

Unpacking the Accountability Theory of Action

Additional Fiscal Resources for Low-Performing Schools



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About This Research Brief

This brief is part of a [series of briefs](#) that examine whether the accountability theory of action as it relates to comprehensive support and improvement (CSI) schools is playing out as intended. In this brief, we examine the extent to which CSI schools receive additional fiscal resources, resulting from their designation, where resources are measured as spending and funding per student (see Exhibit 1). We also conduct exploratory analyses examining whether the amount of additional fiscal resources received by CSI schools is large enough to make a meaningful difference in improving their school performance.

Study Overview

School accountability systems are designed to focus attention on student performance and motivate improvement by establishing performance targets, publicly communicating information on student performance and school quality, and applying designations to schools signifying their level of performance. In addition, these systems aim to build capacity by offering external support, assistance, and additional resources to schools identified as needing support (Fuhrman et al., 2004; Hanushek & Raymond, 2001; Le Floch et al., 2007).

Key Findings

- CSI schools have higher expenditures than non-CSI schools.
- Most CSI schools receive Title I Part A funds for school improvement, and CSI schools receive more of these funds than non-CSI schools. Strategies for how those funds are allocated across schools vary by state.
- Current levels of increased spending for CSI schools are insufficient to promote meaningful improvements in test scores or graduation rates in CSI schools.

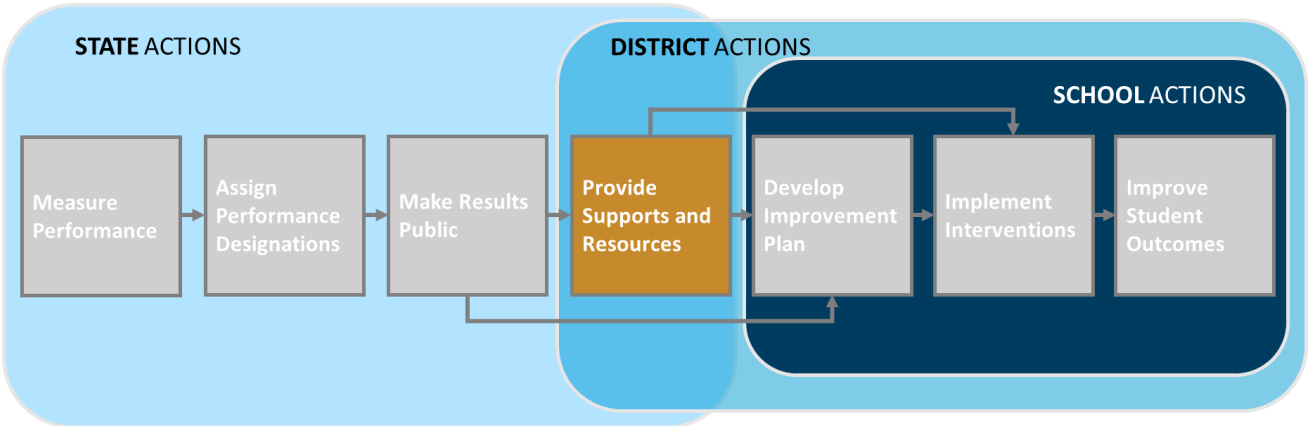
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Our study has two main objectives: (a) to understand whether school accountability systems operate as intended under the most recent federal education law, the Every Student Succeeds Act (ESSA) and (b) to assess whether student outcomes improve in schools identified for Comprehensive Support and Improvement (CSI), which represent the lowest performing 5% of Title I schools and all public high schools with graduation rates below 67%. To do so, we partnered with three states—California, Florida, and Ohio—and performed several research activities, including analyzing administrative data provided by the states, administering and analyzing a principal survey, and conducting and analyzing interviews with district administrators in each state. More information about the study’s overall design and methods is available in [Brief 1](#).

Federal policy directs states to measure school performance and identify their lowest performing schools, as depicted in the theory of action in **Error! Reference source not found.** Under ESSA, the two primary accountability designations are those of CSI and targeted support and improvement (TSI) or additional targeted support and improvement (ATSI). Whereas CSI is based on low performance among all students, TSI and ATSI schools are identified based on the performance of specific groups of students. CSI schools typically face many potential challenges, including the need to improve leadership, address staffing turnover, support students’ social-emotional needs, and improve instructional quality. To address these challenges and ultimately boost student performance, CSI schools are expected to conduct needs assessments, develop school improvement plans with appropriate and evidence-based interventions to build capacity, and implement those interventions with the help of the state and their district. These requirements and the implementation of interventions entail resources and funding beyond those provided to typical schools.

Exhibit 1. Accountability Theory of Action



The analyses described in this brief focus on CSI designations for the 2018–19 and 2019–20 school years. Individual states have the option to designate CSI schools in either 1- or 3-year cycles. As a result, the set of schools designated in 2018–19 and 2019–20 in some states was largely the same. But in other states, different schools were designated across the two years.¹ We pair data on school

¹ See Exhibit A2 for a full list of comprehensive support and improvement (CSI) designation cadences by state.

accountability designations with data on school-level spending in 2018–19 and 2019–20 and data on school improvement funding through Title I Section 1003 from the 2018–19 to 2020–21 school years. Our analyses of spending in CSI schools compared with non-CSI schools use CSI designations in 2018–19 and spending data in 2018–19 and 2019–20. To examine federal funding for CSI schools, we use designation data from both 2018–19 and 2019–20 and examine 3 years of funding data, with several analyses focusing on CSI designations in 2019–20 and school improvement funding in 2020–21.² To supplement our understanding of school improvement funding allocations, our analyses also include funding information about the annually designated TSI and ATSI schools. For simplicity, TSI and ATSI schools designated in either 2018–19 or 2019–20 that were never designated as CSI schools are grouped together for this analysis. The analyses for this brief focus on whether CSI schools receive additional funding and, as a result, have higher levels of spending compared with non-CSI schools. Specifically, we address the following research questions:

- To what extent is there a difference in spending levels between CSI and non-CSI schools?
- How much federal funding do CSI schools receive?
- What would be the expected impact of additional spending in CSI schools on those schools' outcomes?

ESSA has several components that are intended to promote equitable outcomes across student groups and toward this end boost financial resources available to CSI schools. Specifically, ESSA Section 1003 states that at least 7% of Title I, Part A funding must support schools identified for improvement—either CSI, TSI, or ATSI schools. (Note that in subsequent sections of this brief, we refer to the ESSA Section 1003 funding as “school improvement funding.”) In addition, ESSA requires resource allocation reviews at several levels. States must review resource allocations across districts with the intent of supporting districts with large numbers of schools identified for improvement. Districts with CSI schools are also required to conduct a review to identify and address resource inequities within their districts. These resource allocation reviews may result in reallocation of state and local funding to support CSI schools. For each of the components, the intent is to provide more resources (or at least ensure that resource levels are equitable) for schools that have received a federal accountability designation under ESSA.

² By focusing on the 2019–20 CSI cohort and funding in 2020–21, we focus on a stable set of schools, since states did not redesignate schools in 2020–21 due to the COVID-19 pandemic, and allow for enough time for states to distribute funding to identified schools. Subsequent findings demonstrate that only about 60% of CSI schools received funding in the first year of designation and that this percentage increased to 80% in subsequent years.

Study Findings

Spending Levels in CSI Versus Non-CSI Schools

If CSI schools receive additional funds, we should see evidence of this in increased spending, relative to non-CSI schools. We begin our investigation into the fiscal resources of CSI schools by comparing the levels of per-pupil spending in CSI schools with those in non-CSI schools nationally using CSI identification data from ED Facts along with National Education Resource Database on Schools (NERD\$) data on school-level spending (inclusive of state, local, and federal funding).³ We used a district fixed effects model to compare spending of CSI schools with non-CSI schools within the same districts. Because we conduct within-district comparisons, we constrained our sample to schools in districts that contain at least one CSI and one non-CSI school.⁴ For this analysis, CSI designation is based on 2018–19 designations, and we look across 2 years of spending (2018–19 and 2019–20).

In the first year of CSI designation (2018–19), CSI schools spent an average of \$150 more per student than non-CSI schools, which increased to \$303 in 2019–20 (Exhibit 2). Much of the difference in spending for CSI schools can be attributed to spending from federal sources. In 2018–19, CSI schools spent an average of \$140 more per student than non-CSI schools from federal sources (see Exhibit 2). This amount increased to \$224 more from federal funds in 2019–20. By contrast, CSI schools were estimated to spend an average of \$23 and \$90 per student more than non-CSI schools from state and local funds, respectively, in 2018–19 and 2019–20.

