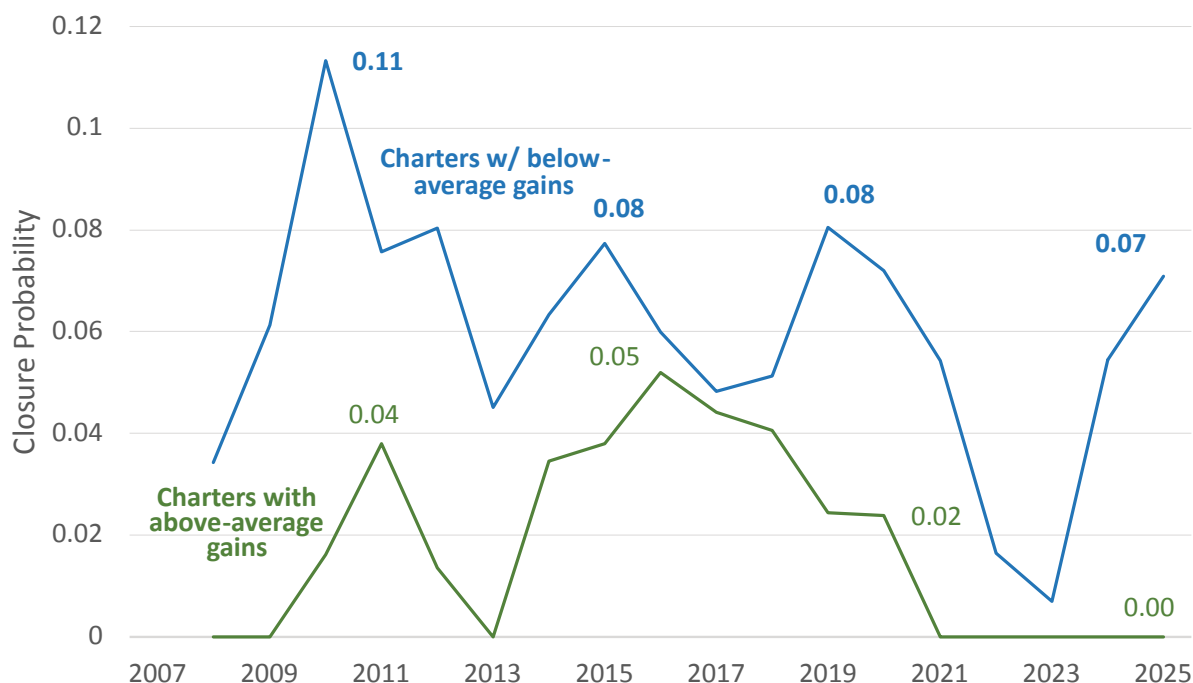
¹⁸ Deven Carlson and Stéphane Lavertu, "Charter School Closure and Student Achievement: Evidence from Ohio," *Journal of Urban Economics* 95 (2016): 31–48.

¹⁹ These value-added estimates once again capture the achievement gains of a school's average student relative to gains for similar students in the residential district, but without differencing out the estimated value-added of nearby district schools. The procedure for generating these estimates is described in Appendix C, in the section titled School Value-added #2. The results are similar when the difference in gains is used to identify high and low performers.

²⁰ Schools are categorized based on a single year of achievement gains and many schools categorized as above or below are very close to the average gain of zero. Consequently, the differences between above- and below-average schools often fail to reach statistical significance.

whose performance we can categorize with high statistical certainty—those that are well above or well below average. The above/below distinction used in Figure 2 is rough, yet the law’s effects are so pronounced that they nonetheless shine through.²¹

Figure 2. Closure probability of charter schools with above-average and below-average annual test-score gains as compared to all public schools in students’ districts of residence



Note. The figure presents the annual closure probabilities of charter schools with above- and below-average test-score gains. Specifically, it presents the proportion of charter schools that were in operation the previous year but were no longer in operation each year. Closure statistics for 2019–20 and 2020–21 are based on 2018–19 test-score gains, as test-score gains were not available in those years. From 2007–08 through 2024–25, the average closure rate for the 250 charter schools in operation in the average year was approximately 6 percent (15 schools). Among schools with value-added scores (approximately 221 in the average year), approximately 7 percent of below-average schools close (approximately 10 schools per year) and 2 percent of above-average schools close (approximately 2 schools per year).

In addition to the school closure law, other charter school regulations increased steadily from 2007 through 2025. Most notably, the Ohio General Assembly enacted a package of reforms in 2015 that instituted a more rigorous accountability system for charter school sponsors—nonprofit and government organizations that authorize and oversee Ohio charter schools—and imposed a variety of other rules on their financial management and operators. The improvements in charter performance between 2014–15 and 2018–19—despite the diminished link between

²¹ The law identified schools for closure based on multiple prior years of performance data, starting with 2006–07 and 2007–08 gains estimates. Thus, increases in closure should occur beginning in 2009, which is consistent with the trend in Figure 2. The figure also reveals a temporary narrowing of the gap in closure rates between 2013–14 and 2017–18 and between 2021–22 and 2022–23. These periods line up with the increased noisiness of the gains estimates and, most importantly, the temporary provision of “safe harbor” from the consequences of the closure law, due to the introduction of PARCC assessments in 2015 (lasting between 2014–15 and 2016–17) and, later, the onset of the COVID-19 pandemic in 2020 (lasting from 2019–20 to 2021–22). Note that as of 2024–25, the gap in closure rates between schools with above-average test-score gains (0 probability of closure) and below-average gains (0.07 probability of closure) has reemerged and is the highest since the 2008–09 school year. The closure law is back in full force and high-performing charters now benefit from significantly greater funding that should help them withstand financial shocks and remain open (more on that below). None of the 2023–2025 closures are formally attributed to the closure law, but the law being in force creates incentives and might lead to anticipatory effects such that schools close on their own before the law forces them.

closure and school performance in that period—were likely at least partly attributable to the 2015 regulatory reforms.

By 2025, after a reduction in closures following the pandemic, the differential closure rates reemerged between charter schools with above-average gains and those with below-average gains. Seven percent of schools (10 schools) with gains below the district average in 2023–24 were no longer in operation during the 2024–25 school year, whereas none of the charters with above-average gains shut down. Switching the comparison to charters with gains above or below the average for nearby district-run schools (as in Figure 1), during the 2023–24 school year 96 of the 226 charter schools for which gains could be calculated demonstrated statistically significantly lower gains than nearby district schools in at least one subject, and 10 of these schools were no longer in operation during the 2024–25 school year. On the other hand, 130 of the 226 charters posted higher annual achievement gains than nearby district schools in at least one subject in 2023–24, and all were still in operation the following year.

D. Charter School Funding, 2020–2025

Recent funding reforms may also help explain the dramatic post-pandemic turnaround, particularly in terms of math achievement. Ohio charter schools have always spent less per pupil, on average, than district schools, but the resource disparity between charter and district schools has been difficult to quantify due to data limitations and differences in how charter and district schools operate. The analysis in this report employs fine-grained school-level spending data and student-level attendance data to more precisely characterize the spending gap.

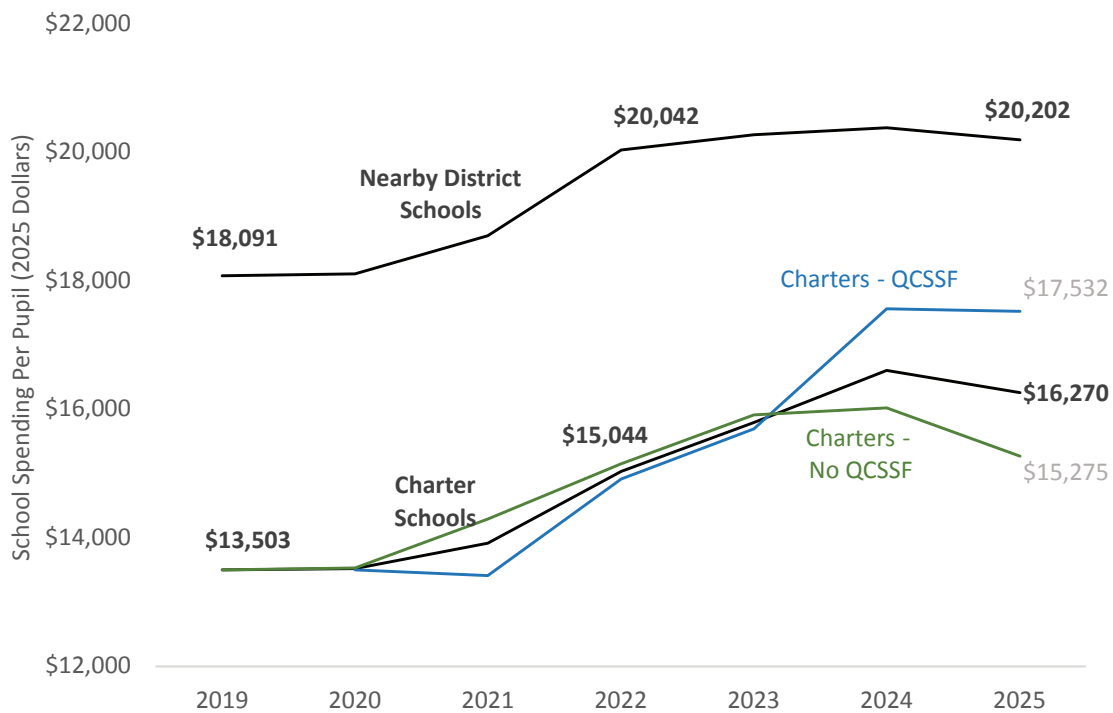
Since the 2018–19 school year, Ohio’s school-level spending data have included estimates of district schools’ share of central-office expenditures, in addition to their direct operating expenses, making school-level spending data more comparable between charters and district schools.²² Comparing charter and district spending remains challenging, however, as school-level spending depends on the characteristics of the students a school serves (such as their grade level and special-education and English-language status, as well as the income and property values of district households²³) as well as the financial cost of operating a school in a particular locale (such as the cost of human and physical capital). To partially address these challenges, this analysis links school-level funding to student-level data, comparing the average expenditures of the charter and district schools attended by students who reside in the same district and who are in the same grade.²⁴ These spending comparisons are also restricted to students in grades 4–10, so that they correspond to the analysis of student outcomes later in this report.

²² Districts’ central offices provide services to their schools but, until 2018–19, the financial cost of these services was reflected only in district-level expenditure data. Data for the funding analysis were obtained from the Ohio Department of Education and Workforce’s Report Portal: <https://reports.education.ohio.gov/overview> (accessed December 20, 2025).

²³ Property values affect local district tax revenues, and charter schools do not have access to that revenue (except for a limited number of charters in Cleveland). State funding serves as a partial counterweight to disparities in local tax revenues, allocating more funds to both charter and district schools that serve students who are more expensive to educate.

²⁴ Specifically, average differences in school spending were calculated by estimating a regression model that estimates, for each charter school, the difference between their spending and the spending of district schools while holding constant student grade and district of residence. The sample of students used in the analysis is the grade 4–10 sample of students used in the calculation of value-added for the 2018–19 through 2024–25 school years. The estimated differences were then combined with average spending in those schools to generate a prediction of average spending per pupil (weighted by charter enrollments) in charter students’ “nearby district schools.”

Figure 3. Spending per pupil among charter schools and nearby district schools serving students in the same district of residence



Note. The figure presents the estimated difference in school spending between charter schools and corresponding district schools serving students from the same residential district. The estimates are weighted by school enrollment and focus on students in grades 4–10.

Figure 3 presents the estimated differences in overall spending per pupil. It reveals that for the average charter student in the sample, nearby district schools outspent their charter school by approximately \$4,500 during the 2018–19 school year (\$18,091 to \$13,503 in 2025 dollars). This difference increased to approximately \$5,000 by the 2021–22 school year (\$20,042 to \$15,044 in 2025 dollars). But the gap subsequently narrowed as the state increased support, primarily via the Quality Community School Support Fund (QCSSF) program. The subset of charter schools that received this funding were able to cut the expenditure gap in half—from \$5,000 to \$2,500—by the end of the 2024–25 school year, whereas charters that did not receive the funding still had a gap of \$5,000 relative to nearby district schools (district schools spent \$20,202 per pupil whereas non-QCSSF charters spent \$15,275). The QCSSF program is the focus of the remainder of this report.

