AFTON

A Study of SOA and ESSER Spending in Massachusetts from 2018-2024

Contents

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Section 1: Executive Summary

The COVID-19 pandemic and the subsequent release of temporary, federal Elementary and Secondary School Emergency Relief (ESSER) funds, alongside the implementation of the Massachusetts Student Opportunity Act (SOA), created a unique moment in Massachusetts' education funding. During these last five fiscal years (FY20-FY24), Local Education Agencies (LEAs)* have navigated significant challenges, and with these infusions of resources, have had to balance immediate recovery needs with long-term investments.

The period from FY20-FY24 saw a surge of federal and state resources aimed at stabilizing and transforming public education, but it also brought complexities in implementation and accountability. Understanding this landscape is essential to evaluating how these funds were used and what impacts they have had.

This statewide spending study examines how LEAs and schools utilized these infusions of public funds, including allocations from the state's aid formula- known as Chapter 70, and the federal ESSER funds. The report analyzes statewide trends and compares spending patterns from before and after this large infusion of funding, highlighting how these investments have shaped public education and related services. It also explores variations across different subgroups of LEAs and highlights the effects of this funding through various lenses, including resource equity, implementation perceptions, evidence-based practices, community collaboration, and student outcomes.

Given the magnitude of these investments, critical questions emerge:

- **How did LEAs and schools spend these funds?** Further, was there a difference from how they spent funds prior to these infusions?
- **What effects did these funds have?**
- **In what ways did the funding and spending align with the goals of the policies?**

This report uses a mixed-methods approach to analyze educational spending patterns, combining administrative data analysis, qualitative engagement, and

* An LEA is a district (regional or municipal) or other public education administrative body (e.g. charter school) responsible for overseeing the public schools within its jurisdiction. An LEA may be comprised of multiple schools within its system or may operate a single site.

statistical methods to better interpret trends. The findings aim to provide a transparent fact base to policymakers, academics, and practitioners in Massachusetts who seek clarity around which types of LEAs received funding infusions, what types of investments LEAs prioritized with their funding, and what the preliminary effects of the funding might look like.

The key insights from this report are included in this Executive Summary, with deeper discussion and clarification found in the larger body and appendices. These findings offer an examination of statewide trends and highlight areas for further research.

Key Spending Trends

Part 1: Statewide Enrollment and Spending Patterns

Insight A: Total spending increased, as expected, while overall enrollment decreased, resulting in more spending per pupil.

From FY18-FY24, **total spending by LEAs in Massachusetts increased 32%**. During this same period, **total student enrollment declined by 3%** statewide. With fewer students and an infusion of new funding, **per pupil expenditures increased by 38%** - from $19,748 in FY18 to $27,196 in FY24 (inclusive of all funding sources as well as operating and capital expenditures).

Insight B: The proportion of spending on instruction related categories stayed consistent before and after the infusion of funding, though choices within the larger categories of instructional and non-instructional spending were varied and specific to the context of the LEA.

Both before and after the infusion of funding, LEAs spent about 58% of their budgets on instructional categories. Additionally, almost all spending categories (within instructional and non-instructional) saw increases in funding year-over-year, but the proportions remained quite stable in the aggregate. Together, this may indicate that **investments were spread out across many priorities rather than concentrated in specific areas.**

Insight C: Teacher Salaries remained the largest spending category before and after the infusion of funding, though they make up a smaller proportion of the funding in later years.

Teacher Salaries comprise the largest expenditure category across all years of funding, accounting for about one-third of all educational spending. This is consistent even with the new infusions of funding and shifting enrollments and student needs.

While the total spending on Teacher Salaries increased across this time period, spending on Teacher Salaries as a proportion of total spending each year decreased beginning in FY20 and **funding dedicated to non-teacher functions grew at faster rates**, resulting in a decrease in the portion of the budget dedicated to Teacher Salaries. The categories that grew faster than Teacher Salaries as a proportion of spending included Professional Development; Other Teaching Services; Capital; and Instructional Materials, Equipment, and Technology.

Part 2: Spending Variations by LEA Subgroups

Reviewing spending by specific LEA characteristics deepens the understanding of spending, as contexts for different types of LEAs is likely to be different.

Insight A: LEAs with larger percentages of low-income students and English learners spent proportionally more on social emotional supports for students, such as Mental Health and Family Liaison Services, than LEAs with fewer percentages of those student types.

LEAs with the largest low-income populations nearly doubled their expenditures per pupil for Guidance, Counseling, and Testing between FY18 and FY24, compared to a large but much smaller increase of 52% for LEAs with the smallest percentage of low-income students. **The highest needs LEAs also spent proportionally more on Pupil Services (11%)** compared to all other quintiles (9%). Pupil Services include Athletics; Food Service; Security; Attendance and Parent Liaison Services; Medical/Health Services; and Other Student Activities. LEAs with high proportions of **English learners also spent a higher proportion of their ESSER funding on Pupil Services**. Additionally, LEAs with the highest percentage of English learners saw an increase in their total Instructional Materials, Equipment, and Technology expenditures, and those expenditures steadily comprise a larger proportion of spending over time.

Insight B: LEAs with the largest percentage of low-income students saw the largest growth in both Teacher Salaries and teacher FTEs, though continued to have lower per pupil spending than LEAs with lower percentages of low-income students. This pattern holds with LEAs that have higher proportions of English learners as well.

LEAs with the highest percentages of low-income students saw the largest increase in total Teacher Salary expenditures per pupil (an increase of $2,269 per pupil) and percentage growth in annual Teacher Salary expenditures (41%) compared to LEAs with lower percentages of low-income students, though by FY24 LEAs with high percentages of low-income students still had the lowest average Teacher Salary expenditures per pupil than other LEAs.

LEAs with higher percentages of low-income students also increased the number of teachers per pupil by 11% from FY18-FY24, going from 8.4 teachers per 100 pupils in FY18 to 9.3 teachers per 100 pupils in FY24. As a result, LEAs with the highest percentages of low-income students went from having the fewest teachers per pupil in FY18 to having the third highest number of teachers per pupil in FY24, compared to the other quintiles.

On average **LEAs with high percentages of English learners saw a larger percent growth in annual Teacher Salary expenditures per pupil (39%)** compared to LEAs with lower English learner populations (26% growth). In FY18, LEAs with higher English learner populations had lower teacher per pupil expenditures than LEAs with fewer English learners. By FY22, which corresponds with the beginning of the SOA, this trend flipped, with high English learner LEAs spending $383 more on teachers per pupil than low English learner LEAs.

Insight C: LEAs in Gateway cities* had similar total spending patterns to LEAs located in non-Gateway cities, but spent less per pupil on teacher expenditures.

Cumulatively from FY18-FY24, LEAs located in Gateway and non-Gateways spent similar proportions of total expenditures on many functions, including Teacher Salaries; Instructional Leadership; Operations and Maintenance; and Guidance, Counseling, and Testing. However, on average and as compared to LEAs located in

* Gateway cities are defined under Chapter 23A Section 3A as municipalities with a population greater than 35,000 and less than 250,000; median household income below the state average; and rate of educational attainment of a bachelor's degree or above that is below the state average. Charter schools and Boston Public Schools are excluded from the analysis of LEAs in Gateway cities.

non-Gateways Cities, LEAs located in Gateway Cities have lower Teacher Salary expenditures per pupil despite increasing annual per pupil expenditures for Teacher Salaries at similar levels and increasing their staffing levels (teacher FTEs per 100 pupils) at faster rates. By FY24, **LEAs located in Gateway Cities spent on average $831 less per pupil on Teacher Salaries when compared to non-Gateway City LEAs. This same gap was $924 in FY18.**

Part 3: Spending Trends by Fund Type

It is important to review spending in the total context, not just isolated by fund type, as there is significant evidence that LEAs and schools shifted investments and priorities to and from ESSER based on their local context's needs. As such, it is not sufficient to infer spending patterns in ESSER are indicative of sustained changes to particular programs within an LEA.

Insight A: LEAs spent ESSER funds across all eligible function areas, though spending was more variable than Net School Spending and Total Spending. This could indicate a more contextualized use by LEAs compared to their use of funding due to SOA increases.

A high variability exists in the type and proportion of ESSER spending year-over-year. **The largest proportional spending category for ESSER funding was Instructional Materials, Equipment, and Technology** (26% for ESSER, compared to 3% in total spending). Teacher Salaries comprised the second-largest category (20%) followed by Operations and Maintenance (14%). While still a small percentage and dollar amount, a higher proportion of ESSER funding was spent on Professional Development (6%) than total or NSS expenditures.

Insight B: Early ESSER funding was spent more on Instructional Materials, Equipment, and Technology, while later ESSER funding was spent more on Teacher Salaries, indicating a shift from emergent needs to recovery, strategy, or longer-term investments.

Nearly all schools in Massachusetts moved to virtual schooling in March 2020, which necessitated purchasing computers and other materials for virtual learning purposes. The Pupil Services category, which includes Food Service and Health Services, saw high spending levels as large quantities of personal protective equipment (PPE) were needed once schools began to reopen. The highest

proportional ESSER expenditure function in FY21 was Instructional Materials, Equipment, and Technology (35%), followed by Pupil Services (16%). **In subsequent years, Instructional Materials, Equipment, and Technology decreased as a proportion of total ESSER spending while Teacher Salaries and Operations and Maintenance categories increased as a proportion of expenditures.** Qualitative data highlights the shift towards recovery efforts and more strategic use of available funds once the immediate needs of health, safety, and virtual learning subsided.

Lenses for Understanding Preliminary Effects

Lens A: Resource Equity Lens

Insight A: Most of the new Chapter 70 state aid distributed as a result of the SOA went to the LEAs with the highest percentages of low-income students, meeting the law's intended equity goals.

On average, Chapter 70 aid per pupil is positively correlated with the percentage of low-income students in an LEA. **In FY19, average state aid per pupil for LEAs with the highest percentage of low-income students (Quintile 5) was 2.3 times greater than for LEAs with the lowest percentage of low-income students (Quintile 1). The ratio of state aid increased to 3.1 times greater in FY24** despite the Quintile 1 per pupil aid also increasing during that time. A larger gap between the lowest and highest percent low-income LEAs is one indicator that state aid contributed to closing revenue gaps between these LEAs.

Insight B: As expected, LEAs serving higher percentages of low-income students and higher percentages of English learners increased expenditures per pupil more than LEAs with lower proportions of students with these profiles. However, this trend is stronger at the school level than the LEA level, indicating that LEAs are making decisions to send resources to schools more equitably and the types of schools and students the funding was intended for were more likely to benefit from the funding.

In FY18, LEAs serving the lowest percentages of low-income students had an average per pupil expenditure 2% higher than LEAs serving the highest percentages of low-income students. By FY24, this trend flipped and grew, with LEAs serving the highest proportions of low-income students spending on average

8% higher per pupil than LEAs serving the lowest percentages of low-income students (a 10 percentage point difference between FY18 and FY24).

This trend is even stronger at the school level, **with the difference increasing from 10% in FY18 to 33% by FY24. This suggests that more of the additional funds went to schools with a higher proportion of low-income students.** Since this trend is stronger at the school level than the LEA level, the differences in funding at the school level are not entirely explained by LEA level funding, suggesting that LEAs are sending more resources to schools with lower-income levels. This finding is significant because the SOA reforms occurred at the LEA level, and state funding policy does not directly oversee how LEAs distribute funding across their schools.

In FY18, LEAs with the lowest percentage of English Learners spent slightly more per pupil than LEAs with the highest percent of English learners. This relationship flipped by FY24, with **LEAs serving the highest proportions of English learners spending on average $2,178 more per pupil than LEAs serving lower proportions of English learners.**

Insight C: The gap in average expenditures per pupil between LEAs in Gateway Cities compared to non-Gateway Cities declined from FY18-FY24, indicating that more urban areas, which had lower per pupil spending beforehand, were "catching up" in per pupil spending during this time period.

While Gateway Cities continue to spend, on average, less per pupil than non-Gateway Cities, they **increased annual expenditures per pupil more than non-Gateway Cities** (59% versus 47%).

Lens B: Funding Infusion Perception and Implementation Lens

Insight A: LEAs that received larger amounts of funding (SOA or ESSER) tended to perceive the impact of the funding as more transformative, particularly as it related to programming and responsiveness to student needs.

Across all the qualitative data respondents, LEAs tended to believe the funding they received was more transformative for their systems if they 1) knew they received it and 2) received more (relative to others). **LEAs who received the largest ESSER or SOA funding infusions ranked the transformative nature of the funding much higher than LEAs who received smaller dollar amounts** (both proportional and total).

Insight B: ESSER funding was spent on a mixture of one-time and recurring expenses, though seemed to be used strategically over time as many LEAs, particularly those with larger SOA expenditures, were able to absorb recurring ESSER expenses into their future operating budgets and avoid significant fiscal cliffs.

LEAs spent 81% of ESSER expenditures on recurring items rather than one-time expenses, though it is difficult to understand the distinction with certainty. Some LEAs showed creativity in the ways they maximized the impact of the funding, including accelerating the implementation of their SOA plans using the ESSER funding (since ESSER was disbursed a year prior to SOA) as well as strategically planning to absorb ESSER-funded program expenditures (such as teachers, paraprofessionals, instructional coaches, and counselors) into their operating budgets utilizing projected increases in their Chapter 70 aid due to the SOA.

Throughout the qualitative data, LEAs that received larger amounts of both SOA and ESSER funding shared strategies they utilized to "implement SOA plans early" through utilization of ESSER funding, as well as strategically build new programs using ESSER funding with an intent to absorb those costs into the operating budget using forthcoming SOA increases.

Lens C: Evidence-Based Practices Lens

Insight A: LEAs note the changing role of the school on purchasing choices.

Across the qualitative focus groups and conversations, LEAs shared that their choices for investment areas were sometimes influenced by the needs of students outside of academic settings.

Across LEAs in Massachusetts, there is evidence of more investments for student and family supports, particularly in LEAs that have students with higher needs. For example, while statewide expenditures for Guidance, Counseling, and Testing have remained at about 3% of total expenditures year over year, expenditures increased at a higher rate for LEAs with higher levels of need. **LEAs with the largest low-income populations (Quintile 5 LEAs) nearly doubled their expenditures per pupil for Guidance, Counseling, and Testing between FY18 and FY24**, compared to a large but much smaller increase of 52% for LEAs with the smallest percentage of low-income students (Quintile 1 LEAs). Similarly, LEAs with the highest percentages of English learners (High English learner LEAs) increased

expenditures in this category by 74%, compared to a 50% increase for LEAs with fewer English learners.

Insight B: SOA and ESSER funds were used to implement evidence-based practices, particularly workforce retention, extended learning and acceleration academies, and expanding capacity to address social-emotional learning and mental health needs for students and families.

LEAs consistently noted different workforce retention strategies that SOA funds were spent on, including pay increases through labor negotiations to keep wages competitive. And as the state responded to and recovered from the pandemic, learning and acceleration academies were a common investment area for LEAs across the board, as were investments in social workers, adjustment counselors, and psychologists.

Insight C: SOA plan development and compliance is perceived as costly with few upsides, as the funding is distributed regardless of the plan.

For LEAs who received little or non-meaningful amounts of SOA, the resounding sentiment was frustration with the requirement to submit SOA plans. Across LEAs that received the most SOA funding, there was a pervasive sentiment that the compliance burden was very high and had little to no benefit. **LEAs across all types questioned the purpose of the SOA plans** given that either LEAs received too little funding to implement any evidence-based practices with it, or LEAs were guaranteed to receive the funding regardless of how they chose to use the money.

Lens D: Community-Level Collaboration Lens

Insight A: Local contributions above the required amounts changed after the SOA, with LEAs that have lower percentages of low-income students seeing larger increases in local contributions above required than LEAs with higher percentages of low-income students.

Since FY18, the average local contributions above the required amounts have increased the most for LEAs with lower percentages of low-income students (i.e. Quintile 1, Quintile 2, and Quintile 3). Average local contributions above required increased the least for Quintile 5 (highest percentage of low-income students) and have decreased for Quintile 4.

Lens E: Student Outcomes Lens

As part of a holistic understanding of spending and funding choices, student outcomes are often of keen interest. This report does not include a rigorous evaluation of student outcomes and funding for a variety of reasons including limited data availability, confounding variables due to the COVID-19 pandemic, and the influx of multiple funding sources at the same time. This study did conduct preliminary correlational analysis using a fixed-effects model to identify areas where relationships might warrant further exploration. These relationships are early stage and correlational and should be interpreted as topics only for potential research in the future.

Insight A: Investments in specific categories of expenditures and FTEs for teachers and other instructional staff at the school level positively correlate to changes in MCAS Math and student attendance outcomes.

An investment of $1,000 in additional school expenditure per pupil from FY18 through FY24 correlates with a 0.21% increase in MCAS ELA proficiency rates, and a 0.15% increase in MCAS Math proficiency rates. A $1,000 investment in Teacher Salary expenditures per pupil from FY21 through FY24 correlates with a 0.44% increase in MCAS Math proficiency rates. An investment of 1 additional instructional support FTE per 100 students from FY18 through FY24 correlates with a 0.8% increase in MCAS Math proficiency rates. An investment of 1 additional clerical FTE per 100 students from FY21 through FY24 correlates with a 0.52% increase in attendance rates.

Insight B: Most of the correlational relationships are weak and appear in the recovery period (from FY21-FY24) rather than from before the funding infusions (FY18-FY24), indicating that more investigation and research is needed as the funding infusions conclude and students continue to receive the benefits of the investments long-term.

Next Steps and Recommendations

This spending study establishes a foundation for education stakeholders in Massachusetts. As the ESSER funding winds down and the SOA infusions plateau over the next few years, additional exploration and understanding of trends and patterns will be necessary to inform future policy.

Section 2: Introduction

Between 2020 and 2025, Massachusetts public education experienced two historic infusions of funding: (1) the state-level Student Opportunity Act (SOA), enacted in 2019 and implemented beginning in FY22, and (2) the temporary, federally funded Elementary and Secondary School Emergency Relief (ESSER) programs, initiated in response to the COVID-19 pandemic in 2020. **Together, these initiatives represent a combined investment of nearly $3.4 billion in Massachusetts, which was 4% of all funds distributed during that time**. These additional funds largely benefitted local education agencies (hereafter "LEAs") serving large proportions of students from low-income backgrounds, English learners, and students with disabilities—populations often recognized as historically underserved by the education system.

The SOA reforms specifically attempted to more equitably allocate resources aligned with student need across Massachusetts. The reforms in SOA that made changes to the Chapter 70 formula, which is the Massachusetts law that defines how the state funds LEAs, focused primarily on realigning resources towards a more equitable funding formula and prioritizing LEAs with higher proportions of low-income students, English learners, and students with disabilities.

Shortly after the SOA legislation was signed into law in November 2019, the COVID-19 pandemic began. In response to the pandemic, federal ESSER funds were distributed beginning in March 2020, utilizing Title I formulas, which also weigh toward LEAs that serve larger numbers and proportions of students from low-income households. As such, many of the same LEAs that would ultimately benefit more from SOA funds also benefitted more from ESSER funds. The ESSER funds layered on approximately $2.6 billion in federal support to help Massachusetts schools address the disruption of the COVID-19 pandemic and to accelerate recovery. Together, ESSER and SOA funding streams created an unprecedented opportunity to not only stabilize educational systems in a time of crisis, but to make transformational, equity-centered investments in evidence-based practices.

Given the magnitude of these investments, critical questions emerge:

- **How did LEAs and schools spend these funds?** Further, was there a difference from how they spent funds prior to these infusions?

- **What effects did these funds have?**
- **In what ways did the funding and spending align with the goals of the policies?**

This study, conducted in partnership with the Massachusetts Department of Elementary and Secondary Education (DESE), provides a preliminary analysis of how these funds were used, and to what extent they have affected educational spending patterns, equity of resource distribution, and various outcomes across the state. Using a mixed-methods approach, this study analyzed both SOA and ESSER funding — separately and in combination — drawing on administrative data and, where appropriate, qualitative data to capture a more comprehensive picture of investment and impact. Seven initial research questions, which are more detailed versions of the three above, guided our analysis and are located in the appendix.

Literature Review and Advances to the Field

Many policymakers and educational leaders are interested in the impacts of funds, particularly the ESSER and SOA infusions, on student achievement and the achievement gap. While that is an important long-term outcome to understand, this report also recognizes the importance of other effects, such as student attendance, workforce retention, social-emotional wellbeing, and community-level collaboration, as essential leading indicators.

Across the country, states recognize that student attendance dropped precipitously during the early pandemic years as families changed behaviors. Dee (2024) found a 91% increase in chronic absenteeism across all public-school students from 2019-2022.[1] In Massachusetts, students missing more than 10% of school days, or 18 days, are considered chronically absent. In 2022, 27% of all students in the state fit this definition, compared to 13% in 2019 – a 109% increase.[2] While improving in the years since the pandemic, attendance has not returned to pre-pandemic levels, and nearly one-fifth of students missed more than 10% of school days (18 days) in the 2023-2024 school year. A precursor to student achievement, few studies have examined the impact of funding on attendance outcomes during and after the crisis.[3] [4] This study advances the discussion on the relationship between certain expenditures and attendance outcomes, for certain types of schools.

Mental health supports and social-emotional well-being are also acknowledged as important foundational tenets associated with improved student outcomes.[5] [6] The CDC's Youth Risk Behavior Surveillance System (YRBSS) found that nearly all indications of poor mental health worsened from 2013-2023, with 4 in 10 high

school students experiencing persistent feelings of sadness or hopelessness in 2023.[7] Few studies have explored changes in educational investments to address student well-being, and this report begins a conversation about the strategies LEAs utilized in pursuit of ensuring students are safe and able to learn.

Teachers and staff experienced significant shifts in their workplace environment during the COVID-19 pandemic, with nearly 93% of households with school-aged children reporting some level of distance-learning occurring during the pandemic.[8] Nationally, there is evidence that the pandemic exacerbated a pre-existing and long-standing shortage of teachers, particularly in schools with high shares of students of color or students from low-income families.[9] Some researchers are beginning to study how ESSER was used as a job-creation or retention tool, with early findings showing strong evidence that public school districts hired more teaching staff in response to the availability of ESSER funding.[10] This paper attempts to add to this discourse by exploring changes in spending on staffing categories and the circumstances in which LEAs attempted to influence their workforce outcomes.

There is robust and growing evidence that the level and distribution of education funding can have a direct impact on student achievement, particularly for low-income students. Seminal work by Jackson, Johnson, and Persico (2016) found that increased per pupil spending, especially when sustained over multiple years, significantly improves educational attainment and long-term outcomes for students from low-income families.[11] More recent research underscores that equity-focused funding reforms, which allocate more resources to high-need LEAs, are especially effective in narrowing achievement gaps.[12] [13] Furthermore, school finance reforms that boost investment in disadvantaged communities have been linked to improved graduation rates, test scores, and adult earnings.[14] [15]

Nationally and in Massachusetts, LEAs have shown improvement from the test score declines observed the first year following the pandemic onset; though on average, they have not fully recovered to pre-pandemic achievement.[16] [17] [18] Recent studies have found that ESSER spending helped support recovery, yet little research has examined which types of spending were related to higher test scores.[19] [20] This study adds to the discourse by analyzing the relationship between specific expenditure categories and specific groups of LEAs and schools. While the analysis does not utilize student-level data, it does use student demographics to identify types of LEAs and schools where investments were targeted towards.

While the analysis covers fiscal years 2018 through 2024, it is important to note that neither ESSER funding nor SOA distributions had fully concluded during this window. As such, the findings offer a timely but incomplete picture of the overall spending and impacts of these funds. Also, this study acknowledges that there is on-going research across these topic areas that will contribute to better understanding of these trends in the coming years.

In examining SOA and ESSER spending through both a comparative and outcomes-focused lens, this paper seeks to contribute to the evidence base on strategic education funding, particularly in times of crisis and reform. The findings offer insights for policymakers, education leaders, and stakeholders committed to ensuring that public dollars are used effectively to advance equity and improve student outcomes in Massachusetts and beyond.

Report Organization

This report is organized into six main sections, plus appendices. Section 1 provides an executive summary of the findings. Section 2 is an introduction to the body of the report. Section 3 provides a detailed background of each funding source, including timelines, policy, goals, and the distribution mechanisms. Section 4 outlines the methodological approach, including data sources, sample, analytic strategies, and limitations. Section 5 provides a comprehensive discussion of key findings, including spending trends across archetypes, or groups, of LEAs and schools, as well as initial impacts and outcomes. Section 6 outlines ideas for further study.

Section 3: Background

This section provides detail on the funding sources and mechanisms that underpin the analysis.

Massachusetts' K-12 Education Profile

Massachusetts is widely recognized for having one of the strongest K–12 education systems in the United States. The state consistently ranks at the top in national assessments such as the National Assessment of Educational Progress (NAEP), particularly in reading and math.[21]

In the 2024-2025 school year: [22]

396 School Districts / LEAs

73 Charter LEAs
1,806 Schools

915,932 Students

7.5% Asian
10.2% Black or African American
25.9% Hispanic or Latino
51.5% White
4.6% Multi-Race, Not Hispanic or Latino
0.2% American Indian or Alaska Native
0.1% Native Hawaiian or Other Pacific Islander

55.8% High Needs:
13.9% English Learners
42.1% Low-Income
20.6% Students with Disabilities
19.3% Chronically absent (10% or more days)

89.7%
Statewide teacher retention rate

88.4%
High school graduation rate

39%
Grades 3-8 meeting or exceeding expectations in MCAS ELA

41%
Grades 3-8 meeting or exceeding expectations in MCAS math

The Chapter 70 program and LEA Funding Mechanisms

The Chapter 70 program (henceforth referred to as "Chapter 70") is the formula that the state uses to distribute aid to public elementary and secondary school districts (referred to as LEAs in this study). It is established in Chapter 70 of the general laws[23] and further clarified through the state's school finance regulations articulated in 603 CMR 10.00.[24]

In addition to providing state aid that supports school operations, it also establishes minimum spending requirements for each LEA ("net school spending") and minimum requirements for each municipality's share of school costs ("required local contribution"). At its core, Chapter 70 attempts to establish an adequate spending level for each school district and determines how much of each district's required spending should be funded from local and state sources. Chapter 70 state aid is provided in addition to any local, federal, or other funding that LEAs may receive. This study is not a review of the adequacy of Chapter 70 but rather an account of what LEAs and schools used funding for, some of which derived from Chapter 70 aid.

Overview of the Student Opportunity Act (SOA)

The SOA is a piece of education reform legislation enacted in 2019 by the Commonwealth of Massachusetts. Its primary aim was to address longstanding disparities in education funding and opportunities across LEAs. The SOA was signed into law by Governor Baker on November 26, 2019, after being unanimously passed by the state legislature. The SOA modifications to Chapter 70 first went into effect in Fiscal year 2022 (July 1, 2021 – June 30, 2022).*

Key components of the Massachusetts Student Opportunity Act include:

- **Equitable funding formula:** One of the central features of the SOA was the revision of the state's funding formula (Chapter 70) to ensure that resources are allocated more equitably among LEAs by aligning resources with educational needs. The movement to redefine adequacy through changes to the foundation budget was an acknowledgement by the state that it takes a lot more to close achievement gaps than what was being provided. The SOA is projected to

* Massachusetts began implementing SOA "down payments" on low income, and started phasing in healthcare increases in FY18. Once the Foundation Budget Review Commission completed its work, DESE started implementing incremental increases in anticipation of the passage and implementation of the actual law, because those shortfall areas were so well documented..

increase state aid by $1.5 billion (in nominal dollars) above inflation and enrollment changes over seven years, with a particular focus on LEAs serving students from low-income backgrounds and English learners. These modifications aimed to better reflect the costs associated with educating students and the unique needs of different LEAs.

- **Special education funding:** The SOA also addressed the funding needs of special education programs, providing additional resources to ensure that students with disabilities receive the necessary support and services to thrive academically.
- **Funds to address expanding costs to provide health care benefits to the education workforce:** This measure is designed to address growing costs to provide theses services.
- **Data reporting and accountability measures:** The legislation includes provisions for improved data collection and reporting to monitor the effectiveness of education spending and track student outcomes.[25] While specific metrics are not included in the legislation, it does require them to address "persistent disparities in achievement among student subgroups" and "measures of increased parent engagement." The law also established accountability measures to encourage LEAs to use resources effectively to support student achievement.

Funding to LEAs is provided by the state through the Chapter 70 formula. The reforms of the SOA included adjustments to this formula, and therefore there is not a specific funding source designated as "SOA." Rather, LEAs saw changes pursuant to SOA to their Chapter 70 allocations, as well as adjustments to their net school spending (NSS) and required local contribution amounts, beginning in FY22.