Although differences in spending for CSI schools are statistically significant, they are relatively small in magnitude. Greater spending of \$150 to \$303 per student in CSI schools is relative to an average per-pupil spending amount of approximately \$11,745 in non-CSI schools.⁵ As a percentage, the differences in total spending amount to only 1.3% in Year 1 and 2.6% in Year 2.

Larger differences in spending for CSI schools in the second year following identification relative to the first year suggest that it took some time to distribute additional funding to CSI schools and for school improvement efforts to start. This also aligns with how some states approach their school improvement efforts. For example, some states, like North Carolina, use the first year as a planning year. In addition, some states do not notify schools of their designation until well after the school year begins. California, for

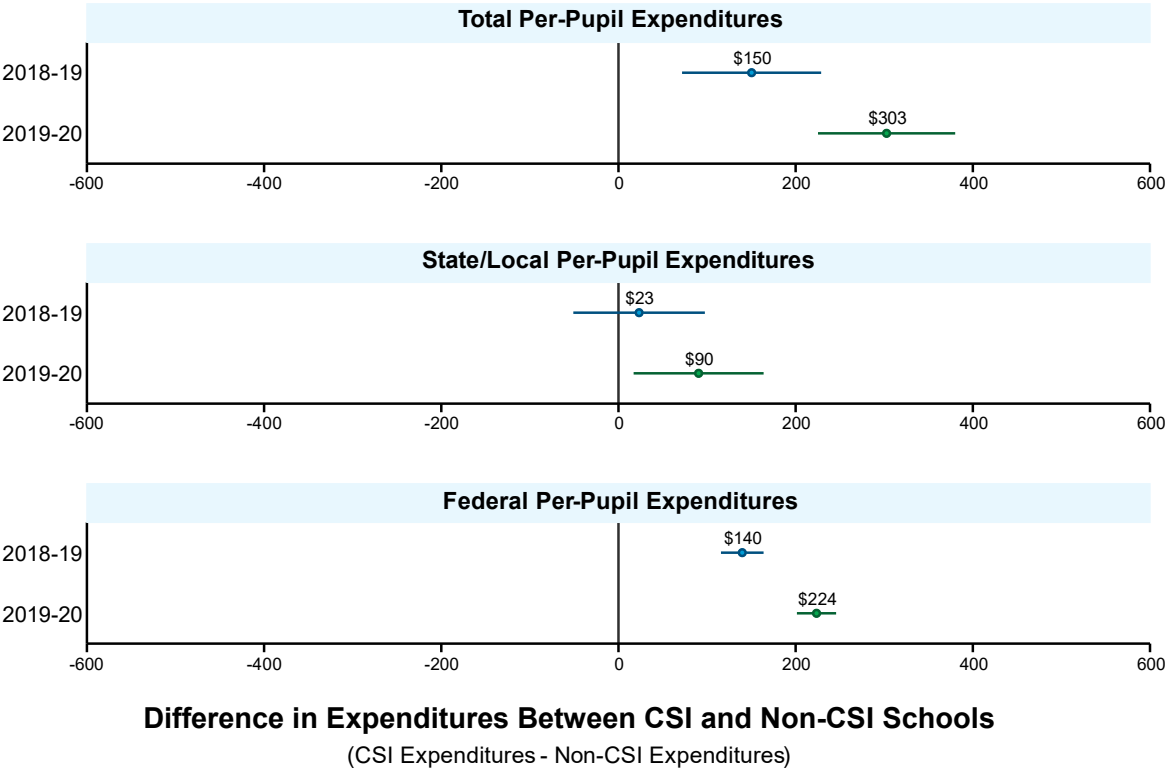
³ The National Education Resource Database on Schools (NERD\$) is a national data set of public K–12 spending by school disaggregated by funding source (state/local and federal expenditures). National Center for Education Statistics (NCES) data from the 2018–19 school year were used to calculate race/ethnicity subgroup and grade-level enrollment counts and percentages. Civil Rights Data Collection (CRDC) data from the 2017–18 school year were used to calculate subgroup enrollment counts and percentages for students with disabilities and English learners. Model Estimates of Poverty in Schools (MEPS) data from the Urban Institute were used to calculate the percentage of impoverished students by school. EdFacts data were used to identify CSI, targeted support and improvement (TSI), and additional targeted support and improvement (ATSI) schools in the 2018–19 and 2019–20 school years.

⁴ The sample after restricting it to districts with at least one CSI and one non-CSI school includes 35,760 schools and 1,777 districts. This represents more than one third of all schools and about one tenth of all districts nationally. Of the schools in the sample, 4,704 are CSI schools, accounting for 81% of all CSI schools nationally in 2018–19.

⁵ Average non-CSI per-pupil spending was \$11,643.58 in 2018–19 and \$11,843.33 in 2019–20. In addition, one standard deviation in spending per pupil amounted to approximately \$5,700 in each year.

example, typically notifies schools in January, creating challenges to implementing school improvement strategies and spending dollars for school improvement during the first year of designation.

Exhibit 2. Per-Pupil School Expenditures by 2018–19 CSI Status, Funding Source, and Year

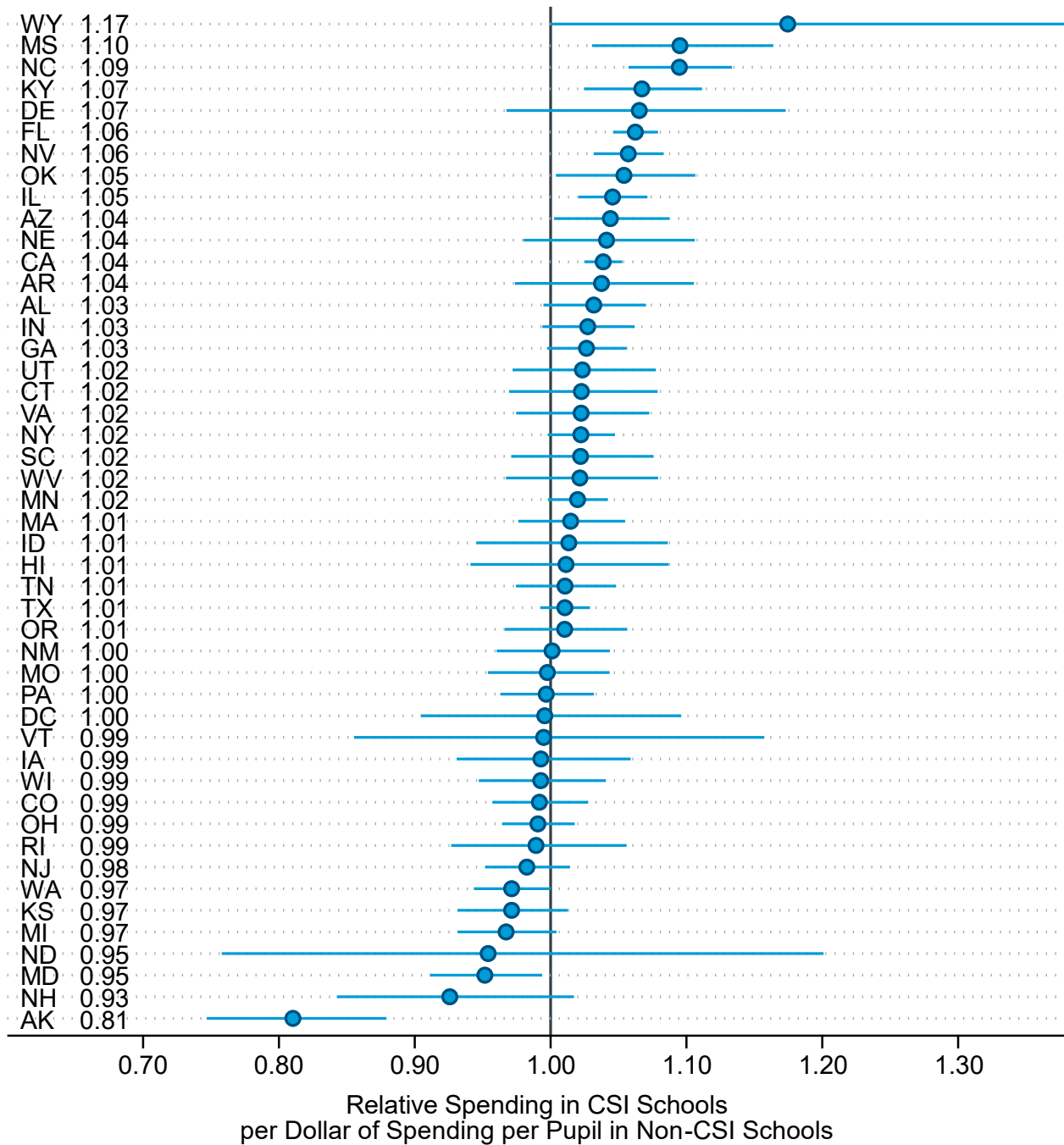


Note. Differences were estimated using a district fixed effects model with regressions run independently by year. Horizontal lines through each point represent 95% confidence intervals around the estimated differences. A table of detailed regression results can be found in Exhibit A1 in Appendix A. CSI = comprehensive support and improvement.

