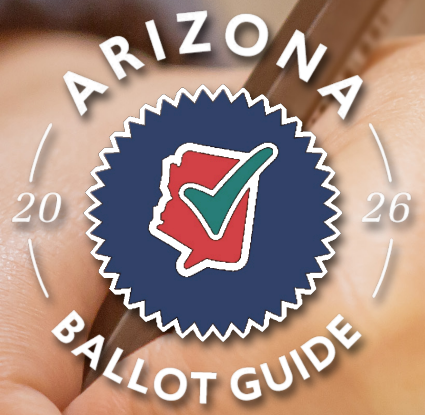




SEPTEMBER 2026

# ANALYZING STUDENT PROFICIENCY AND INSTRUCTIONAL SPENDING

A VOTER'S GUIDE TO PROPOSITION 320 AND  
PUBLIC-SCHOOL SPENDING IN ARIZONA

AUTHOR: ZACHARY MILNE & ANDREW SMITH

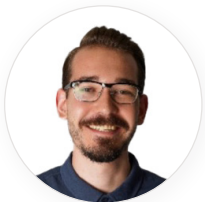
## ABOUT THE AUTHORS



**Zachary Milne** is the Director of Policy and Research for the Common Sense Institute Arizona (CSI Arizona), where he works with the Arizona research team to craft important and thoughtful research concerning the Arizona economy. He holds a bachelor's degree in economics and statistics and a master's degree in economics, both from Arizona State University.

Prior to joining CSI, Zachary worked in the Arizona Governor's budget office as an economist. In this capacity, he developed the state's revenue forecasts and advised a team of budget analysts on the creation of K-12 and Medicaid caseload figures for the state's annual budget. He also advised the Executive policy and leadership teams on fiscal policy and regularly presented detailed analyses on each of the dozens of tax bills introduced in the Arizona Legislature each year.

Originally from upstate New York, he retired after over 20 years of combined service in the United States Air Force and the Arizona Air National Guard with the 161st Air Refueling Wing in Phoenix, Arizona.



**Andrew Smith** is currently pursuing a Master's degree in Economics at California State University, Long Beach. As a principled free market thinker, he uses honest research to promote free enterprise and champion the freedoms that allow individuals to thrive. In his free time, Andrew is a talented musician, playing euphonium in his local brass band.

## ABOUT COMMON SENSE INSTITUTE

**Common Sense Institute** is a non-partisan research organization dedicated to the protection and promotion of Arizona's economy. CSI is at the forefront of important discussions concerning the future of free enterprise and aims to have an impact on the issues that matter most to Arizonans. CSI's mission is to examine the fiscal impacts of policies, initiatives, and proposed laws so that Arizonans are educated and informed on issues impacting their lives. CSI employs rigorous research techniques and dynamic modeling to evaluate the potential impact of these measures on the Arizona economy and individual opportunity.

## TEAMS & FELLOWS STATEMENT

CSI is committed to independent, in-depth research that examines the impacts of policies, initiatives, and proposed laws so that Arizonans are educated and informed on issues impacting their lives. CSI's commitment to institutional independence is rooted in the individual independence of our researchers, economists, and fellows. At the core of CSI's mission is a belief in the power of the free enterprise system. Our work explores ideas that protect and promote jobs and the economy, and the CSI team and fellows take part in this pursuit with academic freedom. Our team's work is informed by data-driven research and evidence. The views and opinions of fellows do not reflect the institutional views of CSI. CSI operates independently of any political party and does not take positions.

## TABLE OF CONTENTS

---

|                                                                                                                                    |           |
|------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <b>About the Authors .....</b>                                                                                                     | <b>1</b>  |
| <b>About Common Sense Institute.....</b>                                                                                           | <b>2</b>  |
| <b>Teams &amp; Fellows Statement.....</b>                                                                                          | <b>2</b>  |
| <b>Introduction .....</b>                                                                                                          | <b>4</b>  |
| What is Proposition 320?.....                                                                                                      | 4         |
| <b>Key Findings .....</b>                                                                                                          | <b>5</b>  |
| <b>School District Spending Trends in Arizona.....</b>                                                                             | <b>6</b>  |
| <b>Where Can Districts Allocate Additional Instruction Spending? .....</b>                                                         | <b>10</b> |
| <b>Student Performance in Arizona: A National Comparison .....</b>                                                                 | <b>11</b> |
| <b>Does Instructional Spending Improve Student Outcomes?<br/>An Econometric Analysis of Arizona’s Public-School Districts.....</b> | <b>13</b> |
| What Explains the Relationship?.....                                                                                               | 15        |
| <b>The Bottom Line .....</b>                                                                                                       | <b>17</b> |
| <b>Appendix .....</b>                                                                                                              | <b>18</b> |

# INTRODUCTION

On November 3, Arizona voters will decide whether to adopt Proposition 320, a measure designed to improve the state's public education system by focusing resources on direct classroom instruction. This ballot guide outlines the mechanics of Proposition 320, analyzes Arizona's educational data over the past decade, and explores the relationship between instructional spending and student outcomes.

## What is Proposition 320?

Proposition 320 aims to improve Arizona's public education system by requiring each district to use at least 60% of its operational spending on direct instructional expenses. To reach the Proposition 320 mandate, districts spending below that threshold would need to increase their instructional spending gradually by 0.5 percentage points each year until they meet the requirement.

### What are instructional expenses?

Currently, the Arizona Auditor General tracks and publishes district spending data across several categories, including instructional expenses. Instructional expenses cover the day-to-day costs of classroom learning, such as:

- **Pay and benefits for teachers, teachers' aides, substitutes, and graders**
- **School supplies and teaching materials**
- **Athletics and cocurricular activities**
- **Guest lecturers and field trips<sup>i</sup>**

Although the proposition language does not include precise definitions for "direct instructional expenses" and "operational spending," it instructs the Auditor General to determine their meaning.

### Which schools are affected?

Proposition 320 applies to any school district that meets either of the following criteria:

- It serves at least **7,500 students**
- It is in a county of at least **500,000 people** (Maricopa, Pima, and Pinal)

CSI estimates Prop 320 would apply to 94 out of the 207 school districts in the state.

### How will Proposition 320 be enforced?

Schools that fall below their instructional spending target would lose money from the classroom site fund. Funding is reduced by increasing amounts as violations continue:

- **Year 1: 25%** reduction
- **Year 2: 50%** reduction
- **Year 3: 75%** reduction
- **Years 4+: 100%** reduction

The superintendent of public instruction may waive these penalties twice every 10 years, or up to three times if a second waiver is requested and issued more than four years after the first.

## KEY FINDINGS

- In Arizona, the share of public-school district spending devoted to instruction has declined 6.5 percentage points over the last 21 years and now sits at its lowest level (52.1%) since the Auditor General began tracking this data. Compared to the rest of the nation, **Arizona ranks 49th in the share of spending dedicated to instruction.**
- While instructional spending has fallen, student proficiency has also declined. Following COVID-era learning losses, student outcomes nationally have slightly improved, yet proficiency among Arizona's students continues to decline. **Today, just 27.9% of Arizona's public-school students score proficient on standardized tests.**
- The vast majority of that funding (84.6%) has shifted to student support, instructional support, and administration – with nearly half (44.6%) moving to student support alone. **However, student support's share of the budget has little to no correlation with a district's special education and English learner enrollment – factors that should drive a greater need for student support services.**
- Instructional spending gains under Proposition 320 would be enough to raise average teacher pay by as much as **\$10,000–\$13,000 per year** across the state, or hire up to **10,000 additional teachers.** Districts like Phoenix Union High School District could potentially hire up to **538 more teachers** or pay their existing educators up to **\$26,166 more per year.**
- **CSI finds a clear, positive relationship between the share of spending devoted to instruction and student outcomes,** even after controlling for other important factors. Conversely, devoting a higher share of spending to student and instructional support – the two areas that have seen the most growth over the last two decades – is associated with worse outcomes for students.