Quality Community School Support Fund

Governor DeWine and the Ohio General Assembly enacted the Quality Community School Support Fund in 2019.²⁵ Starting in January 2020, high-quality schools that served primarily low-income students could receive up to \$1,750 per economically disadvantaged student and up to \$1,000 per non-economically disadvantaged student.²⁶ Lawmakers increased maximum payment amounts significantly beginning in the 2023–24 school year, to \$3,000 per economically disadvantaged student and \$2,250 for others. Approximately 25 percent of charter schools qualified and, because over 94 percent of students in these schools were economically disadvantaged, the average QCSSF payment more than doubled to \$2,957 per pupil.

Prior work examined the impact of QCSSF between 2019–20 and 2022–23, showing that the program benefited students.²⁷ Here, the analysis focuses on the substantial change in funding starting in the 2023–24 school year. Because the QCSSF program selects schools based on educational quality, it may improve the performance of Ohio's charter sector by 1) lowering the risk that high-quality schools close for financial reasons and 2) boosting further the performance of these schools by enabling investment in operations and capital. In that sense, it combines the accountability and funding dynamics described above. The analysis below estimates just how much more effective QCSSF schools are, describes how their operations differ in terms of spending and staffing, and, finally, assesses the extent to which higher funding (as opposed to the selection of schools based on quality) caused these differences in performance and operations between QCSSF and non-QCSSF schools.

A. Causal Impact of Attending a Charter School Receiving QCSSF Funding

Ninety-two percent of charter schools (58 of 63) that qualified for the increased funding during the 2023–24 school year did so because they were deemed highly performing according to the QCSSF program's Criterion 1 (see Table B1 in Appendix B). This criterion requires that a school primarily serve economically disadvantaged students, that its sponsor's rating is "exemplary" or "effective," that it have a performance index score (average student achievement on state tests) higher than the district in which it is located in each of the two most recent state report cards, and that it have a "progress" rating of four or five stars on the most recent state report card. This last requirement means that a school's students need to post annual test-score gains significantly above the Ohio average for similar students.

The analysis below estimates the overall academic benefits for students attending schools that received QCSSF funding during the 2023–24 and 2024–25 school years. Specifically, it estimates the causal impact of attending these schools on students' achievement and attendance by comparing the academic trajectories of charter school students who did and did not attend schools that received payments. To increase the similarity of students who

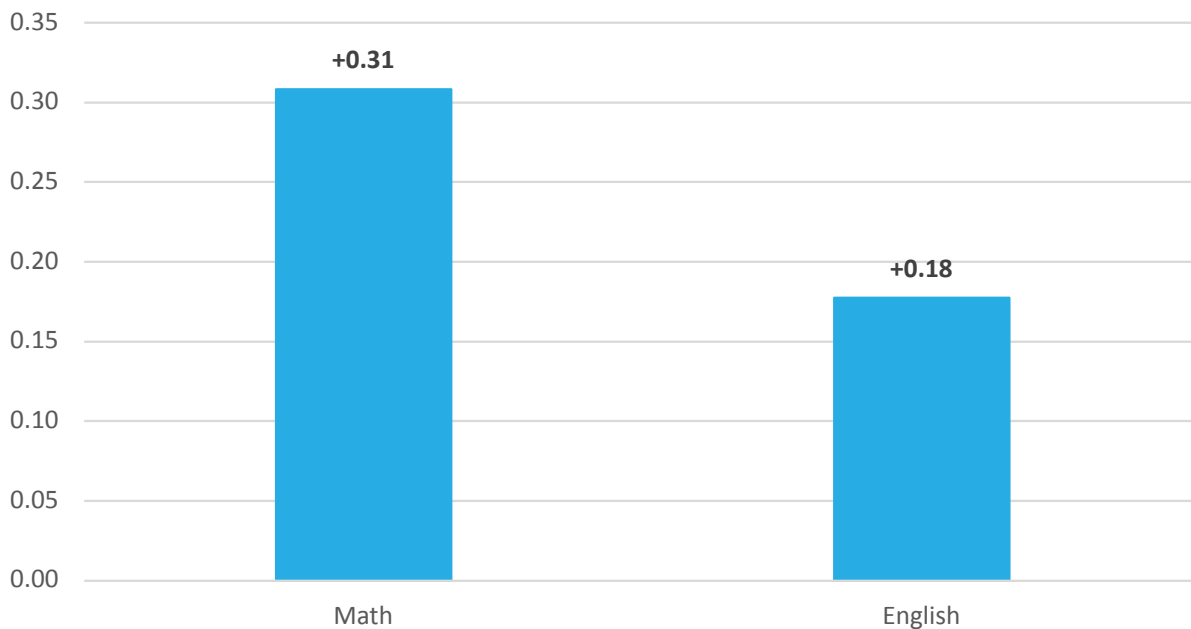
²⁵ See Appendix B for statistics on QCSSF payments and schools that received the funding. For detailed information on the program's first few years, from 2020 through 2023, see Stéphane Lavertu, *The Impact of Increasing Funding for High-Performing Ohio Charter Schools: The Quality Community School Support Fund, 2019–23* (Columbus, OH: Thomas B. Fordham Institute, 2024).

²⁶ Due to an appropriation cap, the maximum per-pupil amounts were not awarded through to the 2022–23 school year. In that year, for instance, 45 percent of charter schools qualified and received an average payment of \$1,367 (\$1,442 in 2025 dollars). Figure 3 seems to indicate that charters getting payments between 2019–20 and 2022–23 did not in fact spend that money, but that is not the case. Schools that narrowly qualified for payments in those years did indeed spend more than those that narrowly failed to qualify (see Lavertu, 2024). But, between 2018–19 and 2022–23, the average charter school that did not qualify for the program spent just as much per pupil as the average school that qualified. It may be that, in the absence of the program, non-qualifying schools would have spent approximately \$1,500 more per pupil, on average, than qualifying schools. Indeed, non-qualifying schools were more likely to be in relatively affluent and highly performing districts. And non-qualifying schools include some with exceptionally high spending levels, such as schools that focus on students with autism. Finally, it could also be that non-qualifying schools were more likely to spend pandemic funds or raise other revenue during this period.

²⁷ Stéphane Lavertu, *The Impact of Increasing Funding for High-Performing Ohio Charter Schools: The Quality Community School Support Fund, 2019–23* (Columbus, OH: Thomas B. Fordham Institute, 2024).

did and did not attend schools receiving QCSSF funding, the analysis effectively compares charter students who attended the same school at baseline but only some of whom would go on to attend a charter school that received QCSSF funding.²⁸

Figure 4. Improvements in student achievement at QCSSF schools



Note. The figure presents the estimated impact of a student attending a school receiving QCSSF payments on their achievement during the 2023–24 and 2024–25 school years. Positive numbers indicate that students in QCSSF schools experienced larger achievement growth than students who did not attend QCSSF schools. For example, an estimate of 0.3 indicates that attending a QCSSF school led to achievement growth that is 0.3 (30 percent) of a standard deviation greater. Solid bars indicate that the estimates are statistically significant at the 5 percent level.

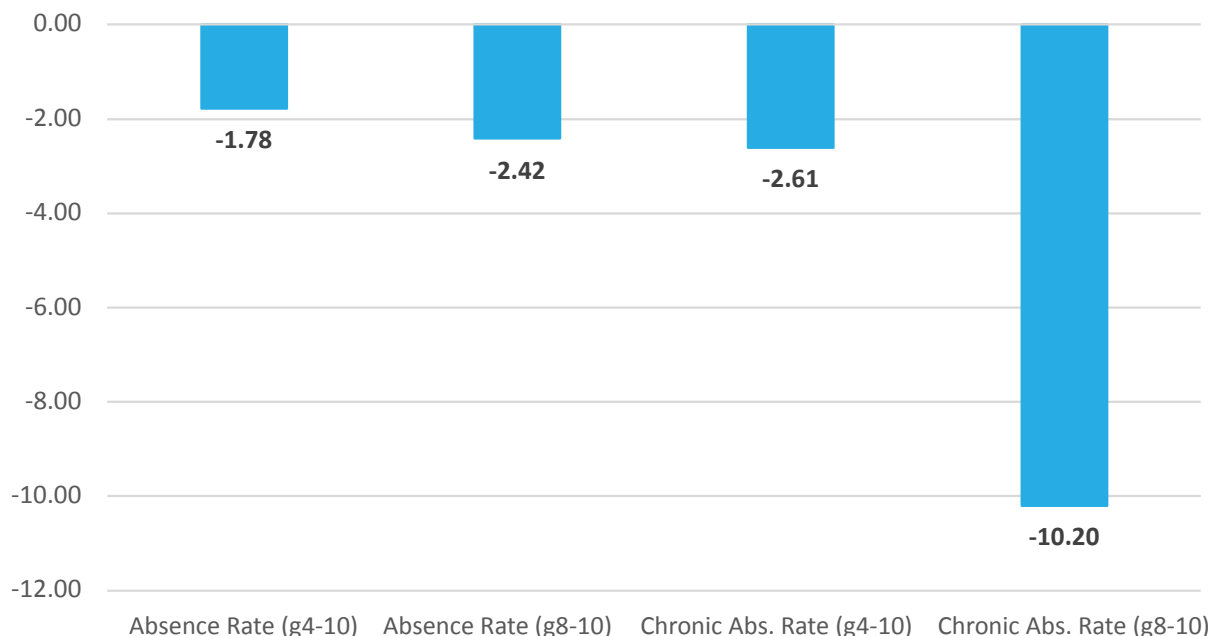
Figure 4 presents the estimated impact of a student attending a school receiving QCSSF payments in 2023–24 and 2024–25 on their achievement in math and English in grades 4–8 and high school (primarily grade 9 for math and grade 10 for English). It indicates that students attending QCSSF schools in those years experienced an immediate increase in math and English achievement of 0.31 of a standard deviation and 0.18 of a standard deviation, respectively. Again, effect sizes of 0.2 or above can reasonably be characterized as “large” compared to other education interventions.²⁹ These effects occur in the first year or two and are roughly equivalent to students getting an extra 60–75 percent of a school year (100 to 130 days) of additional instruction relative to their charter-school peers who did not attend a QCSSF school.³⁰

²⁸ Appendix D describes this “difference-in-differences” design and demonstrates that the students suddenly exposed to QCSSF funding had prior trends in achievement and school characteristics that were similar to comparison students who would not go on to attend schools that received QCSSF payments. It also describes the statistical approach used to isolate the impact of the program during the 2023–24 and 2024–25 school years, as schools that received funding in those years sometimes did so by qualifying for the lower payment amounts during the 2022–23 school year.

²⁹ Matthew A. Kraft, “Interpreting Effect Sizes of Education Interventions,” *Educational Researcher* 49, no. 4 (2020): 241–253.

³⁰ Research indicates that students typically experience annual test-score growth of 0.314 of a standard deviation in reading and 0.422 of a standard deviation in math in grades 4–8. Dividing these gain estimates by the typical growth rates yields a fraction of a school year, which can be multiplied by 180 (the typical number of instructional days in a school year) to estimate additional days of learning. See Carolyn J. Hill, Howard S. Bloom, Alison R. Black, and Mark W. Lipsey, “Empirical Benchmarks for Interpreting Effect Sizes in Research,” *Child Development Perspectives* 2, no. 3 (2008): 172–77.

Figure 5. Reductions in student absences at QCSSF schools



Note. The figure presents the estimated impact of a student attending a school receiving QCSSF payments on their absence rates during the 2023–24 and 2024–25 school years. Positive (negative) numbers indicate that students in QCSSF schools experienced higher (lower) absence rates than students who did not attend QCSSF schools. For example, an estimate of -1.78 indicates that attending a QCSSF school led to absence rates that are 1.78 percentage points lower. Solid bars indicate that the estimates are statistically significant at the 5 percent level.