In total, the SOA reforms are projected to increase the total cumulative Chapter 70 allocations by $1.5 billion above inflation and enrollment changes from FY22-FY27.[26]

Overview of Elementary and Secondary Schools Emergency Relief (ESSER) Funding

Shortly after the SOA legislation passed, on March 11, 2020, the World Health Organization (WHO) classified the COVID-19 outbreak as a pandemic, triggering a federal response through legislated interventions, including the Elementary and Secondary Schools Emergency Relief (ESSER) program.[27]

The ESSER program is generally considered three separate funding distributions, established and funded under different federal aid packages:[28]

Coronavirus Aid, Relief, and Economic Security (CARES) Act: March 27, 2020

- **$13.23 billion** (nationally)
- **Purpose:** "Emergency relief funds related to preventing, preparing for, and responding to COVID-19."
- **Parameters:** States must sub-grant a minimum of 90% to LEAs; States must maintain support in FY20 and FY21 at least at the levels that equal the average of the three fiscal years prior.

Coronavirus Response and Relief Supplemental Appropriations (CRRSA) Act: December 27, 2020

- **$54.31 billion** (nationally)
- **Purpose:** Expansion of CARES Act
- **Parameters:** Same requirements as CARES Act funding

American Rescue Plan (ARP) Act: March 11, 2021

- **$121.97 billion** (nationally)
- **Purpose:** "Help LEAs to safely reopen and sustain the same operation of schools and address the impact of the coronavirus pandemic on the Nation's students."
- **Parameters:** LEAs must reserve 20% of funding to address learning loss through the implementation of evidence-based interventions and ensure that those interventions respond to students' social, emotional, and academic needs and address the disproportionate impact of COVID-19 on underrepresented students and subgroups.

Across all three acts, the U.S. Department of Education awarded grants to DESE and other state education agencies for the purpose of providing LEAs with emergency relief funds to address the impact the COVID-19 pandemic "has had, and continues to have, on elementary and secondary schools across the country."

Approximately $189.5 billion in ESSER funding was awarded to state education agencies across the US, from which most was then largely awarded to LEAs to be

used over the course of approximately 4.5 years - March 2020 through September 2024.[29]

ESSER Fund awards to State Educational Agencies (SEA) were in the same proportion as each state received under Part A of Title I of the Elementary and Secondary Education Act of 1965, as amended, in the fiscal year prior to the year the ESSER funds were distributed.

This was awarded to Massachusetts in three installments: $194 million of ESSER I in 2020, $740 million of ESSER II in 2021, and $1.66 billion of ESSER III in 2022*. Per the terms of the grant at the time of this report, LEAs are able to spend down ESSER funding through most of FY26. Through FY24 (the scope of this report), $2.2 billion of ESSER expenditures are included in the data, or about 85% of the total allocated amount.

Timeline and Amount of Funds

ESSER funding began in FY21 and continued through FY24, with LEAs continuing to expend ESSER funds beyond FY24. Beyond some early pre-payments, SOA Chapter 70 aid began in FY22 and slowly ramped up the distribution amount each year. In total, ESSER accounts for $2.2 billion in additional expenditures, and SOA Chapter 70 increased annual aid by $668 million by FY24, which accounts for $1.2 billion dollars in cumulative aid from FY22 through FY24.

FISCAL YEAR 2021
ESSER: **$194 Million** (ESSER I)

FISCAL YEAR 2022
ESSER: **$740 Million** (ESSER II)
Annual SOA Chapter 70 Aid: **$180 Million**

FISCAL YEAR 2023
ESSER: **$1.66 Billion** (ESSER III)
Annual SOA Chapter 70 Aid: **$384 Million**

FISCAL YEAR 2024
Annual SOA Chapter 70 Aid: **$668 Million**

* A small portion, up to 10%, was kept by DESE, which was allowed under the grant agreement as the "SEA reserve." https://www.ed.gov/sites/ed/files/2020/05/ESSER-Fund-Frequently-Asked-Questions.pdf

Section 4: Methods and Data

This study used a mixed-methods explanatory sequential design, where quantitative data was analyzed first, followed by qualitative data, to provide deeper context and understanding of the results.[30]

Data and Timeframe

This analysis used DESE administrative data on LEA- and school-level resource allocations and expenditures which were self-reported by LEAs, as well as student performance and enrollment records. Eighteen (18) administrative sources were utilized and are detailed in the appendix.

- Funding Data: SOA impact on aid, Chapter 70 formula and Net School Spending (NSS) spreadsheets
- Expenditure Data: End of Year Financial Reports for school districts and charter schools
- Demographic Data: Enrollment (October 1 student headcount), grade, race, ethnicity, gender, and selected populations
- FTE staffing data: LEA and school FTE by staff categories
- Student Outcome Data: MCAS proficiency rates (math and ELA), student attendance

To study the effects of ESSER and SOA investments, the study examined data from fiscal years 2018 ("FY18" or the 2017-2018 school year) through FY24 (the 2023-2024 school year). This allowed the study to compare trends in district- and school-level spending and student outcomes both before, during, and after the initial inflow of SOA and ESSER funding.

This analysis also utilized data collected through qualitative interviews, focus groups, and a limited survey performed by the study from March-May 2025. This data was used to confirm high-level trends and better understand the context for spending patterns across different types of LEAs. A total of sixty-three (63) individuals across fifty-one (51) LEAs are included in the qualitative data sample.

Details on the quantitative and qualitative data samples are included in Appendix D: Detailed Methodology.

Definitions

This section provides a sample of the common terms used throughout the report. A comprehensive list of definitions is included in the appendix.

General

- **Local Education Agency (LEA)**:[31] A district (regional or municipal) or other public education administrative body (e.g. charter school) responsible for overseeing the public schools within its jurisdiction. An LEA may be comprised of multiple schools within its system or may operate a single site.

Archetypes and Student Groups*

- **Low-Income:**
  - Data from FY18-FY21 is based on an older DESE definition of economic disadvantage.[32] This measure is based on a student's participation in one or more of the following state-administered programs: the Supplemental Nutrition Assistance Program (SNAP); the Transitional Assistance for Families with Dependent Children (TAFDC) program; the Department of Children and Families' (DCF) foster care program; and MassHealth (Medicaid) up to 133% of the federal poverty level.
  - From FY22 forward, low-income is calculated based on a student's participation in one or more of the following state-administered programs: (1) the Supplemental Nutrition Assistance Program (SNAP); (2) the Transitional Assistance for Families with Dependent Children (TAFDC); (3) the Department of Children and Families' (DCF) foster care program; (4) expanded MassHealth (Medicaid) up to 185% of the federal poverty level, as well as (5) students identified by districts as homeless and students the district confirmed had met the low-income criteria through the collection of a supplemental claim form with supporting documentation.
  - While this change in low-income identification does increase the statewide proportion of low-income students starting in FY22, the distribution of low-income students across LEAs does not drastically change. When analyzing data across low-income LEA quintiles, the proportion of low-

*Unless otherwise noted, definitions are from DESE District and School Report Card, Public Schools & Districts tab: https://profiles.doe.mass.edu/help/data.aspx.

income students that fall within each quintile does not change more than 4% between FY21 and FY22. This suggests that the change in low-income definition has minimal impact on analyses based on low-income quintiles.

- **Students with Disabilities (SWD):** Students who have an Individualized Education Program (IEP).
- **English Learners:** A student whose first language is a language other than English who is unable to perform ordinary classroom work in English.
- **Gateway City:**[33] A "Gateway City" is a municipality in the Commonwealth of Massachusetts with: a population greater than 35,000 and less than 250,000; median household income below the state average; and rate of educational attainment of a bachelor's degree or above that is below the state average.
- **Priority District:**[34] Also referred to as "high-funding districts," these LEAs were identified by DESE in two cohorts. Cohort 1 Priority Districts (FY22-FY23) are LEAs that received $1.5 million or more in additional Chapter 70 aid in FY22. Cohort 2 Priority Districts (FY24) are LEAs that received $75 million or more in overall Chapter 70 aid in FY24.

Fund Sources

- **Chapter 70 Funding:** The amount of funding provided to LEAs, not including charter schools, from the state's Chapter 70 aid formula each fiscal year.
- **Chapter 70 SOA:** Portion of Chapter 70 funding allocated to LEAs due to increases in the foundation budget enacted through the SOA.
- **ESSER:** Temporary federal funding through the Elementary and Secondary School Emergency Relief (ESSER) programs that helped schools recover from the COVID-19 pandemic. Includes expenditures funded with ESSER I, ESSER II, and ESSER III.
- **Net School Spending (NSS):** The total amount spent on the support of public education from state and local sources; includes expenditures from Chapter 70 aid and local funding sources, excluding student transportation and capital expenditures. NSS does not include federal funded grant expenditures, state grant expenditures, or revolving fund expenditures.
- **Net School Spending minus Chapter 70 SOA:** The total Net School Spending (NSS) less the Chapter 70 SOA amount. In years prior to SOA, "Net School Spending minus Chapter 70 SOA" and NSS are the same.

- **Required Net School Spending:** Minimum annual Net School Spending requirements for each LEA set in the Chapter 70 formula.

Analysis

The study sought to better understand how the Commonwealth's LEAs and schools utilized resources in total, as well as separately, across ESSER and SOA. Attributing any trends, changes, or impacts to a single initiative or funding source is complex, as LEA resource allocation decisions are often influenced by broader contextual factors, including multiple other funding streams and strategic priorities. Therefore, analyzing categorical funding individually may not fully capture the interplay between various funding sources and the strategic decisions LEAs make. **This analysis examines resource expenditures across multiple layers at the LEA and school levels: total expenditures, ESSER-only expenditures, and NSS expenditures.**

Together with DESE, the study developed twelve (12) archetypes, or sets of characteristics, by which to compare schools and LEAs*. Archetypes allow the study to more deeply examine trends across and within groups of LEAs and schools that have meaningful differences from one another.

The study employed multiple approaches to answer the research questions, including summary statistics, variance analysis, multivariate regression, focus groups, and interviews.

Attributing specific expenditures to new Chapter 70 revenue due to the SOA

One primary purpose of this study is to understand how LEAs and schools spent new funds due to the SOA. The study used multiple cuts of expenditure data to triangulate what types of funding might be reasonably attributed to the SOA.†

NSS is used as the primary proxy for associations of SOA funding on specific expenditures. NSS is inclusive of spending that was received as part of an LEA's Chapter 70 allocation as well as any local funding, as both elements were directly impacted by changes brought by the SOA legislation. Looking at changes in NSS across expenditure categories, particularly when comparing LEAs that received

* Detailed definitions and details on archetype groups is included in the appendix.

† Expenditure data is coded by NSS and ESSER. "SOA" funding is not a separate revenue line, and NSS includes both local and Chapter 70 funding.

higher or lower proportions of SOA funding, is one way to reasonably attribute changes to the SOA.

As a secondary review, the study examined changes in total expenditures. LEAs have some flexibility in how they classify expenditures, and looking at total expenditures highlights changes in spending categories that could have shifted to other fund sources (such as ESSER or other federal grants) or are not eligible for NSS (such as capital expenses).

In addition to quantitative approaches, the study utilized interviews and focus groups to further understand the scale the SOA funds had on specific expenditure groups.

Limitations

Throughout the analysis, the study sought to ensure a robust and thorough examination of spending in the Commonwealth. Nonetheless, there are factors that limit the study's ability to fully describe the trends and impacts, such as the timeline, data completeness and consistency, and limits to the analysis itself.

Timeline

The current study timeframe utilized expenditure data from FY18-FY24. However, ESSER funds are able to be spent midway through FY26, meaning the current analysis will likely underestimate the full impact of ESSER spending for LEAs that continue to expend funds beyond the study's timeframe.*

Additionally, new SOA funding is projected to continue being distributed through FY27. LEAs may have multi-year plans for the use of those funds that are not fully captured by the current study timeframe.

Data Completeness and Consistency

Several data sources have limitations within their structures resulting in natural limits to the analysis.

* Guidance on the rules for ESSER spending and late liquidation evolved during the writing of this report.

- Chapter 70 is a general fund revenue, so once it is deposited it loses its identity compared to other local source revenues. As a result, for NSS (and by association SOA and local funding), expenditures cannot be disaggregated at the function or program level by fund source, limiting the study's ability to accurately attribute SOA changes or understand local funding adjustments. Researchers cannot tell if a single NSS related expenditure was funded through local funds or Chapter 70 state aid.
- Teacher Salary expenditure and FTE data do not specify teacher types outside of classroom or special education teachers, limiting the ability to understand changes in programs targeting English learners or other student groups. Additionally, staffing data was not available by fund source, so all staffing analysis is limited to total funding.
- Current expenditure and FTE data does not include information on specific evidence-based practices. For example, it is not possible to delineate teachers who were hired for co-teaching models or for tutoring and summer school programming. Understanding and analysis of specific evidence-based practices is limited to qualitative data.
- As with any qualitative data, there is the potential for sample size insufficiency as there is no standard measure for qualitative data saturation, i.e. the point where increasing the sample size does not yield meaningfully new information. Sample size insufficiency can threaten validity and generalizability of the results. Also, the events discussed during the focus groups and interviews occurred several years ago, introducing potential recall bias.
- The study assumes that expenditures reported in account categories (e.g., function codes for teachers or capital) are used uniformly across LEAs. However, implementation of these funds can vary depending on local context.
- There is no way to identify supports for English learners in the expenditure data, which limits this study's ability to identify spending related to this student group.

Analysis

The study recognizes certain analytical choices introduce certain limitations, including:

- While the study identified correlations between spending and student outcomes, it did not establish direct causal relationships. Many other factors outside of spending and funding, such as school leadership experience or external policy changes, may influence outcomes and cannot be fully controlled for in the

analysis. Moreover, proficiency rates do not always capture smaller variations in test results since small changes in test scores do not always result in changes in proficiency identification.

- While the study reported on variation in data, it also reported on averages, which can mask variation and disparities between LEAs and schools.
- The study primarily focused on quantitative data and, as such, it did not fully capture qualitative factors such as school climate, leadership experience, or community involvement, which can also influence spending decisions and outcomes.
- While the study analyzed both school-level and LEA-level data, reporting on LEA-level trends can obscure important differences within LEAs. LEAs may have schools with vastly different resource needs. Additionally, LEAs and schools are distal entities, meaning that funding goes through additional layers of decision-making before "trickling down" and therefore it is more difficult to directly connect the resources to the outcomes.
- The use of interviews and focus groups introduced subjectivity in interpreting qualitative data. The responses from participants may reflect personal biases or specific local conditions that may not be generalizable to all LEAs.

Section 5: Findings and Discussion

This section is organized around two sections: (1) **Key Spending Trends** – which provides a detailed fact-base of the LEA- and school-level spending trends in Massachusetts from FY18-FY24, and (2) **Lenses for Understanding Preliminary Effects** – which unpacks a variety of "lenses" the increased spending has had on LEAs, including correlations to student-level outcomes.

Section 1: Key Spending Trends

Part 1: Statewide Enrollment and Spending Patterns

Tracking total spending across all expenditure categories (including capital) and funding sources, helps reveal how LEAs respond to changing needs, policy shifts, and economic conditions, offering a clearer picture of long-term priorities and resource allocation.

LEAs have considerable flexibility to shift expenditures between funding streams, such as local, state, and federal sources, in response to changing requirements, restrictions, or opportunities. For example, an increase in ESSER funding may have allowed an LEA to reallocate state or local dollars to other priorities, without necessarily adjusting anything about the program.

Qualitative Insight Note: Qualitative data corroborates that some LEAs shifted expenditures between funding sources.

"We moved positions from ESSER budget to operating budget over time."

"Our strategy was, as SOA passed, we could fit the additional early childhood staff that were on ESSER in the budget."

As a result, looking at spending by fund source exclusively may provide a misleading picture of how resources are truly being used. By focusing on total spending, researchers can better capture the actual investment in education and assess the full result of the policy changes or external funding increases on LEA behavior.*

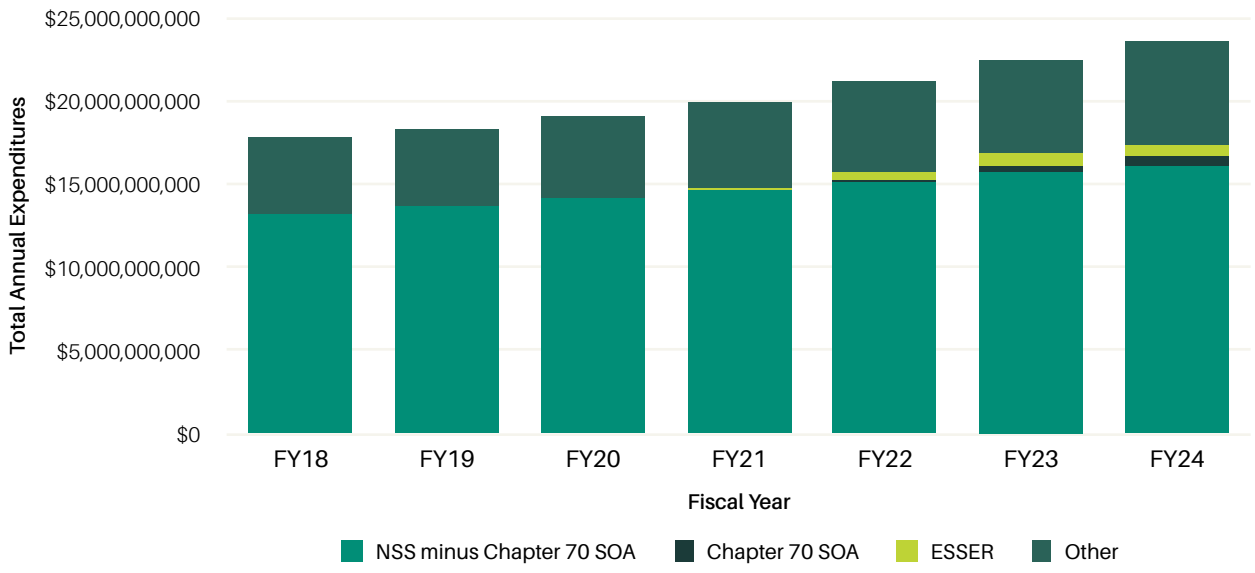
Insight A: Total spending increased, as expected, while overall enrollment decreased, resulting in more spending per pupil.

* It is important to note that expenditure data is not inflation-adjusted, as the purchasing power differences are built into the data already. Further sections of the report get into this in more detail.

Total Statewide LEA Educational Spending Increased 32% from FY18-FY24

From FY18-FY24, total annual spending on K-12 education in Massachusetts increased 32%, or $5.7 billion. Over $23.5 billion was spent by LEAs supporting elementary and secondary education in FY24, compared to $17.8 billion in FY18. Total education spending peaked in FY24, primarily due to the temporary ESSER funding. Total expenditures include expenditures from all funding sources, inclusive of Chapter 70 aid, ESSER, local funds, and other federal and state grants, and all expenditures categories, including operating and capital expenditures.

Figure 1: **Total Educational Expenditures by LEAs in Massachusetts by Fund Source, FY18-FY24***



- **Net School Spending (NSS):** Annual NSS expenditures, which are inclusive of expenditures funded through Chapter 70 revenue and local contributions, increased 26% from FY18 to FY24. Changes to NSS account for 60% of expenditure increases over this time. In FY18, NSS accounted for 74% of all expenditures. This dropped to 71% by FY24, likely due in part to the infusion of ESSER dollars. In FY24, expenditures funded through NSS totaled $16.6 billion, or 71% of the total spending. Note: in the figure above, "NSS minus Chapter 70 SOA" refers to NSS without the additional Chapter 70 aid due to the SOA.

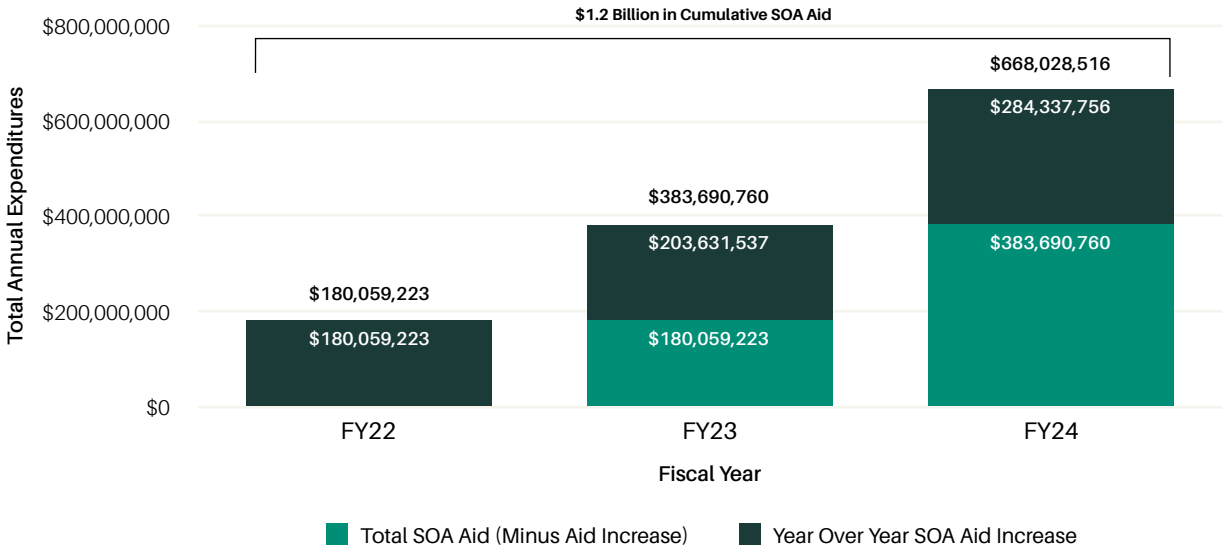
* See Background Section for more specific definitions.

- **Additional Chapter 70 due to SOA (Chapter 70 SOA):*** By FY24 the increase to Chapter 70 revenue attributable to SOA had reached $668 million that year, and between FY22 and FY24 the total amount of aid attributable to SOA was $1.2 billion. Figure 2 illustrates the total and year-over-year SOA amounts from FY22-FY24. Chapter 70 SOA is included within total NSS, and the distinction can only be reflected at a high level from the expenditure data – the proportion of Chapter 70 aid that was adjusted due to increases in the foundation budget as a result of the SOA. In Figure 1, "NSS minus Chapter 70 SOA" is the total NSS minus the Chapter 70 SOA amount. In years prior to SOA, "NSS minus Chapter 70 SOA" and NSS are the same.

  Not including small pre-payments starting in FY20 and FY21, DESE began distributing Chapter 70 aid under the new SOA formula in FY22. In FY22, $180 million in additional annual Chapter 70 aid was disbursed to 73 LEAs as a result of the SOA. This distribution progressively increased over the next fiscal years, with approximately $668 million dollars in total new funding distributed through FY24 compared to what LEAs eligible for SOA funding would have received without the SOA (a 264% increase in funding specific to SOA). Across the state, annual funding levels have increased 32% from FY18 to FY24 (+$5.7 billion), and the SOA accounts for 12% of this increase ($668 million dollars). The SOA-related increases to Chapter 70 aid are scheduled to be fully implemented by FY27. Note: this only includes changes to Chapter 70 aid. While the SOA also adjusted local share requirements, which drove more funding for LEAs that typically contribute at the minimum level, this revenue cannot be disaggregated from Chapter 70 revenue when analyzing expenditures.

* Since additional SOA revenue came to LEAs as part of their Chapter 70 revenue, additional expenditures attributable to the SOA cannot be completely disentangled from other Chapter 70 expenditures. SOA expenditures are therefore a subset of NSS expenditures rather than in addition to them.

Figure 2: Total SOA aid to LEAs in Massachusetts, FY22-FY24



- **ESSER:** The temporary federal ESSER funds added $2.2 billion in cumulative additional expenditures to schools in Massachusetts from FY21 through FY24, accounting for 3.3% of total expenditures during that period. Of the $5.7 billion in additional funding from FY18-FY24, ESSER accounts for 39% of the additional spending.

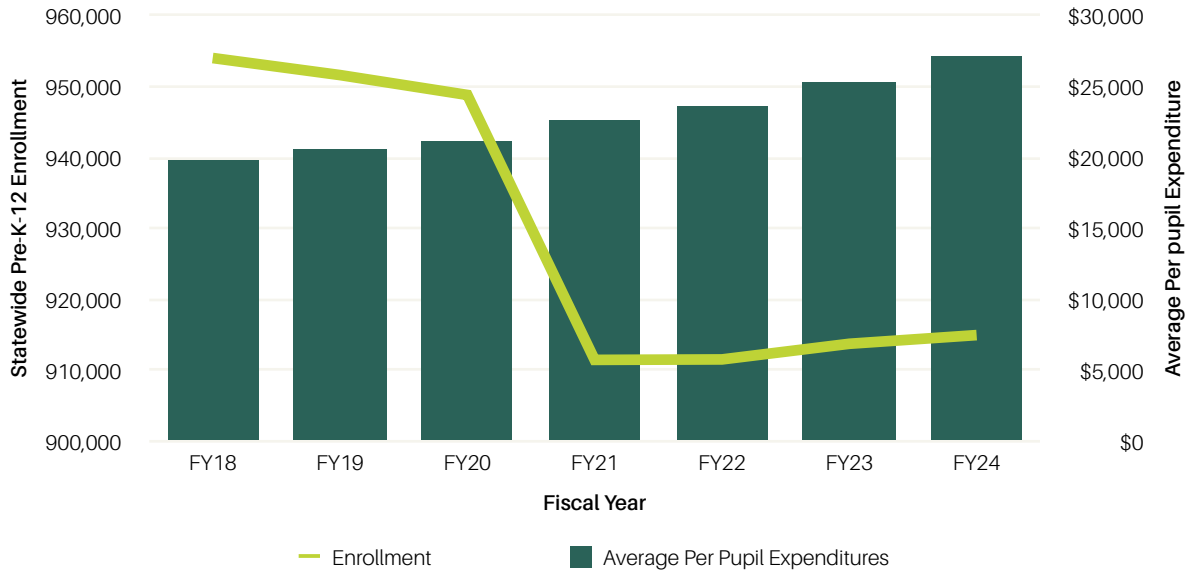
  Within this study's timeframe, ESSER expenditures peaked in FY23 at $766 million. Per federal guidelines, LEAs have until midway through FY26 to fully spend all allocated ESSER funds.[35] In FY24, expenditures funded by ESSER totaled $738.5 million, or about 3% of total spending.

Per pupil expenditures increased 38% as enrollment decreased by 3%.

Student enrollment is a primary driver of the Chapter 70 state aid formula, meaning that at baseline, LEAs with higher enrollments receive more funding. While total spending has increased from FY18 through FY24, statewide enrollment has decreased by 3% over that time period. This decrease in enrollment is one contributing factor to an increase in the per pupil measure: with a smaller denominator (enrollment), the per pupil expenditure over time will increase even if funding is not adjusted upward.*

* Studying per pupil funding provides a standardized measure for comparing how much money is spent on each "student," a critical input for assessing how well supported schools are.

Figure 3: **Total statewide K-12 enrollment and unweighted average per pupil educational expenditures, FY18-FY24**



From FY18-FY24, average per pupil expenditures increased 38%, from $19,748 in FY18 to $27,196 in FY24.* In that same time period, enrollment decreased by 39,075 students with a large drop between FY20 and FY21 – a consistent trend across the country during the COVID-19 pandemic. Like many states, Massachusetts has seen a small increase (0.4%) in enrollment in the years after COVID-19, but enrollment has not returned to pre-pandemic levels. Nationally, total enrollment in public elementary and secondary education dropped by 2.7%, or 1.4 million students from the fall of 2019 (pre-pandemic) to the of fall 2020, and rose only 0.4% by fall 2022.[36]

Per pupil expenditures in this report may appear higher than those in other sources. This report includes expenditure categories that are often excluded from other per pupil figures, including capital expenditures, tuition to out of district schools and debt servicing. These figures may also differ from per pupil figures seen in DESE's RADAR reports, since this report uses actual enrollment (October 1 student headcounts) as the denominator while RADAR uses full-time equivalent (FTE)

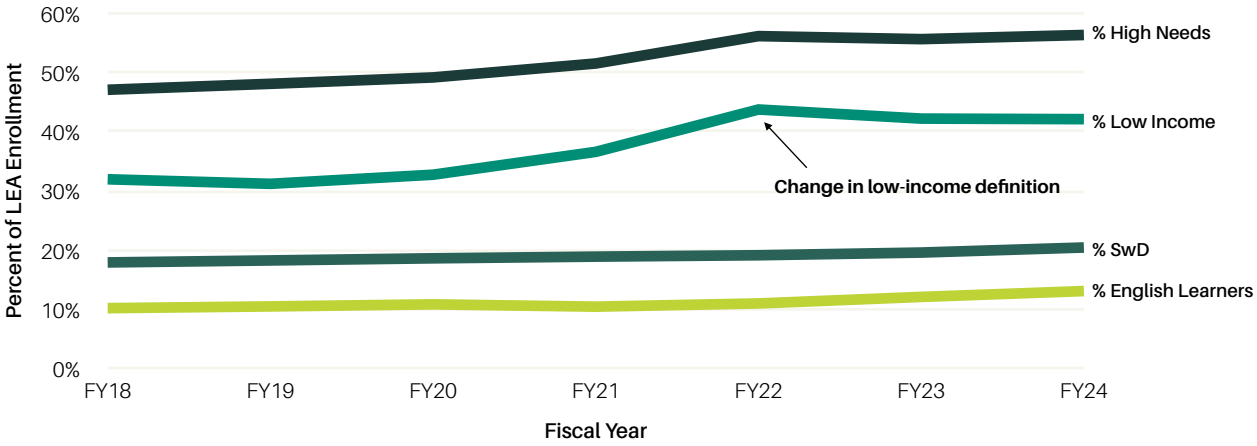
Across Massachusetts, the proportion of low-income students enrolled in public schools has increased. This means, of the students who remain enrolled, a larger proportion of them have higher needs than before the pandemic.† Within the

* It is important to note that inflation is already calculated into expenditure data.