# SCHOOL DISTRICT SPENDING TRENDS IN ARIZONA

Arizona ranks 49th out of all 50 states and Washington D.C. in instructional spending share according to data from the U.S. Census Bureau, allocating just 51.1% of day-to-day funds to direct instruction.<sup>ii</sup> If Arizona spent the national average (58.8%), classrooms would have an additional \$981 per student to spend on textbooks, school supplies, and teacher pay.<sup>iii</sup>

According to data from the Arizona Auditor General, instruction's share of the budget has fallen 6.5 percentage points since 2004. The vast majority (84.6%) of that funding share has shifted to student support, instructional support, and administration. Nearly half of that decline (44.6%) shifted to student support alone, funds that provide schools with nurses, counselors, and social workers.<sup>iv</sup> According to U.S. Census data Arizona now devotes 40.8% more of its operating budget to student support than the national average (9.5% vs. 6.8%).<sup>v</sup>

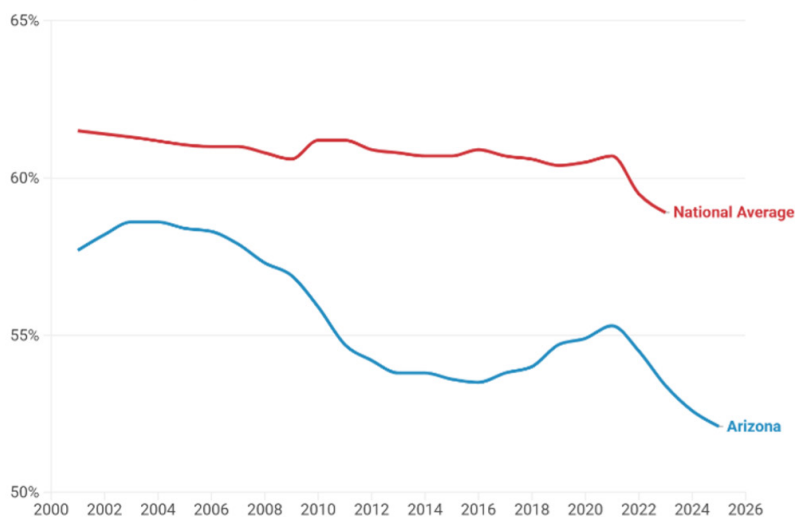
While these services can be useful, their ability to improve academic outcomes has not been rigorously explored. A 2025 review of the academic literature found other factors like instruction and teacher salaries are the strongest contributors to student achievement among operational spending categories.<sup>vi</sup>

CSI finds that a minority of the funding shift went to categories like plant operations and transportation, with the share of spending going to food services remaining unchanged between 2004 and 2025. **Less than 1/5th of the decline in instructional spending across Arizona can be attributed to higher spending in transportation, facilities management, and food services combined.**

**FIGURE 1.**

## Arizona's Instruction Spending Hits a 25-Year Low

Since 2004, the portion of Arizona's school operating budget spent on instruction has declined by 6.5 percentage points. That gap amounts to \$815 per student that is no longer being spent in the classroom each year.



Source: National Center for Education Statistics, Arizona Auditor General, Arizona School District Spending Reports

One potential explanation for why some districts spend more on support services, and therefore less on instruction, is that they enroll larger shares of students with special education needs and English learners. **However, CSI finds that the distribution of spending on student support across Arizona's public-school districts is not explained by a higher need for special education and English learner resources.** While there appears to be a small, positive correlation between English learner enrollment and instructional support spending, enrollment differences across Arizona's districts account for less than 5% of the variation in instructional support spending.

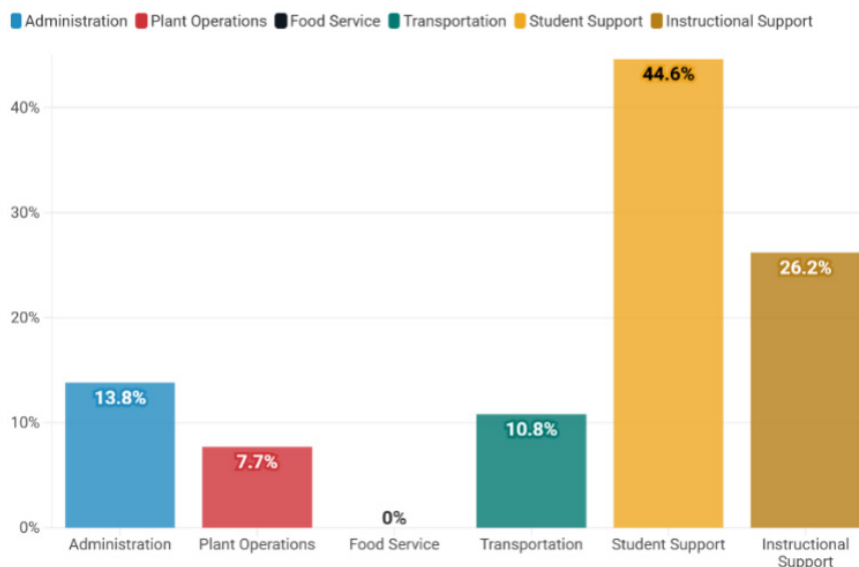
Another hypothesis is that districts with more money overall devote more of it to instruction, so differences in instructional spending share merely reflect differences in total resources. A cross-sectional analysis of all districts shows the opposite: districts with higher per-pupil operational spending tend to spend a smaller share of it on instruction.

Lastly, CSI finds clear trends between districts that either increased or decreased their instructional spending shares between 2020 and 2025. The 20 districts exhibiting the largest declines in instructional spending as a share of operational budgets over the last five years show large increases in student and instructional support services. Conversely, those districts that experienced the largest increases in their instructional spending shares saw large declines in their administrative shares.

FIGURE 2.

### Where Did District Spending Go?

Of the 6.5 percentage point decline in instruction spending across Arizona's public school districts since 2004, the vast majority - 71% - went to student and instructional support.

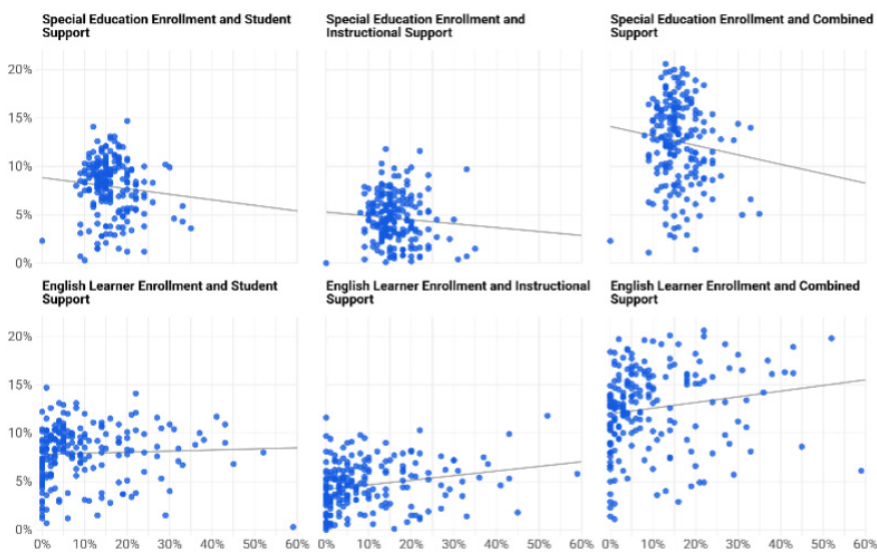


Source: Arizona Auditor General

FIGURE 3.