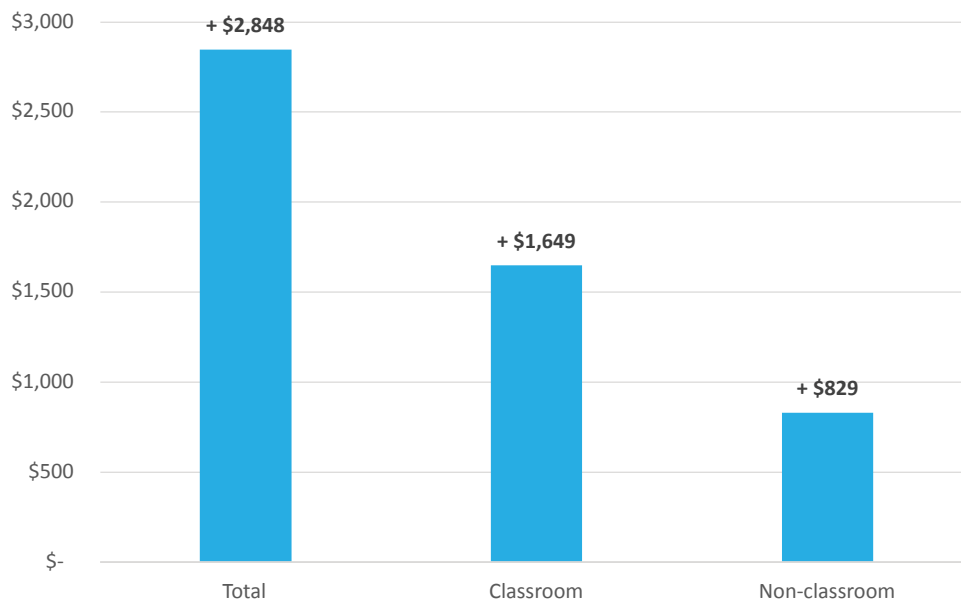
Figure 5 presents the estimated impact of attending a QCSSF school on absence rates (the percent of instructional hours that students missed during the school year) and on rates of chronic absenteeism (the proportion of students who missed 10 percent or more of instructional hours). The results indicate that QCSSF students' absence rates in grades 4–10 declined by 1.78 percentage points relative to the absence rates of peers who did not attend QCSSF schools. Consistent with this result, rates of chronic absenteeism went down 2.61 percentage points. These effects appear modest given the baseline rates of overall absence (12 percent) and chronic absence (46 percent), but these overall results mask pronounced effects for students in later grades. Focusing on students in grades 8–10 reveals somewhat greater reductions in absence rates (a reduction of 2.42 percentage points) and a large reduction in rates of chronic absence (by 10.20 percentage points). Thus, when it comes to attendance, the primary benefit of attending a QCSSF charter school is a reduction in chronic absenteeism among high school students.³¹

B. Operational Differences between QCSSF and non-QCSSF Schools

Using the same research design and student sample used in the analysis of academic outcomes, one can assess how school operations differed for students who did and did not attend QCSSF schools. Figure 6 (below) reveals that, predictably, the QCSSF schools that students attended reported spending \$2,848 more per pupil (in 2025 dollars) than the non-QCSSF charters that their peers attended. The figure also reveals that 58 percent of this spending was directed toward the classroom (such as teachers, aides, counselors, and instructional support staff) and 29 percent was spent on non-classroom administration and operations. The remainder was spent on non-operating items such as capital outlays, equipment, and interest on debt.

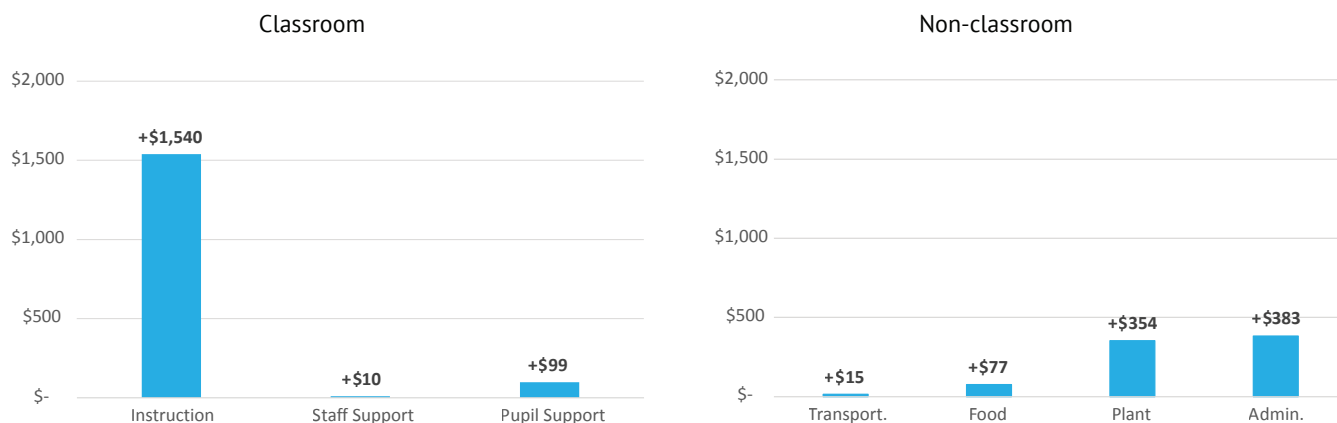
³¹ There are no attendance benefits in elementary and middle-school grades (see Table D3 of Appendix D).

Figure 6. Spending differences students experienced in QCSSF schools



Note. The figure presents the differences in school-level expenditures per pupil experienced by students attending QCSSF schools as compared to those not attending QCSSF schools during the 2023–24 and 2024–25 school years. Positive numbers indicate that QCSSF schools spent more on that function relative to non-QCSSF schools. For example, the figure indicates that charter schools receiving QCSSF funding spent a total of \$2,848 more per pupil (in 2025 dollars) than schools not receiving QCSSF funding. Solid bars indicate that the estimates are statistically significant at the 5 percent level.

Figure 7. Spending differences students experienced in QCSSF schools, in more detail



Note. The figure presents the differences in school-level expenditures per pupil experienced by students attending QCSSF schools as compared to those not attending QCSSF schools during the 2023–24 and 2024–25 school years. Positive numbers indicate that QCSSF schools spent more on that function relative to non-QCSSF schools. For example, the figure indicates that charter schools receiving QCSSF funding spent \$1,540 more per pupil (in 2025 dollars) on classroom instruction than schools not receiving QCSSF funding. Solid bars indicate that the estimates are statistically significant at the 5 percent level.

The Ohio Department of Education and Workforce further disaggregates classroom and non-classroom expenditures into the categories in Figure 7. Ninety percent of additional classroom expenditures (\$1,540 per student) were directed toward instruction (activities involving the interaction of students and teachers or instructional aides and materials like textbooks), but there were also increases of \$99 per student in pupil

support services, such as counseling, health and psychological services, and social work, and \$10 per student in instructional staff support services such as professional development. For a school with 400 students (roughly the baseline average for the subset of charters used in this portion of the analysis), the totals are approximately an extra \$615,000 spent on instruction, \$40,000 on pupil support, and \$4,000 on staff support. The additional non-classroom expenditures primarily went toward school administration (\$383 per pupil) and school maintenance (\$354 per pupil)—approximately \$150,000 and \$140,000, respectively, for a school with 400 students.³²

If a QCSSF school were to direct all additional instructional dollars toward teachers, as opposed to aides or instructional materials, the increases in instructional expenditures are enough to hire an additional dozen teachers or, instead, give all teachers in the average school a raise of approximately \$20,000. The analysis of staffing data—reported in Table 2—indicates that QCSSF schools direct money toward salaries, as opposed to more teachers. Unfortunately, the salary data are messy (e.g., they contain missing and implausible values) and it is unclear how much of the extra instructional spending went toward salaries, as opposed to instructional aides or materials. The analysis indicates that students in QCSSF schools were exposed to teachers who make an additional \$15,446 annually. However, ODEW recommends that teacher salaries be divided by teacher full-time-equivalent (FTE) assignments, to account for how much a teacher’s time is spent in a school. Doing so reduces the salary difference from \$15,446 to \$2,272.

Table 2. Teacher staffing differences in QCSSF schools (2023–24 and 2024–25)

	Baseline Average	Estimated Difference: QCSSF vs. Non-QCSSF charter schools
FTE Teachers (count)	32.4 teachers	No significant difference
Students per Teacher (ratio)	16.6 students per teacher	No significant difference
Average Salary (2025 dollars)	\$52,166	+\$15,446
Average Salary/FTE Teacher (2025 dollars)	\$52,922	+\$2,272
First Year in School (percent)	36.4%	-5.2%
Above BA (percent)	32.6%	No significant difference
Absence Rate (avg. pct. of days)	4.4%	-1.5%
Experience (average years)	7.7 years	No significant difference

Note. The table presents the estimated differences in teacher counts, salary, turnover, educational attainment, absence rate, and experience experienced by students attending QCSSF schools as compared to those not attending QCSSF schools during the 2023–24 and 2024–25 school years. Positive (negative) numbers indicate that QCSSF schools had more (less) of the relevant quantity. For example, the table indicates that students attending charter schools receiving QCSSF funding were in schools that paid their teachers \$15,446 more annually. Estimated differences are presented if they are statistically significant at the 5 percent level. As a reference point, the table also provides the baseline average (before students experienced QCSSF funding) for students who did not end up in a school that received QCSSF funding.

Another challenge with the staffing analysis reported in Table 2 is that the QCSSF schools students attend are much smaller than those of their peers in the sample. Indeed, there are approximately 300 fewer students in the average QCSSF school than in the non-QCSSF schools that comparison students attend (see Table D3 in Appendix D). This may contribute to volatility in statistics scaled by teachers and student counts and, in turn, makes it more

³² For a school with 300 students (approximately the average for Ohio charters) the totals equate to an extra \$460,000 spent on instruction, \$30,000 on pupil support, and \$3,000 on staff support. The additional non-classroom expenditures for school administration and maintenance were approximately \$115,000 and \$106,000, respectively.

difficult to identify precise differences in staffing. That may partially explain the lack of statistically significant differences in student-teacher ratios, for example.³³

There are some clear takeaways from the staffing analysis in Table 2, however. Students who ended up in QCSSF schools—those who experienced the large academic gains detailed above—were exposed to teachers with higher salaries (between \$2,272 and \$15,446 more), who turn over less (by 5.2 percentage points, a 14 percent reduction in first-year teachers relative to the baseline of 36.4 percent), and who miss less school (by 1.5 percentage points—a 34 percent reduction in missed school days relative to the baseline of 4.4 percent).³⁴ But students in QCSSF schools did not have teachers with more advanced degrees or who were more experienced, and the evidence suggests comparable student-teacher ratios.

C. Causal Impact of QCSSF Charter School Funding

The analysis above reveals that charter students who attended QCSSF schools experienced large academic gains compared to their charter-school peers who did not attend QCSSF schools. As anticipated, they also experienced differences in overall expenditures per pupil (\$2,848), which their schools spent on instruction and, to a lesser extent, administration and plant maintenance. What the analysis above cannot say, however, is whether the differences in operations and academic effectiveness were because of the extra funding or merely reflect pre-existing differences between QCSSF and non-QCSSF charter schools. After all, the QCSSF program provides additional funds to schools that posted student achievement gains above the Ohio average, perhaps because they have more effective curriculum and leadership or stronger school cultures.

To get a sense for how much one can attribute to the extra funding, Table 3 (below) reports the results of a regression discontinuity (RD) analysis that compares the operations and academic outcomes of charter schools that narrowly qualified for up to \$3,000 per pupil in extra funding during the 2023–24 year to those of nearly identical charter schools that narrowly failed to qualify for the extra funding in that year.³⁵ A strength of this design is that it can identify the causal impact of funding on schools near the performance cutoff for the QCSSF program—which were of average to above-average quality. A weakness of the design is that the results may not be generalizable to more poorly or highly performing charter schools. Additionally, the design yields less precise estimates than the difference-in-differences design presented above. Thus, the results should be considered rough estimates of the causal impact of receiving greater state funding on the operations and academic effectiveness of charter schools.

The results in Table 3 suggest that approximately 50 percent of the achievement effects of attending QCSSF schools were due to their having greater funding, and that 100 percent of the reductions in absence rates were due to the extra funding. They also suggest that the overall differences in spending, as well as differences in classroom and non-classroom spending, were fully attributable to additional funding provided by the QCSSF program.³⁶ Finally, the estimated effects of QCSSF on teacher turnover and absences are largely similar, but the estimated impacts on teacher salaries (\$3,873 and \$4,146, depending on the measure) are on the lower end of the range presented above (\$2,272 and \$15,446, respectively). Given these results, it seems reasonable to state that QCSSF funding is responsible for approximately a \$4,146 increase in annual teacher salaries.