† Some portion of this increase is due to a change in definition of low-income students starting in FY22 which changed the criteria for identifying low-income students. Additional detail is included in the appendix.

Chapter 70 aid formula, different student types are weighted with higher funding amounts to recognize the varying costs associated with different student needs. The SOA specifically provided updated weights for high-needs students, low-income students,* English learners, and students with disabilities.† Figure 4 shows that the proportion of low-income students within the state was increasing prior to the change in definition. The increased proportion of specific student demographics within the state is a secondary driver of the increased per pupil expenditure levels.

Figure 4: **Percentage of Statewide enrollment by student demographic, FY18-FY24**



Insight B: The proportion of spending on instructional related categories stayed consistent before and after the infusion of funding, though choices within the larger categories of instructional and non-instructional spending were varied and specific to the context of the LEA.

Year-over-year, schools consistently spent about 58% of total funds on instructional activities, even with new funding infusions and recovery needs.

In Massachusetts, schools consistently spent about 58% of their funding on instructional activities.‡ Examining instructional spending over time is critical because it provides insight into how LEAs prioritize core academic services amid

* The increase in % low-income between FY21 and FY22 is due in part to a change in low-income identification that lowered the threshold for how low-income students are counted. This change increased identification by approximately 6%, while low-income student percentage increased by 10%, indicating that the percentage of low-income students increased even without the change in definition.

† For students with disabilities, the Chapter 70 formula recognizes an assumed percentage rather than an actual count or level-of-need weight.

‡ Full list of what function codes are included/excluded in each category is included in Appendix B.

shifting demands. As student needs become more complex—driven by factors such as pandemic-related learning loss, increased mental health challenges, and changing student demographics—LEAs may reassess how their instructional investments are structured to support effective teaching and learning.

Figure 5 shows the cumulative spending of schools from FY18-FY24 across categories of instructional spending (which includes categories such as Teacher Salaries, Paraprofessionals, Principals, Textbooks and Materials, Curriculum and Technology), and non-instructional spending (which includes categories such as Medical/Health Services, Security, Food Services, Transportation, Athletics and Student Activities, Superintendents, Health Insurance, Human Resources and Benefits, Capital, Custodial Services, and Buildings and Maintenance). In total, about 58% of all expenditures were considered instructional expenditures while 42% was spent on other activities.

Figure 5: Cumulative percentage of total educational expenditures from FY18-FY24 by Instructional and Non-Instructional categories

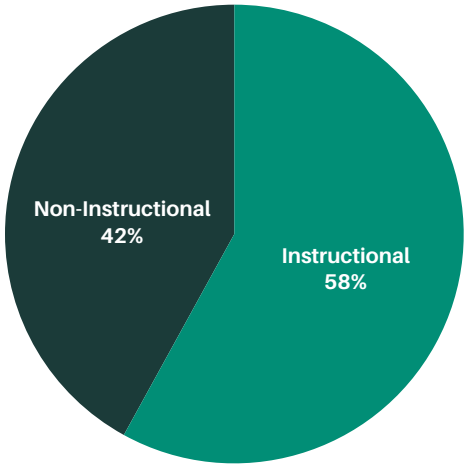
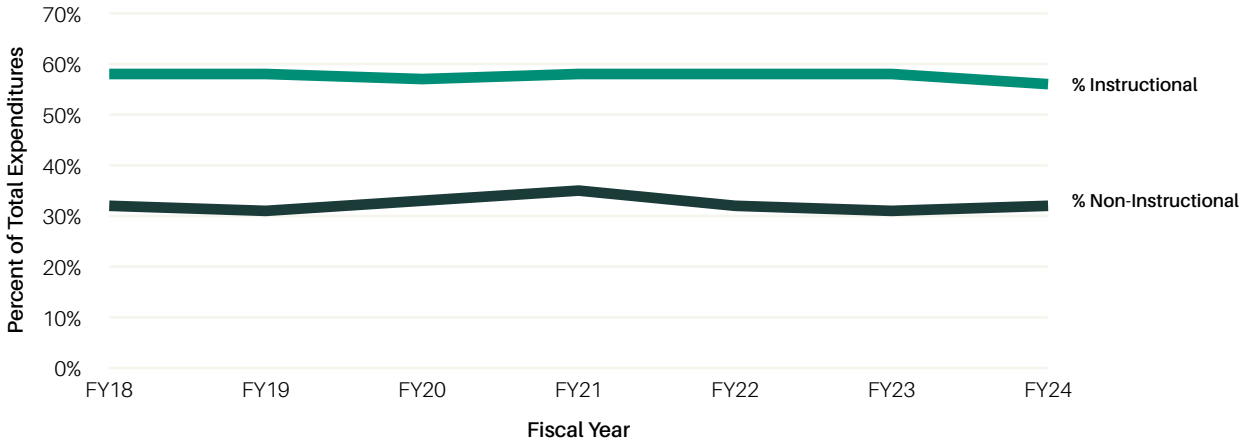


Figure 6 shows the year-over-year expenditure trends, **indicating no significant variation from FY18 through FY24**. While student needs increased, revenues increased, per pupil spending increased, and the COVID-19 pandemic affected school operations and student recovery needs, the proportion of spending on instruction remained at 58% year to year. This finding could imply that, on average, LEA leaders are balancing decisions across a variety of spending categories, and when provided additional funding, continue to balance investments across that

range proportionally. It also reveals the need for deeper understanding of the practical uses of the spending at the LEA-level through qualitative information.

Figure 6: Total educational expenditures by year, by Instructional and Non-Instructional categories, FY18-FY24



Overall, the qualitative data shows that most LEAs made investments and expenditure choices across both instructional and non-instructional categories. While the percentage of instructional and non-instructional expenditures remained similar before and after the infusion of funding, the choices of spending within instructional and non-instructional varied considerably and were based on the specific context of the LEA and their needs.*

For example, the qualitative data shows that while many LEAs used ESSER funding to purchase 1-to-1 computers for students, some LEAs already had such programs in place and did not need to spend ESSER funds on those items. Those LEAs may have spent more ESSER funds on things such as air quality improvements, which would also be considered a non-instructional expenditure.

This study has no way to quantify the exact choices each LEA made at the item-level, or whether more ESSER funding was spent on non-instructional items or more SOA funding was spent on instructional categories. To do so would overlook the fact that many LEAs strategically shifted the same expenditures onto different fund types year-over-year.

* This finding is consistent with similar analyses in Illinois.
Barragan Torres, M., Bates, M., Barkey, A., and Cashdollar, S. (2024). Learning Renewal Series: Describing ESSER Spending for recovery in Illinois. Illinois Workforce and Education Research Collaborative.

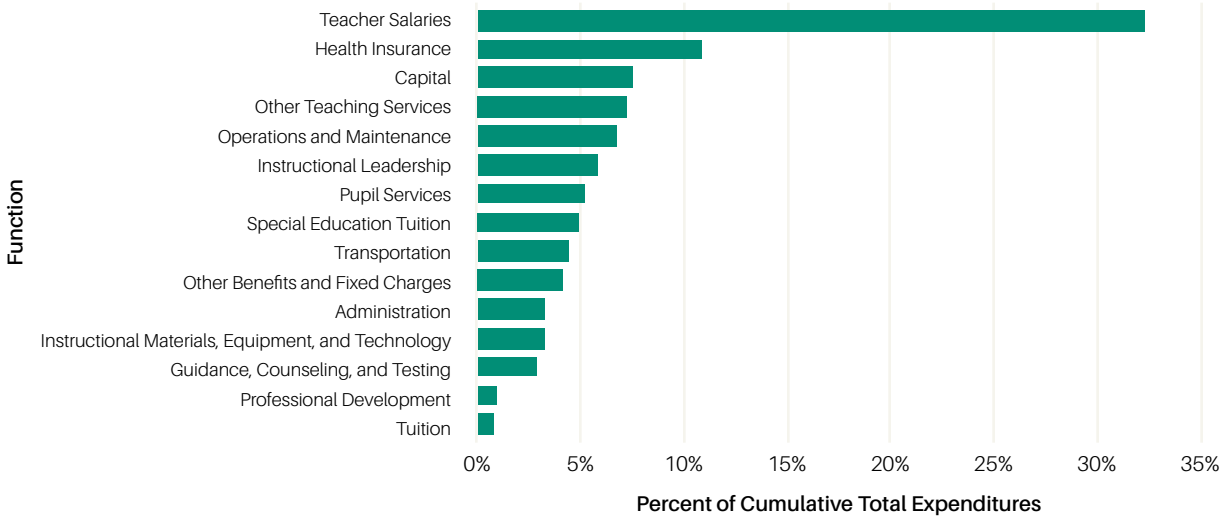
The quantitative data does imply that on the whole, the spending choices for balancing instructional and non-instructional expenditures remained similar before and after the funding infusions.

Insight C: Teacher Salaries remained the largest spending category before and after the infusion of funding, though it makes up a smaller proportion of the funding in later years.

Almost one-third (1/3) of total education expenditures are for Teacher Salaries.

Teacher Salaries are the largest expenditure category statewide, both cumulative from FY18-FY24, as well as year-over-year, comprising 32% of total expenditures, or $45.9 billion, over six years. Almost two-thirds (65%) of total educational expenditures are comprised of five (5) spending categories: Teacher Salaries; Health Insurance; Capital; Other Teaching Services; and Operations and Maintenance. The smallest expenditure categories are Tuition for Non-Special Education Students (which includes Tuition to Out-of-State Schools, Non-Public Schools, Collaboratives, and School Choice); Professional Development; and Guidance, Counseling, and Testing.

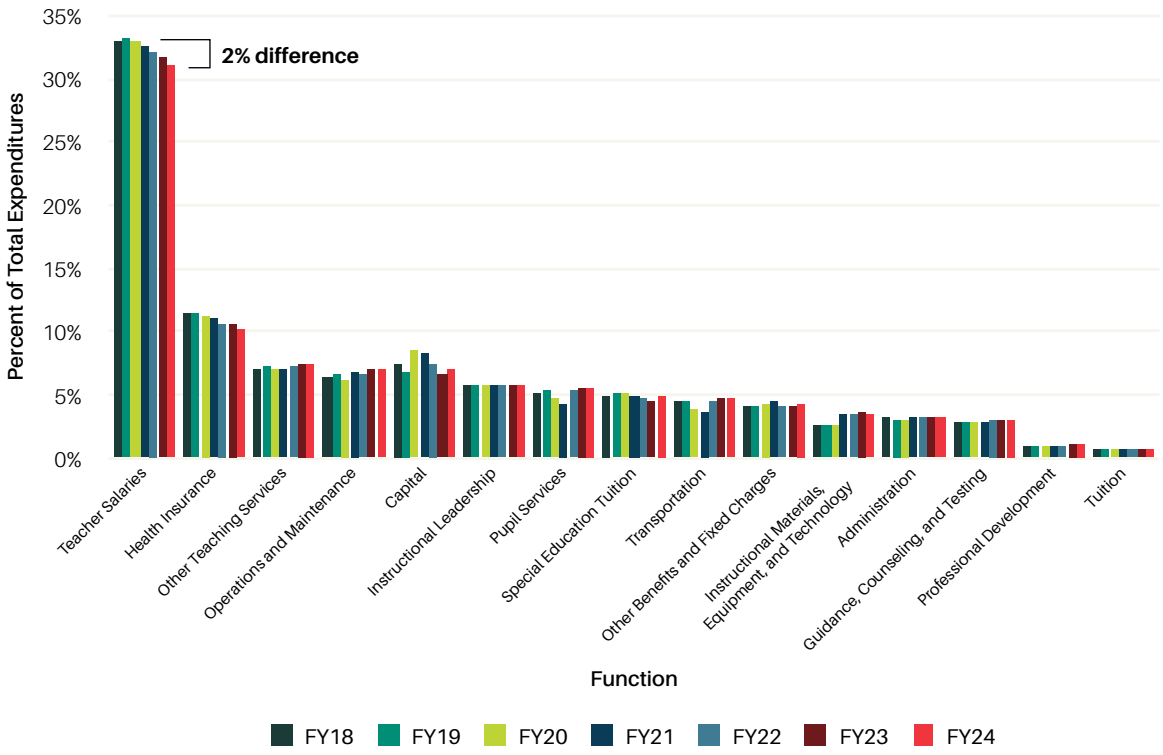
Figure 7: **Proportion of cumulative statewide educational expenditures by function, FY18-FY24**



Across all years, Teacher Salaries are consistently the largest expense for total education spending, maintaining about 31-32% of the total funding even with the

new infusions of funding and shifting enrollment and student needs. In FY24, Massachusetts schools spent $7.3 billion on Teacher Salaries, compared to $5.9 billion in 2018. While the percentages are changing and going down, the dollar amounts are still increasing.

Figure 8: **Total educational expenditures by function, year-over-year FY18-FY24**



The proportion of total spending across functions remained quite stable before and after the SOA and ESSER infusions.

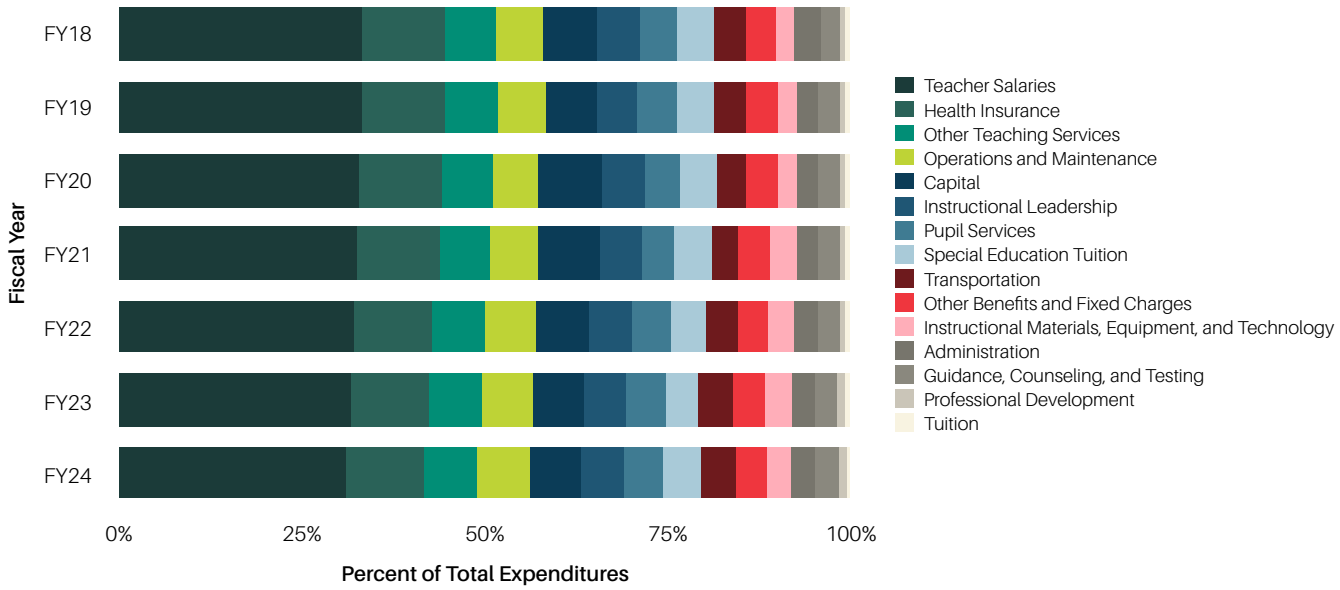
Reviewing changes to the expenditure categories before and after the new funding infusions could bring to light one perspective on how LEAs chose to invest the new funding – function areas whose proportions changed significantly could indicate additional funding was used for those categories.

While expenditures within each function increased year-to-year, **there was relatively little variation in the proportion of spending for each function within a given fiscal year**. It is important to remember that many costs within LEAs are fixed or difficult to adjust over a short timeframe. This finding is consistent with the steadiness in spending on instructional and non-instructional categories. Similarly,

this may imply that LEA leaders balance spending across a range of priorities even when new funding is available, rather than spending a significant amount in particular areas.

Figure 9 shows that in FY21, there are small dips in proportional spending in categories such as Pupil Services and transportation. These categories are more reliant on in-person learning, which Massachusetts paused in most LEAs for a substantial portion, if not the majority, of that fiscal year. Figure 9 also shows a slight decrease in the proportion of funds spent on Teacher Salaries and Health Insurance, and slight upticks in the proportion spent on Capital; Operations and Maintenance; and Instructional Materials, Equipment, and Technology. A decrease in the share of total spending does not mean LEAs divested from that activity, as the total pot of available funding increased year-over-year.

Figure 9: Percentage of total statewide educational expenditures by function, year-over-year FY18-FY24



While the total spending on Teacher Salaries increased across this time period, spending on Teacher Salaries as a proportion of total spending each year decreased beginning in FY20. When LEAs received large infusions of funding, such as SOA and ESSER funding, funding dedicated to non-teacher functions grew at

faster rates than that of Teacher Salaries, resulting in the portion of the budget dedicated to Teacher Salaries decreasing.

Figure 9 shows that functions such as Other Teaching Services, Capital, Pupil Services, Guidance, Counseling, and Testing, Instructional Materials, Equipment, and Technology, and Professional Development grew as a proportion of total spending from FY20.

Instructional Materials, Equipment, and Technology and Professional Development expenditures had the largest percentage increase from FY18-FY24

Across all expenditures, there was a 32% increase in annual spending from FY18 to FY24. The functions that saw the largest proportional changes happen to be ones whose total dollars started and remain small. The largest percentage increase in annual spending from FY18-FY24 was Instructional Materials, Equipment, and Technology, with a 75% increase or $358 million in additional spending. Over the time period, the proportional spending on Instructional Materials, Equipment, and Technology went from about 2.5% of total spending in FY18 to 3.5% in FY23 (the category's highest proportion in this period) to 3.3% in FY24.

Professional Development spending saw a 71% increase in annual spending from FY18 to FY24, with $108.2 million of increased expenditures, but remained the second smallest expenditure category after Tuition (for non-special education). As a proportion of total spending, expenditures on Professional Development went from 0.8% in FY18 to 1.1% in FY23 (the category's highest proportion in this period) and to 1.0% of all spending in FY24.

Qualitative Insight Note: LEAs varied in what types of expenditures they coded as "Professional Development." Often it included standard increases related to new curriculums purchased. Others included items such as "after-school programming" and "teacher per-diems" in the Professional Development reporting line.

The function area with the largest proportional change across any year from FY18-FY24 was Capital, which comprised 6.9% of expenditures in FY18 and increased to 8% of spending in FY20. Since FY20, Capital as a proportion of total spending has decreased since FY20 and in FY24, was lower than the baseline of FY18, at 6.6% of total expenditures.

Since these categories were proportionally high for ESSER expenditures, it is evident that the COVID-19 pandemic drove LEAs to make one-time purchases on

Instructional Materials, Equipment and Technology, and Professional Development. This finding makes sense given ESSER I and ESSER II were designed to enable schools to make one-time purchases to help LEAs and schools operate during the pandemic and reopen schools.

Part 2: Spending Variations by LEA Subgroups

When analyzing patterns and trends in school funding, it is important to consider different types of LEAs, such as their proportion of low-income students or whether they are located in urban, suburban, or rural areas. Funding needs and spending patterns can vary widely based on characteristics such as student demographics and geographic context. Low-income LEAs, which serve larger shares of high-need students, English learners, and students with disabilities, often require greater resources to provide equitable educational opportunities. Similarly, rural and urban LEAs face distinct challenges, such as transportation costs in rural areas or higher staffing and facility costs in urban settings. Without accounting for these differences, analyses can risk overlooking critical disparities and drawing inaccurate conclusions about how resources are prioritized and used across the education system.

This section focuses on Low-Income, English learner, and Gateway City archetypes. While the study analyzed data across other archetypes, including declining enrollment LEAs, LEA size, LEAs by percent students with disabilities, LEAs by percent high needs students, LEAs by percent nonwhite students, and LEA types, results were either not notable or had high covariance with archetypes that were reported on. Therefore, these archetypes are not included in the analysis below.

Three major insights cut across the archetypes and are highlighted below. Detailed analysis unpacking these insights are separated by the archetypes.

Insight A: LEAs with larger percentages of low-income students and English learners spent proportionally more on social emotional supports for students, such as mental health and family liaison services, than LEAs with fewer percentages of those student types.

Insight B: LEAs with the largest percentage of low-income students saw the largest growth in both Teacher Salaries and teacher FTEs, though continued to have lower per pupil spending than LEAs with lower percentages of low-

income students. This pattern holds with LEAs that have higher proportions of English learners as well.

Insight C: LEAs in Gateway Cities* had similar total spending patterns to LEAs located in non-Gateway cities, but spent less per pupil on Teacher Salaries.

How Statewide Spending Patterns Vary by the Percentage of Low-Income Students

Grouping low-income LEAs into quintiles can provide a clearer, more structured way to analyze how funding patterns vary across different levels of student need. By sorting LEAs into five groups based on their percentage of low-income students, it is easier to identify trends, disparities, and outliers that might be hidden when looking at all LEAs together. This approach allows for more precise comparisons between LEAs serving relatively few low-income students and those serving many, helping to reveal whether funding is being allocated equitably and whether resources are concentrated where they are most needed. It also helps control for differences in student populations, making it easier to assess the relationship between funding and student need across the education system.

Table 1: Summary of Low-Income Quintiles (FY24)

SUB-ARCHETYPE	QUINTILE 1	QUINTILE 2	QUINTILE 3	QUINTILE 4	QUINTILE 5
Number of LEAs	76	76	76	79	80
Number of Schools	401	272	257	305	563
% Low-Income Range	0% - 18%	18% - 28%	28% - 40%	40% - 59%	59% - 94%
Total Enrollment	212,179	136,451	114,855	164,562	286,912
Average LEA Enrollment	2,652	1,706	1,454	2,083	3,542
Average School Enrollment	526	501	447	527	505
Average % Low Income, by LEA	11%	24%	35%	48%	72%
Average % High Needs, by LEA	28%	39%	47%	61%	81%
Average % English Learners, by LEA	3%	3%	5%	10%	18%
Average % Students with Disabilities, by LEA	18%	20%	20%	21%	22%

* Gateway Cities are defined under Chapter 23A Section 3A as municipalities with a population greater than 35,000 and less than 250,000; median household income below the state average; and rate of educational attainment of a bachelor's degree or above that is below the state average. Charter schools and Boston Public Schools are excluded from the analysis of LEAs in Gateway Cities.

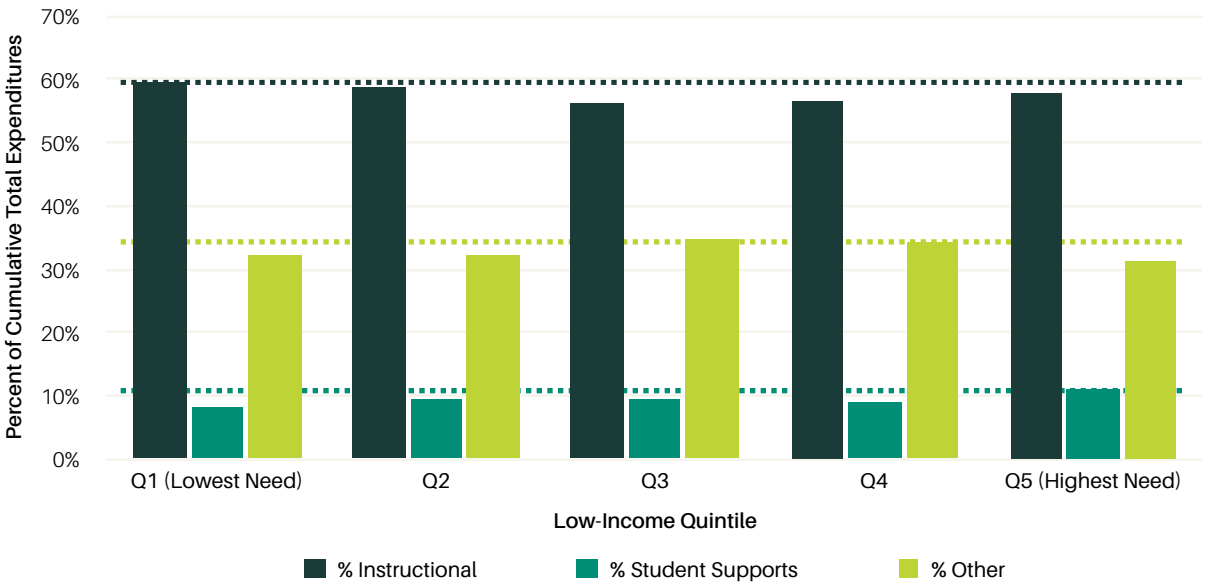
LEAs with larger proportions of low-income students also have a higher proportion of English learner and, have more students with disabilities. Moreover, the proportion of total low-income students has increased over time across the state from 32% in FY18 to 42% in FY24. While the definition of low-income changed in FY22 to include a wider range of students, this minimally impacts analysis across low-income quintiles because the distribution of low-income students across LEAs does not dramatically change between FY21 and FY22. A similar share of all low-income students fall within each low-income quintile between FY21 and FY22 even if the raw number of low-income students changes. This suggests that analyzing data across low-income quintiles is minimally affected by the change in low-income definition.

In FY24, nearly a third of all Massachusetts students attended a school in the highest quintile of LEAs by percent low-income, with most cities in Massachusetts falling into Quintile 4 or Quintile 5. Charter schools are also disproportionately located in low-income LEAs, with 78% of charters in Quintile 4 or Quintile 5. Eighty-one percent (81%) of Quintile 5 LEAs (those with the highest percentage of low-income students) are also designated high percent English learner LEAs (see the section below on English learner insights).

High percent low-income LEAs spent proportionally more on student supports than lower percent low-income LEAs.

Overall, LEAs with different levels of low-income students spent similar proportions of funding across Instructional, Student Supports, and Other categories. The lowest percent low-income LEAs (Quintile 1) spent the largest proportion of expenditures on Instructional expenditures, at 60% of expenditures, while middle percent low-income LEAs spent the least (Quintile 3 spent 56% on instruction). The highest percent low-income LEAs spent proportionally more on Student Supports (11%) compared to all other quintiles (9%). Student Supports include Medical/Health Services, Security, Food Service, and Transportation. Figure 10 highlights the cumulative spending by quintile for each of these three categories, with the dotted lines indicating the highest proportion.

Figure 10: **Proportion of cumulative total educational expenditures by Instructional-Student Support-Other categories, by low-income quintiles, FY18-FY24***



Highest percent low-income LEAs (Quintile 5) saw the largest growth in Teacher Salary expenditures and spent proportionally more on Instructional Leadership, Pupil Services, and Professional Development than lower percent low-income LEAs (Quintile 1)

There is strong evidence that higher investment in teachers—through increased salaries, smaller class sizes, and specialized staffing—can positively impact student outcomes, particularly in high percent low-income schools. Research consistently shows that teacher quality is one of the most important in-school factors affecting student achievement,[37] [38] and that low-income students benefit even more from access to experienced, effective teachers.[39] Increased school spending, particularly when directed toward teacher salaries and instructional supports, can lead to higher student achievement and improved long-term outcomes like high school graduation and college attendance, especially for low-income students.[40] [41] Studies also show that raising teacher salaries can reduce turnover and attract more qualified candidates, which is especially critical for high percent low-income schools.[42] Recent evidence during the COVID-19 recovery period suggests that

* Dotted lines visually indicate the highest value for each category

schools investing ESSER funds into sustained staffing improvements—including retaining experienced teachers—are seeing stronger academic recovery trajectories compared to those that focused more on short-term interventions.[43] [44] These findings reinforce that when high percent low-income schools increase expenditures on their teaching force, it can directly strengthen educational equity and long-term student success.