### Higher Support Spending Not Explained By Higher Special Needs

One potential explanation for the increase in support spending is that schools may have a higher share of students with special needs. However, across Arizona's public-school districts there appears to be no relationship between special needs and English learner enrollment and student support spending, and only a small relationship between English learner enrollment and instructional support.



Source: Arizona Auditor General

FIGURE 4.

## Correlation Between Support Spending and Special Needs Enrollment

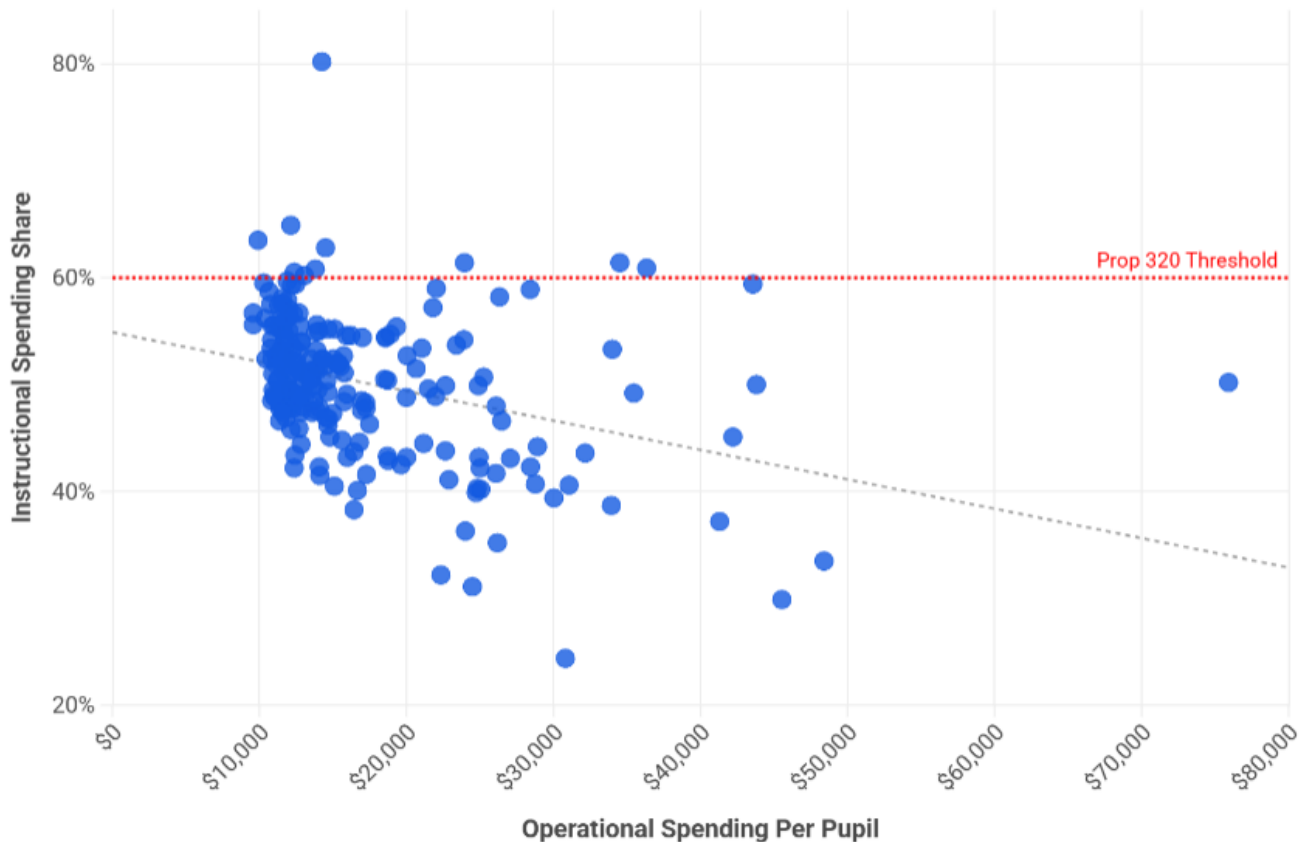
There is no relationship between student support's share of a district's operational budget and special education or English learner enrollment across Arizona's public school districts. While there is a small positive correlation between English learner enrollment and the share devoted to instruction support, the variation in enrollment explains less than 5% of the variation in spending across the districts.

|                     | Special Education Enrollment Share | English Learner Enrollment Share | Combined Enrollment |
|---------------------|------------------------------------|----------------------------------|---------------------|
| Student Support     | (0.0956)                           | 0.0439                           | 0.0034              |
| Instruction Support | (0.0783)                           | 0.2184                           | 0.1864              |
| Combined Support    | (0.1090)                           | 0.1549                           | 0.1094              |

FIGURE 5.

## Operational Spending and Instructional Spending Share

The differences in instructional spending shares by district cannot be explained by some districts simply having more money to spend per-pupil. CSI finds a slightly negative correlation between per-pupil operational spending and the share of that spending going to instruction.

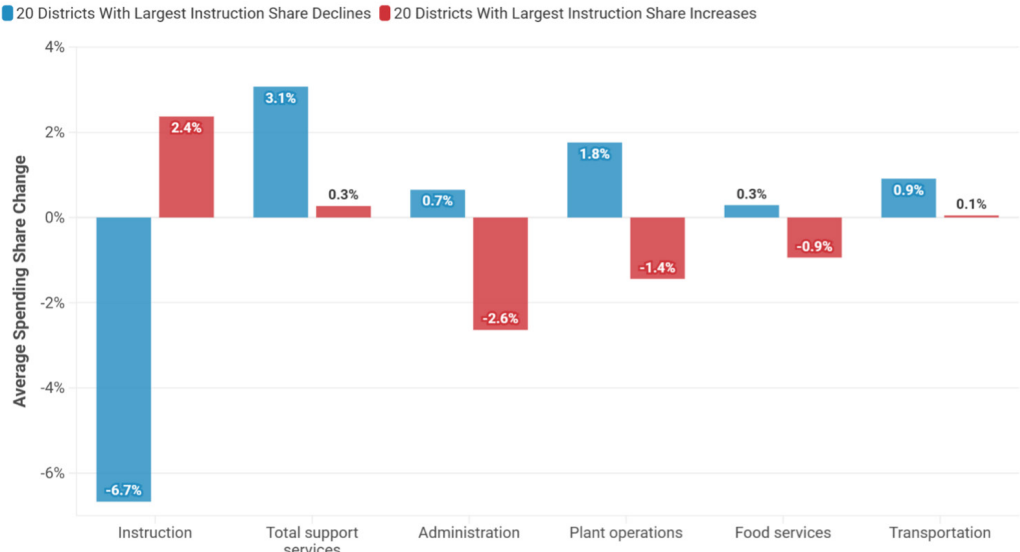


Source: Arizona Auditor General

FIGURE 6.

### Change in Operational Spending by Category, 2020-2025

Districts that saw the largest declines in their operational spending shares over the last five years appear to have diverted most of that money to student and instructional support services and plant operations. Districts that saw their instructional spending share increases, however, overwhelmingly shifted resources from administration.