³³ This difference in enrollments is large and reflects the unique sample of schools that enable the difference-in-differences analysis. Fortunately, the regression-discontinuity analysis below focuses on schools with similar enrollments and yields comparable estimated effects.

³⁴ The reduction in the percent of teachers in their last year is nearly identical to the reduction in teachers in their first year, but that measure is available for one fewer year so only the percentage of teachers in their first year is reported.

³⁵ See Appendix E for a description and empirical validation of the research design, as well as tabular results across all school-level outcomes.

³⁶ Estimates for sub-categories of spending are typically too imprecise to yield statistically significant results, but the estimated coefficients for these sub-categories are generally similar. The main difference is that the regression-discontinuity analysis suggests larger increases in transportation spending (approximately \$368 per pupil). See Table E3 in Appendix E.

Table 3. Percent of impacts plausibly due to QCSSF funding in 2023–24 and 2024–25

	Impact of Attending QCSSF Schools vs. Not (DD Estimates)	Impact of QCSSF Funding vs. No Funding (RD Estimates)	Implied Proportion Due to '24/'25 Funding
Achievement Gains (g3-10)	+0.240	+0.127	53%
Math Gains (g3-10)	+0.308	+0.187	61%
English Gains (g3-10)	+0.177	+0.066	37%
Attendance Rates (g3-10)	+1.8	+1.6	100%
Chronic Absence Rates (g3-10)	-2.6	-2.6	100%
Total Spending	+2,848	+3,351	100%
Classroom Spending	+1,649	+1,743	100%
Teachers in First Year	-5.2	-10.7	100%
Teacher Absence Rate	-1.5	-1.3	87%
Avg. of Salary Estimates (2025\$)	+8,859	+4,010	45%
<i>Average Salary (2025\$)</i>	+15,446	+3,873	25%
<i>Average Salary Per Teacher FTE</i>	+2,272	+4,146	100%

Note. The table presents the estimated effects of students attending QCSSF schools (based on the difference-in-differences (DD) analysis featured in this report) to the estimated impact on a school of receiving QCSSF funding, which is based on a regression-discontinuity analysis comparing charter schools that narrowly qualified for the funds to schools that narrowly failed to qualify for the funds. Some of the estimated RD estimates are statistically insignificant—and several of the estimates are from underpowered models—so the estimates are rough approximations.

The RD analysis makes clear that much of the effectiveness of QCSSF schools is due to the increase in funding and not merely because the program selects schools based on their performance. The RD analysis has some important limitations, however. The design does not perfectly distinguish between schools that did and did not get funding and, thus, the magnitudes of the estimated coefficients are likely somewhat muted.³⁷ The RD analysis also focuses on the impact among schools that were above average (or nearly above average) in terms of their annual student achievement gains. Thus, one cannot be sure that the estimated effects would have been the same for the very best and very worst charter schools. Finally, we cannot completely rule out that the academic outcomes are driven by motivated students selecting into these schools when the QCSSF award occurred. Although the analysis examines student-level gains in achievement—thus holding fixed student achievement at baseline—the students who experienced academic gains in schools that received QCSSF funding were more mobile than comparison students in schools that did not receive QCSSF funding. These dynamics present the possibility that something other than instructional inputs drove improvements in schools that received QCSSF funding.

³⁷ For example, some schools that narrowly missed out on funding in 2023–24 qualified for funding in 2024–25, and as Appendix E describes, the “running variable” is based on the academic criteria of Criterion 1 and does not account for the few schools that may or may not have qualified based on other factors (e.g., the proportion of students who are economically disadvantaged).

Summary and Implications

The performance of Ohio's charter schools has improved dramatically over the past two decades. In the 2006–07 school year, charters on average produced lower academic gains than nearby district schools serving similar students. Today, the typical charter school generates significantly larger achievement gains than district schools serving the same student populations—despite operating with substantially less funding. This analysis links the remarkable turnaround to public policy.

Ohio's automatic charter school closure law, sponsor evaluation system, and other quality-control efforts have increased the consequences for persistently weak performance, while state initiatives that provide additional funding to effective charter schools have rewarded strong results. The above analysis suggests that these forces have gradually reshaped the sector by allowing more effective schools to expand while removing those that consistently underperform. Recent increases in charter school funding have also further enhanced the performance of high-quality schools serving economically disadvantaged students, who stand to benefit most from additional resources. Although these charter schools still spend approximately \$2,500 less per pupil than nearby district schools and did not begin receiving the larger payments until January 2024, student achievement and attendance nonetheless increased significantly during the 2023–24 and 2024–25 school years—far beyond the academic gains in neighboring district schools and non-qualifying charter schools. It is possible that the academic benefits of these investments will grow even larger in subsequent years as schools have greater opportunity to deploy the resources strategically.

Some observers may question whether the improvements documented in this report simply reflect changes in the students who charter schools serve rather than genuine improvements in school performance. The analysis addresses this concern directly. The estimates compare the academic growth of charter school students with that of district school students who live in the same communities and have similar prior achievement levels. As a result, they capture differences in the gains students make after enrolling in charter schools rather than differences in the characteristics of students who choose them. The findings are also consistent with prior research documenting steady improvements in Ohio's charter sector over time. Taken together, the evidence suggests that the sector's rising performance reflects real improvements in school quality rather than shifts in student composition or other statistical artifacts.

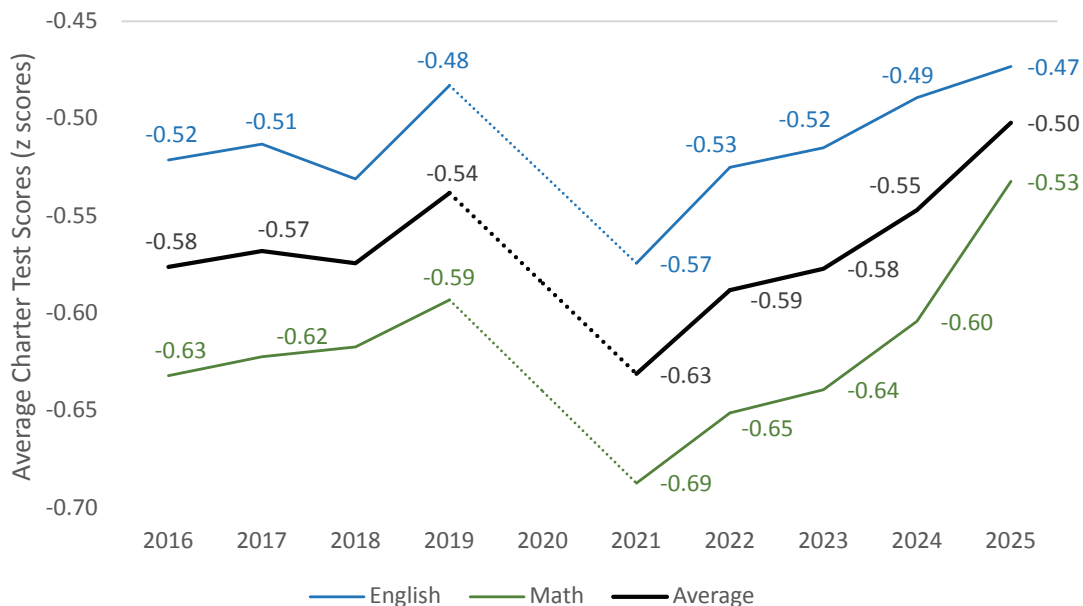
The results carry important implications for policymakers. Ohio's experience suggests that strong accountability policies can play a central role in improving the quality of charter schools over time. By imposing consequences for persistently weak performance, the state's closure law and sponsor evaluation system have helped remove ineffective schools while allowing stronger schools to expand. At the same time, targeted funding increases for high-performing charter schools have further improved outcomes. In combination, these policies create a system that both rewards effectiveness and provides successful schools with the resources needed to serve students well. The results of this report suggest that maintaining this balance—rigorous accountability paired with strategic investment in effective schools—is a promising strategy if Ohio hopes to build upon charter schools' considerable progress.

Appendix A: Data

The Ohio Department of Education & Workforce (DEW) provided de-identified student-level data for all Ohio public school students (including those attending charter and STEM schools) from 2005–06 to 2024–25. Together, these files include identifiers for students’ schools, districts of enrollment, and districts of residence, and they provide information on student attributes, state tests, and attendance. DEW also provided de-identified, teacher-level data that include teacher characteristics, pay, and the schools in which they taught. Finally, information on school characteristics, spending, and participation in the QCSSF program are publicly available on the DEW website.

The analysis focuses on student test scores and attendance rates in grades 3–10 because students first take state tests in grade 3 and most take their last end-of-course exams in grade 10. The data files include scaled scores for math tests designed for grades 3–8 and, since 2015, scores for algebra end-of-course exams primarily administered in grade 9. They also include scaled scores for English tests designed for grades 3–8 and, since 2015, scores for an English end-of-course exam primarily administered in grade 10. Scaled scores are normalized by test grade (as opposed to student grade of enrollment), subject, and year, such that they capture the number of standard deviations above or below the statewide average for students taking the same exam in the same year. Figure A1 (below) illustrates trends in average achievement by subject for students in brick-and-mortar charter schools since 2016, when Ohio switched from PARCC to AIR exams.

Figure A1. Average test scores of charter students relative to Ohio average (grades 3–10)



Note. The figure presents how the average test scores of students in brick-and-mortar charter schools compare to those of the average Ohio student. Specifically, it provides average z scores that standardize test scores by year, subject, and grade. For each year, the average score captures how students in charter schools performed relative to the state average, holding fixed students’ grade level and tested subjects.

Appendix B: Quality Community School Support Fund

Table B1. Counts of brick-and-mortar charter schools and those that qualified for QCSSF

	2020	2021	2022	2023	2024	2025
Charter schools	240	235	240	251	249	251
QCSSF charter schools	61	88	97	113	63	81
Criterion 1	47	70	72	82	58	69
Criterion 2	6	10	11	2	2	5
Criterion 3	8	8	14	1	3	7
H.B. 583	0	0	0	28	0	0

Note. The table presents counts of all brick-and-mortar charter schools in Ohio, counts of brick-and-mortar charter schools that received a QCSSF award, and counts disaggregated according to the criterion through which they qualified for QCSSF. Charter schools focused on dropout prevention and recovery are excluded from these totals. H.B. 583 refers to schools qualifying under temporary, Covid-related provisions that extended their eligibility for QCSSF.

Table B2. Characteristics of brick-and-mortar schools that qualified for QCSSF awards

	2020	2021	2022	2023	2024	2025
QCSSF schools (count)	61	88	97	113	63	81
Average school enrollment (student FTE)	344	352	338	340	412	377
Student characteristics (percent)						
Economically disadvantaged	92	93	93	94	94	93
Disability	17	16	16	16	16	15
Limited English	6	6	7	7	7	6

Note. The table presents information on students attending brick-and-mortar charter schools that qualified for QCSSF awards. Economically disadvantaged students are primarily those who qualify for free-/reduced-price lunch. Students with disabilities are those with individualized education plans. The statistics are from the author's own calculations based on student-level data (based on full-time equivalent student counts) and may differ slightly from official statistics.

Table B3. QCSSF payments and expenditures per pupil of brick-and-mortar charter schools

	2020	2021	2022	2023	2024	2025
<i>Nominal dollars</i>						
QCSSF payment per pupil	1,497	983	1,595	1,367	2,957	2,973
Expenditures per pupil	11,480	11,963	13,732	15,205	16,330	16,411
<i>Inflation-adjusted dollars (2025\$)</i>						
QCSSF payment per pupil	1,801	1,158	1,774	1,442	3,031	2,973
Expenditures per pupil	13,814	14,099	15,270	16,043	16,740	16,411
QCSSF payment (percent of funding)	13.0	8.2	11.6	9.0	18.1	18.1

Note. The table presents the average payments that schools received and average expenditures of Ohio's brick-and-mortar charter schools. Inflation-adjustments are based on the Bureau of Economic Analysis's quarterly personal consumption expenditure (PCE) index. Per-pupil payments are sometimes reported based on full-time equivalent (FTE) students and sometimes based on average daily membership (ADM), depending on the year. The statistics are weighted by school enrollment to capture payments and expenditures of the average charter student. Total expenditures per pupil may differ from Figure 3 because it includes all brick-and-mortar charter schools, not just those serving grades 4–8 and for which there are value-added estimates.