The national analysis masks substantial differences across states in the difference between CSI and non-CSI school expenditures. A similar fixed effects analysis broken down by state reveals wide variation in the degree to which CSI schools engage in higher spending than non-CSI schools across states (see Exhibit 3). CSI schools designated in 2018–19 had higher spending in 2019–20 than did non-CSI schools in approximately two thirds of states. However, in only nine states did this higher level in spending prove to be statistically significant. In the remaining states, CSI schools tended to spend less than their non-CSI counterparts. However, in only two of these states did the CSI/non-CSI spending difference prove to be statistically significant. Given that CSI schools are intended to receive additional funding resulting from their CSI status (which we investigate in the subsequent section), lower spending in CSI schools is likely due to inequities unrelated to explicit funding mechanisms. For example, if CSI schools systematically have less experienced and qualified staff compared with non-CSI schools, this will result in lower spending due to those staff having lower salaries.⁶

⁶ A recent analysis by Hyslop and Zhou (2024) indicated that CSI schools often experienced a decline in spending following designation, usually as a result of less spending from state and local sources.

Exhibit 3. CSI School Spending Per Pupil Relative to Non-CSI School Spending in the 2019–20 School Year



Note. Numbers in the figure represent relative differences in spending per pupil, where a value of 1 means no difference in spending. For example, 1.17 for Wyoming means that CSI schools spent \$1.17 per dollar spent in non-CSI schools (or 17% more). State-specific estimates were generated by interacting an indicator of CSI designation with state indicators in a district fixed effects regression model with a logged dependent variable. State-specific regression coefficients were exponentiated to represent spending in CSI schools relative to non-CSI. We also included an interaction between the percentage of students with disabilities and the state to account for state-specific differences in identification and funding of students with disabilities. Maine and Louisiana were omitted from this analysis because of missing data. Montana was excluded because there were too few schools to generate a state-specific estimate. CSI = comprehensive support and improvement.

Amount of Federal School Improvement Funding for CSI Schools

In this section, we present results from an analysis of Title I (Section 1003) school improvement funds. As previously discussed, a minimum of 7% of Title I, Part A funding must be spent on schools identified for improvement. While some states distribute funds through a formula, others require districts to submit an application for competitive funding that includes how they plan to oversee school improvement planning among CSI and TSI schools and monitor school progress. From these applications, the state education agency (SEA) will give priority to districts that exhibit the greatest need for funds and a commitment to using the funds effectively.⁷ Beyond these requirements, there is little federal guidance on how to allocate the funds across identified schools, which may include almost any combination of CSI and TSI schools. Here we use EdFacts data on the school improvement funding allocated to each school to first determine the number and percentage of CSI schools that receive any school improvement funding as well as the amount of funding being provided to each. We then describe the characteristics of the schools that received these funds.

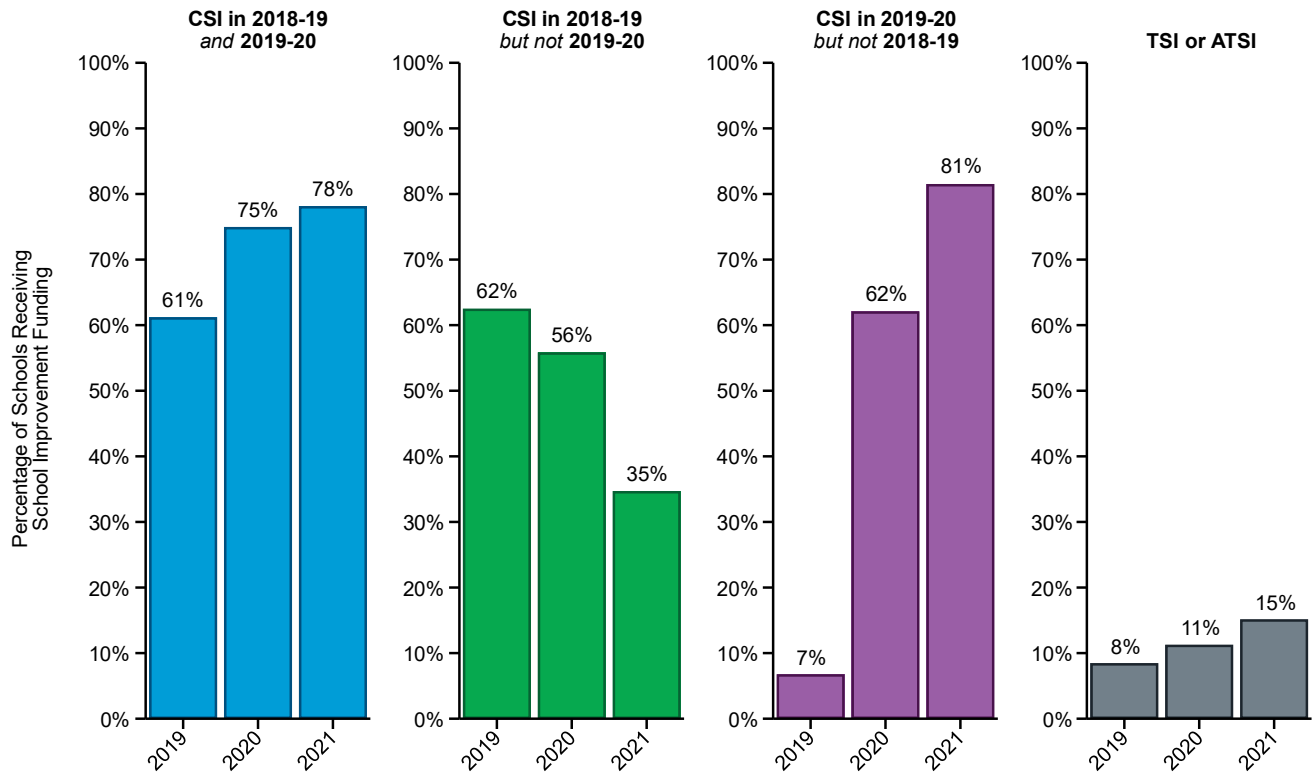
For the purposes of this analysis, we broke down CSI designations into three groups based on CSI identification: schools that were CSI in both 2018–19 and 2019–20, schools that were designated as CSI in 2018–19 but not in 2019–20, and schools that were not designated as CSI in 2018–19 but gained CSI status after the 2019–20 designations. Categorizing these distinct groups allows us to individually view the trends of each group and when they receive funding.

Just more than 60% of CSI schools nationwide received school improvement funding in their first year of designation. This proportion increased to approximately 80% in years following their designation. The percentage of TSI schools receiving school improvement funding only increased slightly each year, from 8% in 2018–19 to 15% in 2020–21 (see Exhibit 4).

Differences in the percentage of CSI schools receiving funding in the first versus the second year of identification suggest that there is a delay in distributing these funds, likely because states release CSI designations at different times of the year. For example, Florida releases designations before the coming school year, which gives the state and local education agencies (LEAs) sufficient time to fund CSI schools in the first year of identification. California, on the other hand, announces designations in the winter or spring, which only allows time for the state and LEAs to fund CSI schools in the year following their identification. Indeed, we see this effect in all CSI cohorts: Among schools that were designated in both years, the percentage of CSI schools funded increased by 14 points between 2018–19 and 2019–20 and we see a similar increase from 2019–20 to 2020–21 in CSI schools that were first identified in 2019–20. Conversely, the CSI cohort that was identified in 2018–19 but exited in 2019–20 saw a slight drop in the percentage of schools funded in the 2019–20 school year (from 62% to 56%) and a larger decline in the percentage that received funding in 2020–21 (from 56% to 35%).

⁷ For more information about the distribution of school improvement funds, see [20 U.S. Code § 6303\(e\)\(1\) and 6303\(f\)](#).