Source: Arizona Auditor General • NOTE: Includes districts with a minimum enrollment of 400 or more students.

FIGURE 7.

### District Operational Spending Share by Category

| Top-Ten School Districts by Enrollment  | Instruction | Student Support | Instruction Support | Non-Classroom Spending (admin, plant operations, food service, transportation) | Math Proficiency (% passed statewide tests) | ELA Proficiency (% passed statewide tests) |
|-----------------------------------------|-------------|-----------------|---------------------|--------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------|
| Mesa Unified School District            | 51.3%       | 12.0%           | 7.5%                | 29.2%                                                                          | 31%                                         | 38%                                        |
| Chandler Unified School District        | 55.2%       | 9.1%            | 6.1%                | 29.6%                                                                          | 53%                                         | 58%                                        |
| Tucson Unified School District          | 48.5%       | 11.1%           | 8.1%                | 32.3%                                                                          | 22%                                         | 28%                                        |
| Peoria Unified School District          | 56.2%       | 12.1%           | 4.8%                | 26.9%                                                                          | 38%                                         | 45%                                        |
| Deer Valley Unified School District     | 59.7%       | 8.3%            | 3.8%                | 28.2%                                                                          | 50%                                         | 57%                                        |
| Gilbert Unified School District         | 57.6%       | 9.3%            | 5.2%                | 27.9%                                                                          | 51%                                         | 58%                                        |
| Phoenix Union High School District      | 47.3%       | 11.5%           | 7.7%                | 33.5%                                                                          | 14%                                         | 19%                                        |
| Paradise Valley Unified School District | 55.5%       | 12.6%           | 4.8%                | 27.1%                                                                          | 49%                                         | 53%                                        |
| Dysart Unified School District          | 55.5%       | 10.7%           | 5.4%                | 28.4%                                                                          | 39%                                         | 47%                                        |
| Scottsdale Unified School District      | 54.0%       | 11.3%           | 5.3%                | 29.4%                                                                          | 58%                                         | 62%                                        |
| Arizona Average                         | 52.1%       | 9.9%            | 6.0%                | 32.0%                                                                          | 33%                                         | 40%                                        |

Source: Arizona Auditor General

# WHERE COULD DISTRICTS ALLOCATE ADDITIONAL INSTRUCTION SPENDING?

Proposition 320 sets a minimum level of instructional spending but leaves the breakdown within that category up to the districts themselves. Some districts might prioritize smaller class sizes by hiring new teachers. Others might focus on school supplies and new teaching materials, or some combination.

If districts simply increased instructional spending according to its current split, for example, the average teacher salary would rise by nearly \$10,000, from \$65,613 to \$75,562. If the added funding instead went entirely to teacher compensation, the average teacher salary would increase by more than \$13,000 to \$78,779.<sup>2,3</sup>

Naturally, these gains would be moderated by the current instructional spending share of each district. For example, Deer Valley Unified currently directs 59.7% of its operating budget to instructional expenses, a number that is extremely close to the 60% threshold required by Proposition 320. Devoting all of its added instructional spending to teacher pay would raise salaries by only \$436 per year. In contrast, the Phoenix Union High School District, whose 47.3% instructional spending share sits 12.7 percentage points below the Proposition 320 threshold, could increase teacher pay by up to \$26,166 per year.

**FIGURE 8.**

## What If 100% of Prop 320 Gains Went To Teacher Compensation?

Among other uses, districts could allocate the additional instructional spending required by Prop 320 on teacher compensation, either by increasing current teacher salaries or hiring new teachers.

| Top-Ten School Districts by Enrollment  | Current Instruction Spending Per Pupil | Prop 320 Instruction Spending Per Pupil | Per-Pupil Increase | Additional Teachers | Average Annual Salary Increase |
|-----------------------------------------|----------------------------------------|-----------------------------------------|--------------------|---------------------|--------------------------------|
| Mesa Unified School District            | \$6,508                                | \$7,612                                 | \$1,104            | 645                 | \$14,567                       |
| Chandler Unified School District        | \$6,255                                | \$6,799                                 | \$544              | 251                 | \$7,344                        |
| Tucson Unified School District          | \$6,651                                | \$8,228                                 | \$1,577            | 736                 | \$20,108                       |
| Peoria Unified School District          | \$6,474                                | \$6,912                                 | \$438              | 186                 | \$6,007                        |
| Deer Valley Unified School District     | \$7,098                                | \$7,134                                 | \$36               | 13                  | \$436                          |
| Gilbert Unified School District         | \$6,650                                | \$6,927                                 | \$277              | 100                 | \$3,574                        |
| Phoenix Union High School District      | \$7,101                                | \$9,008                                 | \$1,907            | 538                 | \$26,166                       |
| Paradise Valley Unified School District | \$7,083                                | \$7,657                                 | \$574              | 198                 | \$6,546                        |
| Dysart Unified School District          | \$6,346                                | \$6,861                                 | \$515              | 132                 | \$7,296                        |
| Scottsdale Unified School District      | \$6,959                                | \$7,732                                 | \$773              | 159                 | \$9,800                        |
| <b>State of Arizona</b>                 | <b>\$6,541</b>                         | <b>\$7,533</b>                          | <b>\$992</b>       | <b>10,148</b>       | <b>\$13,166</b>                |

Source: Arizona Auditor General, CSI Calculations • NOTE: CSI assumes ERE costs at 25% of base salary.

<sup>2</sup> CSI assumes 25% of base salary for employee related expenses (ERE), such as healthcare, retirement benefits, employment taxes, and other related costs.

<sup>3</sup> These figures were calculated using statewide averages and are meant to be illustrative. Prop 320 would not apply to all school districts, and so the true statewide average would differ slightly from the figures presented here.

# STUDENT PERFORMANCE IN ARIZONA: A NATIONAL COMPARISON

Based on 4th and 8th grade testing, Arizona ranks 40th in the nation for student proficiency, having trailed the national average for more than a decade.<sup>vii</sup>

In 2022, schools nationwide grappled with pandemic-era learning loss. Arizona's proficiency rate declined 3.0 percentage points from its 2019 level while national scores fell 4.3 percentage points. Despite overwhelming educational damage, the pandemic helped equalize test scores; the gap between Arizona and the rest of the country reached its lowest point in seven years.

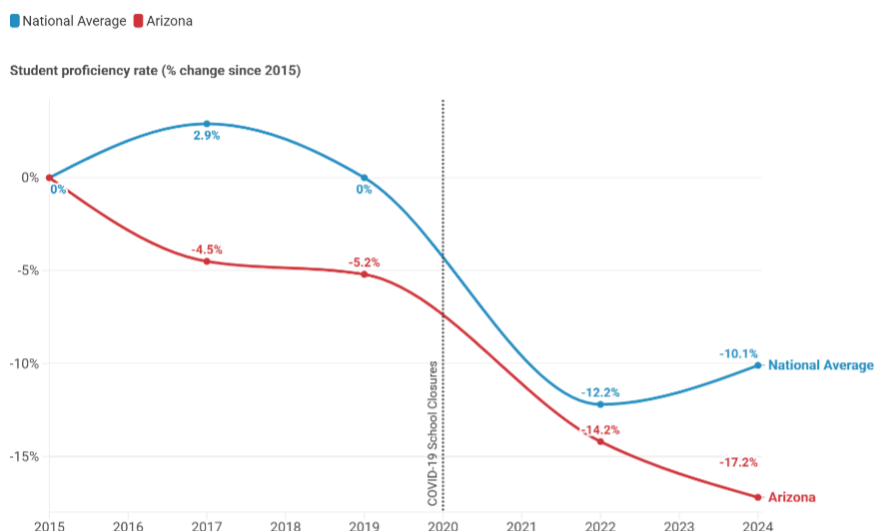
Since 2022, national scores have begun to bounce back, improving by 0.8 percentage points by 2024, but Arizona's scores continued to decline.<sup>viii</sup> Today, an average of just 27.9% of Arizona students score proficient on standardized tests, a number that is well below the national rate of 31.4%. As a result, Arizona's proficiency gap with the rest of the United States has doubled since 2022.<sup>ix</sup>

High school graduation rates are similarly concerning, though inconsistent graduation requirements complicate interstate comparisons. In 2025, Arizona ranked second-to-last in the nation among states for which data was available, up from last place in 2022.<sup>x</sup>

**FIGURE 9.**

## Arizona's Student Proficiency Rates Trail Behind the National Average

Over the last decade, the share of students scoring proficient on standardized tests in Arizona declined significantly faster than in the rest of the country. While scores in the broader United States show signs of post-pandemic recovery, Arizona continues to decline to its lowest proficiency rate in years.