Appendix C: School Value-Added Estimates

The analysis entails estimating three different types of school value-added. To address the fact that there are implausible test scores in early years for which I lack technical documentation, the analysis is limited to test scores within three standard deviations of the average scale score. Note, however, that the results of the analysis based on later years are not qualitatively different when test data are not restricted in this way.

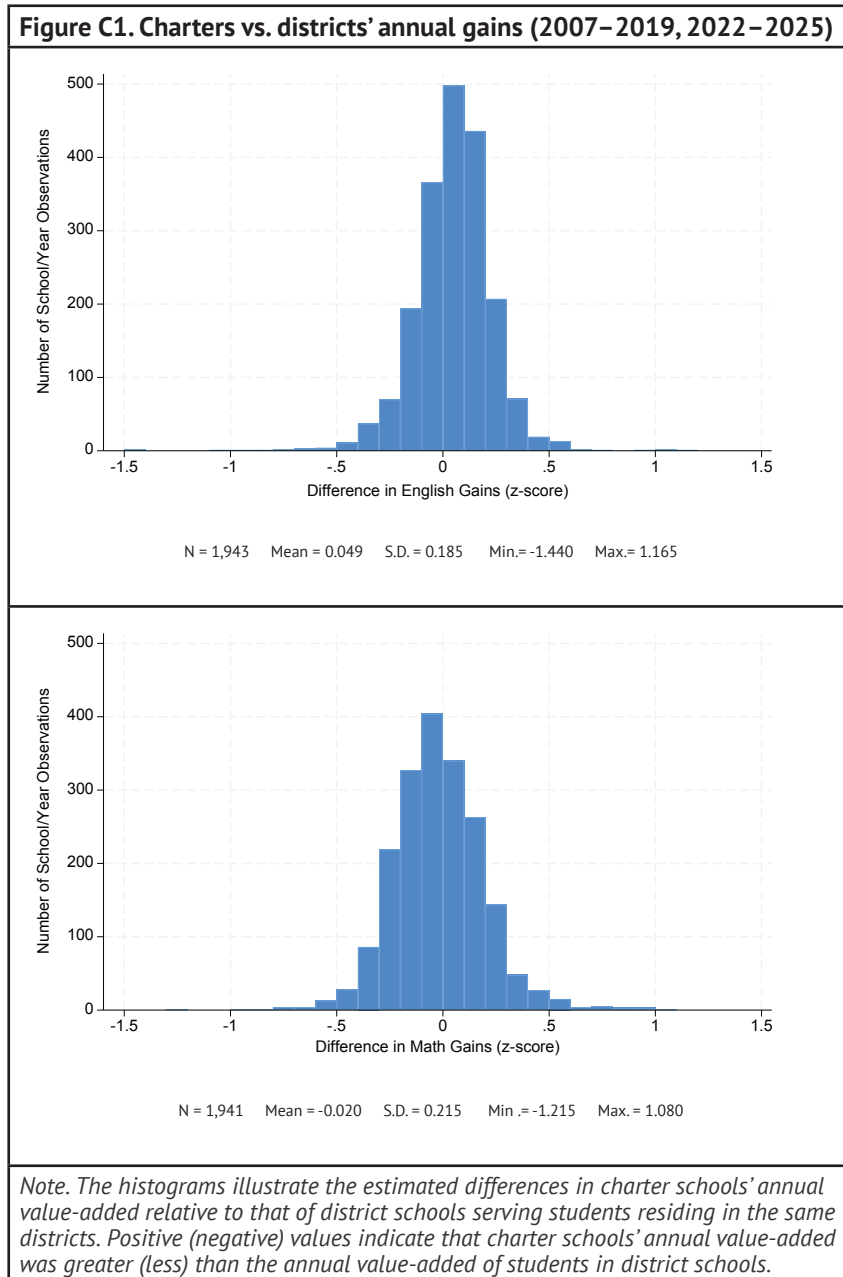
School Value-added #1: Difference in Growth between Charters and District Schools

The first set of value-added estimates capture the estimated difference in annual achievement growth between a charter school's students and the annual achievement growth of students in the same residential district who attend traditional public schools. (Students in traditional public schools serving primarily vocational or special education students are excluded from this calculation.) I generated estimates for each charter school serving grades 4–8 in each school year (from 2006–07 to 2018–19 and from 2021–22 to 2024–25) using the following Ordinary Least Squares (OLS) model:

$$y_{is} = \alpha + Char_s^{ID} \theta_s^{ID} + X'_{is} \beta + \delta_d + \varepsilon_{is} \quad (C1)$$

where y_{is} is the average normalized test score (z-score) in math or English for student i in school s . $Char_s^{ID}$ represents indicator variables for every charter school (ID) in Ohio, such that students in traditional public schools are all coded zero. X'_{is} is a set of statistical controls, including cubic polynomials of normalized math and ELA test scores from the prior year, indicators for each grade (grades 4–8), variables indicating whether students tested above their grade level in the current or prior year, variables indicating whether students received testing accommodations in the current or prior year, and a standard battery of indicator variables capturing students' sex, race, economic disadvantage, limited English proficiency, homelessness, migrant status, and disability status. So that all students with at least one prior test score are included, missing test data are coded zero and the model includes a set of variables indicating whether a student has a score for each test. α is an intercept set so that the mean of the model prediction equals the mean of the dependent variable.

Importantly, fixed effects for residential districts (δ_d) are included (absorbed) so that comparisons are implicitly between charter and traditional public schools serving students from the same district of residence. The quantities of interest are the estimated fixed effects for each charter school (θ_s^{ID}) that captures the average growth for students in that school relative to the average achievement growth among students in traditional public schools serving students in the same residential districts. Figure C1 illustrates the distribution of these estimates.



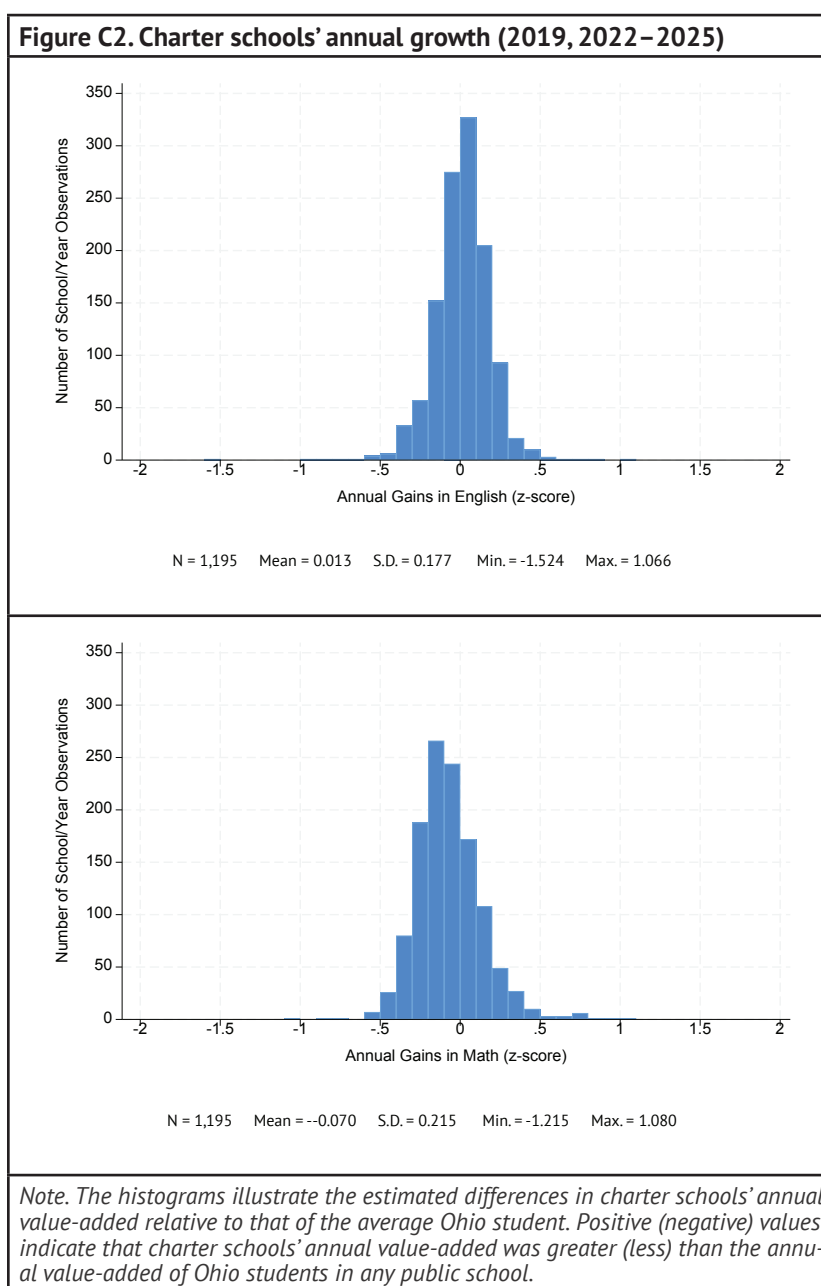
School Value-added #2: Annual Growth Estimates for All Ohio Public Schools

The second set of value-added estimates capture the estimated difference in annual growth between a school's students and the average annual growth of Ohio students, regardless of the type of school they attend. I generated achievement growth estimates for every Ohio school serving grades 3–10 (i.e., including end-of-course exams in Algebra and English) for each school year (2018–19 and 2021–22 through 2024–25) using the following Ordinary Least Squares (OLS) model:

$$y_{is} = \alpha + \theta_s + X'_{is} \beta + \varepsilon_{is} \quad (C2)$$

where y_{is} is the average normalized test score (z-score) in math or English for student i in school s . Once again, X'_{is} is a set of statistical controls, including cubic polynomials of normalized math and ELA test scores from the prior year, indicators for each grade (grades 4–10), variables indicating whether students tested above their grade level in the current or prior year, variables indicating whether students received testing accommodations in the current or prior year, and a standard battery of indicator variables capturing students' sex, race, economic disadvantage, limited English proficiency, homelessness, migrant status, and disability status. For the models limited to the 2018–19 to 2024–25 school years, the controls also include student attendance rates. So that all students with at least one prior test score are included, missing test data are coded zero and the model includes a set of variables indicating whether or not a student has a score for each test. α is an intercept set so that the mean of the model prediction equals the mean of the dependent variable.

School fixed effects (θ_s) are the quantities of interest. They capture the average annual achievement growth of a school's students relative to the growth of the average Ohio student. Figure C2 illustrates the distribution of these estimates for the brick-and-mortar schools that are the focus of this analysis.