In Massachusetts, the highest percent low-income LEAs (Quintile 5) saw the largest growth in total Teacher Salary expenditures per pupil ($2,269) and percentage growth in annual Teacher Salary expenditures (41%) compared to lower percent low-income LEAs from FY18-FY24. Though by FY24, Quintile 5 LEAs still had the lowest average Teacher Salary expenditures per pupil than other quintiles. Conversely, Quintile 4 LEAs had the highest average Teacher Salary expenditures per pupil by FY24, though this may be driven in part because Quintile 4 LEAs have less enrollment on average than Quintile 5 LEAs, which can drive up per pupil expenditures. During this time period, Quintile 4 enrollment increased 16%, which could drive down per pupil values, and Quintile 5 enrollment decreased 9%, which could drive up per pupil values. See figure 11 for additional details.

The highest percent low-income LEAs also increased the number of teachers per pupil by 11% in that time period, from 8.4 teachers per 100 pupils in FY18 to 9.3 teachers per 100 pupils in FY24. This shifted Quintile 5 LEAs from having the fewest teachers per pupil in FY18 to having the third highest teachers per pupil, under Quintile 3 and Quintile 4 LEAs. Both teacher FTE and expenditures per pupil increase at a higher rate for Quintile 5 LEAs starting in FY22, which aligns with the first year of SOA implementation. See figure 12 for additional detail.

While the directional change in teacher FTE per pupil is similar to Teacher Salary expenditures per pupil for high percent low-income LEAs, these metrics tell slightly different stories, with expenditures growing at a faster rate than FTE. FTE and expenditures may change at different rates depending on average teacher costs, which can be driven by multiple factors, including teacher experience level, salary scales, and collective bargaining agreements. Further research is necessary to better understand what is driving differences in teacher costs.

Figure 11: Average Teacher Salary expenditures per pupil, by low-income quintiles, FY18-FY24

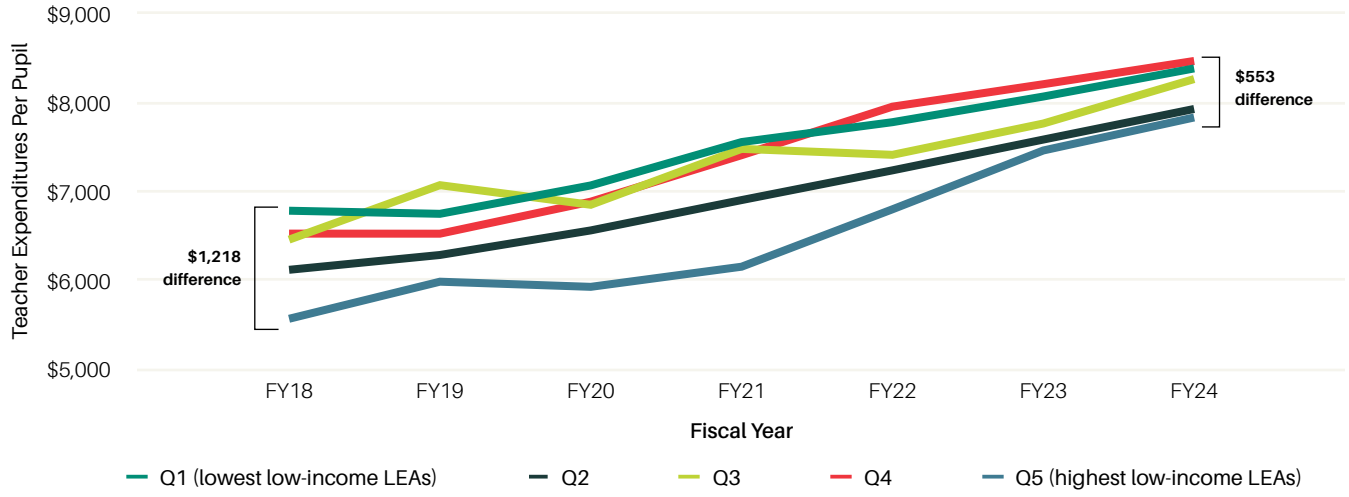
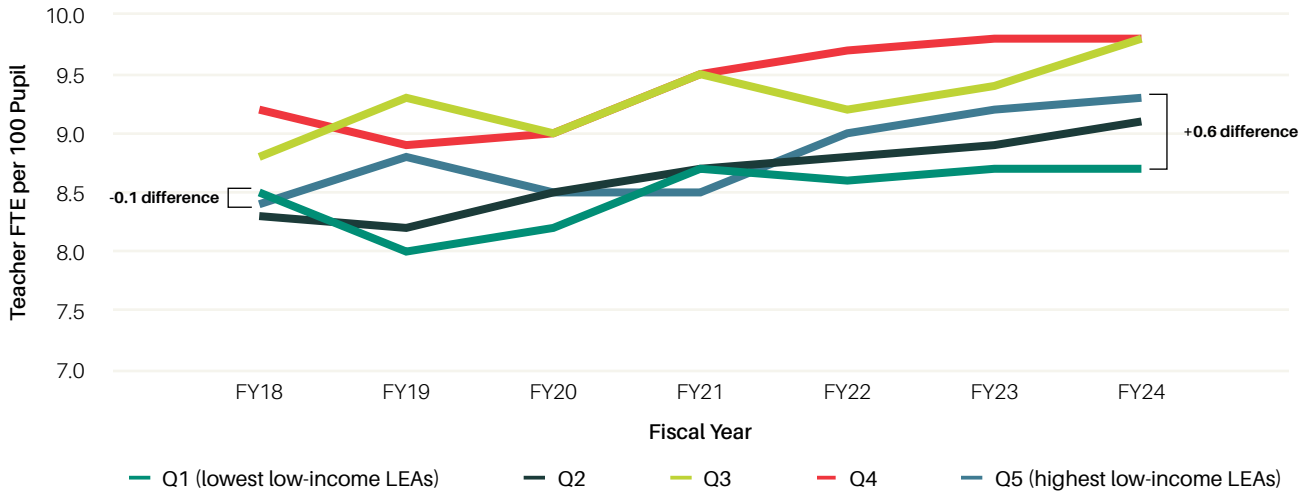


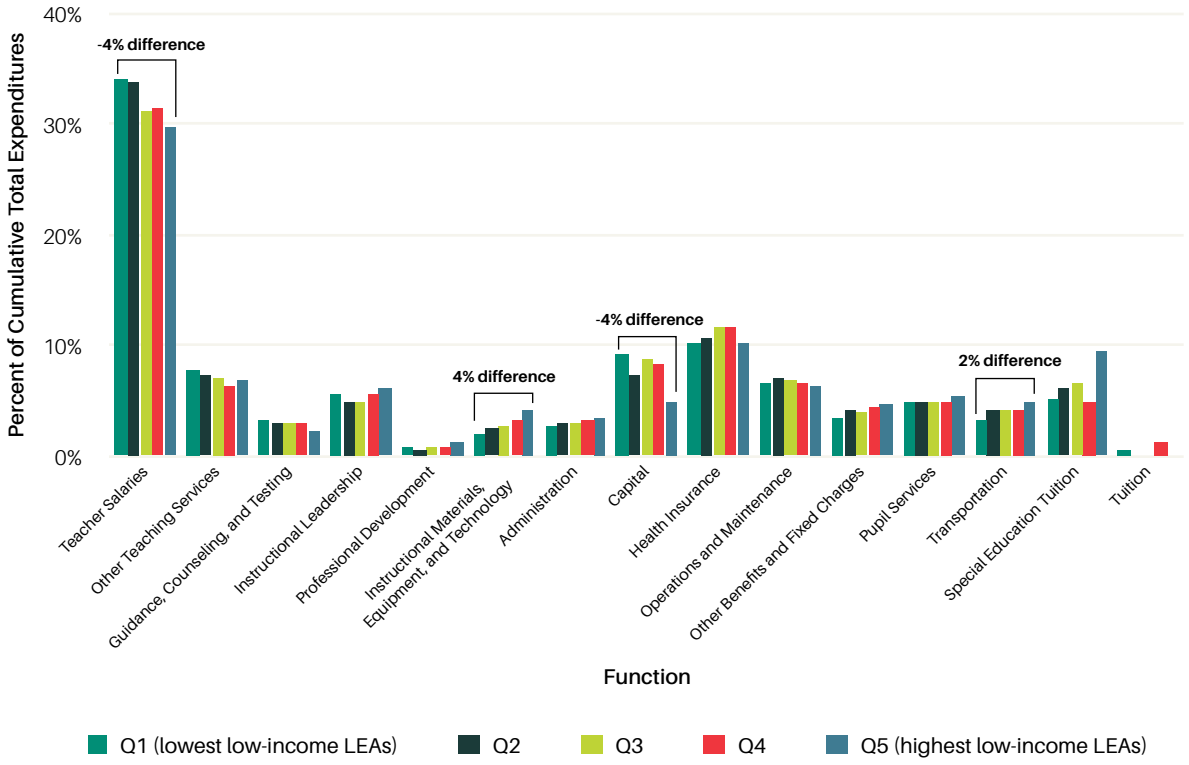
Figure 12: Average teacher FTE per 100 pupil, by low-income quintiles, FY18-FY24



Proportionally, Quintile 5 LEAs (those with the highest percentages of low-income students) spent a smaller percentage of their total dollars on Teacher Salaries. Quintile 5 LEAs spent 31% on Teacher Salaries ($7,102 per pupil) compared to 35% for Quintile 1 LEAs ($7,353 per pupil). Figure 13 shows that the highest percent low-income LEAs spent proportionally more on Instructional Leadership; Pupil Services; Instructional Materials, Equipment and Technology; Transportation; and

Professional Development. Functions where the highest percent low-income LEAs spent proportionally less than lower percent low-income LEAs include Capital; Guidance, Counseling, and Testing; Tuition; and Health Insurance.

Figure 13: **Proportion of cumulative total expenditures per pupil, by function area, by low-income quintiles, FY18-FY24**



It is worth noting that as of the time of this report, not all ESSER funding has been expended. Further study of ESSER spending will need to be conducted at a later date.

How Spending Patterns Vary by LEA Percentage of English Learners

Analyzing LEAs with high proportions of English learners (ELs) is critical to understand educational finance patterns, as rapidly growing English learner populations present distinct educational needs that have important fiscal implications. Research consistently shows that English learners benefit from specialized instructional strategies, bilingual education programs, and targeted support services, all of which require dedicated resources and staffing.[45] [46] Without careful attention to how funding systems account for linguistic diversity, there is a

risk that resource allocations will fail to promote equitable access to educational opportunities. By disaggregating spending patterns for LEAs serving large English learner populations, this study can better understand whether financial investments align with the specific supports associated with language development and academic achievement, thus contributing to a more comprehensive understanding of equity.

Table 2: **Summary of High vs. Low Percent English Learner LEAs***

SUB-ARCHETYPE	LOW PERCENT ENGLISH LEARNER	HIGH PERCENT ENGLISH LEARNER
Number of LEAs	255	132
Number of Schools	901	897
% English Learner Range	0% - 7%	7% - 61%
Total Enrollment	441,670	627,484
Average LEA Enrollment	1,660	1,687
Average School Enrollment	484	525
Average % Low Income, by LEA	28%	58%
Average % High Needs, by LEA	42%	70%
Average % English Learners, by LEA	3%	18%
Average % Students with Disabilities, by LEA	20%	20%

Most English Learners are concentrated in about a third of LEAs.

In FY24, 67% of English learners in Massachusetts attended a district or charter school in a Gateway City or in Boston.† When examining English learners by LEA, 90% of English learners fall into only one-third of LEAs. Charter school LEAs are also disproportionately represented in high percent English learner LEAs, with 68% of charters in high English learner LEAs. Unlike most LEAs in the state, high percent English learner LEAs are more likely to have increasing enrollment compared to other LEAs. Half of high percent English learner LEAs are also in the highest percent

* Details on the methodology for determining the cutoff for High Percent English Learner is included in the appendix.
† See Appendix B for definition of Gateway City

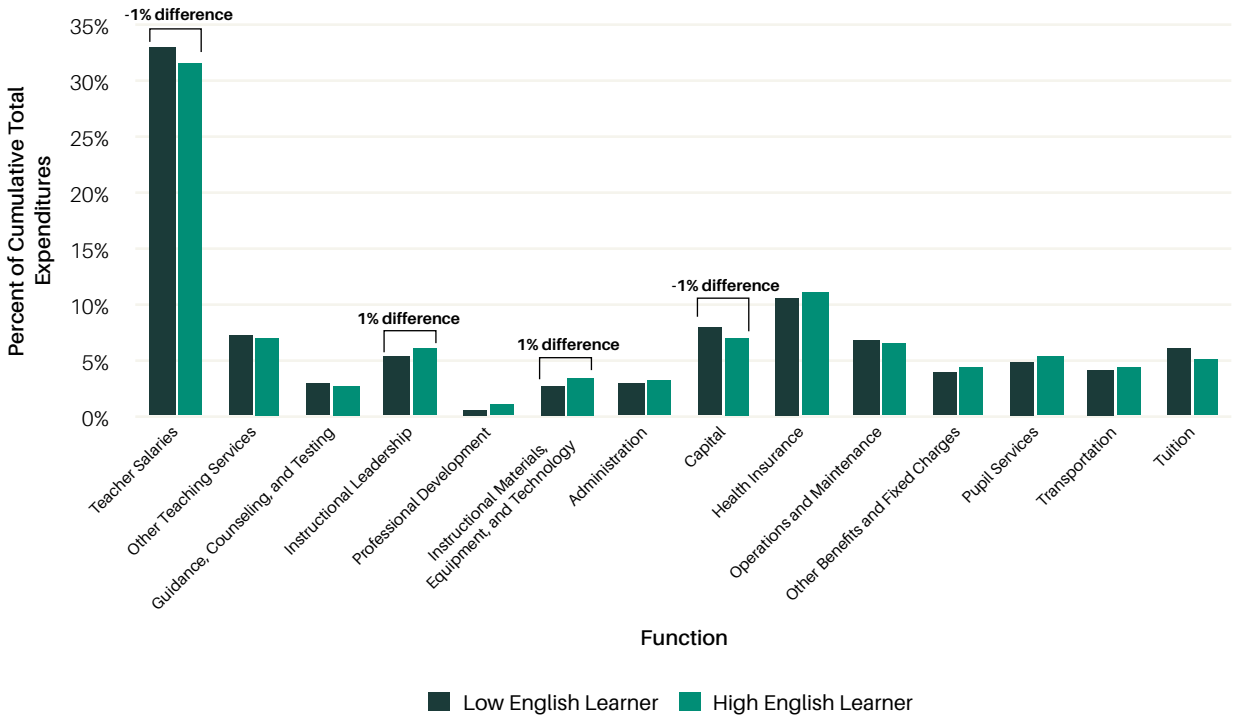
low-income quintile, though high percent English learner LEAs span across all low-income quintiles.

This study primarily reviewed differences in the low percent English learner LEAs compared to high percent English learner LEAs.

High English learner LEAs spent proportionally more than lower English learner LEAs on Instructional Leadership, Professional Development, Pupil Services, and Instructional Materials, Equipment and Technology.

Figure 14 shows that LEAs with higher percentages of EL students spent proportionally more on certain categories of spending that are associated with linguistic diversity: Pupil Services, Instructional Leadership, Professional Development, and Instructional Materials, Equipment, and Technology. High EL LEAs also spent proportionally less on Teacher Salaries and Capital.

Figure 14: **Proportion of cumulative total expenditures per pupil by function, by LEAs with high and low English learner enrollments, FY18-FY24**



Highest percent English learner LEAs saw the largest growth in Teacher Salary expenditures.

On average high percent English learner LEAs saw the largest percent growth in annual Teacher Salary expenditures per pupil (39% for high English learner LEAs versus 26% for low English learner LEAs). In FY18 high English learner LEAs had lower Teacher Salary per pupil expenditures than low English learner LEAs. In FY22, the first year of SOA aid distribution, this trend flipped, with high English learner LEAs spending $383 more on Teacher Salary per pupil expenditures than low English learner ELAs.

This trend is less strong when looking at instructional FTE staffing levels, which on average increased by similar rates for high and low English learner LEAs (9% versus 8%). In FY18 high English learner LEAs had slightly lower teacher FTEs per 100 pupils than low English learner LEAs (8.55 versus 8.68), and by FY24 they had comparable teacher FTEs per 100 pupil staffing levels.

Figure 15: **Average Teacher Salary expenditures per pupil, by LEA percent English Learners, FY18-FY24**

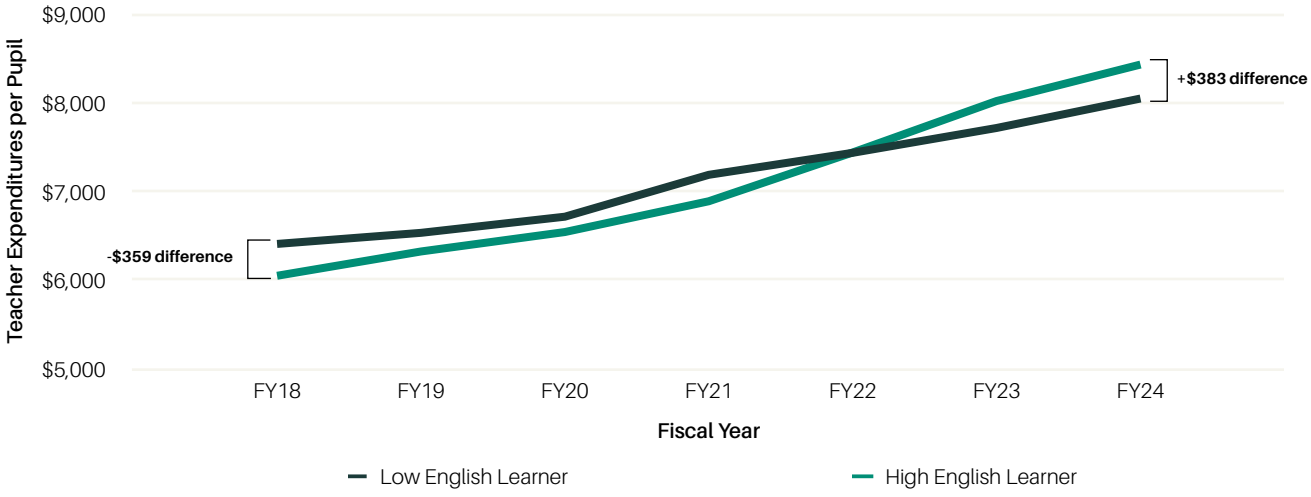
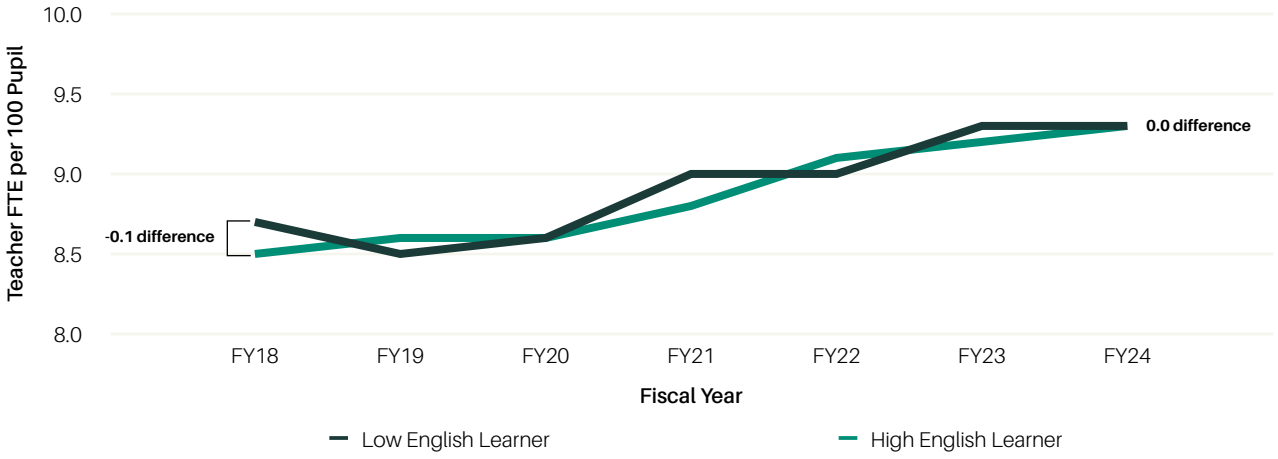


Figure 16: Average teacher FTE per 100 pupil, by LEA percent English Learners, FY18-FY24

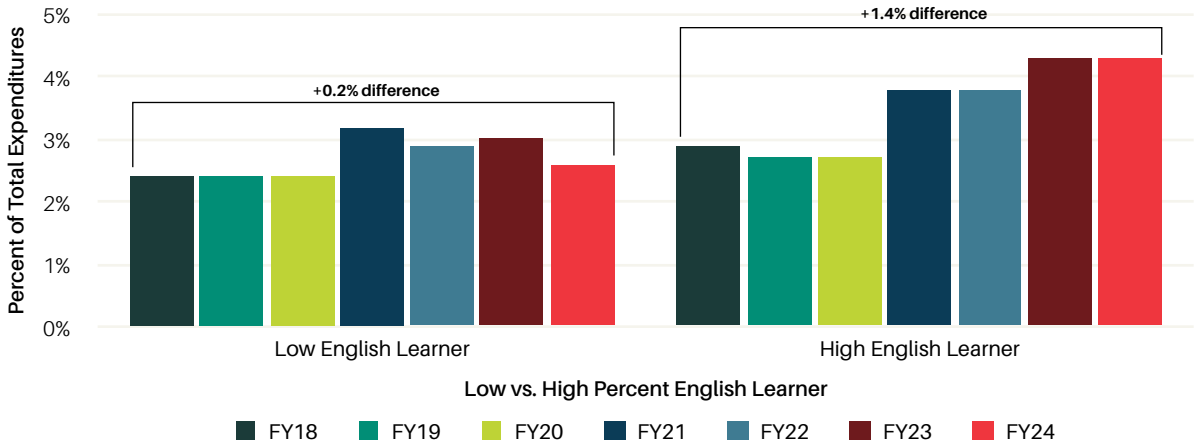


Higher English learner LEAs spent proportionally more on Instructional Materials, Equipment, and Technology expenditures over time

Instructional Materials, Equipment, and Technology is an expenditure category that saw significant variation from other function areas as it relates to high versus low percent English learner LEAs.

LEAs with the highest percentage of English learners saw an increase in their total Instructional Materials, Equipment, and Technology expenditures, and those expenditures steadily comprise a larger proportion of spending over time. This type of shift is not observed in LEAs that have lower percentages of English learners.

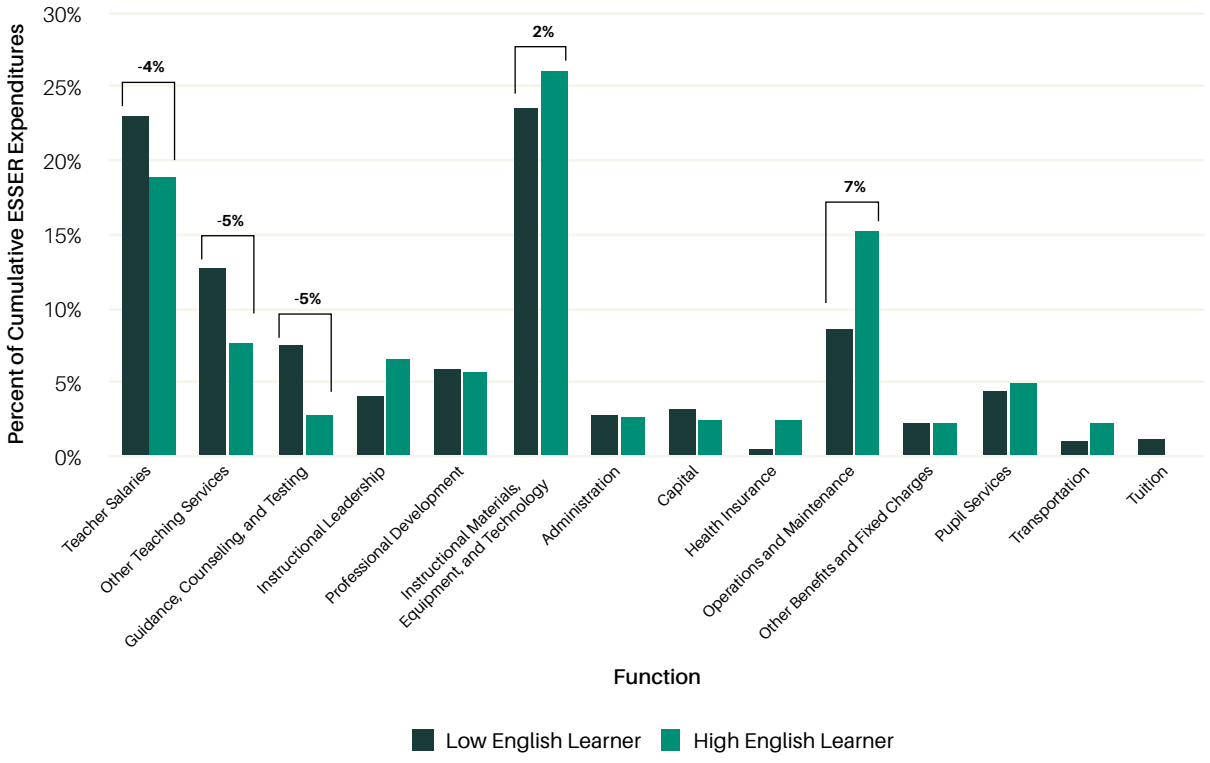
Figure 17: Proportion of total expenditures per pupil on Instructional Materials, Equipment, and Technology over time, by LEAs with high and low English learner enrollments



High English learner LEAs spent larger proportion of ESSER funding on Operations and Maintenance and Instructional Leadership than lower English learner LEAs

High English learner LEAs spent a larger proportion of their ESSER dollars on Instructional Materials, Equipment, and Technology; Operations and Maintenance; and Pupil Services, compared to lower English learner LEAs. High English learner LEAs also spent proportionately less on Teacher Salaries; Other Teaching Services; Instructional Leadership; Guidance, Counseling, and Testing services; and Transportation than lower English learner LEAs.

Figure 18: **Proportion of cumulative ESSER expenditures per pupil by function, by % English learner, FY21-FY24**



Higher English learner LEAs spent higher proportion of early ESSER funding on Pupil Services, compared to lower English learner LEAs

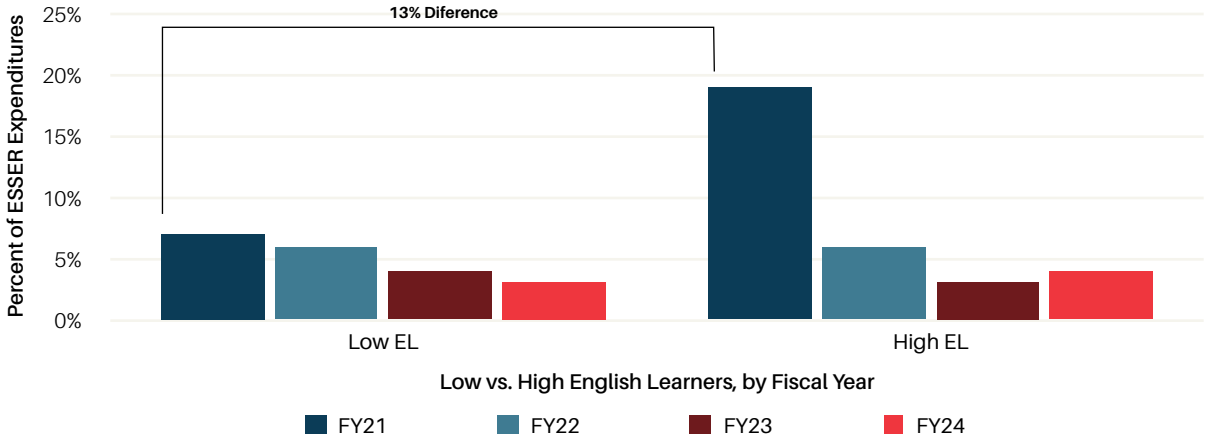
The function area with the largest year-over-year variation in ESSER funding by percentage of English learners is Pupil Services. This function area includes positions such as Athletics; Food Service; Security; Attendance and Parent Liaison Services; Medical/Health Services; and Other Student Activities. In FY21, the first year capturing ESSER expenditures, high English learner LEAs spent a significantly larger proportion of ESSER funding on Pupil Services than low English learner LEAs. This increase normalizes between these groups over time but may be an area for further inquiry.