<sup>2</sup> CSI assumes 25% of base salary for employee related expenses (ERE), such as healthcare, retirement benefits, employment taxes, and other related costs.

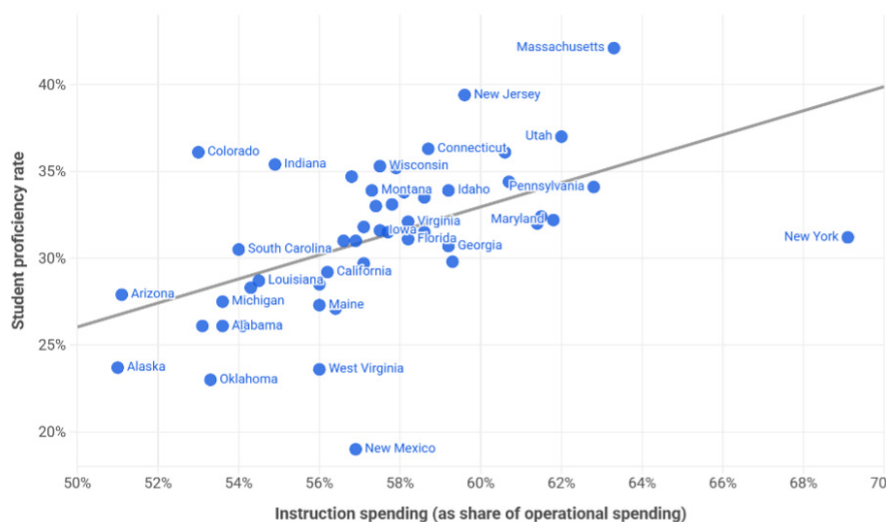
<sup>3</sup> These figures were calculated using statewide averages and are meant to be illustrative. Prop 320 would not apply to all school districts, and so the true statewide average would differ slightly from the figures presented here.

Nationwide, instructional spending as a share of operational spending is highly correlated with proficiency. This factor alone explains 28% of the variability in student proficiency across the nation, and CSI estimates a one percentage point increase in the operational spending dedicated to instruction is associated with a 0.69 percentage point increase in the average number of students at or above proficiency levels for 4th and 8th grade reading and math.<sup>4</sup>

**FIGURE 10.**

### Instruction Spending and Proficiency Rates

Based on a simple regression, CSI estimates a 1 percentage point increase in the instructional spending share in a state is associated with a 0.69 percentage point increase in average student proficiency.



Source: The Nation's Report Card, US Census Bureau

<sup>4</sup> Based on a simple cross-sectional regression of statewide proficiency on statewide instructional spending shares.

# DOES INSTRUCTIONAL SPENDING IMPROVE STUDENT OUTCOMES? AN ECONOMETRIC ANALYSIS OF ARIZONA'S PUBLIC-SCHOOL DISTRICTS

To formally test the relationship between instructional spending share and student outcomes, CSI estimated several regression models of the percentage of students who passed state math, English Language Arts (ELA), and science tests, henceforth referred to as “proficiency,” on instructional spending shares across Arizona’s roughly 200 school districts. The data was derived from 2019 and 2025 school district spending reports from the Arizona Auditor General. These models included several demographic and district level controls for factors like student-teacher ratios, average teacher experience, poverty rates, special education and English learner populations, and total per-pupil operational spending. Results for ELA and science proficiency models can be found in the appendix.

**CSI’s results show a clear positive relationship: districts that direct a larger share of spending toward instruction see meaningfully higher proficiency rates,** even after accounting for numerous controls, including teacher experience and student-teacher ratios, and factors that differ between wealthy and poorer districts such as total operational spending per-pupil and poverty rates. These findings hold up well for both math and ELA proficiency using both contemporaneous and lagged values for a district’s instructional spending share, and both before and after controlling for a district’s previous proficiency rate. For science proficiency, the results are positive in all specifications and statistically significant in all but the last specification using 2019 instructional shares (see the appendix for ELA and science regression results).<sup>5</sup>

Of the more than 200 public-school districts in Arizona, most are relatively small. Based on 2025 enrollment data, 102 of the 205 districts with reported enrollment data for 2025 have fewer than 1,000 students. These small districts can have outsized impacts on estimates involving shares of spending since smaller districts tend to carry higher fixed costs per enrolled student that could result in a smaller share going directly to instruction. Proficiency results in these same schools will also tend to have a higher variability since a single student failing to pass an exam will lead to large swings in proficiency in districts with fewer students.

To control for these factors, CSI estimated the fractional logit specification from Figure 11 using several different restrictions on enrollment size, both with and without controlling for 2019 proficiency levels.

<sup>5</sup> A potential explanation is that skills learned in earlier science courses do not carry over as well to later science proficiency, because the scientific fields differ so sharply from one grade to the next. Math and English language arts skills, by contrast, tend to be cumulative, so proficiency gains from past instructional spending should translate more strongly into future proficiency.

We find that the results for math proficiency are incredibly robust, with the coefficient on instructional spending share remaining positive and close to the estimate under the full sample. ELA results are positive through all sample restrictions but statistically significant in only the full sample. For science, the coefficient varies much more drastically across the sample restrictions and is only significant in the full sample and when restricted to districts with more than 500 students. Additionally, the coefficient falls negative once we restrict the analysis to only those districts with more than 4,000 students. Overall, CSI finds that the positive relationship between instructional spending shares and proficiency is not the result of outliers or the higher variance among smaller districts.

Notably, identical models evaluating the share of spending allocated to student and instructional support services — the two areas of district operational spending that increased the most in the last 21 years — predict worse proficiency outcomes. CSI also evaluated the impact of nominal per-pupil dollars as opposed to spending shares and found similar results: per-pupil dollars spent on student and instructional support services predict worse outcomes across Arizona’s public-school districts even once the unit of measure shifts from shares of total operating spending to actual dollars spent per-pupil. Importantly, the models control for special needs and English learner enrollment, suggesting these findings are not simply the result of districts that have more special needs and English learner students dragging down proficiency rates while simultaneously increasing student and instructional support spending.