Exhibit 4. Number and Percentage of Schools That Received School Improvement Funding, by CSI and TSI Group



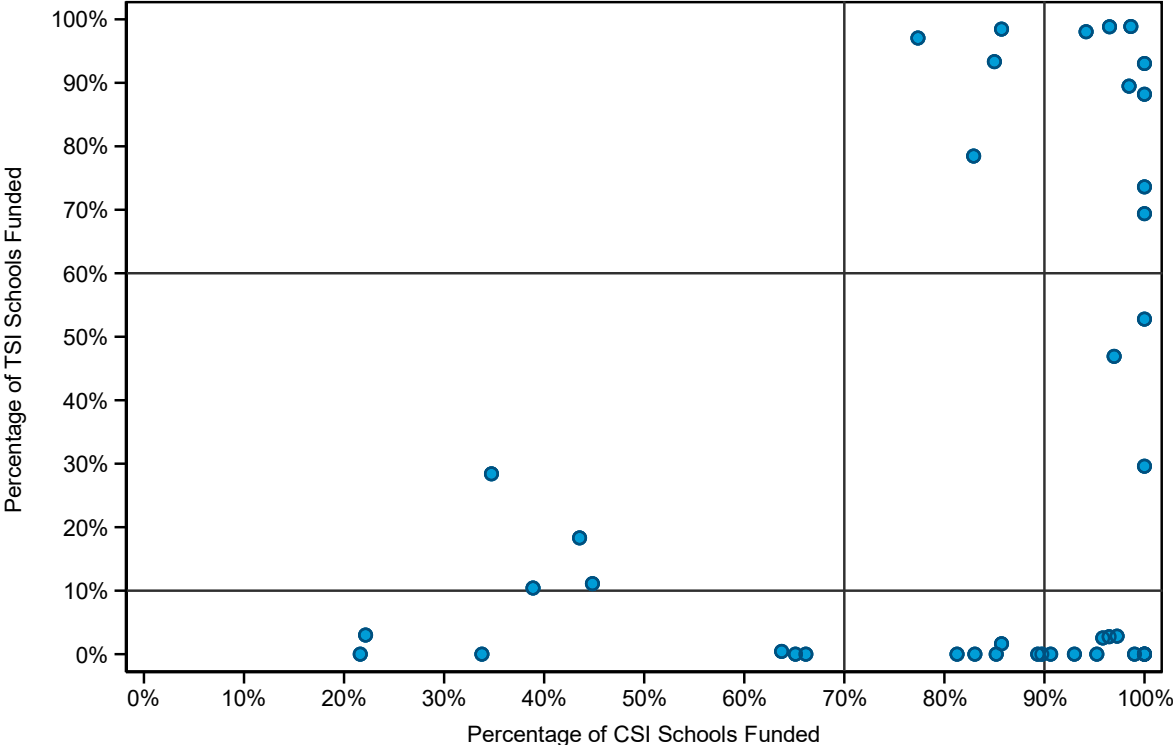
Note. All Virginia schools in all years and West Virginia schools in 2020 were dropped because of data validity concerns. Arizona had no CSI schools reported in the 2019–20 cohort but funded schools similarly across all years; therefore, the set of CSI schools reported for 2018–19 was assumed to be the same across years. States with no reported school improvement funding in a given year were dropped for that year. California and Vermont schools are not represented in 2018–19. Arkansas, Idaho, Illinois, Rhode Island, and South Carolina are not represented in 2019–20. Tennessee and Washington are not represented in 2020–21. Approximately 3,900 schools are represented in CSI in the 2018–19 and 2019–20 group, almost 900 are in the CSI in 2018–19 but not 2019–20 group, and almost 1,000 are in the CSI in 2019–20 but not 2018–19 group. The TSI or ATSI group consists of approximately 18,500 schools that were identified as TSI or ATSI in either 2018–19 or 2019–20 and were not identified as CSI in either year. ATSI = additional targeted support and improvement; CSI = comprehensive support and improvement; TSI = targeted support and improvement.

States took different approaches in how they allocated their school improvement funding. Although these school improvement funds are required to be distributed among a state’s CSI schools, states may opt to fund only a portion of CSI schools or to fund TSI/ATSI schools in addition to CSI schools. To examine the different approaches taken by states, we split states into three groups (high, medium, and low) based on the percentage of CSI schools identified in 2019–20 that received funding in 2020–21 and three groups based on the percentage of TSI/ATSI schools (identified in either year) that received funding in 2020–21.⁸ Some states (24) opt to distribute school improvement funds to a high percentage

⁸ To ensure consistency and minimize variation due to the possible lag in funding during the initial year of identification, we focused this analysis on the percentage of CSI school (identified in 2019–20) that received school improvement funding in 2020–21.

(90%–100%) of CSI schools, others (10) distribute to a medium level (70%–90%) of CSI schools, and the rest (9) distribute to a low level (less than 70%) of CSI schools. States less commonly chose to distribute school improvement funding to TSI/ATSI schools, with 13 states choosing to distribute funds to a high percentage (60% or more) of TSI/ATSI schools,⁹ seven opting to distribute funds to a medium level (10%–60%) of TSI/ATSI schools, and the rest (23) distributing to a low percentage (10% or fewer). Combining both divisions creates nine overall categories (see Exhibit 5).¹⁰

Exhibit 5. School Improvement Funding Distributions by Percentage of CSI and TSI Funded



Note. The percentage of CSI schools funded is the percentage of CSI schools identified in 2019–20 that received school improvement funding in 2020–21. The percentage of TSI schools funded is the percentage of TSI schools identified in either 2018–19 or 2019–20 (but were also not identified as CSI in either year) that received funding in 2020–21. Exhibit A3 in the Appendix identifies which states are in each section of the scatterplot. ATSI = additional targeted support and improvement; CSI = comprehensive support and improvement; TSI = targeted support and improvement.

States that funded high percentages of both CSI and TSI/ATSI schools spread their school improvement funding across a larger share of the state’s schools. In states that distributed funds to a high percentage of both CSI schools and TSI/ATSI schools (representing the upper right cell of Exhibits 5 and 6), an average of 18% of all schools in the state received some form of school improvement funding **Error! Not a valid bookmark self-reference.**). By contrast, states that distribute to a low percentage of CSI and TSI/ATSI schools provided school improvement funding to only 4% of all schools.

⁹ Any school designated as TSI or ATSI in 2018–19 or 2019–20 but not designated as CSI in either year is included in this analysis.
¹⁰ See Exhibit A3 in Appendix A for a listing of states according to where they fall in the percentage of CSI and TSI schools receiving school improvement funding.

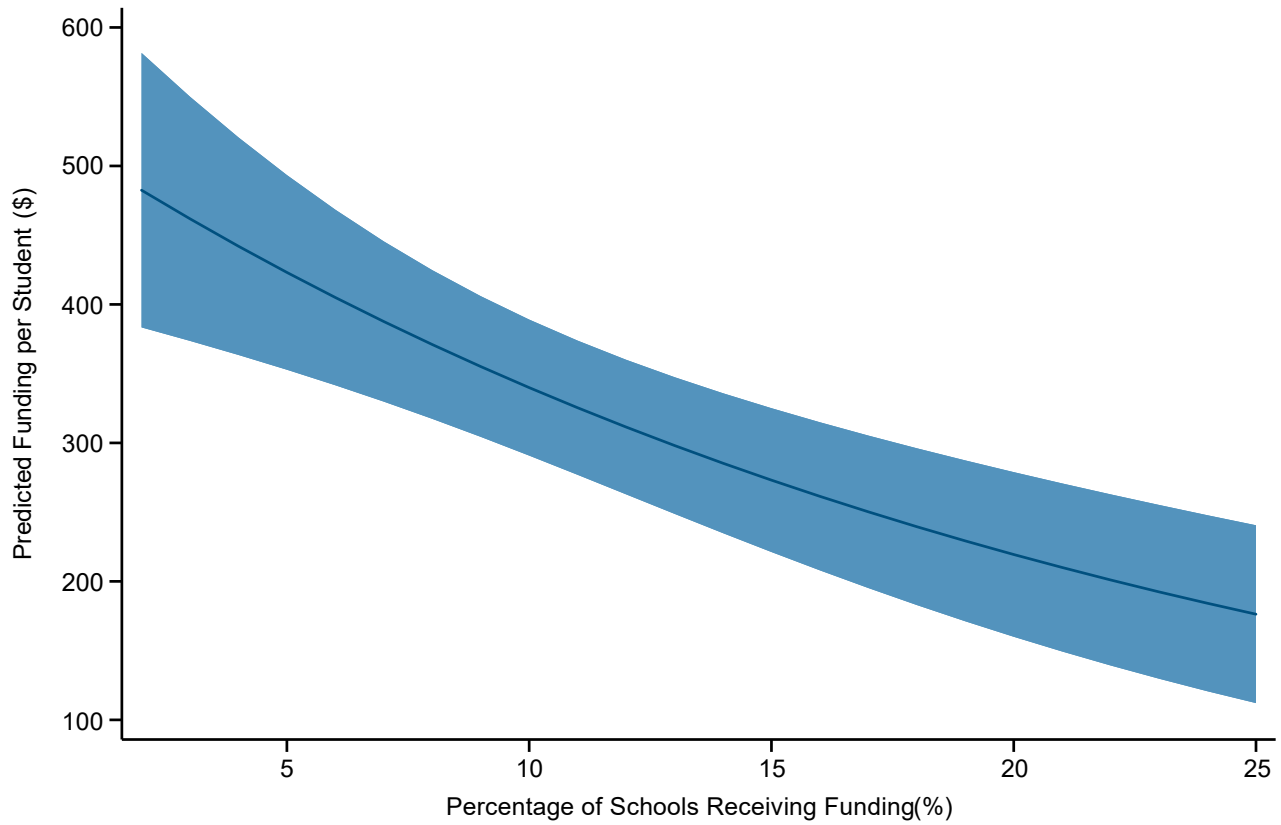
Exhibit 6. Average Percentage of All Schools Within a State That Received School Improvement Funding, by Funding Scenario

	Low CSI Funding (< 70%)	Medium CSI Funding (70–90%)	High CSI Funding (> 90%)
High TSI/ATSI Funding (> 60%)	–	12%	18%
Medium TSI/ATSI Funding (10–60%)	8%	-	11%
Low TSI/ATSI Funding (< 10%)	4%	4%	5%

Note. Based on schools that received funding in 2020–21. ATSI = additional targeted support and improvement; CSI = comprehensive support and improvement; TSI = targeted support and improvement.