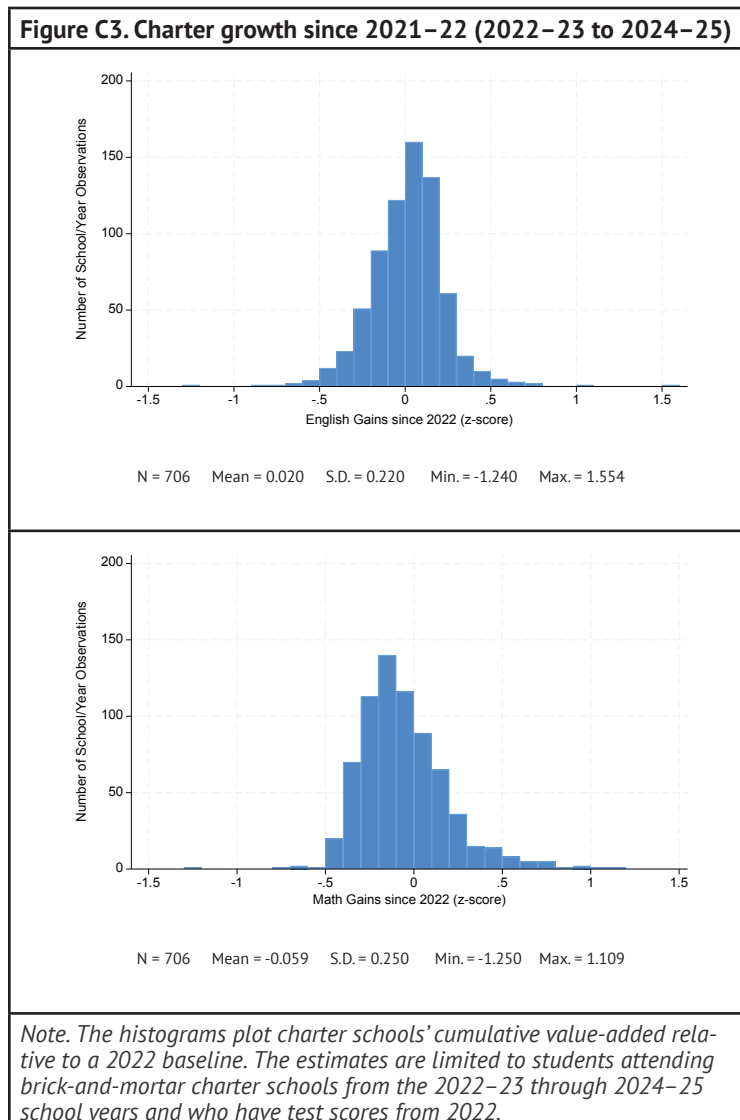


School Value-added #3: Cumulative Growth (since 2022) for All Ohio Public Schools

The third set of value-added estimates are just like the second set (described above) but capture the estimated difference in *cumulative* achievement growth among students for whom we have test scores during the 2021–22 baseline school year. These estimates are available for the 2022–23, 2023–24, and 2024–25. For example, a school’s value-added estimate for 2024–25 would capture the cumulative growth of its average student from 2021–22 through to the end of the 2024–25 school year. These estimates are limited to students for whom there are test scores dating back to 2021–22, but the advantage is that it sums the annual student-level achievement gains for up to three school years. The statistical model is the same, except that baseline covariates are all from the 2021–22 school year:

$$y_{is} = \alpha + \theta_s + X'_{is} \beta^{2022} + \epsilon_{is} \quad (C3)$$

Once again, the school fixed effects (θ_s) are the quantities of interest. They capture the average cumulative achievement growth of a school’s students relative to the cumulative growth of the average Ohio student. Figure C3 illustrates the distribution of these estimates for the brick-and-mortar schools that are the focus of this analysis.



Appendix D: Difference-in-Differences Analysis

The difference-in-differences analysis essentially compares students who were first exposed to QCSSF during the 2022–23, 2023–24, or 2024–25 school years to students who attended the same school the year prior (2021–22, 2022–23, or 2023–24, respectively) but who would not go on to attend a school that received QCSSF funding in subsequent years. The analysis focuses on students who attended a brick-and-mortar charter school during the 2021–22 school year (one that did not receive QCSSF funding in that year). This 2021–22 baseline is the year before charter schools could qualify for new QCSSF funding that would ultimately provide approximately \$3,000 in payments per pupil during the 2023–24 and 2024–25 school years. Students might have ended up in a school that received a QCSSF payment because they switched to such a school, or because the school they already attended suddenly qualified for QCSSF payments. Similarly, students might have missed out on the program if they switched to a school that did not receive QCSSF payments or stayed in a school that would not ultimately qualify for the program.

The analysis is based on a stacked panel of students who would go on to attend a school that qualified for funding to students who would never go on to attend a school that received QCSSF funding. For each possible first-year of treatment (i.e., attending for the first time a school that receives QCSSF funding), students are matched to the cohort of students who would never attend a school that receives a QCSSF payment. That leads to three matched cohorts of students (for 2022–23, 2023–24, and 2024–25) that are stacked such that one can compare the impact of one, two, and three years of funding. Descriptive statistics of this stacked panel appear in Table D1 (below). Note that the same student often appears in the control group across all three cohorts.

First, I conducted an event-history analysis that compares students exposed to QCSSF funding to those not exposed to QCSSF, from up to three years prior to funding exposure to up to three years after exposure. Specifically, these comparisons are made using the following OLS model:

$$y_{it} = \alpha + \sum_t \theta^t QCSSF_i^t + \pi_t + \delta_{ci} + \mu_{sy} + \beta charter_{it} + \epsilon_{it} \quad (D1)$$

where y_{it} is the outcome for student i in relative year t (relative to the cohort baseline). The relative year ranges from three years prior to three years after the baseline. $QCSSF_i^t$ indicates, for each relative year (except the baseline year), whether a student is part of the QCSSF treatment group. The model includes fixed effects for the relative year (π_t), for each cohort-by-student combination (δ_{ci}), and each baseline-school by school-year combination (μ_{sy}). Accounting for these fixed effects means that the analysis effectively compares student-level changes in outcomes among students who attended the same baseline school in the same year. So that school-level inputs are comparable across students, the analysis is limited to students in grades 3–8 and the model includes a control ($charter_{it}$) indicating whether a student is attending a charter school (as opposed to a district school). The regression includes weights for student FTE, to account for the fact that students may attend multiple schools in a school year. The coefficient estimates, with standard errors clustered by students' baseline school and school year, appear in Table D2 (below).

The above event-history analysis reveals that students who attended QCSSF schools indeed were trending similarly to control-group students in the years prior to QCSSF exposure, and it reveals some clear causal impacts of attending QCSSF schools (see Table D2). However, this analysis effectively assumes that students attending a school that receives QCSSF funding the first relative year continue to attend these schools until the third relative year. That is not the case, however. As the first row of Table D2 reveals, by the third post-treatment year, 46.7 percent of treated students were still in schools that received QCSSF payments. This attrition attenuates the estimated effects of attending a QCSSF school. Moreover, our interest is in the impact of being in a school that received funding during the 2023–24 and 2024–25 school years, when the funding amount increased. To address attrition and isolate the impact of students being exposed to funding during 2023–24 and 2024–25, I estimated a two-stage OLS model that rescales the estimates:

$$funding_{it}^{2425} = \alpha + \theta QCSSF_i + \varphi funding_{it}^{23} + \pi_t + \delta_{ci} + \mu_{sy} + \beta charter_{it} + \epsilon_{it} \quad (D2)$$

$$y_{it} = \alpha + \tau \widehat{funding}_{it}^{2425} + \gamma funding_{it}^{23} + \rho_t + \omega_{ci} + \sigma_{sy} + \vartheta charter_{it} + u_{it} \quad (D3)$$

The sample used is identical to that used for the event-history analysis, including all relative years of data (pre-treatment years serve as a pooled baseline), but the focus is now on whether students were in those schools when they received QCSSF funding. The instrument is $QCSSF_i$, indicating whether students were part of the treatment group in post-treatment relative years. The endogenous variable indicates whether a student was in a school when it received funding in 2023–24 or 2024–25 (whether that was in a student’s first, second, or third year after the baseline year). The rest of the model specification is the same as that in D1 except that the model now also includes a variable indicating whether a student was in a school that received funding during the 2022–23 school year.

The parameter of interest is τ . It captures the average impact of a student’s school receiving funding during the 2023–24 and 2024–25 school years on students’ academic outcomes and the operations of their schools. Table D3 presents the coefficient estimates and standard errors clustered at the baseline-school by school-year.

Table D1. Baseline statistics of student-level data used in difference-in-differences analysis

	Full Stacked Sample		Students observed in 2024/2025 in grade 3-8 IV analysis	
	QCSSF Students	Non-QCSSF Students	QCSSF Students	Non-QCSSF Students
Students' characteristics at baseline				
Avg. math/English test scores (z-scores)	-0.552	-0.641	-0.574	-0.663
Math test scores (z-scores)	-0.596	-0.702	-0.625	-0.734
English test scores (z-scores)	-0.501	-0.579	-0.517	-0.589
Attendance rate (fraction hours)	0.883	0.861	0.882	0.869
Unauthorized absence rate (fraction hours)	0.085	0.101	0.086	0.095
Chronic absence rate (fraction hours)	0.455	0.518	0.460	0.497
Grade (0,1)				
3	0.148	0.064	0.173	0.107
4	0.192	0.110	0.230	0.188
5	0.212	0.155	0.253	0.266
6	0.210	0.153	0.254	0.262
7	0.174	0.162	0.088	0.177
8	0.048	0.172	0.001	0.001
9	0.015	0.107	0.000	0.000
10	0.000	0.078	0.000	0.000
Baseline school year / QCSSF cohort (0,1)				
2021–22 / 2022–23	0.649	0.396	0.618	0.378
2022–23 / 2023–24	0.253	0.324	0.277	0.366
2023–24 / 2024–25	0.098	0.280	0.105	0.256
Students' schools at baseline (g 3-8)				
Charter (0,1)	0.946	0.722	0.941	0.747
Total Spending (per pupil, 2025\$)	15,007	16,227	15,117	16,333
Classroom spending (per pupil, 2025\$)	8,444	9,122	8,556	9,213
Non-classroom spending (per pupil, 2025\$)	6,133	6,020	6,103	5,953
Non-operating spending (per pupil, 2025\$)	213	315	221	330
Teacher count (FTE)	30.7	33.1	30.6	32.4
Students per teacher	16.9	16.6	16.9	16.6
Teacher salaries (average, 2025\$)	50,832	51,387	51,175	52,166
Teacher salaries (avg. per FTE, 2025\$)	49,993	52,252	50,086	52,922
Teacher salaries (median, per FTE, 2025\$)	50,257	52,665	50,275	53,360
Teachers in first year at school (fraction)	0.399	0.364	0.397	0.364
Teachers with more than a BA (fraction)	0.258	0.322	0.260	0.326
Teacher absence rate (avg. frac. of days)	0.023	0.044	0.023	0.044
Teacher experience (average years)	6.14	7.63	6.15	7.74
Student count (FTE)	508	540	505	526
White students (percent)	10.1	28.9	10.1	28.7
Black students (percent)	72.1	50.6	72.4	50.6
Economically disadvantaged (percent)	96.3	84.4	96.5	84.7
Observations at baseline	4,940	49,896	3,978	26,367
<i>Note. The table presents average values of key variables observed at baseline for the stacked dataset used in the difference-in-differences analysis. For the “treated” students who ultimately attend a school receiving QCSSF payments (QCSSF students), the baseline values are those observed in the year prior to their being in such a school. For the “never treated” comparison group of students (non-QCSSF students), the baseline values are those from the year prior to their matched QCSSF students being in a school that received a QCSSF payment. The first two columns present baseline statistics for the full sample of students included in the event-history analysis. The last two columns focus on the students who most directly affect the instrumental variables estimates focused on the 2023–24 and 2024–25 school years—that is, the years in which schools could receive the approximately \$3,000 in QCSSF payments per pupil.</i>				

Table D2. Event history comparing students who did/didn't transition to QCSSF schools