**FIGURE 11.**

### Instructional Spending Share and 2025 Math Proficiency

|                                        | OLS                         | Weighted OLS                  | Fractional Logit            | Fractional Logit, Lagged DV | Fractional Logit, Lagged Spending Share & Lagged DV |
|----------------------------------------|-----------------------------|-------------------------------|-----------------------------|-----------------------------|-----------------------------------------------------|
| Instructional spending share           | 0.7975***<br>(0.1868)       | 1.1310***<br>(0.2585)         | 0.8313***<br>(0.1715)       | 0.2829**<br>(0.1227)        | 0.3742**<br>(0.1503)                                |
| Students per teacher                   | -0.0866***<br>(0.0237)      | -0.1611**<br>(0.0626)         | -0.0783***<br>(0.0232)      | -0.0512***<br>(0.0195)      | -0.0534***<br>(0.0178)                              |
| Students per teacher <sup>2</sup>      | 0.0027***<br>(0.0006)       | 0.0044**<br>(0.0017)          | 0.0024***<br>(0.0006)       | 0.0016***<br>(0.0005)       | 0.0017***<br>(0.0005)                               |
| Special education enrollment share     | -0.6416***<br>(0.2408)      | -1.3694***<br>(0.2488)        | -0.6208***<br>(0.2249)      | -0.3658*<br>(0.1913)        | -0.3695**<br>(0.1876)                               |
| English learner enrollment share       | -0.3856***<br>(0.0896)      | -0.6099***<br>(0.1488)        | -0.3908***<br>(0.0992)      | -0.1532**<br>(0.0681)       | -0.1728**<br>(0.0717)                               |
| Teacher experience                     | 0.0279***<br>(0.0083)       | 0.0057<br>(0.0187)            | 0.0310***<br>(0.0090)       | 0.0194***<br>(0.0071)       | 0.0198***<br>(0.0067)                               |
| Teacher experience <sup>2</sup>        | -0.0007**<br>(0.0003)       | 0.0002<br>(0.0008)            | -0.0008***<br>(0.0003)      | -0.0005**<br>(0.0003)       | -0.0006**<br>(0.0002)                               |
| Operational spending per pupil         | -0.00000566<br>(0.00000387) | -0.00001420**<br>(0.00000654) | -0.00000528<br>(0.00000376) | -0.00000157<br>(0.00000296) | -0.00000146<br>(0.00000280)                         |
| 2019 math proficiency                  | —                           | —                             | —                           | 0.6289***<br>(0.0465)       | 0.6119***<br>(0.0508)                               |
| N                                      | 175                         | 175                           | 175                         | 173                         | 173                                                 |
| R <sup>2</sup> / Pseudo R <sup>2</sup> | 0.5592                      | 0.7554                        | 0.0542                      | 0.0746                      | 0.0747                                              |

Source: Arizona Auditor General, CSI Calculations • NOTE: Robust standard errors in parentheses. Average marginal effects computed with margins for logit model specifications. Results for some control variables omitted  
\*\*\* p<0.01 \*\* p<0.05 \* p<0.10

The coefficient on instructional spending per-pupil in this model, while still positive, was not statistically significant until controls for teacher experience and student-teacher ratios were removed. This outcome suggests that teacher experience and student-teacher ratios both act as mediators between instructional spending and student proficiency.

## What Explains the Relationship?

A large body of research finds that teacher quality is among the most important school-based factors in student achievement. Rivkin, Hanushek, and Kain (2005)<sup>xi</sup> find that differences in teacher quality account for a substantial share of the variation in student achievement. Chetty, Friedman, and Rockoff (2014)<sup>xii</sup> show that students assigned to more effective teachers see gains that persist into adulthood, including higher college attendance and earnings. These findings are important because they show that districts that devote more of their budgets to instruction may be better positioned to recruit and retain effective teachers through more competitive pay, and to support them with higher-quality curricula and materials.

As described above, models in this analysis already control for teacher experience and student-teacher ratios, two of the most common channels through which spending might affect outcomes, and while these variables appear to mediate the relationship between nominal instructional spending and student outcomes, the positive relationship between spending *shares* (the factor addressed by Proposition 320) persists even after accounting for them. This finding suggests that the benefit of devoting more of a given budget to instructional spending operates through dimensions of quality that these other measures do not capture.

This interpretation also fits the broader literature on school spending. Earlier reviews found little consistent link between overall spending levels and student achievement,<sup>xiii</sup> while more recent quasi-experimental research finds that additional money can improve outcomes, but also notes that spending increases in the data analyzed were associated with notable improvements in student-teacher ratios, teacher salaries, two key components associated with higher spending on instruction.<sup>xiv</sup>

**FIGURE 12.**

### Instructional Spending Share and 2025 Math Proficiency With Sample Restrictions

|                                                               | Full Sample | Enrollment-Weighted | Enrollment > 500 | Enrollment > 1,000 | Enrollment > 4,000 |
|---------------------------------------------------------------|-------------|---------------------|------------------|--------------------|--------------------|
| Logit coefficient, instructional spending share               | 4.5892***   | 4.8760***           | 3.7569***        | 4.0221***          | 5.5446***          |
|                                                               | (0.9488)    | (1.0441)            | (1.0201)         | (1.1406)           | (2.0055)           |
| Average marginal effect                                       | 0.8313***   | 0.9934***           | 0.6892***        | 0.7521***          | 1.1132***          |
|                                                               | (0.1715)    | (0.2078)            | (0.1854)         | (0.2129)           | (0.3953)           |
| N                                                             | 175         | 175                 | 121              | 102                | 53                 |
| Pseudo R <sup>2</sup>                                         | 0.0542      | 0.0582              | 0.0475           | 0.0466             | 0.0502             |
| <b>With 2019 Math Proficiency (Lagged Dependent Variable)</b> |             |                     |                  |                    |                    |
| Logit coefficient, instructional spending share               | 1.6031**    | 1.2459*             | 1.1858*          | 1.1285             | 1.4808             |
|                                                               | (0.6963)    | (0.7539)            | (0.6528)         | (0.7436)           | (1.1984)           |
| Average marginal effect                                       | 0.2829**    | 0.2510*             | 0.2122*          | 0.2063             | 0.2935             |
|                                                               | (0.1227)    | (0.1516)            | (0.1165)         | (0.1356)           | (0.2369)           |
| N                                                             | 173         | 173                 | 121              | 102                | 53                 |
| Pseudo R <sup>2</sup>                                         | 0.0746      | 0.0662              | 0.0658           | 0.0634             | 0.0597             |

Source: Arizona Auditor General, CSI Calculations • Notes: Fractional logit models of 2025 math proficiency on instructional spending share, using the main specification controls (not shown). The lower section adds 2019 math proficiency as a control. Robust standard errors in parentheses. Average marginal effects computed with margins. Enrollment-weighted column uses enrollment as probability weights. Enrollment thresholds restrict the sample to districts above that size (median district enrollment is about 1,000; 4,000 is roughly the 75th percentile).  
\*\*\* p<0.01 \*\* p<0.05 \* p<0.10

One way to reconcile these findings is that *how money is spent appears to matter as much as, if not more than, how much is spent*. These results are consistent with the view that the share of spending directed to instruction predicts better outcomes, while spending directed to student and instructional support services does not.

These findings have limits. While the models control for a range of demographic and district characteristics, and the lagged and prior-proficiency specifications partially account for persistent district-level differences, the analysis cannot rule out other confounding factors that drive both higher instructional shares and better outcomes. For example, districts with stronger leadership and management may both prioritize classroom spending and run more effective schools in other ways that these data do not capture, and differences in parental engagement or local community characteristics could play a similar role. The results should therefore be read as strong evidence of a consistent relationship between instructional spending and student achievement, and as consistent with a causal effect, but not as definitive proof of one.

FIGURE 13.