States that spread school improvement funding across more schools funded CSI schools at lower amounts per pupil. When deciding how to distribute school improvement funding across schools, states must weigh the benefits of providing funding across more schools, with the tradeoff of providing those schools fewer dollars per student. In Exhibit 7, we show that the overall percentage of schools within a state that receive school improvement funds is predictive of the funding amount per student for CSI schools that received some amount of funding. For example, a state that funds 18% of all schools (distributing to a high percentage of both CSI and TSI/ATSI schools) would be expected to provide CSI schools just more than \$230 per student. On the other hand, states that distribute school improvement funding across only 4% of all schools (low percentage of both CSI and TSI/ATSI schools funded) fund each CSI school receiving funding at an expected amount of more than \$400 per pupil.

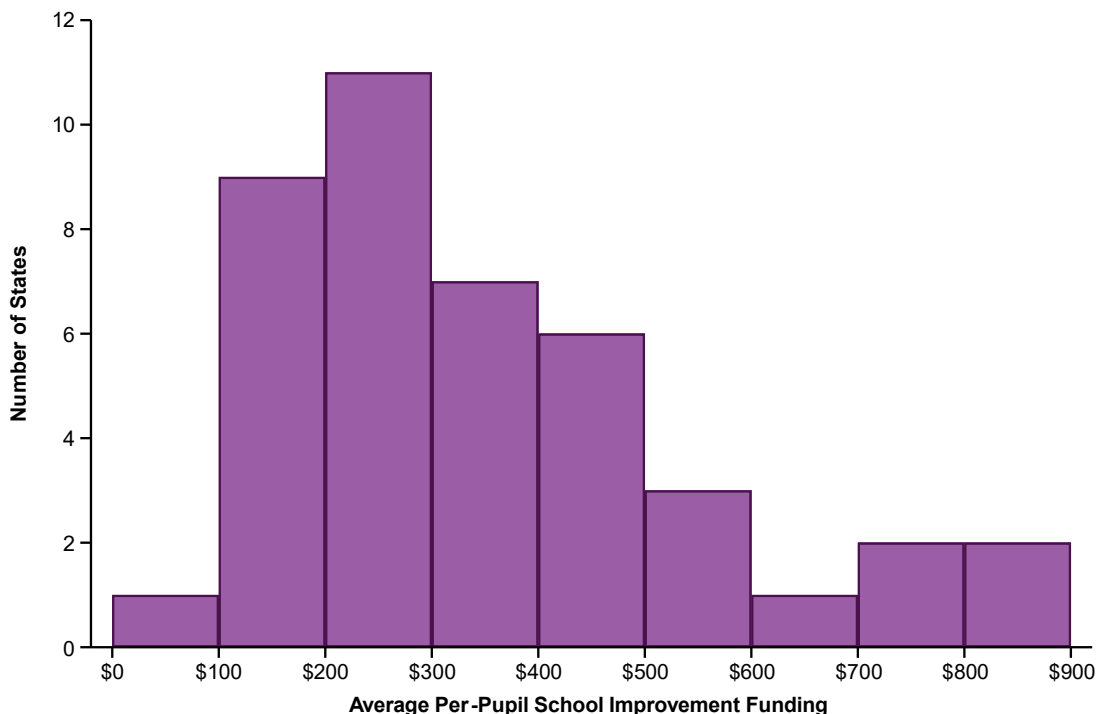
Exhibit 7. Predicted Per-Pupil Funding in CSI Schools That Received Funding Based on the Percentage of All Schools Receiving Funding



Note. Predicted funding per student is based on a regression model, with the state average amount of funding per funded CSI school in 2020–21 (weighted by enrollment) as the outcome variable and the percentage of schools funded and the natural log of average enrollment as the predictor variables. Exhibit A4 in the Appendix shows the detailed regression results. CSI = comprehensive support and improvement.

Per-pupil school improvement funding in CSI schools that received some amount of funding varies greatly between states. Although funding ranged between less than \$100 to more than \$800 per student, 27 states ranged between \$100 and \$400 per pupil (see Exhibit 8).

Exhibit 8. Variation in Average Per-Pupil School Improvement Funding Across States



Note. Averages of per-pupil school improvement funding were weighted by school enrollment.

Hypothesized Effects of School Spending on Outcomes

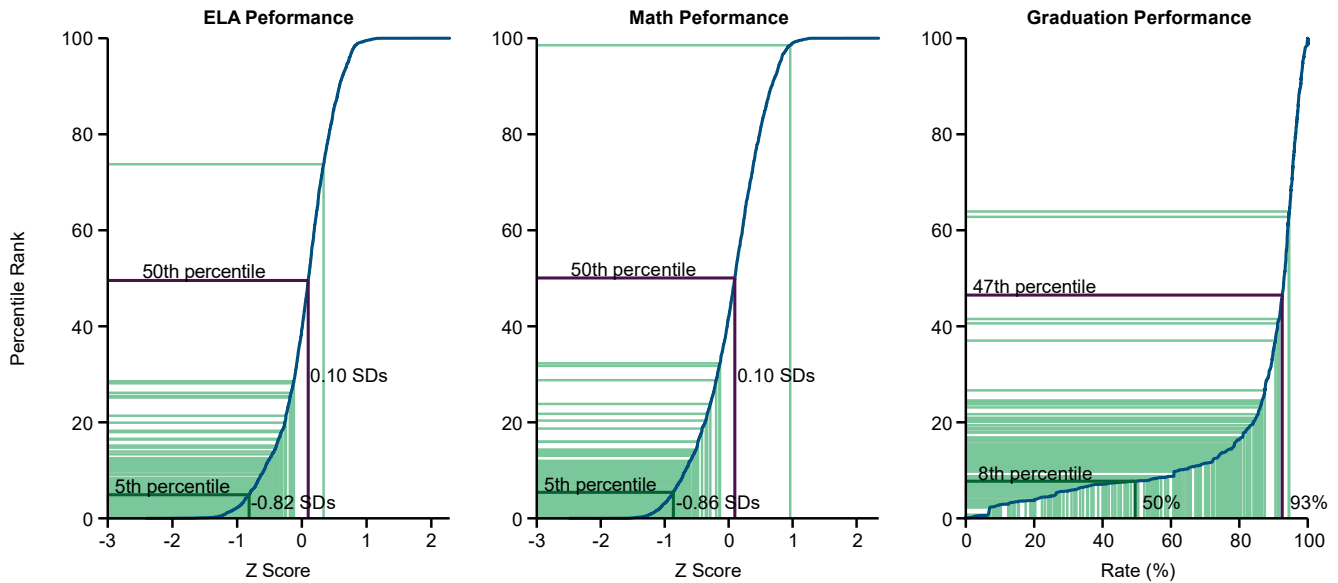
The foregoing analyses conclude that CSI schools do receive additional fiscal resources, as evidenced by higher spending compared with non-CSI schools and additional school improvement funding. According to our assumed theory of action, given that these schools are expected to implement new school improvement strategies and ultimately boost student outcomes, it follows that additional fiscal resources are necessary. We question, however, whether the amount of additional funding provided to CSI schools is sufficient to induce meaningful change. Jackson and Mackevicius (2021) found that, on average, an annual increase of \$1,000 in per-pupil spending sustained over 4 years is expected to produce a 0.035 *SD* increase in student test scores and a 1.92 percentage-point increase in high school graduation. Here we use our findings on the additional spending in CSI schools relative to non-CSI schools, along with the estimated effects of funding on outcomes from Jackson and Mackevicius (2021), to estimate the potential effect of additional fiscal resources in CSI schools on narrowing the differences in student outcomes between CSI and non-CSI schools.