This study did not collect qualitative data by English learner percentages explicitly, but many LEAs shared specifics on their local context and how they thought about funding as it related to different populations. Some LEAs shared that their student demographics saw a large shift during the pandemic, with "higher volumes of English learners" or "newcomer students" that was "magnified not in a way we were experiencing pre-COVID-19." Two LEAs indicated that, "We have jam-packed high schools due to the influx of newcomers and unaccompanied minors," and, "There has been an increase in immigration during this time." This was a sentiment that was not pervasive, but was an experience of LEAs in both Gateway Cities and non-Gateway Cities. Supporting this perspective, a 2023 study from Brown University found that high-school newcomers to Massachusetts nearly tripled since 2008, and that new immigrant students are typically concentrated in specific schools or LEAs.[47]

Similarly, we heard that some LEAs saw larger trends of absenteeism, where "big populations of students leave for a period of time," and, "We struggled to rebound from attendance drops." When asked about what types of investments they made to help, several LEAs shared about increasing community and family liaison services, which would fall into the "Pupil Services" function area.

The connection between Pupil Services and student populations, particularly English learners, is worthy of deeper investigation to understand this trend more clearly.

Figure 19: Proportion of ESSER expenditures per pupil on Pupil Services over time, by % English learners



How Spending Patterns Vary by Gateway City Status

When analyzing education finance trends in Massachusetts, it is important to consider the specific context of LEAs, particularly the distinction between Gateway Cities and other areas. Gateway Cities—mid-sized urban centers with historically industrial economies—often serve larger populations of low-income students, English learners, and students of color compared to suburban and rural LEAs. These demographic and economic factors shape both the needs of students and the fiscal capacity of local governments to support education. By examining trends through a geographic lens, this study can better understand how regional economic conditions and state funding policies interact to influence educational opportunities across different parts of the Commonwealth.

LEAs located in Gateway Cities have notable differences from non-Gateway LEAs that may influence their spending patterns. LEAs located in Gateway Cities have disproportionately high percentages of high need students, English learners, and students with disabilities. Most Gateway Cities are also designated as high percent English learner and are in Quintile 4 or Quintile 5 percent low-income categories. While Gateway City LEA enrollment has declined 1% since FY18 (inclusive of charter students), these LEAs have experienced less enrollment decline than LEAs located in non-Gateway Cities (-4%). Additionally, English learner enrollment in LEAs located in Gateway Cities has increased by 23% since FY18.

This analysis differentiates LEAs located in Gateway Cities from LEAs located in non-Gateway Cities. Boston is excluded from this analysis since it is not considered a Gateway City, yet differs from other non-Gateway Cities as a large outlier and could unduly influence the results and lead to potentially inaccurate conclusions.

Additionally, charter LEAs are not included in this analysis. There are more charter LEAs in Gateway Cities than district LEAs in Gateway Cities, and charter LEAs have more variability in their student population's geographic home. Due to these factors, Charter LEAs might distort the analysis. However, since charter LEAs are funded through the Chapter 70 formula through students' sending districts, charter LEAs located in Gateway Cities likely benefited from increased Chapter 70 funding due to the SOA.

Table 3: **Gateway City Status - FY24**

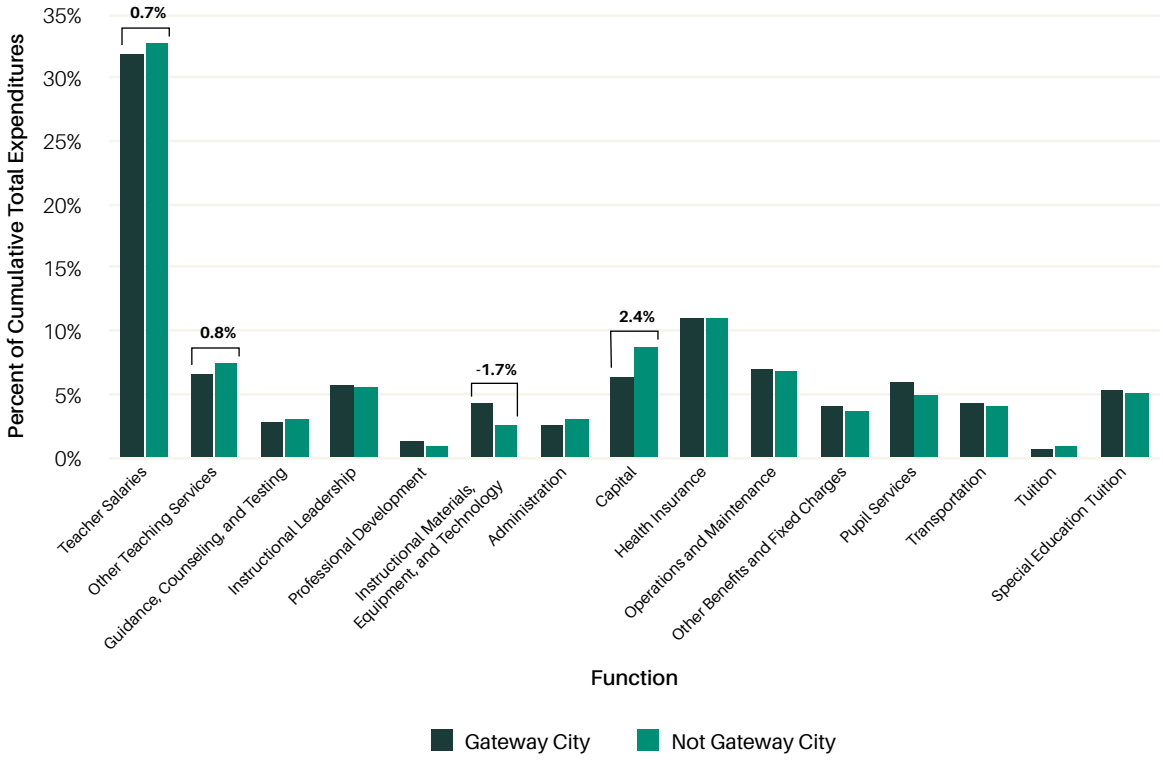
SUB-ARCHETYPE	GATEWAY CITIES	NON-GATEWAY CITIES
Number of LEAs	26	360
Number of Schools	451	1,164
Total Enrollment	241,733	627,484
Average LEA Enrollment	9,297	1,827
Average School Enrollment	533	492
Average % Low Income	66%	34%
Average % High Needs	76%	48%
Average % English Learners	23%	6%
Average % Students with Disabilities	22%	20%

LEAs in Gateways cities had similar total spending patterns to LEAs located in non-Gateway Cities

Cumulatively from FY18-FY24, LEAs located in Gateway Cities and non-Gateway Cities spent similar proportions of total expenditures on many functions, including Instructional Leadership; Operations and Maintenance; and Guidance, Counseling, and Testing. LEAs located in Gateways cities spent proportionally less on Teacher

Salaries; Other Teaching Services; Administration; and Capital, and proportionally more on Instructional Materials, Equipment and Technology and Pupil Services.

Figure 20: **Proportion of cumulative total expenditure per pupil by function, by Gateway City status, FY18-FY24**



Gateway cities experienced similar growth in Teacher Salary expenditures compared to non-Gateway Cities

On average, LEAs located in Gateway Cities have lower Teacher Salary expenditures per pupil than LEAs located in non-Gateway Cities. This finding holds true every year between FY18 and FY24. Additionally, both LEAs located in Gateway Cities and non-Gateway Cities increased annual Teacher Salary expenditures per pupil by similar amounts during that time (+$1,844 compared to + $1,750). By FY24, LEAs located in Gateway Cities spend on average $831 less per pupil on teachers.

While Teacher Salary expenditures increased by similar amounts across groups, teacher FTE per pupil increased at a slightly higher rate for LEAs located in Gateway Cities. There was a 1.1 FTE per 100 pupil gap between LEAs located in Gateway

Cities and LEAs located in non-Gateway Cities in FY18, and this decreased slightly to a 0.7 FTE gap by FY24. Teacher salary levels or experience levels could be one explanation as to why LEAs located in Gateway Cities are increasing their teacher FTE faster than expenditures when compared to LEAs located in non-Gateway Cities. If LEAs located in Gateway Cities have relatively lower average teacher salaries or lower average teacher step increases than non-Gateways, then they could increase their FTEs at a faster rate than LEAs located in non-Gateway Cities while increasing expenditures by similar rates. Further research into teacher costs or experience levels could explain this relationship.

Figure 21: Average Teacher Salary expenditures per pupil, by Gateway City Status, FY18-FY24

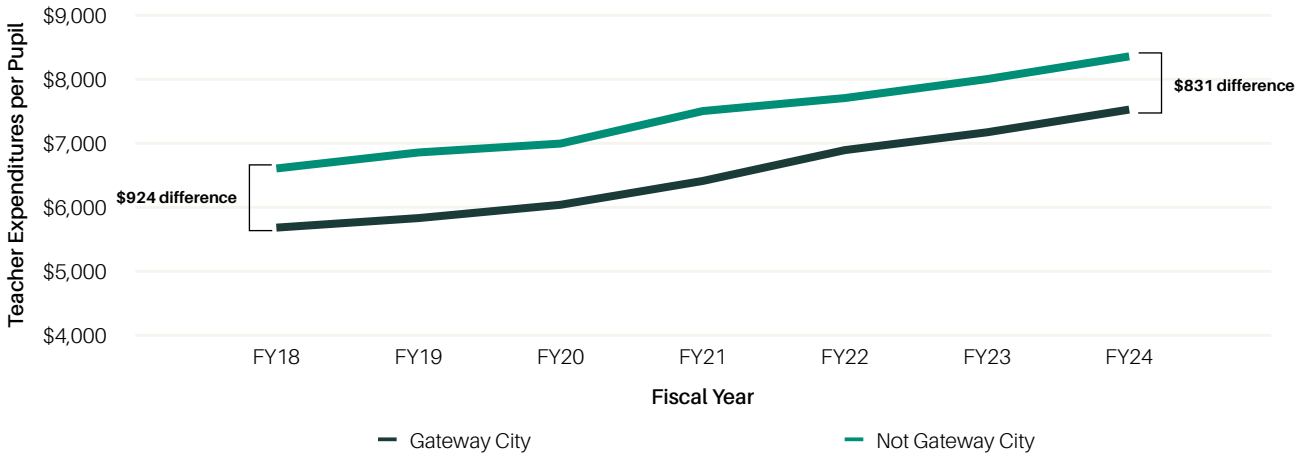
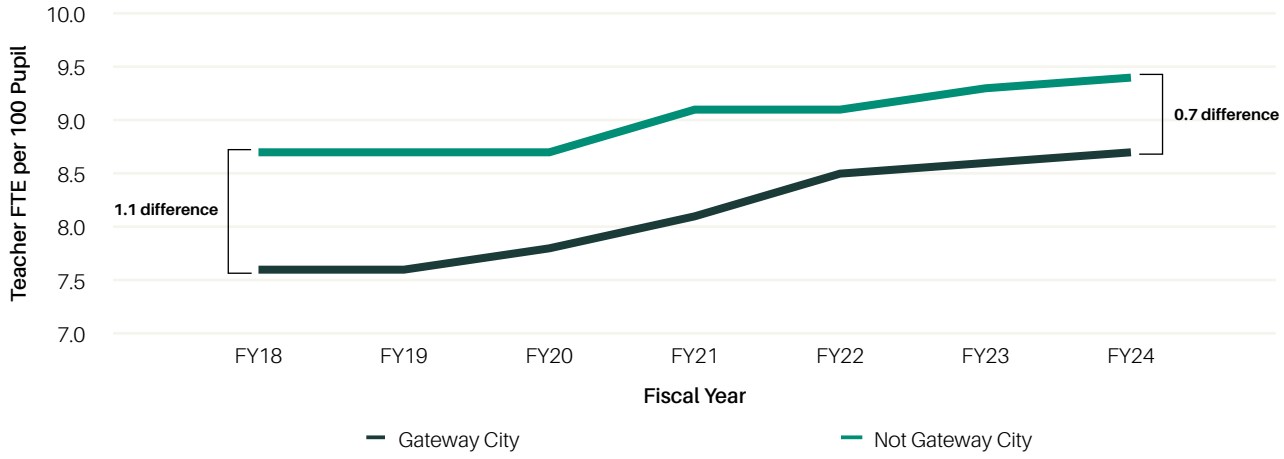


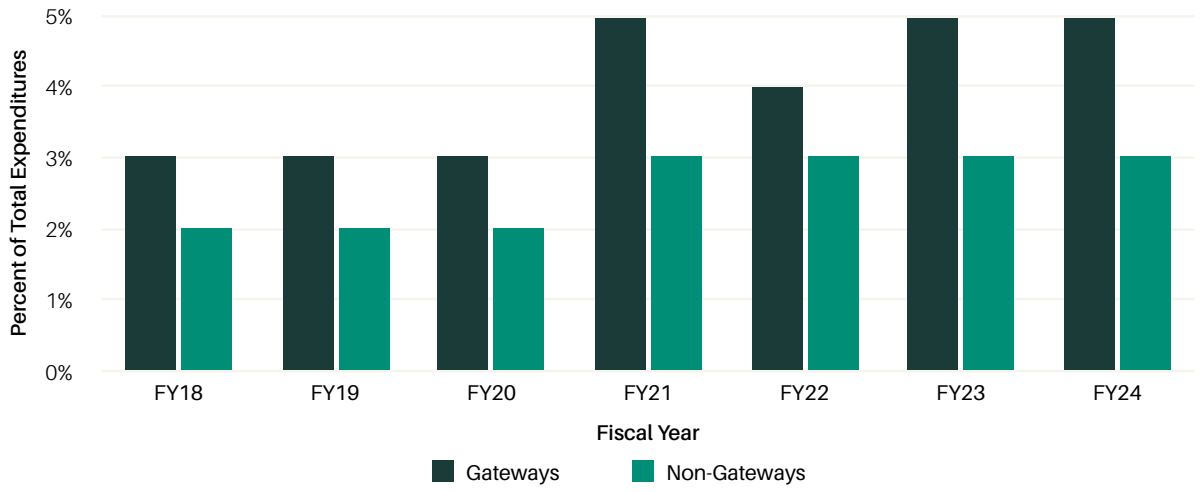
Figure 22: Average teacher FTE per 100 pupil, by Gateway City Status, FY18-FY24



Over time, LEAs located in Gateway Cities spend proportionally more on Instructional Materials, Equipment, and Technology compared to LEAs not located in Gateway Cities

For LEAs located in Gateway Cities, the spending category of Instructional Materials, Equipment, and Technology increased as a share of total expenditures over time. This trend is not true for LEAs located in non-Gateway Cities.

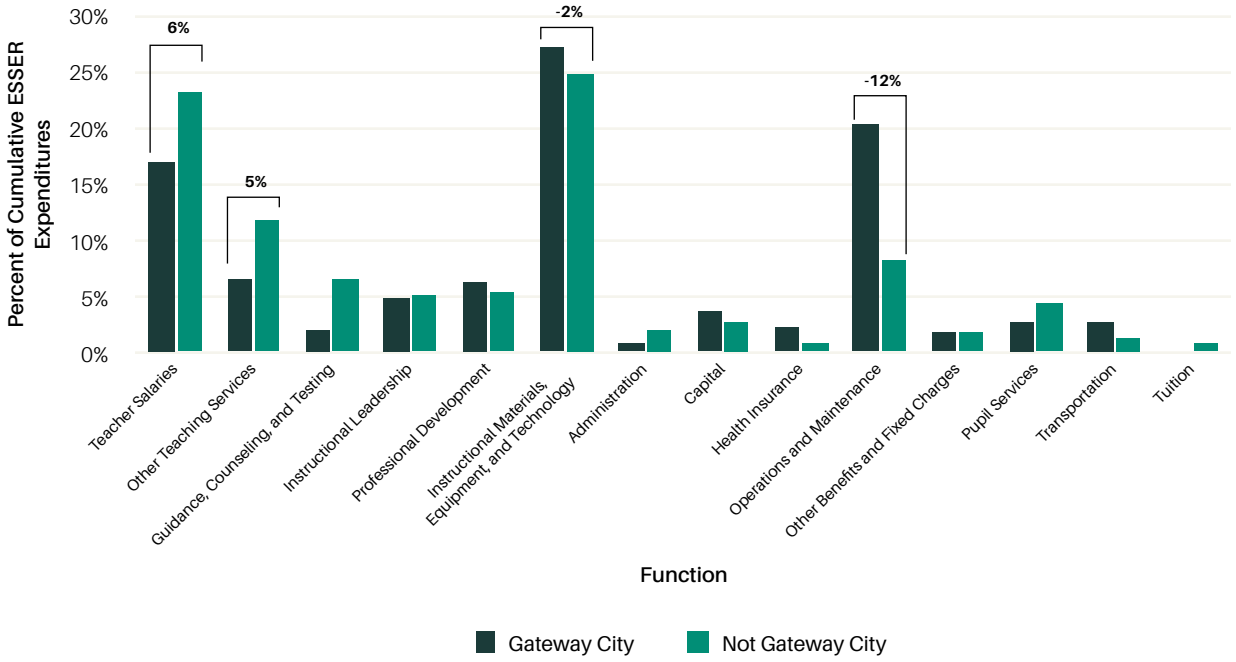
Figure 23: Proportion of total expenditures per pupil on Instructional Materials, Equipment, and Technology over time, by Gateway City Status



LEAs in Gateway Cities spent a larger proportion of ESSER expenditures on Capital and Operations and Maintenance than LEAs not located in Gateway Cities

LEAs located in Gateway Cities spent a slightly larger proportion of their ESSER expenditures on Capital (4%) than LEAs not located in Gateway Cities (3%). LEAs in Gateway Cities also spent a larger proportion of ESSER dollars on Operations and Maintenance (20%) than LEAs not located in Gateway Cities (8%). Relatedly, LEAs located in non-Gateway Cities spent larger proportions of ESSER funding on Teacher Salaries; Other Teaching Services; Guidance, Counseling, and Testing, and Administration, than LEAs located in Gateway Cities. Given that the total spending patterns across these types of LEAs was not as variable, it is possible these differences in how ESSER was spent is a result of cost-shifting across funding sources.

Figure 24: Proportion of cumulative ESSER expenditure per pupil by function, by Gateway City status, FY21-FY24



Part 3: Spending Trends by Fund Type

It is important to review spending in the total context, not just isolated by fund type, as there is significant evidence that LEAs and schools shifted investments and priorities to and from ESSER based on their local context and decision-making. As such, it is not sufficient to infer spending patterns in ESSER are indicative of sustained changes to particular programs within an LEA.

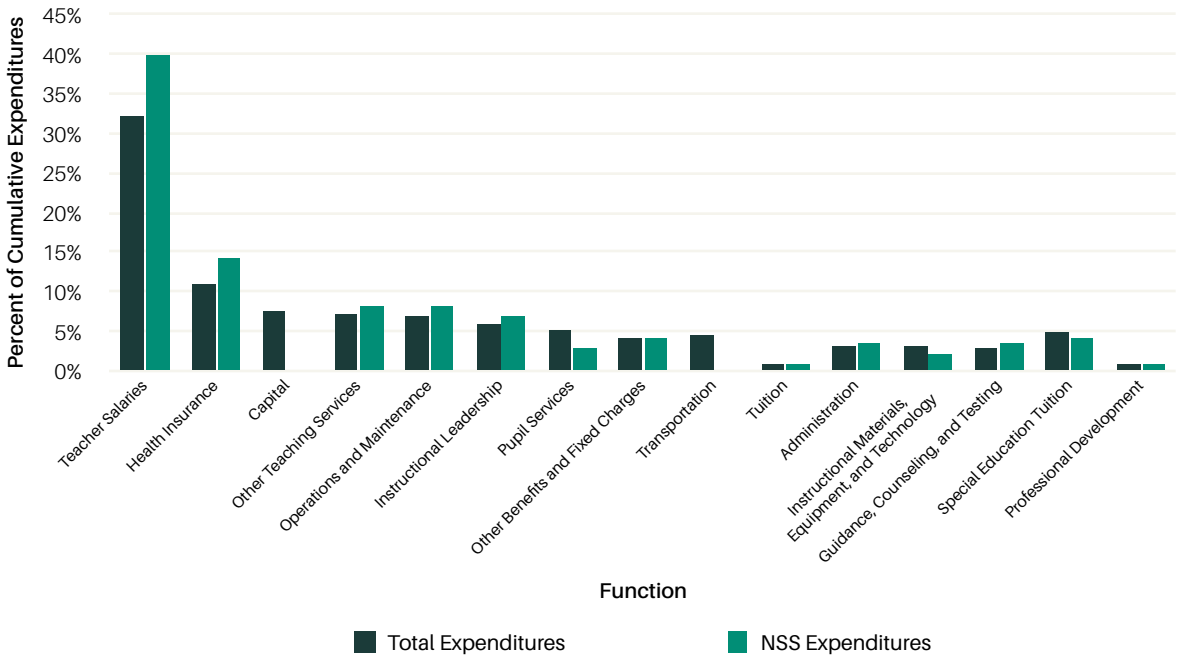
Insight A: LEAs spent ESSER in all eligible function areas, though spending was more variable than Net School Spending and total spending. This could indicate a more contextualized use by LEAs compared to their use of funding due to SOA increases.

NSS and ESSER expenditure patterns are different, with NSS expenditure patterns consistent with total spending patterns

NSS is used as a proxy for changes to spending due to the SOA infusions as it is the expenditure metric that isolates spending from local revenues and Chapter 70 state aid.* Year-over-year, NSS spending patterns closely match those of total spending, though proportions change slightly as capital and transportation are not function areas included in NSS expenditures. This trend is expected given that the majority of total expenditures are also part of NSS.

Teacher Salaries and Health Insurance remain the largest spending categories for NSS expenditures.

Figure 25: **Proportion of cumulative spending FY18-FY24 by function area, Total Expenditures and NSS Expenditures**



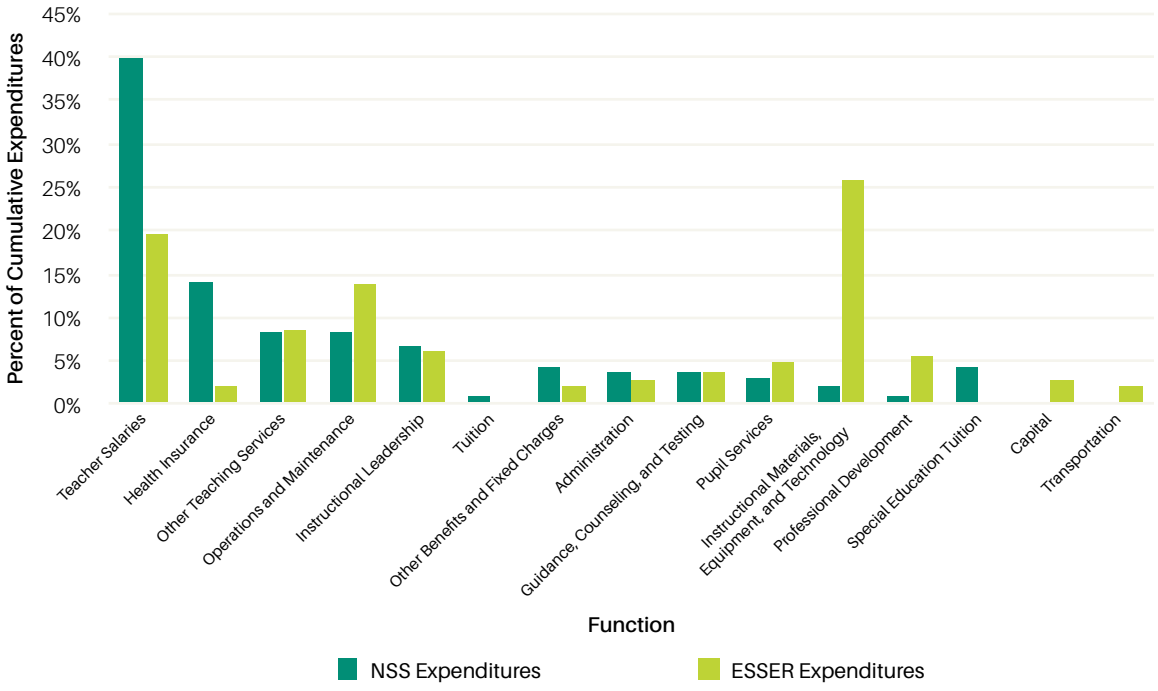
* It is important to note that NSS and total spending follow very similar patterns. Details are included in the Appendix C.

Spending from ESSER varied more compared to NSS expenditures

While the patterns of spending from ESSER dollars differed from that of total expenditures or NSS expenditures, LEAs demonstrated wide variation in utilization, with expenditures appearing in every allowable function area.

The proportions of ESSER expenditures diverged from patterns in total spending and NSS. The largest proportional spending category for ESSER funding was Instructional Materials, Equipment, and Technology (26% for ESSER, compared to 3% in total spending). Teacher Salaries comprised the second-largest category (20%) followed by Operations and Maintenance (14%). While still a small percentage and dollar amount, a higher proportion of ESSER funding was spent on Professional Development (6%) than total or NSS expenditures.

Figure 26: **Proportion of cumulative spending FY18-FY24 by function area, NSS expenditures and ESSER expenditures**



Insight B: Early ESSER funding was spent more on Instructional Materials, Equipment, and Technology, while later ESSER funding was spent more on Teachers Salaries, indicating a shift from emergent needs to recovery, strategy, or longer-term investments.

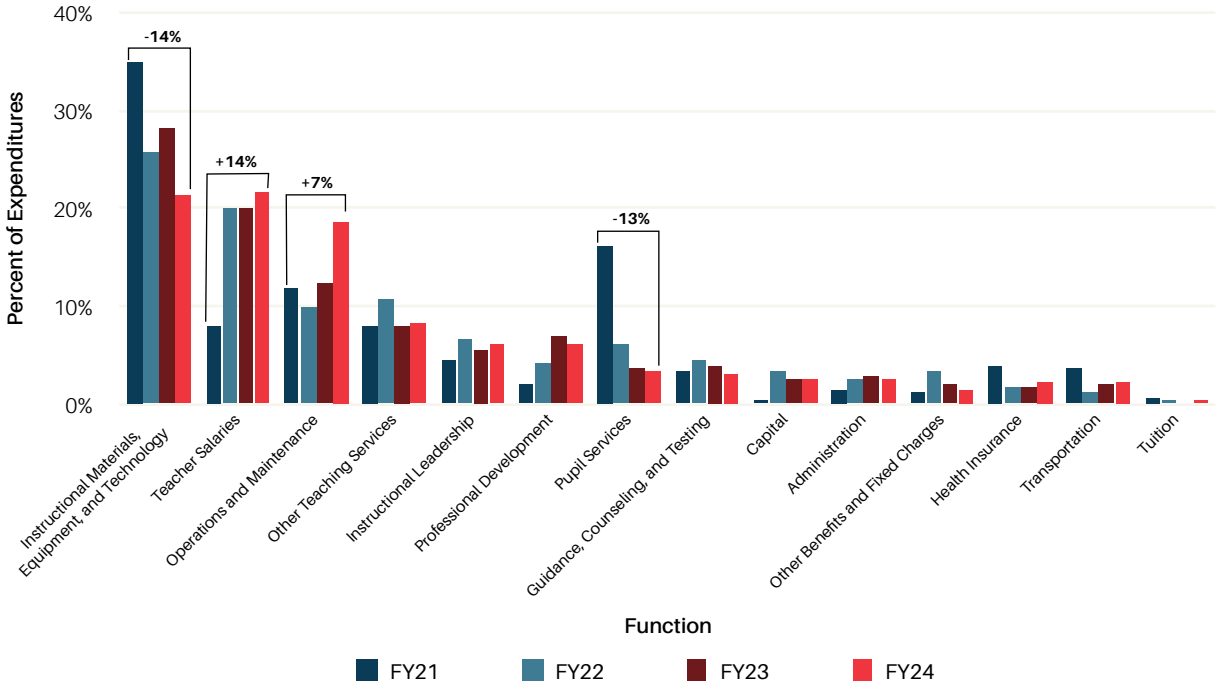
According to the U.S. Department of Education, the intention of ESSER funding was first to provide emergency relief funds to address the impact that COVID-19 had on elementary and secondary schools, and later to help safely reopen schools and address the impact of the coronavirus pandemic on students.[48]

A high variability exists in the type and proportion of ESSER spending year-over-year. Unlike traditional, ongoing education funding streams, ESSER funds were provided as one-time, time-limited grants intended to support immediate pandemic response and recovery efforts.

The highest proportional ESSER expenditure function in FY21 was Instructional Materials, Equipment, and Technology (35%), followed by Pupil Services (16%). Almost all schools in Massachusetts moved to virtual schooling in March 2020, which necessitated purchasing computers and other materials for virtual learning purposes. Pupil Services, which includes Food Service and Health Services, could have seen high spending levels as large quantities of personal protective equipment (PPE) were needed once schools began to reopen. In subsequent years, Instructional Materials, Equipment, and Technology decrease as a proportion of total ESSER spending while Teacher Salaries, and Operations and Maintenance categories increase as a proportion of expenditures.