### Support Services Spending Share and 2025 Math Proficiency

|                                        | Fractional Logit (Student Support) | Fractional Logit (Instructional Support) |
|----------------------------------------|------------------------------------|------------------------------------------|
| Support spending share                 | -1.2638***<br>(0.4333)             | -1.0663***<br>(0.3583)                   |
| Students per teacher                   | -0.1110***<br>(0.0214)             | -0.1241***<br>(0.0207)                   |
| Students per teacher <sup>2</sup>      | 0.0033***<br>(0.0006)              | 0.0036***<br>(0.0005)                    |
| Special education enrollment share     | -0.4513**<br>(0.2300)              | -0.4830**<br>(0.2361)                    |
| English learner enrollment share       | -0.4198***<br>(0.1029)             | -0.4018***<br>(0.1062)                   |
| Teacher experience                     | 0.0338***<br>(0.0094)              | 0.0315***<br>(0.0095)                    |
| Teacher experience <sup>2</sup>        | -0.0008**<br>(0.0003)              | -0.0008**<br>(0.0003)                    |
| Operational spending per pupil         | -0.0000104***<br>(0.00000346)      | -0.0000123***<br>(0.00000324)            |
| N                                      | 175                                | 175                                      |
| R <sup>2</sup> / Pseudo R <sup>2</sup> | 0.0508                             | 0.0502                                   |

Source: CSI Calculations • NOTE: Robust standard errors in parentheses. Average marginal effects computed with margins. Results for some control variables omitted  
 \*\*\* p<0.01 \*\* p<0.05 \* p<0.10



## THE BOTTOM LINE

Arizona trails the nation in both student proficiency and the share of district budgets devoted to instruction, and that share has declined for two decades while spending on student and instructional support services has grown. CSI's analysis finds that Arizona districts directing a larger share of their budgets to instruction have higher proficiency rates, even after accounting for poverty, district size, total spending, staffing, and prior performance.

Proposition 320 would require 94 of Arizona's 207 districts to move toward a 60% instructional share, giving them flexibility in how that money is spent, whether on teacher pay, smaller classes, or classroom materials. While this analysis cannot prove that raising instructional shares will cause proficiency to rise, the evidence consistently points in that direction, suggesting that how districts divide their budgets matters for student achievement.

# APPENDIX

FIGURE 14.

## Instructional Spending Share and 2025 ELA Proficiency

|                                        | OLS                          | Weighted OLS                   | Fractional Logit            | Fractional Logit, Lagged DV | Fractional Logit, Lagged Spending Share & Lagged DV |
|----------------------------------------|------------------------------|--------------------------------|-----------------------------|-----------------------------|-----------------------------------------------------|
| Instructional spending share           | 0.8053***<br>(0.1849)        | 0.9691***<br>(0.2548)          | 0.7499***<br>(0.1729)       | 0.1733*<br>(0.1035)         | 0.2496**<br>(0.1104)                                |
| Students per teacher                   | -0.0948***<br>(0.0174)       | -0.1572***<br>(0.0541)         | -0.0882***<br>(0.0171)      | -0.0717***<br>(0.0158)      | -0.0741***<br>(0.0149)                              |
| Students per teacher <sup>2</sup>      | 0.0028***<br>(0.0004)        | 0.0042***<br>(0.0015)          | 0.0026***<br>(0.0004)       | 0.0021***<br>(0.0004)       | 0.0022***<br>(0.0004)                               |
| Special education enrollment share     | -0.3754<br>(0.2506)          | -1.3261***<br>(0.2224)         | -0.4310*<br>(0.2336)        | -0.1947<br>(0.1611)         | -0.1957<br>(0.1574)                                 |
| English learner enrollment share       | -0.4318***<br>(0.0806)       | -0.7003***<br>(0.1320)         | -0.4305***<br>(0.0842)      | -0.0942*<br>(0.0510)        | -0.1005*<br>(0.0520)                                |
| Teacher experience                     | 0.0237**<br>(0.0105)         | 0.0154<br>(0.0186)             | 0.0240**<br>(0.0111)        | 0.0136**<br>(0.0054)        | 0.0138***<br>(0.0052)                               |
| Teacher experience <sup>2</sup>        | -0.0007*<br>(0.0004)         | -0.0002<br>(0.0008)            | -0.0007*<br>(0.0004)        | -0.0004*<br>(0.0002)        | -0.0004**<br>(0.0002)                               |
| Operational spending per pupil         | -0.00000571*<br>(0.00000341) | -0.00001910***<br>(0.00000599) | -0.00000474<br>(0.00000329) | -0.00000301<br>(0.00000239) | -0.00000324<br>(0.00000230)                         |
| 2019 ELA proficiency                   | —                            | —                              | —                           | 0.7491***<br>(0.0496)       | 0.7365***<br>(0.0510)                               |
| N                                      | 184                          | 184                            | 184                         | 178                         | 178                                                 |
| R <sup>2</sup> / Pseudo R <sup>2</sup> | 0.5361                       | 0.7599                         | 0.0422                      | 0.0626                      | 0.0627                                              |

Source: Arizona Auditor General, CSI Calculations • NOTE: Robust standard errors in parentheses. Average marginal effects computed with margins for logit model specifications. Results for some control variables omitted  
 \*\*\* p<0.01 \*\* p<0.05 \* p<0.10

FIGURE 15.

## Instructional Spending Share and 2025 Science Proficiency

|                                        | OLS          | Weighted OLS  | Fractional Logit | Fractional Logit, Lagged DV | Fractional Logit, Lagged Spending Share & Lagged DV |
|----------------------------------------|--------------|---------------|------------------|-----------------------------|-----------------------------------------------------|
| Instructional spending share           | 0.6667***    | 0.8050***     | 0.6528***        | 0.2155*                     | 0.1591                                              |
|                                        | (0.1801)     | (0.2090)      | (0.1584)         | (0.1159)                    | (0.1297)                                            |
| Students per teacher                   | -0.0881***   | -0.0981**     | -0.0691***       | -0.0296                     | -0.0354                                             |
|                                        | (0.0296)     | (0.0444)      | (0.0263)         | (0.0233)                    | (0.0227)                                            |
| Students per teacher <sup>2</sup>      | 0.0026***    | 0.0026**      | 0.0021***        | 0.0010*                     | 0.0011**                                            |
|                                        | (0.0008)     | (0.0012)      | (0.0007)         | (0.0006)                    | (0.0006)                                            |
| Special education enrollment share     | -0.5290**    | -0.9691***    | -0.4869**        | 0.0010                      | 0.0277                                              |
|                                        | (0.2537)     | (0.2566)      | (0.2209)         | (0.1793)                    | (0.1809)                                            |
| English learner enrollment share       | -0.5117***   | -0.6254***    | -0.4851***       | -0.1238*                    | -0.1233*                                            |
|                                        | (0.0782)     | (0.1064)      | (0.0785)         | (0.0682)                    | (0.0709)                                            |
| Teacher experience                     | 0.0318*      | 0.0026        | 0.0455***        | 0.0084                      | 0.0061                                              |
|                                        | (0.0173)     | (0.0196)      | (0.0163)         | (0.0133)                    | (0.0140)                                            |
| Teacher experience <sup>2</sup>        | -0.0009      | 0.0003        | -0.0014**        | -0.0001                     | 0.0000                                              |
|                                        | (0.0007)     | (0.0009)      | (0.0007)         | (0.0006)                    | (0.0006)                                            |
| Operational spending per pupil         | -0.00000471  | -0.00001180** | -0.00000334      | 0.00000070                  | -0.00000005                                         |
|                                        | (0.00000456) | (0.00000520)  | (0.00000442)     | (0.00000370)                | (0.00000364)                                        |
| 2019 science proficiency               | —            | —             | —                | 0.5024***                   | 0.5104***                                           |
|                                        |              |               |                  | (0.0477)                    | (0.0489)                                            |
| N                                      | 157          | 157           | 157              | 152                         | 152                                                 |
| R <sup>2</sup> / Pseudo R <sup>2</sup> | 0.5519       | 0.7476        | 0.0461           | 0.0573                      | 0.0570                                              |

Source: Arizona Auditor General, CSI Calculations • NOTE: Robust standard errors in parentheses. Average marginal effects computed with margins for logit model specifications. Results for some control variables omitted

\*\*\* p<0.01 \*\* p<0.05 \* p<0.10

FIGURE 16.