The analyses in this section come with some necessary assumptions and caveats. We assume that the link between spending and performance is linear and could be extrapolated accordingly. For example, if \$1,000 results in 0.035 *SD* in improvement, a \$2,000 increase would result in 0.07 *SD* of improvement. This is admittedly an untested assumption. However, if anything, this is a generous assumption about the effects of spending, which may be affected by diminishing returns (i.e., a

doubling in spending may result in less than a doubling of performance). In addition, we assume that accountability policy will not result in a substantial gain in efficiency of resource use. Part of the theory of action of accountability is that outcomes should increase as a result of accountability pressure, even in the absence of additional resources. However, we believe it unlikely that efficiency gains alone could contribute substantively to closing outcome gaps of the magnitude observed. For example, recent meta-analyses of accountability policies meant to turn around low-performing schools show that these policies had an average effect on math scores of 0.06 SD or less and statistically insignificant effects on both English language arts (ELA) and graduation performance (Redding & Nguyen, 2020; Schueler et al., 2021). Despite these limitations, we contend that the following analysis clearly demonstrates that the magnitude of additional fiscal resources associated with CSI identification are most likely not enough to meaningfully reduce the performance gap between CSI and non-CSI schools.

The gaps in student performance between a typical CSI school and a non-CSI school are vast. Using student-level data from three states, we examined differences in student performance on student assessments and graduation rates. Exhibit 9 shows the cumulative distribution of student outcomes in Ohio in the 2017–18 school year. In the exhibit, each vertical and horizontal light green line represents average student performance in an individual CSI school. It is clearly evident that the CSI schools (the light green lines) are clustered at the lowest levels of performance. For math and ELA performance, for example, CSI schools typically perform below the 15th percentile of school performance and at least 0.5 SD below the state average. The dark green and purple lines show the performance of the average CSI and non-CSI schools, respectively. In math, for example, the performance of the average CSI school was 0.82 SD below the state average, which was at the 5th percentile of school performance. In comparison, the average non-CSI school performed 0.10 SD above the state average, which was at the 50th percentile of school performance. Gaps in performance between CSI and non-CSI schools in California and Florida were of similar magnitudes (Exhibits A5 and A6 in the appendix show the performance for these states).

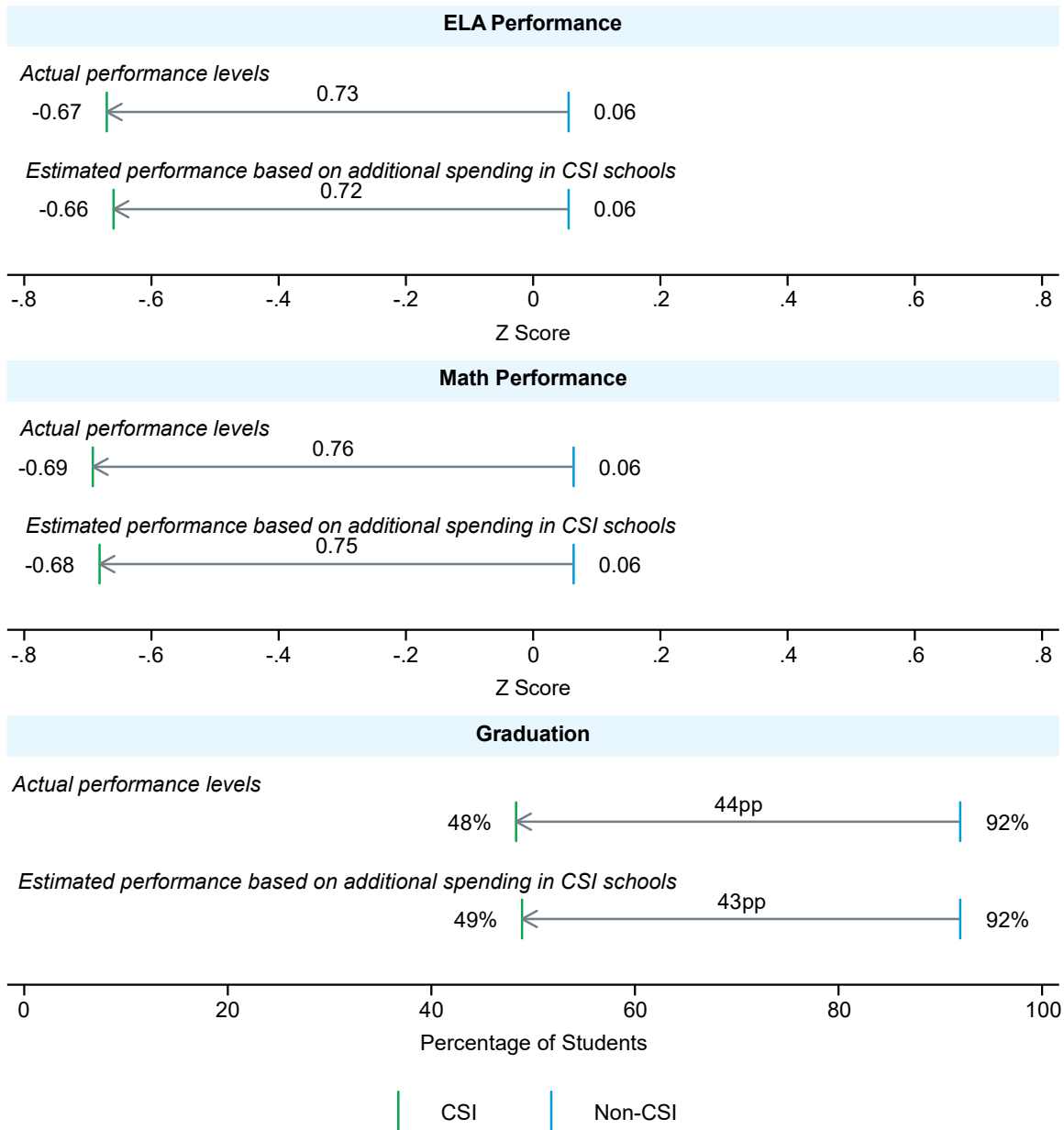
Exhibit 9. Student Outcomes in Ohio CSI Schools in 2017–18



Note. The dark blue lines show the cumulative distribution of performance for Ohio schools. Each light green line represents the performance of an individual CSI school with at least 15 students with measured performance. The dark green lines show the performance of the average CSI school. The dark purple lines show the performance of the average non-CSI school. CSI = comprehensive support and improvement; ELA = English language arts.

Assuming average effects of spending on outcomes, the increased funding provided to CSI schools would do little to meaningfully reduce gaps in performance between CSI and non-CSI schools. Using our previous finding that CSI schools spent an average of \$303 more per student than non-CSI schools in 2019–20 as well as the estimated effects of spending on student outcomes from Jackson and Mackevicius (2021), we estimate that the additional spending in CSI schools would increase student test scores by 0.011 *SD* and graduation rates by 0.58 percentage points if sustained over four years. The average difference in outcomes between CSI and non-CSI schools in California, Florida, and Ohio, is 0.73 *SD* in ELA, 0.76 *SD* in math, and 44 percentage points in graduation rates, as shown by the top set of arrows in each panel of Exhibit 10 (labeled *actual performance levels*). The next set of arrows (labeled *estimated performance based on additional spending in CSI schools*) show the performance gaps after accounting for the assumed improvement in performance in CSI schools generated by additional annual spending of \$303 per student in CSI schools sustained over 4 years. Given the magnitude of these performance gaps, the estimated increases in performance resulting from an additional \$303 per student do little to change the relative performance of CSI schools, with the gap in performance between CSI and non-CSI schools changing almost imperceptibly (Exhibit 10).

Exhibit 10. Actual Performance Gaps Between CSI and Non-CSI Schools and Estimated Performance Gaps Accounting for Performance Increase Due to Additional Resources



Note. Actual performance levels represent the average performance (and difference in performance) in 2017–18 for schools identified as CSI or non-CSI in 2018–19 in California, Ohio, and Florida. The estimated performance based on additional spending in CSI schools assumes additional annual spending of \$303 per pupil in CSI schools relative to non-CSI schools for 4 years and is based on the average relationship between spending and performance estimated by Jackson and Mackevicius (2021). CSI = comprehensive support and improvement; ELA = English language arts.

CSI schools would need substantially larger investments than what is currently being provided to close the difference in achievement compared with non-CSI schools. Using the same estimates of the effects of spending on student outcomes by Jackson and Mackevicius (2021), we estimated the additional amount of spending per pupil that would be required to close the gaps in achievement (Exhibit 11).