		Three years prior	Two years prior	One year prior	One year after	Two years after	Three years after
QCSSF Funding Exposure							
	Coef.	0.002	0.002	0.001	0.865	0.590	0.467
	S.E.	0.008	0.008	0.007	0.009	0.023	0.025
	p	0.778	0.756	0.942	0.000	0.000	0.000
Student-level outcomes							
Avg. math/English (z-scores)	Coef.	-0.010	-0.031	-0.007	0.150	0.152	0.137
	S.E.	0.032	0.029	0.021	0.028	0.022	0.035
	p	0.759	0.277	0.732	0.000	0.000	0.000
Math (z-scores)	Coef.	0.012	-0.035	-0.010	0.196	0.201	0.170
	S.E.	0.040	0.036	0.025	0.040	0.030	0.047
	p	0.756	0.335	0.681	0.000	0.000	0.000
English (z-scores)	Coef.	-0.008	-0.028	-0.008	0.099	0.098	0.103
	S.E.	0.035	0.032	0.022	0.024	0.025	0.033
	p	0.826	0.376	0.724	0.000	0.000	0.002
School characteristics							
Total spending (per pupil, 2025\$)	Coef.	-104.904	-180.919	-47.682	1264.214	1745.093	1740.828
	S.E.	231.725	204.476	188.665	330.500	309.216	348.654
	p	0.651	0.376	0.800	0.000	0.000	0.000
Classroom spending (per pupil, 2025\$)	Coef.	-251.259	-196.499	-102.577	888.004	887.776	760.668
	S.E.	222.906	212.929	166.617	300.059	247.692	271.406
	p	0.260	0.356	0.538	0.003	0.000	0.005
Non-class spending (per pupil, 2025\$)	Coef.	138.464	33.074	32.337	297.715	744.982	685.605
	S.E.	103.530	151.847	122.672	195.934	190.013	184.368
	p	0.181	0.828	0.792	0.129	0.000	0.000
Non-operating spend. (per pupil, 2025\$)	Coef.	-22.028	-90.006	-21.366	311.887	280.143	220.548
	S.E.	41.475	67.081	47.348	101.308	91.640	103.183
	p	0.595	0.180	0.652	0.002	0.002	0.033
Students per teacher	Coef.	0.603	0.933	0.430	-4.954	-2.604	-14.092
	S.E.	2.077	2.496	1.905	5.045	4.767	22.541
	p	0.772	0.709	0.821	0.326	0.585	0.532
Teacher salaries (average, 2025\$)	Coef.	-723.489	-965.601	-640.941	9184.782	9279.875	7677.080
	S.E.	1012.427	1163.756	1241.724	2054.389	2346.468	2189.663
	p	0.475	0.407	0.606	0.000	0.000	0.000
Teachers in first year (fraction)	Coef.	0.001	-0.010	-0.003	-0.078	-0.032	-0.025
	S.E.	0.008	0.008	0.008	0.019	0.014	0.014
	p	0.882	0.247	0.733	0.000	0.020	0.071
Student count	Coef.	21.779	18.592	31.919	-277.336	-205.719	-216.867
	S.E.	32.377	45.255	42.785	66.407	77.598	92.307
	p	0.501	0.681	0.456	0.000	0.008	0.019
Econ. Disadvantage (fraction)	Coef.	0.122	0.230	0.485	2.645	2.575	2.358
	S.E.	0.563	0.483	0.454	0.845	0.911	0.954
	p	0.829	0.634	0.286	0.002	0.005	0.013

Note. The figure presents the results of a difference-in-differences event-history analysis comparing students who were first exposed to QCSSF in 2022–23, 2023–24, or 2024–25 and students who attended the same school the year prior (2021–22, 2022–23, or 2023–24, respectively) but who did not attend a QCSSF school the following year. The results compare trends from three years prior to the baseline year to three years after the baseline year. The three rows for each variable present the estimated coefficient (coef.), standard error (S.E.), and p value (p). The analysis is limited to students in grades 3–8 so that school spending is as comparable as possible.

Table D3. Instrumental variables estimates of attending QCSSF schools in 2024/2025

Student-level outcomes (grades 3–10)	Avg.					
	Eng./math	Math	English	Attend.	Unauth.	Chronic
	Coef.	0.240	0.308	0.177	Rate	Abs. Rate
	S.E.	0.023	0.033	0.022	0.018	-0.022
	P	0.000	0.000	0.000	0.005	0.004
					0.000	0.021
						0.206
Student-level outcomes (grades 3–8)	Avg.					
	Eng./math	Math	English	Attend.	Unauth.	Chronic
	Coef.	0.232	0.286	0.165	Rate	Abs. Rate
	S.E.	0.024	0.035	0.023	0.001	-0.006
	P	0.000	0.000	0.000	0.005	0.004
					0.817	0.193
						0.572
Student-level outcomes (grades 8–10)	Avg.					
	Eng./math	Math	English	Attend.	Unauth.	Chronic
	Coef.	0.070	0.163	0.041	Rate	Abs. Rate
	S.E.	0.050	0.063	0.050	0.024	-0.027
	P	0.163	0.011	0.405	0.008	0.007
					0.002	0.000
						0.044
						0.021
School-level spending (grades 3–8)	Total	Classroom	Non- Classroom	Non- Operat.	School	Non-class
	Coef.	2847.683	1648.869	829.473	Admin.	Admin.
	S.E.	350.996	329.964	220.997	107.639	383.488
	p	0.000	0.000	0.000	0.000	141.304
						0.007
	Classroom	Classroom	Classroom	Nonclass	Nonclass	Nonclass
	Instruction	Staff Sup.	Pupil Sup.	Transprt.	Food	Plant
Coef.	1539.990	10.331	98.548	15.247	77.106	353.632
S.E.	323.735	3.981	37.733	34.022	26.155	127.522
p	0.000	0.009	0.009	0.654	0.003	0.006
School-level teachers (grades 3–8)	Students	FTE	More Than	Abs. Rate	First Yr at	Last Yr at
	per Teacher	Teachers	BA (frac.)	(frac.)	Schl (frac)	Schl (frac)
	Coef.	-10.140	-4.613	-0.005	-0.015	-0.052
	S.E.	6.938	3.504	0.011	0.002	0.014
	p	0.144	0.188	0.652	0.000	0.018
						0.000
	Avg. Salary	Avg. Sal/	Med. Sal/	Years of		
	(2025 \$)	FTE ('25\$)	FTE ('25\$)	Experience		
Coef.	15446.020	2272.189	2959.416	-0.279		
S.E.	2245.318	777.981	612.858	0.178		
p	0.000	0.003	0.003	0.116		
School-level student characteristics (g3-8)	FTE	Econ. Dis.	Disability	Lim. Eng.	Non-Eng.	
	Students	(percent)	(percent)	(percent)	(percent)	
	Coef.	-322.510	3.088	-1.759	0.161	0.547
	S.E.	82.161	0.882	0.521	0.383	0.658
	p	0.000	0.000	0.001	0.675	0.406
	Asian	Black	Hispanic	White		
	(percent)	(percent)	(percent)	(percent)		
Coef.	-0.227	6.900	0.382	-7.593		
S.E.	0.146	1.305	0.662	0.876		
p	0.119	0.000	0.564	0.000		

Note. The table presents estimates of students' exposure to QCSSF funding during the 2023–24 and 2024–25 school years. The results are from the instrumental variables model described above. The three rows for each outcome indicate the estimated coefficient (coef.), standard error (S.E.), and p value (p).

Appendix E: RD Analysis

The regression discontinuity (RD) analysis compares the outcomes of charter schools that narrowly qualified for the Quality Community School Support Fund (QCSSF) to the outcomes of charter schools that narrowly failed to qualify for the QCSSF funding. First, I identified a sample of brick-and-mortar schools that were in operation during the 2021–22 school year (the baseline year for the analysis) and that had been in operation for at least three years. Second, I created a “running” variable that captures how close schools were to qualifying (or not) for funding in January 2024, such that some schools did and did not receive approximately \$3,000 per pupil for two school years (both 2023–24 and 2024–25). Third, I estimated statistical models that calculate how outcomes differ for schools that narrowly qualified and those that narrowly failed to qualify. The following subsections describe the running variable, statistical models, and results.

Running Variable

The Quality Community School Support Fund’s primary eligibility criterion (“Criterion 1”) lends itself to creating a running variable because the metrics used—the performance index and value-added scores—are continuous and, thus, can be used to characterize a school’s distance from the qualification threshold. Specifically, focusing on schools with sponsors rated “exemplary” or “effective” and that serve primarily economically disadvantaged students, Criterion 1 requires that charter schools have 1) a performance index score higher than the district in which they are located for the two most recent report cards and 2) a value-added rating of 4-5 stars. As Table B1 of Appendix B indicates, 58 of 63 brick-and-mortar charter schools that qualified for funding in January 2024 did so due to Criterion 1.

Specifically, this analysis employs the performance index and value-added estimates on Ohio report cards to calculate how close schools were to qualifying (or not qualifying) for the QCSSF program in January 2024. Doing so requires running separate calculations to determine which schools qualified for funding in January 2023 (based on 2018–19 and 2021–22 report card data) and which schools qualified for funding in January 2024 (based on 2021–22 and 2022–23 report card data). Note that schools that previously qualified for funding in January 2020 or January 2021 were eligible for funding through the 2022–23 school year, as there was a pandemic-related extension for schools that qualified in 2020 and those that qualified in 2021 were guaranteed three years of funding. But schools that qualified in January 2023 would be among those that experienced the funding increases in 2023–24 and 2024–25, along with those that qualified for funding in January 2024 or in January 2025. Thus, by 2023–24, a running variable based on qualifying in 2023 or 2024 should fully account for schools that did and did not receive QCSSF payments of approximately \$3,000 per pupil (on average) during the 2023–24 school year. Because this is a three-year program, those that qualified in 2023–24 also got funding in 2024–25 (the last year of available data).

For the value-added metric, one first calculates the difference between schools’ value-added index and the four-star/three-star cutoff (subtracting by 1.999, as the index score cutoff was 2). For the performance index, one must calculate the difference between each school’s score and the performance index score of the district in which they are located. Thus, positive values indicate that a school exceeded the threshold, whereas a negative value indicates that a school fell short. These value-added and performance index differences are then standardized (converted to z scores) based on the distribution of these differences in each year, so that they are on a common scale. These standardized differences can be used to create “distance” variables for each school for each funding year:

$$d_{min}^{2023} = \min_d \{dPI^{2019}, dPI^{2022}, dVA^{2022}\}$$

$$d_{min}^{2024} = \min_d \{dPI^{2022}, dPI^{2023}, dVA^{2023}\}$$

These equations indicate that for each funding year, schools' distance d_{min} from meeting the criteria is based on the metric on which they performed the worse—the minimum value across the standardized distance for the performance index (d_{PI}) and value-added index (d_{VA}) scores for the applicable years (denoted by the superscripts). That is because exceeding the relevant threshold for each metric was a necessary condition to get QCSSF funding. If a school's performance on any of these dimensions fell below the cutoff ($d_{min} < 0$), then they did not qualify for funding in that year.

The final step is to use these distances to calculate a running variable that identifies, with minimal error, schools that received QCSSF funding in January 2024. Because receiving funding in these years required that a school qualify in January of 2023 or January 2024, taking the maximum value of the above distances should identify schools that ever qualified to receive funding for the 2023–24 school year (as well as the 2024–25 school year):

$$Run_i = \max_d \{d_{min}^{2023}, d_{min}^{2024}\}$$

The variable Run_i captures the “distance” from QCSSF funding for each charter school i based on Criterion 1. Put differently, if the value of Run_i is greater than 0, then that charter school should have qualified for the approximately \$3,000 in per-pupil funding for the 2023–24 and 2024–25 school years. Among schools with the data necessary to calculate a running variable, 54 of 57 schools that received QCSSF payments in January 2024 had a running variable value greater than zero ($Run_i > 0$), and 154 of the 157 schools that did not receive a QCSSF payment had a running variable value less than zero ($Run_i < 0$). Limiting the sample to the 58 schools that the running variables places within 0.3 standard deviations of the cutoff (the primary focus of the analysis below), the running variable correctly identifies 21 of 22 schools that received the payment in January 2024 and 34 of 36 schools that did not receive payment.

Note that the running variable leads to incorrect assignment for three schools near the cutoff because all brick-and-mortar charter schools are included in the sample, regardless of whether 50 percent of their students were economically disadvantaged. Additionally, the assignment is imperfect because two schools that failed to qualify for funding in January 2024 later qualified for in January 2025. In other words, two schools in the control group received payments in the second half of the 2024–25 school year, so they were partially funded across the two school years that are the focus of the analysis. Including these five schools in the analysis does not measurably affect the results, however, so a “sharp” RD analysis is nonetheless employed.

Statistical Model

The RD analysis estimates the impact of charter schools receiving QCSSF funding during the 2023–24 and 2024–25 school years on their spending, staffing, and student outcomes in those same years. It effectively compares changes in outcomes (since the baseline 2021–22 school year) between charter schools that narrowly qualified for QCSSF funding to changes in outcomes among charter schools that narrowly failed to qualify. Because the running variable captures charter schools' QCSSF eligibility with minimal error, I employ a “sharp” RD design. The primary specification is the following:

$$Y_i = \theta Above_i + f(Above_i, Run_i) + X_i' \beta^{2022} + \varepsilon_i$$

where Y_i captures the value of the relevant outcome variable (spending, staffing, or student attendance or achievement) for a given school year. Run_i is the running variable (as described above) and $Above_i$ indicates whether a school qualified based on Criterion 1 (whether $Run_i > 0$). The relationship between the running variable and the outcome is modeled linearly on either side of the QCSSF qualification threshold ($Run_i = 0$). The parameter of interest, θ , captures the estimated average causal impact of qualifying for the QCSSF program.