# Instructional Spending Share and 2025 ELA Proficiency With Sample Restrictions

|                                                              | Full Sample | Enrollment-Weighted | Enrollment > 500 | Enrollment > 1,000 | Enrollment > 4,000 |
|--------------------------------------------------------------|-------------|---------------------|------------------|--------------------|--------------------|
| Logit coefficient, instructional spending share              | 3.5530***   | 3.6728***           | 2.5935***        | 2.8025***          | 3.9361**           |
|                                                              | (0.8251)    | (0.9543)            | (0.8311)         | (0.9082)           | (1.6475)           |
| Average marginal effect                                      | 0.7499***   | 0.8204***           | 0.5448***        | 0.5984***          | 0.8769**           |
|                                                              | (0.1729)    | (0.2108)            | (0.1742)         | (0.1940)           | (0.3639)           |
| N                                                            | 184         | 184                 | 121              | 102                | 53                 |
| Pseudo R <sup>2</sup>                                        | 0.0422      | 0.0496              | 0.0433           | 0.0416             | 0.0440             |
| <b>With 2019 ELA Proficiency (Lagged Dependent Variable)</b> |             |                     |                  |                    |                    |
| Logit coefficient, instructional spending share              | 0.8468*     | 0.5940              | 0.4950           | 0.4220             | 0.4349             |
|                                                              | (0.5059)    | (0.5963)            | (0.4780)         | (0.5058)           | (0.8801)           |
| Average marginal effect                                      | 0.1733*     | 0.1312              | 0.1018           | 0.0882             | 0.0957             |
|                                                              | (0.1035)    | (0.1314)            | (0.0984)         | (0.1058)           | (0.1934)           |
| N                                                            | 178         | 178                 | 121              | 102                | 53                 |
| Pseudo R <sup>2</sup>                                        | 0.0626      | 0.0577              | 0.0583           | 0.0564             | 0.0526             |

Source: Arizona Auditor General , CSI Calculations • Notes: Fractional logit models of 2025 ELA proficiency on instructional spending share, using the main specification controls (not shown). The lower section adds 2019 ELA proficiency as a control. Robust standard errors in parentheses. Average marginal effects computed with margins. Enrollment-weighted column uses enrollment as probability weights. Enrollment thresholds restrict the sample to districts above that size (median district enrollment is about 1,000; 4,000 is roughly the 75th percentile).  
 \*\*\* p<0.01 \*\* p<0.05 \* p<0.10

FIGURE 17.

# Instructional Spending Share and 2025 Science Proficiency With Sample Restrictions

|                                                                  | Full Sample | Enrollment-Weighted | Enrollment > 500 | Enrollment > 1,000 | Enrollment > 4,000 |
|------------------------------------------------------------------|-------------|---------------------|------------------|--------------------|--------------------|
| Logit coefficient, instructional spending share                  | 3.7956***   | 3.6621***           | 3.0166***        | 2.7692***          | 3.4591**           |
|                                                                  | (0.9210)    | (0.9639)            | (1.0115)         | (0.9661)           | (1.5653)           |
| Average marginal effect                                          | 0.6528***   | 0.6807***           | 0.5096***        | 0.4740***          | 0.6323**           |
|                                                                  | (0.1584)    | (0.1779)            | (0.1716)         | (0.1664)           | (0.2823)           |
| N                                                                | 157         | 157                 | 121              | 102                | 53                 |
| Pseudo R <sup>2</sup>                                            | 0.0461      | 0.0485              | 0.0435           | 0.0400             | 0.0471             |
| <b>With 2019 Science Proficiency (Lagged Dependent Variable)</b> |             |                     |                  |                    |                    |
| Logit coefficient, instructional spending share                  | 1.2696*     | 0.5875              | 1.4451**         | 0.7825             | -0.4654            |
|                                                                  | (0.6831)    | (0.7183)            | (0.6607)         | (0.8305)           | (0.9173)           |
| Average marginal effect                                          | 0.2155*     | 0.1085              | 0.2404**         | 0.1322             | -0.0844            |
|                                                                  | (0.1159)    | (0.1328)            | (0.1100)         | (0.1406)           | (0.1662)           |
| N                                                                | 152         | 152                 | 120              | 101                | 53                 |
| Pseudo R <sup>2</sup>                                            | 0.0573      | 0.0545              | 0.0565           | 0.0513             | 0.0537             |

Source: Arizona Auditor General , CSI Calculations • Notes: Fractional logit models of 2025 Science proficiency on instructional spending share, using the main specification controls (not shown). The lower section adds 2019 Science proficiency as a control. Robust standard errors in parentheses. Average marginal effects computed with margins. Enrollment-weighted column uses enrollment as probability weights. Enrollment thresholds restrict the sample to districts above that size (median district enrollment is about 1,000; 4,000 is roughly the 75th percentile).  
 \*\*\* p<0.01 \*\* p<0.05 \* p<0.10

## REFERENCES

- i. Arizona Auditor General, "Glossary of key terms," accessed September 1, 2026.
- ii. U.S. Census Bureau, "2024 Annual Survey of School System Finances," May 7, 2026.
- iii. Arizona Auditor General, "Arizona School District Spending—Fiscal Year 2024," February 28, 2025.
- iv. Arizona Auditor General, "Arizona School District Spending," annual reports, fiscal years 2019-2025.
- v. U.S. Census Bureau, "2024 Annual Survey of School System Finances," May 7, 2026.
- vi. Rauscher, Emily, Mellon, Greer, Hodgman, Sarah, "School Spending and Student Achievement: Mechanisms," *Policy Insights from the Behavioral and Brain Sciences*, July 1, 2025.
- vii. The Nation's Report Card, "State Profiles," *National Assessment of Educational Progress (NAEP)*, accessed September 1, 2026.
- viii. The Nation's Report Card, "State Profiles," *National Assessment of Educational Progress (NAEP)*, accessed September 1, 2026.
- ix. The Nation's Report Card, "State Profiles," *National Assessment of Educational Progress (NAEP)*, accessed September 1, 2026.
- x. Wood, Sarah, "See High School Graduation Rates by State," *U.S. News & World Report*, August 19, 2026.
- xi. Rivkin, Steven, Hanushek, Eric, Kain, John, "Teachers, Schools, and Academic Achievement." *Econometrica*, February 4, 2005.
- xii. Chetty, Raj, Friedman, John, Rockoff, Jonah, "Measuring the Impacts of Teachers II: Teacher Value-Added and Student Outcomes in Adulthood," *American Economic Review*, September 2014.
- xiii. Hanushek, Eric, "The Failure of Input-Based Schooling Policies," *Economic Journal*, February 13, 2003.
- xiv. Jackson, Kirabo, Johnson, Rucker, Persico, Claudia, "The Effects of School Spending on Educational and Economic Outcomes: Evidence from School Finance Reforms." *The Quarterly Journal of Economics*, October 1, 2015.