Capital ESSER expenditures were lower than expected given many interviewees referenced using ESSER dollars on capital projects. ESSER Capital expenditures may appear low for two reasons. Firstly, some expenditures may appear in the "Operations and Maintenance" function rather than the "Capital" function. Secondly, some of the larger and more complex capital projects did not begin or were not completed until after the FY24 school year, and any expenditures after FY24 are not captured in this report.

Figure 27: Proportion of ESSER expenditures by function area, FY21-FY24



Given the intent of the funding streams changing over time, these spending trends make sense for the context.

Section 2: Lenses for Understanding Preliminary Effects

This study attempts to better understand not only what changes in spending patterns occurred as a result of ESSER and SOA infusions of funding, but also how the infusions of funding affected LEAs, schools, staff, and students. This part is organized into five distinct "lenses":

Lens A: **Resource Equity Lens**

Lens B: **Funding Infusion Perception and Implementation Lens**

Lens C: **Evidence-Based Practices Lens**

Lens D: **Community-Level Collaboration Lens**

Lens E: **Student Outcomes Lens**

Lens A: Resource Equity Lens

One goal of the SOA was to improve student outcomes by targeting resources more equitably towards LEAs with higher needs or lower abilities to contribute local funds. This lens unpacks insights tied to resource equity and progress towards this goal.

While nearly all LEAs increased expenditures per pupil from FY18 to FY24, the largest increases occurred for schools and LEAs that serve more low-income students, serve more English learners, and operate in Gateway Cities.

Insight A: Most of the new Chapter 70 state aid distributed as a result of the SOA went to the LEAs with the highest percentages of low-income students, meeting the law's intended equity goals.

The SOA established higher foundation budget rates in 6 areas: health insurance, guidance and psychological services, in-district and out-of-district special education rates, and higher incremental rates for English learners and low-income students. The increases to the rates for low-income students account for the largest share of the growth in foundation budgets and state aid related to the SOA, increasing low-income rates for LEAs with the highest percentages of low-income students much more than for LEAs with lower percentages. When the law is fully

phased-in, the uninflated low-income rate for group 12 LEAs will $8,973 per student compared to $3,598 per student for group 1 LEAs, a difference of $5,384 per student.

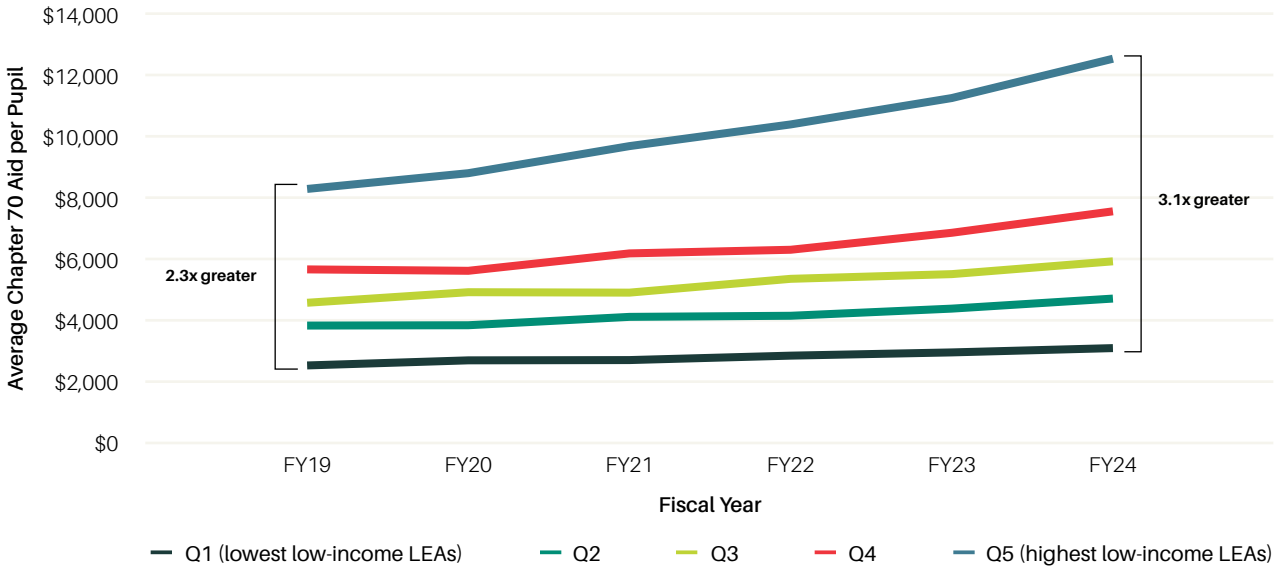
The table below shows how the Chapter 70 formula funds students based on their low-income group, with a higher group corresponding to lower student income levels. This shows that base weights have increased since FY21 for more severely low-income students.

Table 4: **Chapter 70 formula funding by Low-income group**

Low-income groups	FY21 base	Goal rates	$ Change	% Change
Group 1 – lowest proportion of low-income students (0.00% - 5.99%)	$3,830.04	$3,589.13	-$240.91	-6.3%
Group 2 (6.00% - 11.99%)	$3,872.36	$3,813.46	-$58.90	-1.5%
Group 3 (12.00% - 17.99%)	$3,914.68	$4,037.77	$123.09	3.1%
Group 4 (18.00% - 23.99%)	$3,957.01	$4,262.10	$305.09	7.7%
Group 5 (24.00% - 29.99%)	$3,999.34	$4,486.42	$487.08	12.2%
Group 6 (30.00% - 35.99%)	$4,273.86	$5,024.79	$750.93	17.6%
Group 7 (36.00% - 41.99%)	$4,375.60	$5,563.16	$1,187.56	27.1%
Group 8 (42.00% - 47.99%)	$4,477.31	$6,101.53	$1,624.22	36.3%
Group 9 (48.00% - 53.99%)	$4,579.08	$6,639.90	$2,060.82	45.0%
Group 10 (54.00% - 69.99%)	$4,680.83	$7,178.27	$2,497.44	53.4%
Group 11 (70.00% - 79.99%)	$4,680.83	$8,075.55	$3,394.72	72.5%
Group 12 – highest proportion of low-income students (80.00% +)	$4,680.83	$8,972.84	$4,292.01	91.7%

Before passage of the SOA, LEAs serving higher percentages of low-income students received more Chapter 70 aid per pupil than LEAs serving fewer low-income students, and, by design, the SOA directed additional funding to these LEAs. In FY19, average aid per pupil for Quintile 5 LEAs was 2.3 times greater than for Quintile 1 LEAs, and this increased to 3.1 times greater in FY24. A larger gap between the lowest and highest percent low-income LEAs is one indicator that the funding gap shrunk post-SOA, at least for the highest need LEAs.

Figure 28: **Average Chapter 70 aid per pupil over time, by percent low-income quintiles**

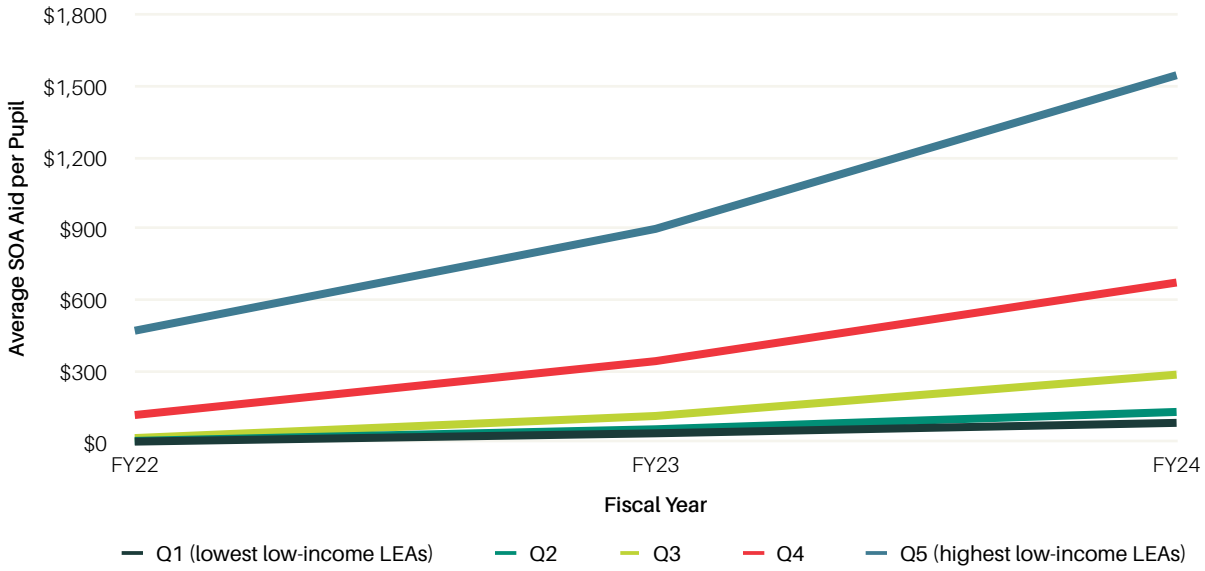


Since Chapter 70 aid per pupil varies within low-income quintiles, it is important to look beyond averages within quintiles to understand if Chapter 70 aid is more equitable post-SOA. A positive statistically significant relationship exists between the change in Chapter 70 aid per pupil between FY19 and FY24 by the proportion of low-income students, as shown by multivariate regression while controlling for percent English learners, percent students with disabilities, LEA enrollment, LEA type, and Gateway City status. This suggests that Chapter 70 aid increased more for LEAs with higher percentages of low-income students, and that this trend is true even when controlling for other factors that can influence aid amounts. See Appendix D for more specifications of this regression model.

Furthermore, when the amount of SOA aid that was distributed to LEAs is isolated (i.e. the difference between Chapter 70 aid under the SOA versus what it would have been without the SOA), more additional aid went to LEAs with a higher percentage of low-income students.

In FY22, the first year of SOA implementation, Quintile 1 LEAs (LEAs with the lowest percentages of low-income students) received $3 in additional aid per pupil on average as a result of the new law compared to $470 per pupil for Quintile 5 LEAs (LEAs with the highest percentages of low-income students). This gap increased by FY24, with $82 in additional aid per pupil on average for Quintile 1 LEAs compared to $1,546 for Quintile 5 LEAs. Across all quintiles, additional Chapter 70 aid positively correlates with low-income percentages.

Figure 29: Average SOA aid per pupil over time, by percent low-income quintiles



Although comparing averages by quintile shows a clear relationship, this approach does not account for variability within each quintile. A multivariate regression of the amount of SOA aid per pupil by the proportion of low-income students at an LEA (while controlling for percent English learners, percent students with disabilities, LEA enrollment, LEA type, Gateway City status, and fiscal year) also shows a positive and statistically significant relationship. **This suggests that LEAs with a higher proportion of low-income students received more SOA aid per pupil, even when controlling for other factors that can influence aid amounts**. See the Appendix for more specifications of this regression model.

While low-income students are only one dimension of need, SOA aid per pupil also correlates with percent high-needs students, which captures additional dimensions of student need.

LEAs across Massachusetts view SOA as an approach for improving equity

LEAs across Massachusetts share an understanding about this purpose, though there is some variation in how well they believe the SOA has accomplished this goal. When asked to share what three words come to mind when they think of SOA, "equity" is the word that appears the most across all qualitative data participants.*

LEAs who receive meaningful amounts of SOA funding widely shared perceptions of improved resource equity they believe are due to the SOA funds.

- "I'm a big fan of SOA because it allows urban districts catch up with state spending."
- "First word I think of when I hear SOA is equity. I saw it that Chapter 70 is evening the playing field for those that need it most."
- "For the SOA, I would say that it provided a lot of funding for districts with historically marginalized/underrepresented populations. In this sense, it's progressing towards its goal."
- "Equity is about getting what you need, not the same amount."
- "SOA is closing the gap in funding."
- "The word "Equity" resonates [for SOA]. Urban districts have been underfunded for years and have neediest students. Having resources has been very impactful."

Some LEAs shared concerns about the SOA funding formula addressing the broad range of resource equity.

- "For the majority of MA districts, those who receive minimum aid, it [SOA] doesn't provide equitable funding. This is particularly true for rural districts."
- "We hear a lot of communities struggling with SOA but not in urban areas, I don't know if it's a good thing for spending to be higher – we're talking about big districts that have more economies of scale versus rural areas and smaller districts. I think this shows the formula corrected and maybe overcorrected the issue from before."

* Qualitative data participants are Superintendents and/or finance officers of LEAs across the state. Additional details are included in Appendix D.

- "Don't know if the outcome was what was intended [for SOA]. There are many things it doesn't address. We're a small rural community with high needs, it is not meeting our needs so I don't think its equitable."

Insight B: As expected, LEAs serving higher percentages of low-income students and higher percentages of English learners increased expenditures per pupil more than LEAs with lower proportions of students with these profiles. However, this trend is stronger at the school level than the LEA level, indicating that LEAs are making decisions to send resources to schools more equitably and the types of schools and students the funding was intended for were more likely to benefit from the funding.

The highest percent low-income LEAs (Quintile 5) increased annual expenditures per pupil by 53% compared to only a 28% increase for LEAs serving the lowest percentages of low-income students. Moreover, the LEAs serving the highest percentages of low-income students (Quintile 5) went from having the second lowest average expenditures per pupil in FY18 to the second highest in FY24, followed by Quintile 4 LEAs.

There is an even stronger relationship between the change in expenditures and percent of low-income students at the school level than the LEA level. While there was only a 10% difference in expenditures per pupil between the lowest and highest percent low-income school quintiles in FY18, this increased to 33% by FY24.* This suggests more of the additional funds went to schools with a higher proportion of low-income students. This finding is significant because the SOA reforms occurred at the LEA level, and state funding policy does not oversee how LEAs distribute funding across their schools.

* This analysis includes schools in Boston Public Schools (BPS), which has higher than average per pupil expenditures. When BPS schools are removed from the analysis, the average expenditures per pupil decrease across all quintiles, but the trend and direction does not change - the gap between Quintile 1 and Quintile 5 in FY18 is 0% and rises to a 20% gap by FY24.

Figure 30: Change in average expenditures per pupil by low-income LEA quintiles, FY18-FY24

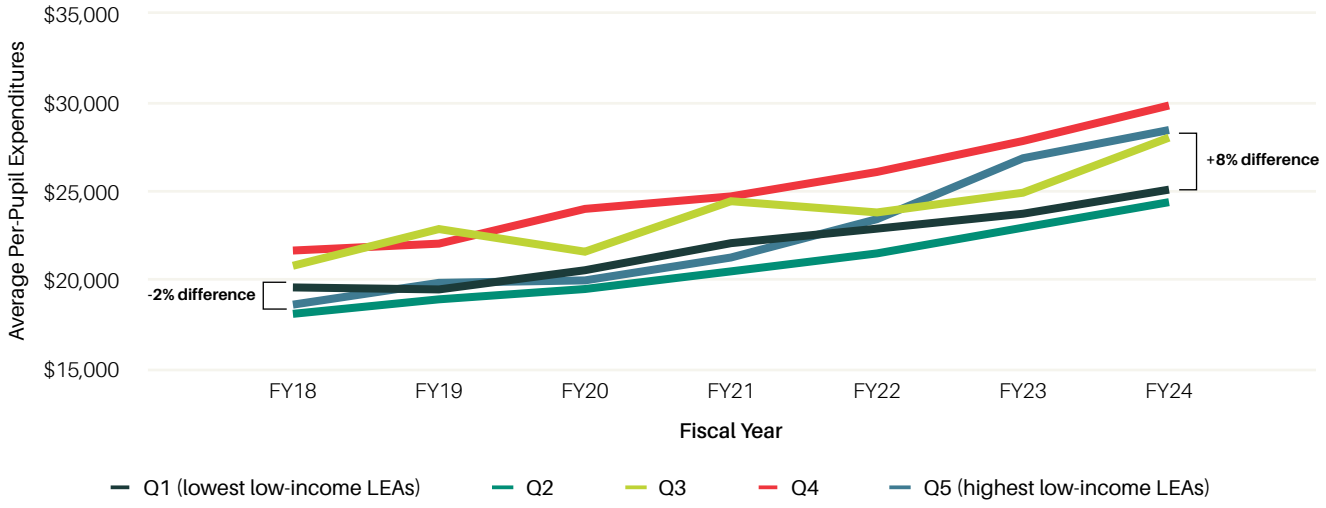
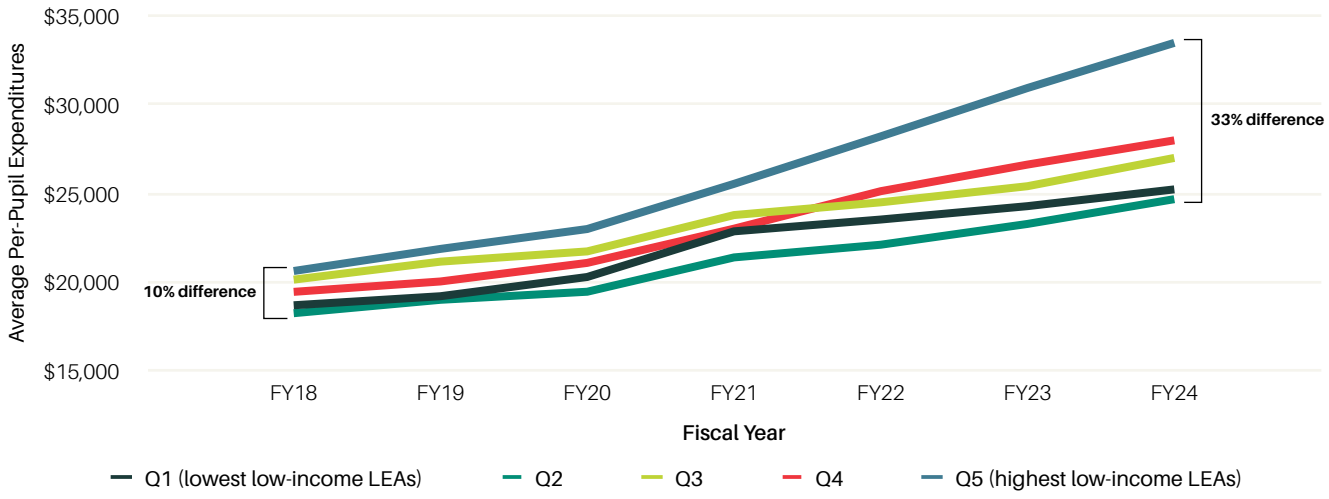


Figure 31: Change in average expenditures per pupil by low-income School quintiles, FY18-FY24

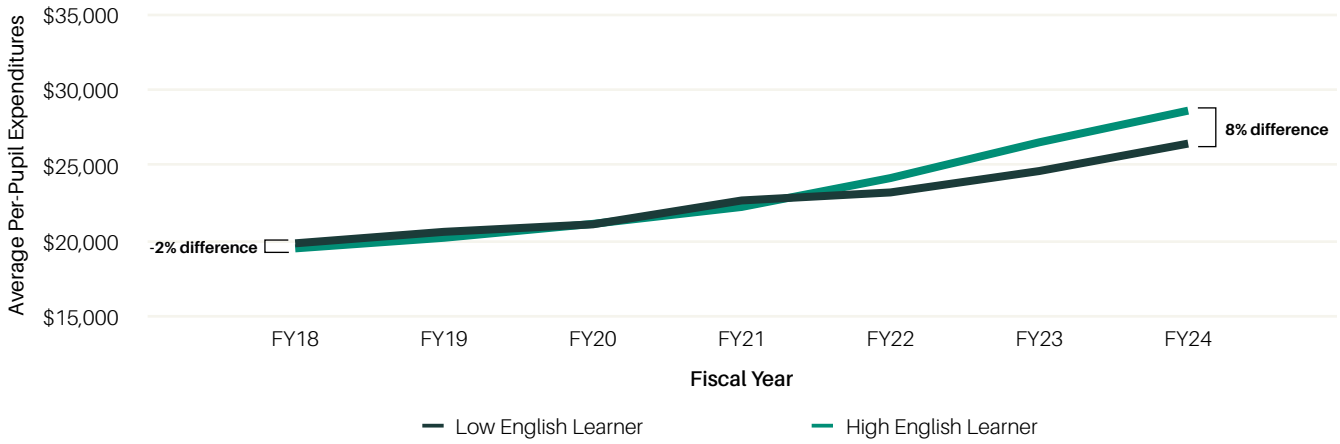


LEAs and schools with higher percentages of English learners increased expenditures per pupil more than others

In FY18, LEAs with the lowest percentage of English learners spent slightly more per pupil than LEAs with the highest percent of English learners. This relationship flipped by FY24, with LEAs serving the highest proportions of English learners

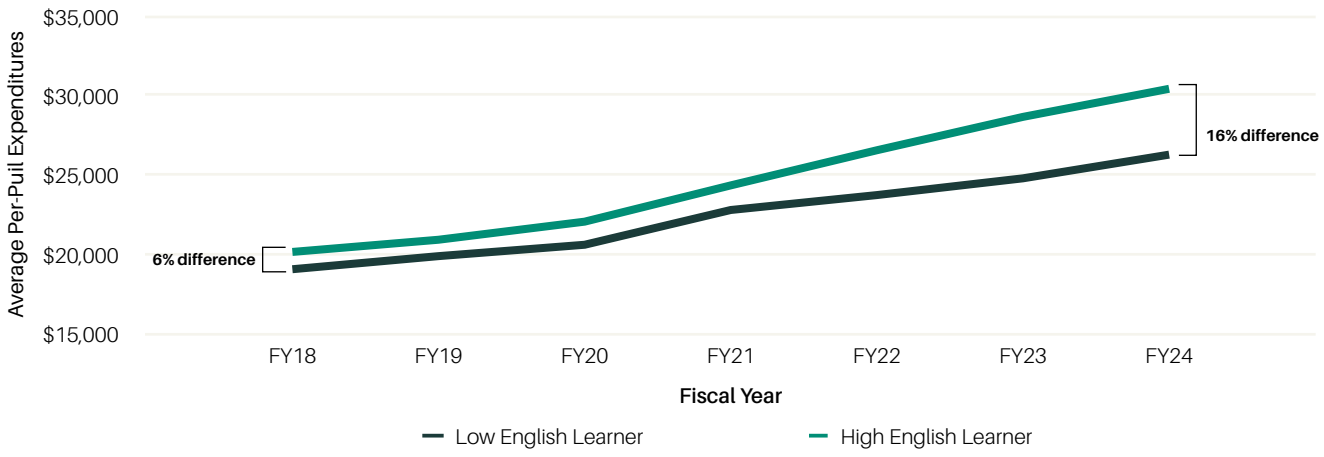
spending on average $2,178 more per pupil than LEAs serving lower proportions of English learners.

Figure 32: Change in average expenditures per pupil by % English learner - LEAs



At the school level, this trend continues. While schools with higher percentages of English learners spent more per pupil than schools with low percentages of English learners in FY18, this gap increased by FY24. On average, schools with high percentages of English learners increased annual expenditures by 51% while low percentage English learner schools increased by 38%. A larger differentiation in expenditures per pupil exists at the school level than the LEA level when looking at percentages of English learners. Average enrollment has decreased at similar rates for both low (-5%) and high (-4%) percent English learner LEAs, suggesting that enrollment is not a large driver of this trend. Further analysis of this data, disaggregated by school type, could be of interest.

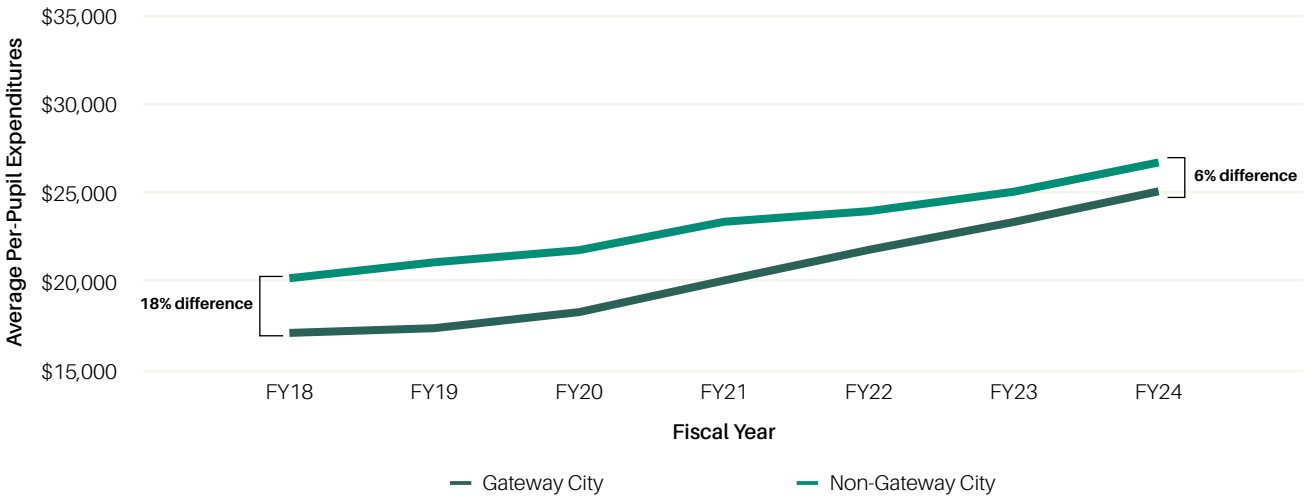
Figure 33: Change in average expenditures per pupil by % English learner - Schools



Insight C: The gap in average expenditures per pupil between LEAs in Gateway Cities compared to non-Gateway Cities declined from FY18-FY24, indicating that more urban areas, which had lower per pupil spending beforehand, were "catching up" in per pupil spending during this time period.

While LEAs located in Gateway Cities continue to spend, on average, less per pupil than LEAs located in non-Gateway Cities, they increased annual expenditures per pupil more than LEAs located in non-Gateway Cities (59% versus 47%).

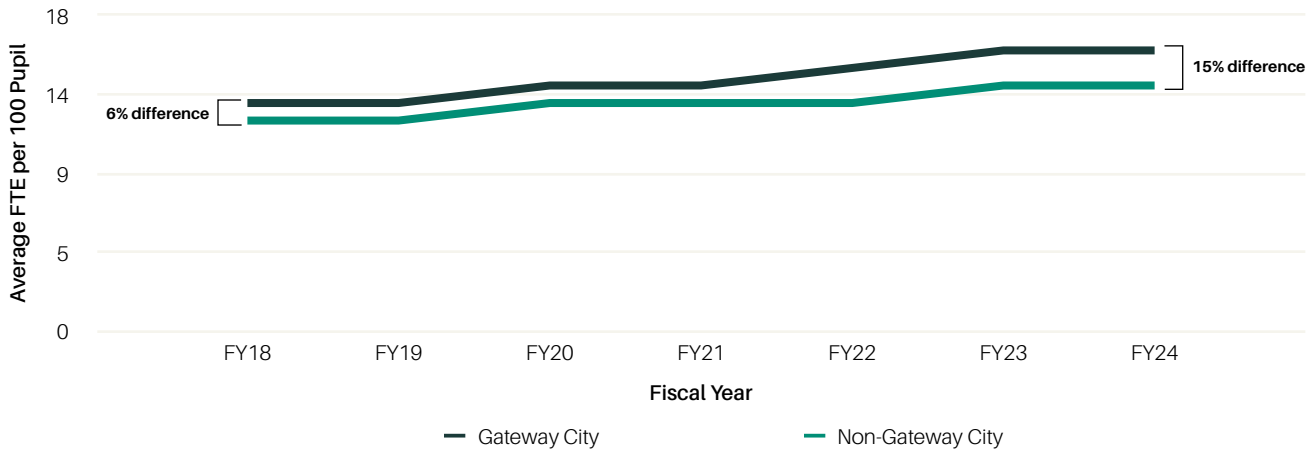
Figure 34: Change in average expenditures per pupil by Gateway City status



Costs can vary greatly between LEAs located in Gateway Cities and non-Gateway Cities, so looking only at expenditures per pupil may not accurately reflect school resourcing. The same trend exists when analyzing increases in average staff per pupil. On average, LEAs located in Gateway Cities increased staff per pupil more than LEAs located in non-Gateway Cities between FY18 and FY24, though still have 1.5 fewer staff per 100 students by FY24.