Based on our prior examination of achievement, the gap in performance between CSI and non-CSI schools is approximately 0.75 *SD*. Assuming that each additional \$1,000 per pupil in annual spending sustained four years results in a 0.035 *SD* increase, CSI schools would need to spend \$21,000 more per pupil than non-CSI schools annually for four years to close the gap in performance between the two sets of schools. Although this amount is large, it is not altogether out of line with amounts of funding needed to improve education for historically marginalized student groups. Atchison et al. (2023), for example, found that the cost of additional resources required for educating economically disadvantaged students in Delaware was between 1.54 and 1.81 times that of educating otherwise similar non-economically disadvantaged students—amounting to about \$10,000 additional funding per economically disadvantaged student. To provide additional context, economically disadvantaged students as a whole in California perform about 0.3 *SD* below the state average in math performance, whereas CSI schools perform about 0.6 *SD* below the state average, indicating that students in CSI schools have greater resource needs than a typical economically disadvantaged student.

We further extend this exercise of extrapolating the cost needed to provide appropriate services for CSI schools by multiplying the per-pupil amounts by a hypothetical number of students in CSI schools – 100,000, which is approximately the average number of students enrolled in CSI schools across all states. Doing so, we estimate that the total additional funding to address performance would amount to more than \$2 billion annually sustained for four years for a typical state. As a point of comparison we use the additional amount of spending per student CSI schools received in 2019–20 from our prior analysis (\$303), assuming that CSI schools in this hypothetical state receive an average increase in spending annually for four years. Under this scenario, the current amount of additional expenditures for CSI schools represents approximately 1.4% of what is needed in CSI schools to close the outcome gaps between these schools and their non-CSI counterparts.

Our extrapolation of the amount of spending needed to close performance gaps thus far are based on the overall average relationship between spending and student outcomes reported in Jackson and Mackevicius (2021) and also do not assume an effect of accountability independent from the spending effect. Jackson and Mackevicius (2021) suggest that the effect of additional funding for the typical low-income student could be higher. They report that an additional \$1,000 of spending per student annually over four years has an average effect of 0.049 *SD* increase in test performance for low-income students, which is higher than the effect for non-low-income students, but not statistically significantly different. Prior research also indicates that accountability policies in themselves could increase achievement even without increases in spending. In other words, our prior assumptions may overestimate the amount of spending required close the performance gaps.

Given that different assumptions could be made about how accountability policies and additional spending could affect outcomes, we also conducted a best-case scenario to identify a lower-bound estimate of additional spending needed for CSI schools to close gaps in achievement. Under the best-case scenario, we assume that accountability alone will improve student achievement by 0.07 *SD*. According to Schueler et al. (2021), this is just above the expected effect of accountability policies aimed at school turnaround on math achievement and well above the expected effect on ELA achievement. In addition, for this scenario we assume a stronger relationship between spending and achievement. Instead of the average relationship between spending and achievement, we assume that an annual increase of \$1,000 in spending per student sustained for four years will increase achievement by 0.085 *SD*. This assumption is based on the upper end of the 95% confidence interval for the relationship between spending and achievement for low-income students from Jackson & Mackevicius (2021). Even under these extremely liberal assumptions about the effects of accountability and spending on achievement, we estimate that CSI schools would need an additional \$8,000 per student annually for four years to close the gaps in achievement between CSI and non-CSI schools.

We reiterate that the results of this analysis rely on a series of untested assumptions and extrapolation. Despite these limitations, this analysis clearly demonstrates the magnitude of the challenge facing CSI schools and points out the insufficiency of current levels of additional spending – a few hundred dollars per student – in the face of the challenges that confront them.

Exhibit 11. Estimated Per-Pupil and Total Costs to Close Performance Gaps Between CSI and non-CSI Schools

Scenario	Additional per-pupil spending	Typical state CSI enrollment	Total estimated spending
Current Average	\$303	100,000	\$30,300,000
Spending needed to close performance gap (assumes an average relationship between spending and achievement)	\$21,452	100,000	\$2,145,200,000
Spending needed to close performance gap (best-case assumptions)	\$8,000	100,000	\$800,000,000

Note. Additional per-pupil spending and total estimated spending represent annual figures that are sustained for four years. Mean enrollment in CSI schools across states is 92,502 students but was rounded to 100,000 for simplicity. English language arts and math performance estimated per-pupil funds were averaged together because of their similarity. CSI = comprehensive support and improvement.

POLICY IMPLICATIONS

Several provisions of ESSA speak to the need to provide CSI schools with additional resources. Most explicitly, Section 1003 of Title I specifies that a portion of Title I funding must be used to support the school improvement efforts of schools identified as needing improvement under federal accountability requirements. This report examines the extent to which CSI schools spent more than non-CSI schools and received additional funding in the years following designation. We show that CSI schools do receive additional fiscal resources relative to non-CSI schools. Specifically, schools designated as CSI in 2018–19 spent just over \$300 more per student in 2019–20 than non-CSI schools, with the bulk of that amount being accounted for through increases in spending from federal sources. These analyses of school spending align with federal data on the provision of school improvement funding disbursed to CSI schools. In more than half of states, federal school improvement funding allocations amounted to between \$100 and \$400 per student.

At least some of the variation across states in the amount of school improvement funding received by CSI schools is due to different approaches that states take with respect to how they allocate funding across schools. Although federal policy stipulates the percentage of Title I funding that must be used for school improvement, it does not specify how funds should be distributed. Some states choose to fund high percentages of both CSI and TSI/ATSI schools, whereas other states fund only a portion of CSI schools and none of their TSI/ATSI schools. States choosing to fund a broader pool of schools provide funded schools with fewer dollars per pupil.

Although we demonstrate that CSI schools do receive additional fiscal resources, our findings also call into question whether the amount of additional funding is sufficient to make a meaningful difference for student outcomes in CSI schools. Using a recent study that quantifies the effects of education spending on student outcomes, we suggest that the amount of additional spending in CSI schools relative to non-CSI schools is expected to shrink the gaps between CSI and non-CSI schools by about 0.01 *SD* in academic performance and reduce the gap in the graduation rate by less than 1 percentage point—or only 1% to 2% of the magnitude of the gaps.

The magnitude of the challenges that CSI schools face means they require and deserve much larger investments of resources to catalyze meaningful improvement. Given that CSI designation is driven by federal policy, increasing federal investment in these schools is the logical place to start.

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Appendix A. Supplemental Exhibits

Exhibit A1. Regression Results Comparing Spending in CSI and Non-CSI Schools

	Total spending	Total spending	State/local spending	State/local spending	Federal spending	Federal spending
	2018–19	2019–20	2018–19	2019–20	2018–19	2019–20
CSI indicator	150.3* (40.05)	302.7* (39.51)	23.28 (37.88)	90.46* (37.43)	139.7* (12.27)	223.6* (11.29)
SWD proportion	13,400.6* (223.2)	14,284.5* (220.4)	11,860.1* (209.4)	12,788.5* (207.2)	1,955.6* (67.84)	1,976.6* (62.50)
English learner proportion	-40.59 (100.7)	-209.6* (99.08)	-45.04 (94.27)	-138.4 (92.99)	-13.80 (30.54)	-71.58* (28.05)
Neighborhood Income to poverty	1.130* (0.130)	0.901* (0.128)	0.721* (0.122)	0.562* (0.121)	0.529* (0.0396)	0.485* (0.0364)
School poverty proportion	64.77* (2.881)	63.65* (2.837)	31.09* (2.732)	29.79* (2.699)	36.31* (0.885)	36.52* (0.814)
Special education school	3,589.6* (231.9)	4,499.3* (229.7)	2,952.5* (216.9)	3,860.2* (215.6)	569.9* (70.28)	599.2* (65.03)
Magnet school	-108.9* (37.41)	-123.9* (36.94)	-85.94* (34.76)	-84.26* (34.43)	-30.32* (11.26)	-51.82* (10.39)
Charter school	-524.0* (59.49)	-876.5* (58.54)	-158.3* (55.44)	-460.2* (54.45)	-223.0* (17.96)	-295.2* (16.42)
Alternative school	1,781.5* (115.3)	1,681.0* (112.3)	1,931.7* (107.2)	1,818.6* (104.6)	-156.4* (34.72)	-94.70* (31.55)
Enrollment	-0.528* (0.0120)	-0.527* (0.0118)	-0.497* (0.0111)	-0.499* (0.0110)	-0.0256* (0.00360)	-0.0220* (0.00332)
Elementary-grade proportion	-1,323.1* (38.41)	-1,131.4* (37.89)	-1,379.7* (35.96)	-1,203.9* (35.55)	71.99* (11.65)	82.45* (10.72)
Middle-grade proportion	-1,557.2* (36.73)	-1,549.9* (36.20)	-1,467.3* (34.37)	-1,481.1* (33.95)	-53.90* (11.14)	-32.27* (10.24)
Constant	10,424.2* (95.94)	10,549.8* (94.60)	10,206.4* (90.66)	10,373.5* (89.61)	-62.45* (29.37)	-15.19 (27.03)
<i>N</i>	31,114	31,324	29,830	30,120	29,829	30,117
<i>r</i> ²	0.842	0.859	0.833	0.943	0.773	0.838