The most basic specification reported below (for the event-history analysis in Table E2) includes a lag of the outcome variable from the 2021–22 school year. To increase statistical power, the preferred specification (reported in Table E3) pools outcomes for 2023–24 and 2024–25 and includes a year fixed effect, three lags of the outcome variables (from the 2019–20, 2020–21, and 2021–22 school years), and baseline values of expenditures per pupil, the percentage of spending allocated to instruction, the percentage of students who are economically disadvantaged, enrollment, attendance rates, rates of chronic absenteeism, average math scores, and average English scores. All non-academic baseline covariates are from 2019–20 and 2021–22, whereas baseline measures of attendance and achievement are from the 2020–21 and 2021–22 school years (due to the pandemic). Standard errors are clustered by school to account for the pooling of outcomes across the 2023–24 and 2024–25 school years.

The models are estimated using samples of schools within an “optimal” bandwidth of the qualifying threshold, identified based on Calonico, Cattaneo, and Titiunik’s (2014) bandwidth selector. Whereas the bandwidths are allowed to vary across models for the event history analysis reported in Table E2 (below), to facilitate the exposition, the main analysis that pools 2023–24 and 2024–25 results (reported in Table E3) employs a consistent bandwidth of 0.3 standard deviations—that is, schools with a value of Run_i between -0.3 and 0.3—to keep the analytic sample the same across all outcomes.

This estimated difference in outcomes should capture the causal impact of charter school funding if comparison schools would have had similar outcomes in the absence of the QCSSF program. Validity tests indicate that these assumptions are indeed plausible, and schools that did and did not qualify for QCSSF had similar trends in the years leading up to 2021–22 (see Table E2 below). Further evidence of the design’s validity is that the coefficient estimates are largely insensitive to controlling for the characteristics of schools at baseline (e.g., comparing the results in Table E2 to those in Table E3). Also note that, near the QCSSF qualifying threshold, there is no evidence of differential changes in school enrollments; the results are similar when value-added estimates are used instead of average test scores; and schools that qualified for funding were not statistically significantly more likely to have closed by 2024–25. Thus, although schools receiving funding seem to have attracted more economically disadvantaged students and closed at lower rates, near the threshold those differences are minor and the results of the RD analysis should be minimally affected by changes in student composition or the closure of poorly performing schools that did not receive QCSSF payments.

Calonico, S., Cattaneo, M. D., and Titiunik, R. (2014). Robust nonparametric confidence intervals for regression-discontinuity designs. *Econometrica*, 82 (6), 2295–2326.

Table E1. Baseline statistics of school-level samples used in RD analysis

	Full Sample		Restricted Bandwidth (+/-0.3)	
	QCSSF Schools	Non-QCSSF Schools	QCSSF Students	Non-QCSSF Students
Academic Outcomes (grades 3–10)				
Avg. math/English test scores (z-scores)	-0.417	-0.765	-0.524	-0.571
Math test scores (z-scores)	-0.464	-0.829	-0.608	-0.642
English test scores (z-scores)	-0.371	-0.701	-0.441	-0.501
Avg. math/English value-added (z-scores)	0.104	-0.106	0.060	-0.010
Math value-added (z-scores)	0.072	-0.170	-0.012	-0.080
English value-added (z-scores)	0.136	-0.042	0.132	0.060
Attendance rate (fraction hours)	0.885	0.852	0.882	0.868
Unauthorized absence rate (fraction hours)	0.079	0.104	0.087	0.088
Chronic absence rate (fraction hours)	0.439	0.554	0.460	0.502
Spending				
Total spending (per pupil, 2025\$)	15,125	17,412	15,728	16,409
Classroom spending (per pupil, 2025\$)	8,236	9,886	7,932	9,428
Instructional spending (per pupil, 2025\$)	7,938	9,617	7,605	9,182
Pupil support spend. (per pupil, 2025\$)	298	269	327	246
Non-classroom spending (per pupil, 2025\$)	6,466	7,210	7,239	6,651
Administration (per pupil, 2025\$)	4,108	4,520	4,518	3,983
Transportation spend. (per pupil, 2025\$)	124	217	93	202
Food spending (per pupil, 2025\$)	662	654	677	765
Plant spending (per pupil, 2025\$)	1,572	1,819	1,951	1,702
Non-operating spending (per pupil, 2025\$)	423	315	558	330
Teachers				
Teacher count (FTE)	26.5	18.3	27.8	21.5
Students per teacher	15.7	15.0	15.8	19.2
Teacher salaries (average, 2025\$)	45,676	39,773	44,774	40,537
Teacher salaries (avg. per FTE, 2025\$)	46,997	41,982	45,581	45,894
Teacher salaries (median, per FTE, 2025\$)	46,799	41,710	45,750	43,075
Teachers in first year at school (fraction)	0.309	0.418	0.339	0.393
Teachers with more than a BA (fraction)	0.243	0.225	0.227	0.220
Teacher absence rate (avg. frac. of days)	0.017	0.041	0.008	0.046
Teacher experience (average years)	6.44	5.40	5.43	6.28
Students				
Student count (FTE)	416	249	449	320
White students (percent)	12.6	25.0	7.2	19.9
Black students (percent)	65.3	55.3	68.7	58.2
Economically disadvantaged (percent)	90.5	92.8	91.8	91.6
School Count	58	163	23	36
<i>Note. The table presents average values of key variables observed at baseline (2021–22 school year) for the brick-and-mortar charter schools included in the RD analysis.</i>				

Table E2. Event-history RD analysis comparing QCSSF and non-QCSSF schools

		2019	2020	2021	2023	2024	2025
Closed (0,1) bandwidth: 0.426	Coef. S.E. p	N/A 	N/A 	N/A 	N/A 	N/A 	-0.013 0.012 0.281
Avg. G3-10 English/math (avg., z-scores) bands: 0.289-0.504	Coef. S.E. p	-0.021 0.070 0.759	N/A 	-0.001 0.055 0.984	0.017 0.045 0.710	0.051 0.063 0.415	0.123 0.066 0.062
Math G3-9 (avg. z-scores) bands: 0.293-0.556	Coef. S.E. p	-0.061 0.100 0.540	N/A 	-0.011 0.068 0.870	0.089 0.051 0.080	0.111 0.081 0.172	0.201 0.078 0.009
English G3-10 (avg. z-scores) bands: 0.279-0.386	Coef. S.E. p	0.013 0.062 0.840	N/A 	-0.008 0.053 0.877	-0.053 0.051 0.303	-0.005 0.053 0.918	0.038 0.064 0.555
Total spending (per pupil, 2025\$) bands: 0.263-0.539	Coef. S.E. p	-2639.646 1044.521 0.011	-1543.299 756.220 0.041	-626.489 1240.394 0.614	664.893 1045.577 0.525	2819.471 1225.587 0.021	2432.562 1246.255 0.000
Classroom spending (per pupil, 2025\$) bands: 0.281-0.442	Coef. S.E. p	-206.305 1678.705 0.902	845.412 1651.045 0.609	1001.284 1735.874 0.564	200.791 518.508 0.699	776.774 757.251 0.305	1699.870 648.363 0.009
Non-class spending (per pupil, 2025\$) bands: 0.337-0.502	Coef. S.E. p	-657.484 1304.914 0.614	-652.712 1037.263 0.529	-681.618 1222.184 0.577	962.196 668.284 0.150	1677.348 909.708 0.065	1440.374 1212.307 0.235
Non-operating spend. (per pupil, 2025\$) bands: 0.222-0.430	Coef. S.E. p	-665.430 301.730 0.027	-535.507 294.191 0.069	-81.733 297.650 0.784	-214.122 315.375 0.497	13.441 163.443 0.934	-344.209 329.596 0.296
Students per teacher bands:	Coef. S.E. p	4.332 2.658 0.103	4.036 2.743 0.141	2.866 2.510 0.254	2.348 2.534 0.354	10.461 6.645 0.115	-1.676 3.381 0.620
Teacher salaries (average, 2025\$) bands: 0.217-0.466	Coef. S.E. p	-723.489 1012.427 0.475	-965.601 1163.756 0.407	-640.941 1241.724 0.606	9184.782 2054.389 0.000	9279.875 2346.468 0.000	7677.08 2189.663 0.000
Teachers in first year (fraction) bands: 0.289-0.473	Coef. S.E. p	0.085 0.085 0.316	0.179 0.060 0.003	-0.005 0.092 0.958	-0.154 0.102 0.132	-0.121 0.090 0.178	0.147 0.104 0.155
Student count bands: 0.351-0.601	Coef. S.E. p	58.891 30.777 0.056	28.077 20.430 0.169	0.474 10.834 0.965	-8.593 13.079 0.511	20.125 33.194 0.544	53.219 54.568 0.329
Econ. Disadvantage (fraction) bands: 0.233-0.445	Coef. S.E. p	-6.126 4.773 0.199	-1.896 1.103 0.086	-1.697 1.176 0.149	-1.629 2.543 0.522	-3.517 4.667 0.451	-0.331 1.396 0.813

Note. The table presents results of the event history analysis for primary outcome variables. The models include a single lag from the 2021–22 school year (except when modeling school closure) and were estimated using a triangular kernel. The optimal bandwidths vary by year and outcome.

Table E3. Impact on schools of receiving QCSSF money in 2023–24/2024–25

School-level outcomes		Avg.			Attend.	Unauth.	Chronic
		Eng./math	Math	English	Rate	Abs. Rate	Abs. Rate
	Coef.	0.119	0.188	0.053	0.016	-0.010	-0.050
	S.E.	0.080	0.097	0.075	0.009	0.010	0.035
	p	0.141	0.059	0.478	0.092	0.326	0.167
Student-level gains		Cum. Gains	Cum. Gains	Cum. Gains	An. Gains	An. Gains	An. Gains
		Eng./math	Math	English	Eng/Math	Math	English
	Coef.	0.127	0.187	0.066	0.055	0.131	-0.031
	S.E.	0.057	0.078	0.050	0.050	0.061	0.047
	p	0.029	0.020	0.191	0.277	0.037	0.516
School-level spending		Total	Classroom	Non-Classroom	Non-Operat.	School Admin.	Non-class Admin.
	Coef.	3350.842	1742.676	1608.075	-87.558	630.611	441.784
	S.E.	1215.553	506.085	1123.701	213.068	429.223	716.510
	p	0.008	0.001	0.158	0.683	0.147	0.540
		Classroom Instruction	Classroom Staff Sup.	Classroom Pupil Sup.	Nonclass Transprt.	Nonclass Food	Nonclass Plant
	Coef.	1949.248	N/A	-140.223	367.536	-67.085	396.838
	S.E.	555.0442		103.875	197.610	99.278	660.158
	p	0.001		0.182	0.068	0.502	0.550
School-level teachers		Students per Teacher	FTE Teachers	More Than BA (frac.)	Abs. Rate (frac.)	First Yr at Schl (frac)	Last Yr at Schl (frac)
	Coef.	5.983	-3.089	-0.018	-0.013	-0.107	-0.098
	S.E.	3.823	3.477	0.055	0.013	0.073	0.109
	p	0.123	0.378	0.736	0.348	0.150	0.371
		Salary (2025 \$)	Salary/FTE (2025\$)	Years of Experience			
	Coef.	3872.828	4145.667	0.092			
	S.E.	2818.844	2269.102	0.882			
	p	0.175	0.073	0.917			
School-level student characteristics		FTE Students	Econ. Dis. (percent)	Disability (percent)	Lim. Eng. (percent)	Non-Eng. (percent)	
	Coef.	32.285	-4.893	0.842	-6.775	-1.420	
	S.E.	49.336	3.123	1.726	1.918	2.585	
	p	0.516	0.123	0.628	0.001	0.585	
		Asian (percent)	Black (percent)	Hispanic (percent)	White (percent)		
	Coef.	-0.188	2.081	-3.350	1.173		
	S.E.	0.516	2.159	1.743	1.129		
	p	0.717	0.339	0.060	0.303		

Note. The table presents results for the preferred OLS specification that pools outcomes for the 2023–24 and 2024–25 school years and that includes several lags and baseline covariates. The sample consists of observations within 0.3 units of the running variable (which captures differences in achievement and value-added measure in standard deviations). Standard errors are clustered at the school level.



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