* See Appendix D for more details on regression

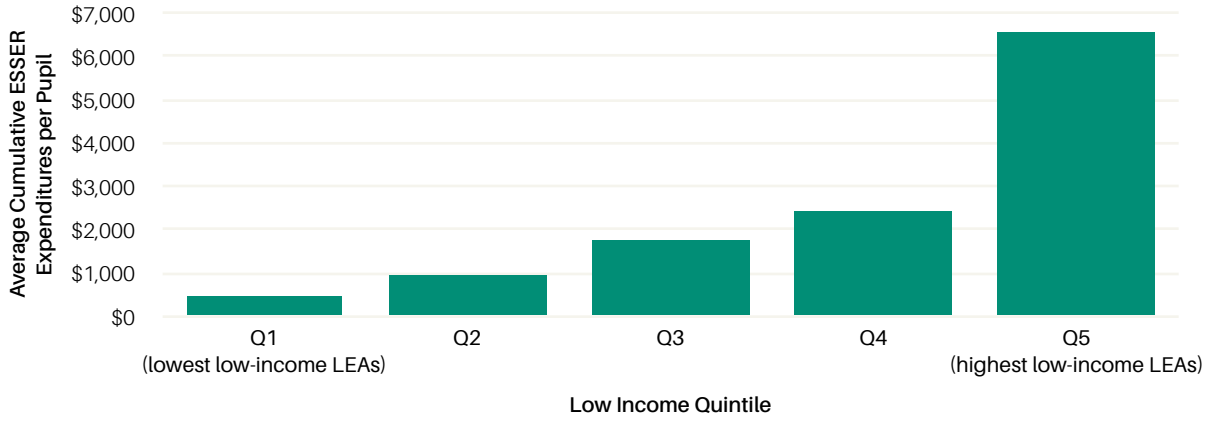
Figure 35: Change in average staff FTE per 100 pupils by Gateway City status



ESSER also drove more funds to the highest percent low-income LEAs and schools

By FY24, the highest percent low-income LEAs spent on average $2,148 more ESSER per pupil than the lowest percent low-income LEAs. This is congruent with ESSER dollars being distributed in part based on federal Census poverty and is highly correlated with the state's low-income student count. Multivariate regression shows a positive statistically significant correlation between the percentage of low-income students and ESSER dollars per pupil at the school level. This relationship is true even when looking at school-based ESSER expenditures (since the precise distribution of central office expenditures is not known).*

Figure 36: Average cumulative ESSER expenditures per pupil by low-income quintile, FY21-FY24 *(Q1 represents lowest percentage of low-income students and Q5 represents highest percentage of low-income students)*



Lens B: Funding Infusion Perception & Implementation Lens

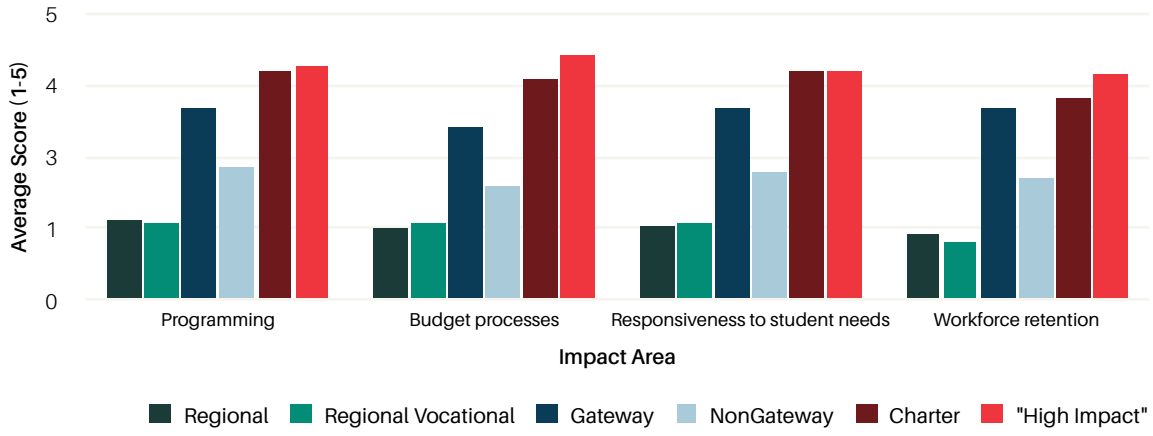
Throughout the qualitative data collection process, LEAs shared their experiences with ESSER and SOA funding, from how transformative the funding infusions were for their LEA to where they faced challenges in implementation. One major insight from this information is that **impact and spending decisions are very particular to the context that exists within a particular LEA**. While trends are highlighted, this section also hopes to convey the diversity of opinions and choices that exist across the state.

Insight A: LEAs that received larger amounts of funding (SOA or ESSER) tended perceive the impact of the funding as more transformative, particularly as it related to programming and responsiveness to student needs.

All LEAs who participated in the qualitative data collection process were asked to rank how "transformative" the SOA funds were for their LEAs across four areas: programming, budget processes, responsiveness to student needs, and workforce retention.

Figure 37: Average SOA impact score of LEAs by focus group type

On a scale of 1 to 5 (with 1 being "no impact" and 5 being "transformative"), how transformative were ESSER funds for...



Respondents from "High Impact" LEAs* overwhelmingly indicated transformative impacts across all categories. Examples of sentiments from "High Impact" LEAs include:

* "High Impact" LEAs are those who received the most funding from SOA and ESSER. See Appendix D for specific rubric used to determine LEAs.

- “The impact has been amazing.”
- "SOA was highly impactful, particularly for workforce retention and being responsive to student needs."
- “I'm a big fan of SOA because it allows urban districts catch up with state spending.”
- “SOA funds have helped us build structures we’ve put in place the last couple years.”
- “Our facilities used to be awful and now that’s not the case. Now we can fix what gets broken; we have the ability to purchase HQIM reading program.”
- “The ability to expand instructional supports allowed us to launch new programs.”
- “The word "Equity" resonates. Urban districts have been underfunded for years and have neediest students. Having resources has been very impactful.”
- “SOA was very responsive to student needs.”
- “SOA was “about time”. The funding made a significant and noticeable difference for the district.”

Sentiments from Gateway LEAs and Charter LEAs was resoundingly positive about SOA, though there was more variation in experience.

- “We can 100% feel the difference from what it was like before SOA… It has been a game changer.”
- "SOA has definitely been something that has allowed us to try to be competitive as a district.”
- “For us, the SOA is essential.”
- “The state got it right.”
- “SOA funds were transformative for programming and responsiveness to student needs.”
- “The SOA didn’t have much of an impact for us, it was minimal.”

Other LEAs expressed smaller impacts of SOA, particularly those who shared they received smaller changes to their Chapter 70 aid as a result of the SOA or have been held harmless during this time period.

- "We have been held harmless with Chapter 70, so it doesn’t feel like we got additional funding from SOA."
- “It is fair to say that SOA was not very impactful for our district- so minimally impactful that it was just a blip on the radar.”

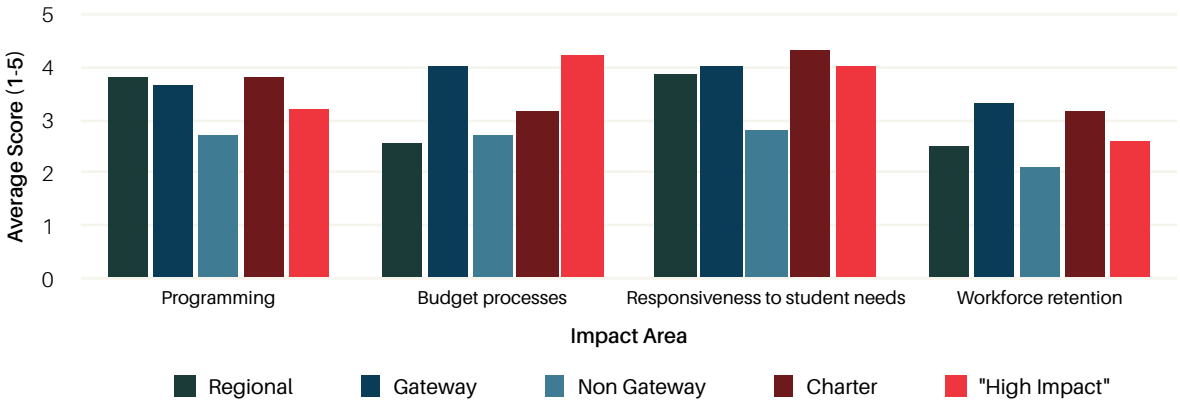
- "SOA was just a slight relief that we don't even notice anymore."
- "SOA was necessary for some districts, but SOA was "incomplete". The overall level of funding for everyone else has gone down or been held harmless. Hold harmless doesn't increase with costs."
- "These funds aren't helping us do more. Do not look at it as extra funding. It's money we already needed."
- "SOA only gave the money we were already supposed to get anyway."
- "SOA did nothing for us. No substantial increase in funding. We'll need to lay off more staff. SOA has not been helpful. Did nothing to change our finances."
- "If you are a minimum aid district, then it doesn't help much. No dents are made."

LEAs across the state felt ESSER funding was most transformative for programming and responsiveness to student needs

LEAs were asked a similar question about the impact of ESSER funding on their districts.* Compared to the impact of SOA funds, LEAs seemed to report more even levels of impact across LEA type when considering ESSER funds exclusively. Overall, LEAs reported the most impacts for programming and responsiveness to student needs, with less impact for workforce retention.

Figure 38: Average ESSER impact score of LEAs by focus group type

On a scale of 1 to 5 (with 1 being "no impact" and 5 being "transformative"), how transformative were ESSER funds for...



- "ESSER was transformative. You can see our ability to build a stable budget and see the investments for sustainable practices versus trying to get tutoring after the fact for students of broken systems."

* The focus group for the Regional Vocational LEAs did not include this question.

- "It was a lot of money, we were very strategic and accomplished a lot. It was extremely impactful."
- "SOA was insignificant but ESSER was huge."

ESSER Funding was considered helpful and supportive while temporary and compliance-oriented.

Overwhelmingly, LEAs shared that ESSER funding was helpful and supportive while temporary and compliance-oriented. The word cloud below is a compilation across all LEAs when asked for word association with the term "ESSER."

Some LEAs did share some challenges with the time-bound nature of ESSER and the limits that had on their ability to be strategic and utilize the funding most effectively.

- "The large chunk of money with the timeframe attached made things very difficult- we still did things lawfully but if we had more time to spend the money we could have made a better plan."
- "It took us a very long time to figure out how to spend it, we almost immediately had to start planning for the end of it."
- "I think of ESSER and I think 'thankful' & 'overwhelming'."

Insight B: ESSER funding was spent on a mixture of one-time and recurring expenses, though seemed to be used strategically over time as many LEAs, particularly those with larger SOA expenditures, were able to absorb recurring ESSER expenses into their future operating budgets and avoid significant fiscal cliffs.

Distinguishing between one-time and recurring spending is crucial for understanding the long-term implications of ESSER fund use. One-time expenditures typically do not require future financial commitments, making them a lower-risk use of temporary funds. In contrast, recurring expenditures—such as hiring staff or expanding programs—may create ongoing budget obligations that extend beyond the life of the ESSER grants.

Nationally, there exists a narrative that ESSER funding was used for "too many" recurring expenses and a "fiscal cliff" is impending once the federal funding is no longer available. For example, a U.S. Department of Education report shows that nearly 50% of ESSER III funds were used for labor costs nationally, and the Center on Budget and Policy Priorities warns that without additional funding those new positions are likely to be cut.[49] [50] Countless articles from education research institutions and think tanks provide advice on how LEAs and states can "soften the fall" from the fiscal cliff.

It is nearly impossible to perfectly identify spending as recurring or non-recurring as there is no code to distinguish between them, nor is there insight into the intention behind certain funds. For example, increases in teacher costs might be assumed to be recurring, but it is also very reasonable that the increase is due to one-time stipends or the short-term hiring of tutors. This study attempted to categorize spending at the function-code level to try and estimate directionality, the details of which are in Appendix B.

LEAs in Massachusetts took varying approaches to the utilization of their ESSER funding. From FY21 (the first year ESSER appears on end-of-year reports) to FY24, an average of 19% of all ESSER spending was for what has been categorized as one-time expenditures. ESSER spending on one-time costs peaked in the first year of ESSER, at 24%, which was also the smallest total dollar amounts of ESSER spending over this period of time, at $138 million. While the total dollars spent on one-time costs increased in FY22 and FY23, the share of ESSER funding spent on one-time costs steadily declined each year, as seen in Table 5.

Table 5: One-Time and Recurring Statewide ESSER Expenditures, FY21-FY24

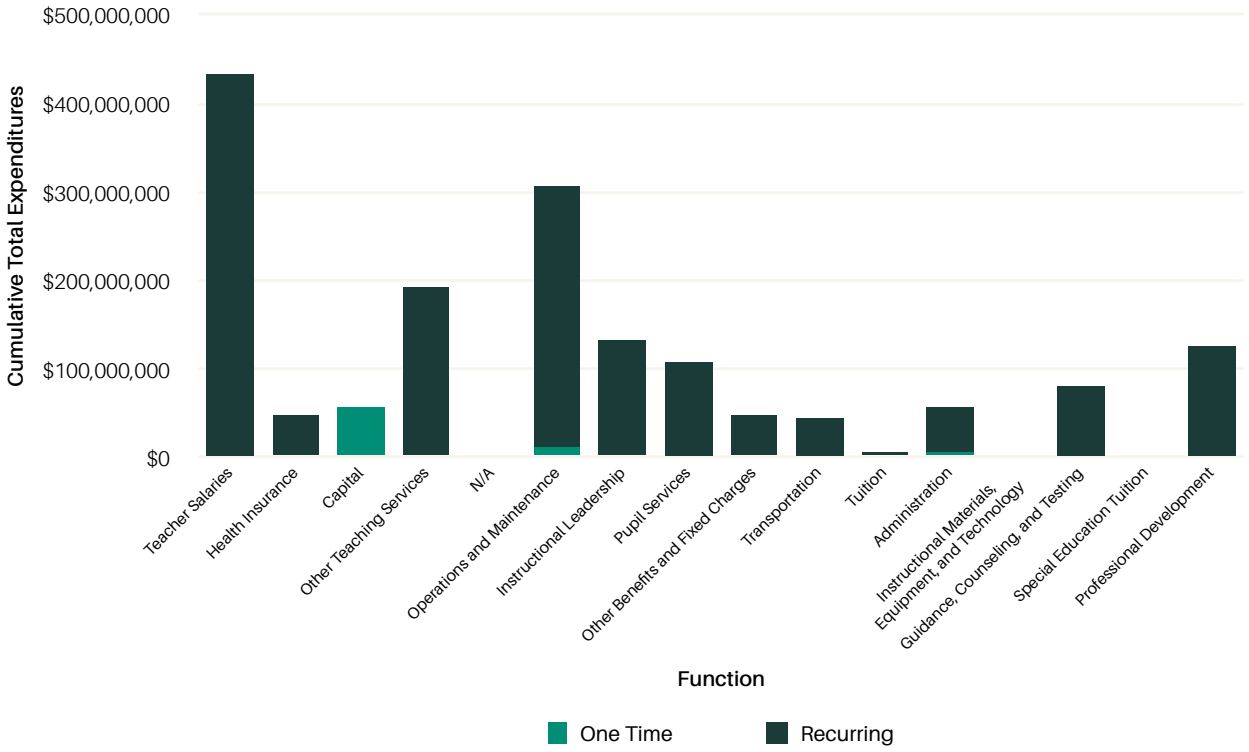
Statewide ESSER Expenditure	FY21	FY22	FY23	FY24	All Years
Total Recurring Expenditures	$105,179,385	$452,968,174	$607,787,553	$633,623,102	$1,799,558,21
Total One-Time Expenditures	$33,127,769	112,851,861	158,422,356	104,880,832	$409,282,817
TOTAL ESSER Expenditures	$138,307,154	$565,820,035	$766,209,909	$738,503,934	$2,208,841,03
% One-Time	24%	20%	21%	14%	19%

This study classified expenditures into one-time or recurring at the function-code level.* It is possible for one-time expenses to incur future operations costs - for example, a capital project to build an addition to a school building would incur new yearly maintenance expenditures. In this case, the capital expenditure is considered one-time and all subsequent operations expenditures are considered recurring. Moreover, some teacher or other staff expenditures may be for temporary programs for accelerated learning and are not intended to continue once ESSER dollars are fully expended. Since these one-time teacher and personnel expenditures cannot be identified in the expenditure data, they may appear as recurring expenditures in this report. Examples of one-time expenses include Technology (including computers); Textbooks; Equipment; Security Systems; Capital (including HVAC system and other building improvements); Motor Vehicles; Purchase of Land or Buildings; and Debt Service.

Figure 39 shows that most one-time expenditures were for Instructional Materials, Equipment, and Technology while the majority of recurring expenditures went toward Teacher Salaries.

* A full list of categorizations is available in Appendix B.

Figure 39: Cumulative ESSER expenditures by function and recurring/one-time status, FY18-FY24



Given the temporary nature of the funding, the increased reliance on ESSER funds for recurring costs could raise concerns about the sustainability of these investments after the funding ends. However, many LEAs across Massachusetts shared extremely strategic approaches to utilizing their short-term ESSER funding that was often tied to their local context and their expected SOA funding in future years. The next two insights build upon this idea and push back against the notion that LEAs were not careful to spend ESSER on one-time funds, but rather showcase the intentional and creative strategies used to maximize the impact over time.

Some LEAs report the cumulative impact of SOA and ESSER being the most transformative

While the SOA and ESSER programs utilized different formulas, there was significant overlap in the LEAs who received large infusions of both funding sources. LEAs who experienced this "double" infusion shared an overwhelming gratitude to have this "blessing" of funding after "years of budget cuts" as well as challenges with

developing strategies so quickly to utilize the large amounts of funding that were provided simultaneously.

Some LEAs shared the creative ways they maximized the impact of the funding, including accelerating the implementation of their SOA plans using the ESSER funding (since ESSER was disbursed a year prior to SOA) as well as strategically planning to absorb ESSER-funded program expenditures (such as Teachers, Paraprofessionals, Instructional Coaches, and Counselors) into their operating budgets utilizing projected increases in their Chapter 70 aid due to the SOA.

- "ESSER allowed the district to accelerate implementation of its strategic plan so that we did not have to wait until year 4 or 5 of SOA implementation to add programs and services."
- "We wanted to experiment on a few things with ESSER funding available. We did it in a conservative way where if it worked we could shift expenses to SOA and Title I funding."
- "Strategy is as SOA passed, we could fit the additional ECE staff [that were on ESSER] in the budget"
- "We put positions on ESSER and were able to take them all off and put on the operating budget with the SOA funding."

Noted Challenges:

- "ESSER money sounds great, but it was very difficult because it was a combination of the SOA money we knew we were getting, ESSER, and Title I was going up. You factor in vacancies we've had in the district and it made it a tough time to get the money spent. We had the best intentions to spend the money but it became something else."
- "It's a shame that SOA Expenditures and ESSER were going up at the same time."

LEAs who received larger amounts of SOA and ESSER funding seemed to experience lower fiscal cliff impacts

This combined strategy of utilizing SOA and ESSER funding together, rather than as separate revenue sources, does seem to have had an impact on LEAs feeling fewer impacts of an ESSER fiscal cliff. The "ESSER cliff" is a phenomenon occurring nationally as the federal ESSER funding sunsets and LEAs are unable to maintain that level of funding with state and local dollars. This study timeline does not

explicitly cover the post-ESSER time period, though LEAs were preparing FY26 budgets and the topic was often top-of-mind.

- "We had a really good experience with ESSER. We planned to avoid a fiscal cliff. We had a multi-year plan. We moved some staff to the operating budget by year 3 of ESSER."
- "We were able to reabsorb them [teaching positions] into permanent staff so we managed very well and had no funding cliff which is amazing and a credit to the leadership."
- "We planned to avoid a fiscal cliff. We had a multi-year plan. We moved some staff to our operating budget by year 3 of ESSER."
- "We've added several hundred positions in the district [from ESSER], with no planned reductions for next year [when ESSER funding is gone]."
- "We didn't' feel a drop off [and we] didn't feel a significant increase. We did not have to make any cuts and were able to provide funding for new initiatives next school year. "

Some LEAs, particularly those who received lower SOA amounts, did note that they were anxious about a fiscal cliff after ESSER and that the impacts of a fiscal cliff may not yet be apparent.

- "I think we are in for some challenging times ahead where much of what was built in last couple of years will be torn down."
- "After ESSER funding, some positions went away"

Further investigation into the impact of SOA and ESSER on the sustainability of programs and staff should be considered for research in future years.

Lens C: Evidence-Based Practices Lens

The SOA calls for every LEA and charter school in the Commonwealth to develop 3-year plans that identify key disparities in student learning opportunities and outcomes for the student groups they serve and describe how they will utilize evidence-based approaches and strategies to address those disparities. DESE identified twenty-one (21) evidence-based practices that LEAs were to use as a guide for their SOA plans.*

* Details on the suggested evidence-based practices is in the appendix.

Insight A: LEAs note the changing role of the school on spending choices.

Across the qualitative focus groups and conversations, LEAs shared that their choices for investment areas were sometimes influenced by the needs of students outside of academic settings.

Some examples of these sentiments include:

- "[There has] been a focus on schools being a provider of all services for children not just education. As a city and state we need to have a conversation on the scope of what schools should be. We are spending money on housing families."
- "Historically some of what DCF [state Department of Children and Families] would do has fallen on schools, we're taking kids home when parents don't show up."
- "We have a higher population of high-needs students, and this means more transportation, more support services, increased staffing, more programs to make them successful in workforce. We are often dealing with populations of students that may not have what an average student has and a family doesn't have access to what they need."

Across LEAs in Massachusetts, there is evidence of more investments for student and family supports, particularly in LEAs that have students with higher needs. For example, while statewide expenditures for Guidance, Counseling, and Testing have remained at about 3% of total expenditures year over year, expenditures increased at a higher rate for LEAs with higher levels of need. **LEAs with the largest low-income populations (Quintile 5 LEAs) nearly doubled their expenditures per pupil for Guidance, Counseling, and Testing between FY18 and FY24**, compared to a large but much smaller increase of 52% for LEAs with the smallest percentage of low-income students (Quintile 1 LEAs). Similarly, LEAs with the highest percentages of English learners (High English learner LEAs) increased expenditures in this category by 74%, compared to a 50% increase for LEAs with fewer English learners.

The qualitative data deepened this understanding, as LEAs across all types provided detail into their investments in social-emotional and mental health services. Almost all LEAs indicated they increased investments in counseling staff, adjustment counselors/social workers, or clinical interventionists. Some LEAs also purchased Professional Development for staff.

For example:

- "We more than doubled our counseling staff. We hired 17 new counselors, developed a 1:1 program, and have a secondary SEL liaison." – a "High Impact" LEA*
- "In the last year there was a significant increase in social emotional supports, with an increase in social adjustment counselors, to respond to COVID-19 and the increased needs of students." – a "High Impact" LEA
- "We increased counseling staff trying to keep up with the need, a lot of maintaining compliance and supporting the needs of kids with social emotional challenges." –a non-Gateway LEA
- "Through SOA we added 14 clinical interventionists for mental health needs and a director of social-emotional learning." –a Gateway LEA

Insight B: SOA and ESSER funds were used to implement evidence-based practices, particularly workforce retention, extended learning and acceleration academies, and expanding capacity to address social-emotional learning and mental health needs for students and families.

The SOA requires LEAs to develop three-year plans that outline which key evidence-based program areas the LEA will focus onto narrow gaps for identified student groups. The state suggested 21 different evidence-based practice areas that LEAs could choose from and integrate into their plans. While this report is not an assessment of which practices were completed, the qualitative data provided insights into the type of programs that LEAs invested in during this time period.

ESSER and SOA funds were utilized for various workforce retention strategies

LEAs across all types highlighted challenges with finding and retaining high quality staff. Some specifically noted:

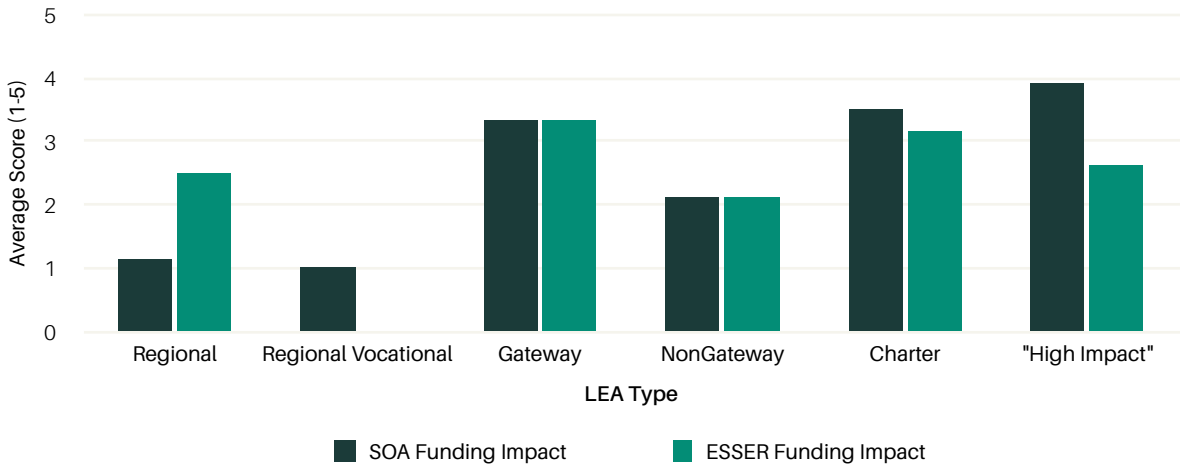
- "Our biggest challenge is recruitment of teachers, having [so many] open positions."
- "This next contract, we want to focus on teacher salaries to make sure they stay competitive."
- "At any given time we have several hundred positions that are vacant."

* "High SOA" LEAs are a set of 9 LEAs who received the most funding infusions during the time period. Additional detail is located in the appendix.

During the interviews and focus groups, participants were asked to assess how transformative SOA funding and ESSER funding were on workforce retention efforts. Figure 40 below shows some variation, with "High Impact LEAs" perceiving SOA as quite transformative for workforce retainment, and Regional LEAs finding ESSER more transformative than SOA funding.

Figure 40: Average SOA or ESSER impact score of LEAs

On a scale of 1 to 5 (with 1 being "no impact" and 5 being "transformative"), how transformative were SOA or ESSER funds for workforce retention?



LEAs shared a range of workforce retention strategies they attempted utilizing SOA and ESSER funding.

- "We have many collective bargaining agreements. We were able to bring up their salaries, and would not be able to do that without SOA. With the knowledge that this is rolling out over 6 years, we are in a better position. We hope to better retain people as a result. "
- "SOA is definitely been something that has allowed us to try to be competitive as a district knowing that if you come here, you're going to have some challenges as a teacher. We don't have the best facilities. We have a population with needs that are different than other schools. We are going to at least try to pay staff better."
- "We used SOA for workforce retention."
- "Because of ESSER funds, teachers were paid per diem."
- "We spent $XM on retention bonuses [from ESSER]."

- "We gave COVID bonuses to all staff and bus drivers in FY22 and FY23"
- "SOA funds were helpful to move forward with terms with our union (salaries)"
- "For upcoming contract we will put SOA into some salaries to be competitive"

It is important to note that LEAs experience different workforce challenges and not all chose to utilize funding towards specific retention strategies.

- "None of our ESSER funds went to salary supports."
- "ESSER did not help workforce retention."

Relatively few LEAs explicitly emphasized workforce development strategies in their SOA plans, though many do indicate plans for added staff in their implementation plans.[51] Future studies could consider deeper analysis of the impact of these strategies on actual workforce retention outcomes. Some LEAs noted it is too early to understand whether these investments have had any impacts yet.

Insight C: SOA Plan development and compliance is perceived as costly with few upsides, as the funding is distributed regardless of the plan.

A key provision of the SOA legislation requires every LEA in the state to develop three-year plans (referred to as SOA plans), regardless of the amount of additional SOA funding it receives. The intent of the SOA plans was to improve transparency for communities in how LEAs planned to intentionally address disparities in learning experiences and outcomes across student groups. These plans must identify which student groups in the LEA are experiencing gaps in student learning experiences and outcomes, outline the key evidence-based program areas the LEA is focusing on to narrow gaps for these identified groups, and provide information on the investment, metrics, and engagement processes they are engaged in.[52]

While acknowledging the legislative requirement, LEAs consistently expressed concern around the SOA plan reporting requirements and the value of their time.

For LEAs who received little or non-meaningful amounts of SOA, the resounding sentiment was frustration and perceptions of DESE being "out of touch." Across the "High Impact" LEAs, there was a pervasive sentiment that the compliance burden was very high for no benefit. There was common questioning across LEA types on the purpose of the SOA plans given that either LEAs received too little to implement any evidence-based practices with it or LEAs were guaranteed to receive the funding regardless of how they chose to use the money.

- "[Our district] would do all of these things without the guidelines of the SOA plan. We get very grouchy when we have to do the application again. We don't understand the monitoring or why we have to do so much for money that DESE is obligated to give us."
- "Due to reporting, we find ourselves spending too much time on compliance. This is really unnecessary."