Note. Regressions include district fixed effects. CSI = comprehensive support and improvement; SWD = students with disabilities. Standard errors are in parentheses. * = $p < 0.05$

Exhibit A2. Frequency of CSI Identification for Each State

State	Frequency of identification
Alabama	3 years
Alaska	3 years
Arizona	3 years
Arkansas	3 years (low performance) Annual (low graduation rate)
California	Annual
Colorado	3 years (low performance) Annual (low graduation rate)
Connecticut	3 years
Delaware	3 years
District of Columbia	3 years
Florida	Annual
Georgia	Annual
Hawaii	3 years
Idaho	3 years
Illinois	3 years
Indiana	Annual
Iowa	3 years
Kansas	3 years (low performance) Annual (low graduation rate)
Kentucky	Annual
Louisiana	Annual
Maine	Annual
Maryland	3 years
Massachusetts	3 years
Michigan	3 years
Minnesota	3 years
Mississippi	3 years
Missouri	3 years
Montana	3 years
Nebraska	3 years
Nevada	Annual
New Hampshire	3 years
New Jersey	3 years

State	Frequency of identification
New Mexico	3 years
New York	3 years
North Carolina	3 years
North Dakota	3 years
Ohio	3 years
Oklahoma	3 years
Oregon	3 years
Pennsylvania	3 years
Puerto Rico	3 years
Rhode Island	Annual
South Carolina	3 years
South Dakota	Annual
Tennessee	3 years
Texas	Annual
Utah	Annual (low performance) 2 years (low graduation rate)
Vermont	3 years
Virginia	3 years
Washington	3 years
West Virginia	3 years
Wisconsin	3 years
Wyoming	3 years

Note. Data obtained from each state's individual Every Student Succeeds Act plan. CSI = comprehensive support and improvement.

Exhibit A3. CSI and TSI School Improvement Funding Groups by State

	Low CSI funding (< 70%)	Medium CSI funding (70%–90%)	High CSI funding (> 90%)	Total number of states
High TSI funding (> 60%)	–	MA, SC, WY	AK, GA, IL, LA, MS, NJ, NY, OH, SD, WV	13
Medium TSI funding (10%–60%)	AZ, CO, CT, HI	–	AR, IA, ND	7
Low TSI funding (< 10%)	FL, ID, IN, NV, UT	AL, CA, DE, MD, MT, NE, WI	KY, MI, MO, NC, NH, NM, OK, PA, RI, TX, VT	23
Total number of states	9	10	24	43

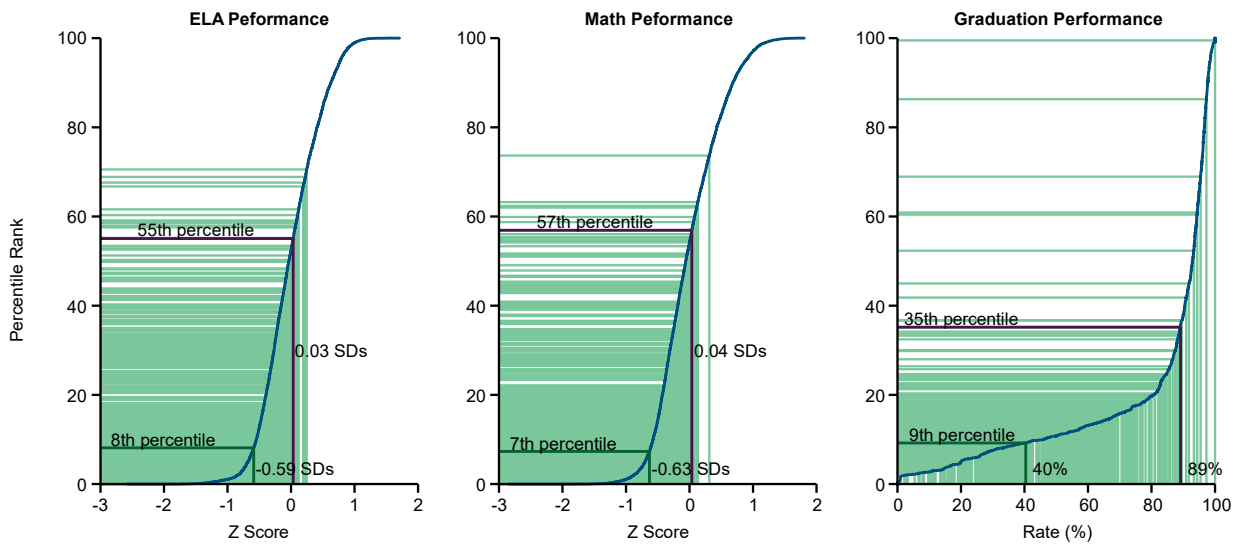
Note. CSI = comprehensive support and improvement; TSI = targeted support and improvement

Exhibit A4. Regression Results Examining School Improvement Funding per Student in CSI Schools in Relation to the Percentage of Schools Receiving School Improvement Funding by State

	Regression coefficient	Standard error
Percentage of schools receiving funding	0.013	0.013
Enrollment (ln) - centered	0.751	0.102
Constant	551	67.5
<i>N</i>	43	
Pseudo <i>R</i> ²	0.345	

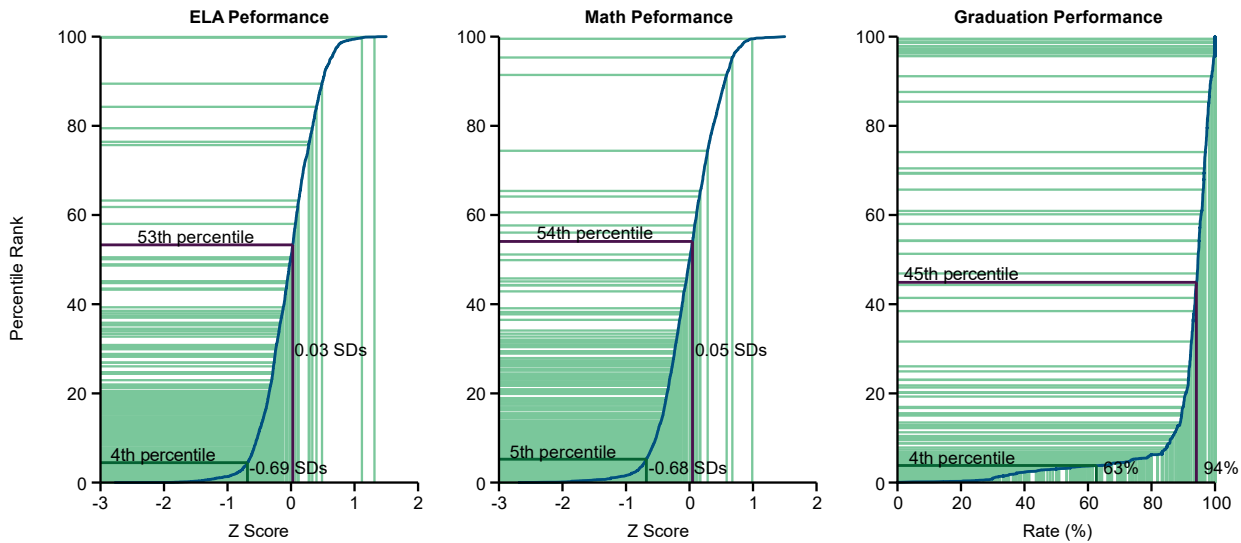
Note. Regression is estimated using Poisson. Coefficients are exponentiated, and enrollment is centered at 600, such that the constant represents the predicted per-pupil spending for a state where close to 0% of all schools are funded and where CSI schools have an average enrollment of 600 students. Coefficients for percentage of schools receiving funding and enrollment are centered on 1 and are multiplicative of the constant, such that coefficients less than 1 indicate lower per-pupil funding amounts. The coefficient for the percentage of schools receiving funding is statistically significant at $p < 0.001$. CSI = comprehensive support and improvement.

Exhibit A5. Student Outcomes in California CSI Schools



Note. The dark blue line shows the cumulative distribution of performance for California schools. Each light green line represents the performance of an individual CSI school. The dark green lines show the performance of the average CSI school. The dark purple lines show the performance of the average non-CSI school. CSI = comprehensive support and improvement; ELA = English language arts.

Exhibit A6. Student Outcomes in Florida CSI Schools



Note. The dark blue line shows the cumulative distribution of performance for Florida schools. Each light green line represents the performance of an individual CSI school. The dark green lines show the performance of the average CSI school. The dark purple lines show the performance of the average non-CSI schools. CSI = comprehensive support and improvement; ELA = English language arts.



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