Lens D. Community-Level Collaboration Lens

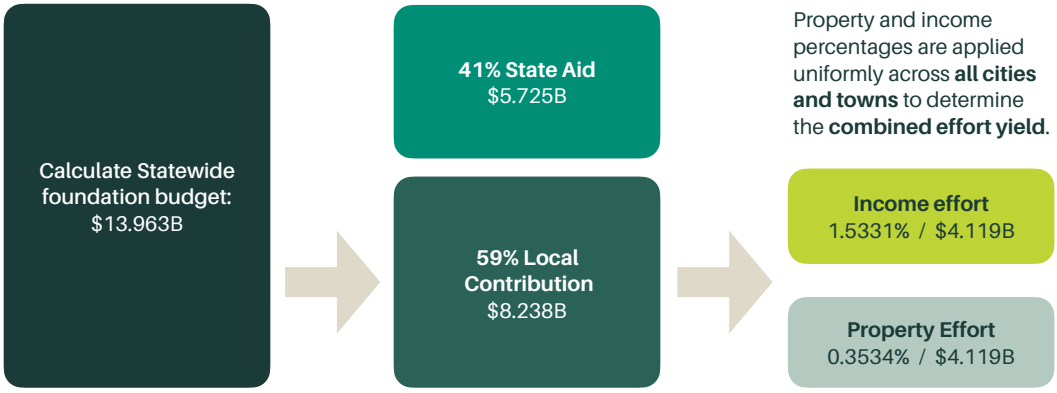
Insight A: Local contributions above the required amounts changed after the SOA, with LEAs that have lower percentages of low-income students seeing larger increases in local contributions above required than LEAs with higher percentages of low-income students.

Since FY18, the average local contributions above the required amounts have increased the most for lower percent low-income LEAs (i.e. Quintile 1, Quintile 2, and Quintile 3).

The Chapter 70 formula establishes minimum local contribution requirements that each LEA must meet. The SOA did not directly alter the formula that determines an LEA's minimum local contribution. However, the SOA increased foundation budgets at a rate higher than inflation, which impacted local contribution calculations.

The foundation budget is funded from two sources: local, municipal contributions and Chapter 70 state aid. The target local share is the percentage of an LEA's foundation budget that is used to determine local contribution requirements. The target local share is determined through several factors, including a community's ability to pay as measured by aggregate income and property wealth. Figure 41 illustrates how determining each municipality's target local share starts with the local share of statewide foundation. On average, LEAs with a higher proportion of low-income students have lower target local contribution shares and lower contribution requirements as a percentage of foundation.

Figure 41: **Process for determining component parts of Chapter 70 aid for LEAs for FY24 Chapter 70 budget**



There are two additional provisions in the law that impact how target local contributions are calculated:

- **The target local share is capped at 82.5%**, meaning that in most cases the state cannot require an LEA to generate more than 82.5% of their foundation budget from local revenue for purposes of setting target contribution levels. While communities that are at the 82.5% cap tend to be LEAs with lower percentages of low-income students, there are a small number of communities with high percentages of low-income students that are capped at 82.5% due to their strong tax-base, including Boston.
- **A statewide target contribution level of 59% of statewide foundation budget has been in place since fiscal year 2007 and is used to establish uniform income and property percentages that subsequently establish local contribution targets for each municipality**. This means that capping local contributions at 82.5% for LEAs with more fiscal capacity requires the formula to increase the uniform income and property percentages and, as a result, target local shares to ensure that the formula generates the 59% statewide target amount from the sum of target local contributions.

On average, the target local contributions share for an LEA is positively correlated with the percentage of low-income students.

While this was true every year from FY18 through FY24, the average target local share shifted slightly over time across LEAs by percent low-income students.

Between FY18 and FY24, the average target local contribution share for Quintile 1 LEAs increased by 1% and decreased by 1.1% for Quintile 5 LEAs. This indicates that post-SOA, a slightly larger share of foundation budget is coming from state aid for Quintile 5 LEAs than for Quintile 1 LEAs.

The largest increase in required local share between FY18 and FY24 was not for Quintile1 LEAs, but was for Quintile 2 LEAs (+4%), followed by Quintile 3 LEAs (+1.8%). Target local shares for Quintile 2 and Quintile 3 LEAs increased more than Quintile 1 LEAs because the majority of Quintile 1 LEAs were already at the 82.5% cap in FY18, meaning that the state could not require as many Quintile 1 LEAs to increase their required local contributions in order to fund 59% of the statewide foundation budget, which is now much higher as a result of the SOA.

By FY24, 81% of Quintile 1 LEAs were at the 82.5% cap. The number of Quintile 2 LEAs at this cap increased by nearly 10 percentage points, from 28.8% in FY18 to 38.6% in FY24, whereas the percentage of capped LEAs in Quintile 4 and Quintile 5 decreased.

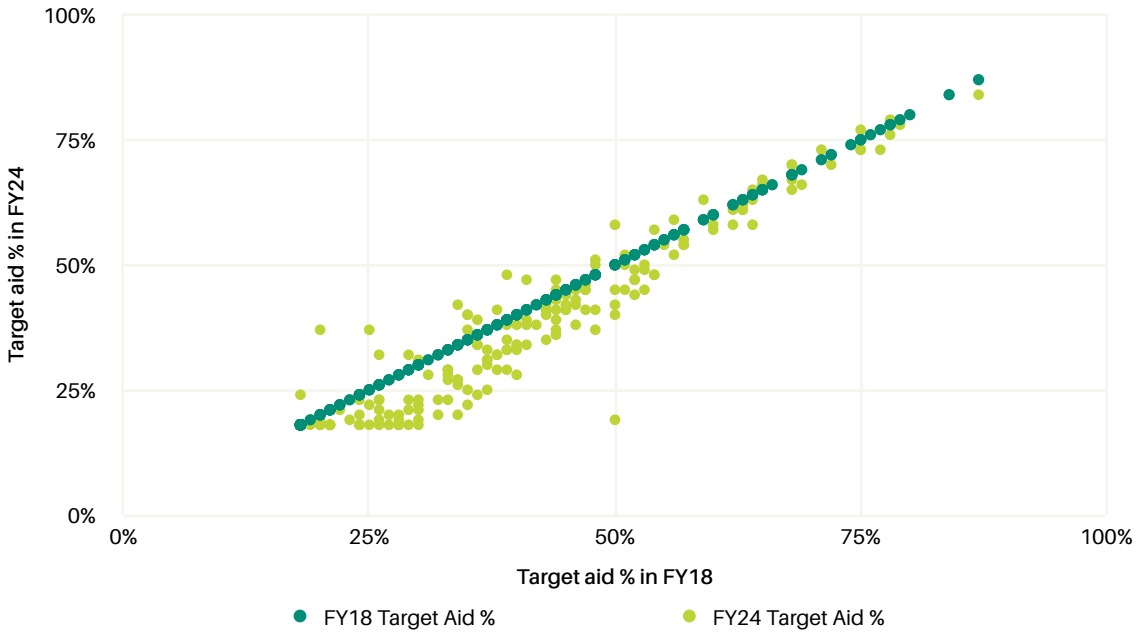
Table 6: **Average target local share, by low-income quintiles.**

Low-Income Quintiles	FY18	FY19	FY20	FY21	FY22	FY23	FY24	% Change (FY18-24)
Average target local share								
Q1	80.4%	80.2%	80.2%	80.7%	80.9%	81.2%	81.4%	**1.0%**
Q2	70.1%	70.6%	71.8%	71.1%	73.0%	73.9%	74.1%	**4.0%**
Q3	67.5%	69.0%	66.9%	67.7%	68.2%	68.4%	69.3%	**1.8%**
Q4	62.4%	60.4%	61.8%	61.4%	61.2%	61.0%	61.0%	**-1.4%**
Q5	37.2%	37.3%	36.0%	36.1%	34.4%	36.1%	36.2%	**-1.1%**
Percent of LEAs capped at 82.5%								
Q1	75.3%	72.6%	72.0%	73.3%	76.3%	81.3%	80.8%	**5.5%**
Q2	28.8%	29.3%	30.6%	27.1%	37.5%	38.0%	38.6%	**9.8%**
Q3	32.5%	37.5%	31.5%	36.5%	33.3%	32.9%	37.5%	**5.0%**
Q4	33.9%	29.2%	34.9%	29.9%	34.3%	33.8%	30.6%	**-3.2%**
Q5	5.3%	5.6%	2.8%	6.1%	3.4%	3.1%	3.1%	**-2.1%**

As local contribution targets increased to meet the 59% statewide funding level, target aid percentages, the inverse of target local shares, decreased for most LEAs between FY18 and FY24. Target aid shares represent the level of state aid as a percent of foundation that districts should receive based on their local wealth metrics, aggregate income and property wealth. Figure 42 shows how each district's target aid share changed between FY18 (darker green dots) and FY24 (lighter green dots), with most decreasing over this period. Some LEAs that had higher aid targets before SOA are now capped at 17.5% and other LEAs with target aid percentages between 17.5% and 60% in FY18 have seen their aid targets decrease. All districts are funded at or above their targets, but the erosion in target aid shares can affect an LEA's eligibility to receive new funding, especially LEAs that were funded close to target prior to the SOA and have been asked to contribute a higher percentage toward foundation since passage of the law.

The visualization below shows how target aid percentages have changed from FY18 to FY24. The dark green dots represent the baseline target percentage for each LEA in FY18, and the light green dots represent where those targets are in FY24. Light green dots above the dark green dots represent LEAs that have increased their target aid percentage, and light green below the dark green dots represent LEAs that have decreased their target aid percentage.

Figure 42: FY18 Target Aid Percentage compared to FY24 Target Aid Percentage



Additional local funding above required amounts increased more for lower percent low-income LEAs

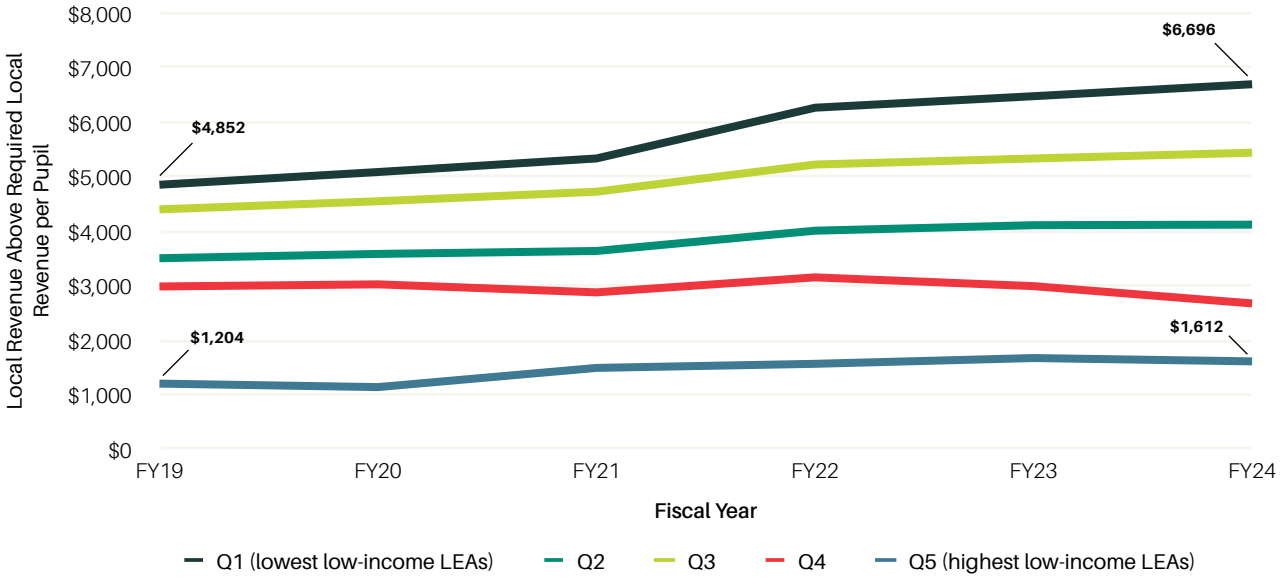
While the Chapter 70 formula establishes required minimum local contributions to fund LEAs, communities can choose to provide additional local funding above what is required. The decision to fund schools with local funding above required is made at the municipal level and is influenced in part by that community's ability to generate tax revenue. Some communities, particularly Gateway Cities, may not have the ability to generate additional local tax revenue due to constraints in their local tax base or their ability to pass a Proposition 2 ½ override. The qualitative data supports this perspective that the local tax base is limited in increasing funding beyond the required amount, commenting that:

- "We are seeing increases in net school spending, but the burden falls to the towns. They don't see significant increases to Chapter 70, we see it in the minimum contributions to the towns." – a Gateway LEA
- "We used to be a district that was at 120% of NSS, we are now at 101%. We see our districts and communities not willing to generate more because they are only funding their own school districts at required NSS only. So we have seen a decline in local revenue." – a Regional LEA
- "The biggest thing is that they [the city] do not have the revenue volume that they need and don't consider things like debt exclusions or raising the levy or anything like that. They have never passed a 2.5% override. They just try to get to the exact foundation number." – a Gateway LEA
- "The Chapter 70 formula is broken as long as 2.5% is in place." – a non-Gateway LEA

While the SOA does not directly impact a community's decision to generate local revenue above what the state requires, changes to Chapter 70 aid and required local contributions may influence local decisions. Since FY18, average local revenue above required per pupil decreased for Quintile 4 and increased for other quintiles. Average local revenue above required for Q1 was $4,852 in FY19 and $6,696 in FY24; the average local above required for Q5 was $1,204 in FY19 and $1,612 in FY24. The gap between Quintile 1 and Quintile 5 increased from $3,649 in FY18 to $5,084 in FY24*.

* Additional local revenue above required is calculated by subtracting required NSS from actual NSS expenditures. The actual NSS expenditures are calculated slightly differently than it is elsewhere in this report for the purposes of accurately comparing to required NSS.

Figure 43: Additional local revenue above required per pupil, by percent low-income quintiles



Since the implementation of SOA, the number of LEAs that are not meeting their annual Net School Spending requirements has increased

Chapter 70 establishes minimum net school spending (NSS) requirements for every LEA that equals the sum of each LEA's local contribution requirement and state aid. The Department of Elementary and Secondary Education tracks compliance with annual NSS requirements based on End of Year Reports that LEAs file with the state after the close of each fiscal year. If an LEA fails to meet its requirement in a given year, the shortfall is added to their requirement in the following year. LEAs that fall below 95% of their required spending level in any year, risk losing state aid.

The number of LEAs that did not meet their annual NSS requirements grew from 10 in FY22 to 13 in FY23 to 18 in FY24, the last year that data is available. The LEAs that failed to meet their requirements largely include municipal LEAs and Regional Vocational School LEAs that serve Gateway Cities. Fifteen of the 18 LEAs that did not meet NSS in FY24 were classified in low-income groups 9, 10, 11, and 12 from Table 4..

While the required local share has on average decreased for Quintile 4 and Quintile 5 LEAs (those with higher percentages of low-income students) since the implementation of the SOA, their required local contributions have increased albeit

not as quickly their foundation budgets or state aid. This has put additional pressure on local tax bases, leading to a larger proportion of low-income LEAs failing to meet minimum net school spending requirements.

Some LEAs did share concerns about this impact:

- "We're a net school spending district, funded at the bare minimum, and as the foundation budget increases, it creates a bigger gap in the target and actual. Our city has high level poverty." – a Gateway LEA
- "For municipality like ours, they still, whether the foundation number is $XM and the city contribution is $Y, or $Z, they can still barely do $Y let alone $Z." – a Gateway LEA
- "The challenges the city has is when the foundation number is set, the municipal contribution continues to rise. This year they need to contribute $XX million dollars, which is a huge amount for them. Is it unsustainable? No, but it is challenging and difficult." – a Gateway LEA

High inflation negatively affected LEA's perception on Chapter 70 aid and SOA

A challenge in reviewing quantitative expenditure data is that in most function areas, it is almost impossible to identify whether an increase in dollars spent was because more of something was purchased or because the purchased item was more expensive. Even in the few instances where it is possible to gain insight that certain items were more expensive, it is then very difficult to understand the driver of the increase costs, such as changes in demand or supply, monopoly behaviors, high inflation, etc.

Further complicating the challenge of establishing the relationship of inflation and aid, is that the impact of inflation on foundation budgets has consequence for the determination of target and required local contribution levels, which subsequently impacts eligibility for additional Chapter 70 aid under the formula for many LEAs.

This study was not tasked to specifically review how inflation impacted buying power across LEAs. However, across all of the qualitative groups, many participants reported perceptions that Chapter 70 aid did not keep up with inflation, particularly for FY22 and FY23. This seemed to lead to a pervasive sentiment that, despite the dollar amount increasing, the felt impact of these increases was actually a decrease in purchasing power by the Chapter 70 aid. LEAs identified that they could not afford to cover existing resources and cost of living adjustment increases, so it is

"felt" like a reduction in revenue. For those that received little or no SOA, this felt impact seemed to be exacerbated.

Some quotes that illustrate this sentiment include:

- "SOA is not keeping up with inflation." – Charter LEA
- "Inflation cost is eating our SOA extra funds, and we don't have funds to use for changes." – a "High Impact" LEA
- "Most districts are not getting enough, and the funds are not accounting for inflation. There is a cap of 4.5% on SOA." – Regional LEA
- "Our SOA changes are very small. Inflation in 2022 was 8%, in 2023 was 4%, but Chapter 70 inflation was around 2% those years." – Regional LEA
- "Our SOA was an increase, but nowhere near enough to cover COLA, step increases, etc. This resulted in us being $XM short. The state used a very low inflation rate index of 1.1%, whereas this year they used 2%." – Gateway LEA
- "During ESSER, inflation was crazy. An HVAC that would have cost $4 million suddenly cost $8 million." – a "High Impact" LEA
- "Costs are going up more than we're receiving." – Non-Gateway LEA
- "Inflation for major drivers of the budget, like health insurance, have been going up 15-20% a year." – Regional LEA

Lens E: Student Outcomes Lens

For more rigorous analysis of the impact of this large funding infusion on student outcomes, it is necessary to consider that multiple factors affect student needs and resulting spending simultaneously. This lens provides the results of regression analyses that highlight where there may be relationships between function areas and funding amounts.

This report considered the impacts of funding on three student outcomes:

1. MCAS ELA scores
2. MCAS Math scores
3. Student Attendance

These outcomes were chosen based on data availability as well as comparability with similar studies in the field. The most recent Education Recovery Scorecard, published by Harvard University's Center for Education Policy Research, found that as of Spring 2024, "the average U.S. student remained nearly half a grade level behind pre-pandemic achievement in both math and reading," and a "widespread rise in absenteeism is slowing the recovery, especially in high poverty districts."[53]

It is important to note that correlation does not imply causation, and these associations should be interpreted with caution. Correlations simply reflect relationships between variables, but they do not account for the full range of factors that could influence student outcomes. Recommendations on how future research should more rigorously study the relationship between investments and outcomes are provided in Section 6.

The analysis for this report was done at the school level rather than the LEA level. While the SOA most directly impacted funding at the LEA level, this analysis is interested in understanding the relationship between specific resources and changes in outcomes. School level analysis was selected since the relationship between resourcing and students is more accurate at the school level. Moreover, inter-class correlations show that most of the variation in student outcomes can be attributed to variation at the school level rather than the LEA level.

Current data and methodological limitations limit the causal research that can be done between specific investments and these student outcomes. However, this study indicates **there is evidence that investments in specific categories of expenditures and FTE at the school level correlate with better outcomes of MCAS ELA, MCAS Math, and student attendance**.

Time fixed effects regression models, as specified in Section 4: Methodology, showed that statistically significant correlations were more likely to emerge during the COVID-19 recovery period (FY21–FY24) compared to the broader pre- and post-pandemic period (FY18–FY24). This finding is not surprising, as the onset of the COVID-19 pandemic introduced substantial volatility in student experiences and LEA operations, complicating efforts to account for changes through standard statistical modeling techniques.

Statistically significant correlations were found between student outcomes and expenditures in several key categories, particularly those often associated with educational effectiveness, such as spending on Teacher Salaries and Instructional Leadership. Moreover, many of these categories loosely align with evidence-based

practices (EBPs), although a direct crosswalk between EBPs and expenditure or FTE categories could not be fully established.

It is important to interpret these results with caution: while these correlations were statistically significant, the magnitude of the coefficients was generally small. This result aligns with prior research, which indicates that student outcomes are influenced by a wide range of in-school and out-of-school factors, making it unlikely that marginal increases in resource allocations for specific functions will produce large, immediate returns. The small effect sizes observed also suggest that additional research is needed to fully understand the nature and strength of these relationships.

Additionally, the lack of a relationship being found by this study is not an indicator that one does not exist, rather that the methodology and data sources available at this time cannot detect one. The use of proficiency rates as the outcome measure can be more limiting than student-level test scores, as it is less precise.[54] All correlational results in this section are statistically significant at 95% or higher unless otherwise indicated.

Two main insights cut across the analysis for student outcomes. Additional detail by analysis follows.

Insight A: Investments in specific categories of expenditures and FTEs for teachers and other instructional staff at the school level positively correlate to changes in MCAS Math and student attendance outcomes.

Insight B: Most of the correlational relationships are weak and appear in the recovery period (from FY21-FY24) rather than from before the funding infusions (FY18-FY24), indicating that more investigation and research is needed as the funding infusions conclude and students continue to receive the benefits of the investments long-term.

Total School Expenditures Correlate with Outcome Improvements

Looking at FY18-FY24, there are positive correlations between changes in total school expenditures per pupil and changes in MCAS ELA and MCAS Math outcomes. This finding aligns with prior research that funding has an impact on student outcomes.

An investment of $1,000 in additional school expenditures per pupil from FY18 through FY24 correlates with a 0.21% increase in MCAS ELA proficiency rates, and a 0.15% increase in MCAS Math proficiency rates.

When interpreting these correlations, it is important to note that resource investments may be positively correlated with outcomes improvements even if outcomes decreased overall. For example, if two schools decreased outcomes, but the school that invested more in Teacher Salaries decreased outcomes less than the school that invested less in Teacher Salaries, then there would be a positive correlation between teacher investment and student outcomes. In the context of learning loss and recovery from the COVID-19 pandemic, as previously mentioned in the Introduction, this understanding is essential.

Teacher Salary Expenditures Correlate with Math Outcome Improvements

Changes in Teacher Salary expenditures per pupil positively correlate with changes in MCAS Math outcomes. A $1,000 investment in Teacher Salary expenditures per pupil from FY21 through FY24 correlates with a 0.44% increase in MCAS Math proficiency rates. However, this relationship did not hold for MCAS ELA outcomes, nor were there any statistically significant correlations between changes in teacher FTE per pupil and outcomes.

Other Investment Correlations on Outcomes across all schools.

Additional investments in Instructional Support FTEs positively correlate with changes in MCAS math proficiency rates, but not ELA proficiency rates, for both time periods analyzed.

- An investment of 1 additional Instructional Support FTE per 100 students from FY18 through FY24 correlates with a 0.8% increase in MCAS Math proficiency rates.
- An investment of 1 additional Instructional Support FTE per 100 students from FY21 through FY24 correlates with a 0.8% increase in MCAS Math proficiency rates.

Clerical FTEs positively correlate with changes in Attendance rates.

- An investment of 1 additional Clerical FTE per 100 students from FY21 through FY24 correlates with a 0.52% increase in attendance rates.

The study team completed additional correlational analyses between expenditures and outcomes for a wide variety of LEA categories (Gateway Cities, schools with high percentages of English Learners, schools with high percentages of low-

income students, etc.). The correlations within each of these categories were largely mixed, with both positive and negative relationships appearing, and many more correlations with no statistical relationships. Of the correlations that were statistically significant, effect sizes were small (i.e. the relationship between the input and outcome was weak overall), indicating the relationship was not likely due to random chance. These results were not included in the report.

Section 6: Recommendations or Further Research

This study establishes a preliminary fact base for understanding K-12 public educational spending trends before and after the infusion of funding from ESSER and the SOA. It also surfaces new questions that could be helpful for policymakers and education advocates to explore further. This section provides recommendations for further study that could be taken up by DESE or other stakeholders to continue moving the conversation forward. Additionally, technical recommendations are shared as a guide for any future policy changes to be more compatible with more robust evaluation methods.

Recommendation A: Produce an updated spending study

This study highlights what spending trends look like so far, through FY24. However, at the time of this publication, LEAs have not expended all of their ESSER funding and SOA aid is still ramping up to its full levels, limiting the ability to fully study the impact of these funding infusions. As discussed in the Section 3: Background section of this report, the federal government's late liquidation period originally allowed ESSER expenditures to be spent through mid-year FY26, meaning the current analysis likely underestimate the full impact, particularly the impacts on capital expenditures.* SOA funds are projected to level off in FY27, meaning there is not currently a statutory provision in place for additional annual funding increases, beyond inflation and enrollment increases, under the Chapter 70 formula after FY27.

Recommendation B: Gain deeper understanding of specific student populations or LEA archetypes

* As mentioned previously, at the time of this publication the status of late liquidation allowance was in flux.

This study identified several populations of students and LEAs that had unique experiences across the state, as discussed in Part 2 of the Key Spending Trends section of this report. Understanding these groups more deeply could benefit both the retrospective understanding of decisions as well as future inputs into policy changes.

Specific groups that could be included for deeper study may include:

- **Special Education population:** LEAs take a variety of approaches in providing educational services for special education students, from co-teaching inclusion models to out-of-district placements. Many of the evidence-based practices that were suggested to LEAs as part of the state's SOA planning process are specifically targeted towards this population, and a deeper understanding of how and why different LEAs made different choices could be helpful in future policymaking conversations.
- **English Learner population:** English learners were a specific focus group for the SOA changes and comprise an increasing portion of the total student population. However, current administrative data on expenditures for programs specific to English learners is extremely limited. While the administrative data at the state-level will continue to be limited, LEAs often have separate internal systems to track and understand resources as they are related to English learner programs.
- **LEAs whose models are open to students across multiple municipalities:** The complexity of understanding costs, contributions, allocations, and spending is amplified in LEAs whose models inherently pull from across municipalities, such as regional LEAs, regional vocational LEAs, and charter LEAs. A more intentional focus on the needs and spending choices of these LEAs could provide a more nuanced understanding of spending patterns and highlight areas of equity that could be better addressed in the future.

Recommendation C: Understand the impacts of state laws on state and local education funding

Throughout this study, LEAs continually mentioned specific state laws that interacted with educational revenue streams (intentionally or unintentionally). Section 2 details some of these under Lens D. A deeper understanding of how these laws impact different types of LEAs could further unpack questions around the equity of the SOA, as well as aid policymakers towards future adjustments.

Specific laws referenced include (1) Proposition 2 ½, which limits the amount of property tax revenue a municipality can raise, and (2) components of the Chapter 70 law such as the local share cap of 82.5% for municipalities and the statewide municipal contribution target of 59% of the statewide foundation and the role it plays in establishing local contribution targets.

Additionally, local and state contributions for educational funding are partially derived from underlying measures of a community's "ability to pay," which are determined by specific statutory rules. DESE has conducted local contribution studies, but further exploration of the impact of various determinants of state and local funding streams made available to LEAs and, consequently, the education opportunities available to students, could help establish a fact base to inform future school finance reforms.

Questions for further study might include:

- What is the ability of municipalities to meet minimum required local share?
- What are the specific constraints on municipalities' ability to meet NSS requirements, required local contributions, or what local communities determine to be adequate funding for their schools?
- How have various laws impacted the ability or willingness of municipalities to continue contributing local funding above the required minimum?
- What are the attributes, or types, of communities support Proposition 2 ½ overrides and under what conditions?
- What are the actual NSS ratios compared to the required NSS ratios across LEAs and what are the contributing factors that emerge from an analysis of differences in those ratios?
- How are target, required, and actual local contribution shares shifting across different LEA types?
- What have been the specific impacts on local contributions during the implementation period of the SOA?
- In what ways do the various components of school finance laws interact with one another and are there specific LEA types that are impacted disproportionately?
- How might LEAs with high property tax bases but which may not necessarily serve high-income populations fare differently than those with other mixtures of fiscal capacity and student populations?

Recommendation D: Explore staffing and labor components more deeply

Teacher Salary expenditures are the largest expense category in every LEA in Massachusetts. Additional analysis on teacher salary levels, staffing patterns, experience, collective bargaining agreements, and other cost drivers could reveal important nuances in the understanding of how funding is used and what the impact is on schools, staff, students, and families.

The current study identifies which types of LEAs have increased their Teacher Salary spending and which have seen increases in total FTE. Under Key Spending Trends, Part 2, for example, LEAs in Gateway Cities increased their teacher FTE at higher rates than LEAs in non-Gateway Cities during the studied period, but LEAs in both Gateway and non-Gateway Cities are increasing their Teacher Salary expenditures at similar rates. Unpacking the drivers of this difference could be helpful in understanding other differences across LEAs. For example, it could be beneficial to understand whether the FTE increases are for lower salaried teachers or lower experienced teachers, who might benefit from additional PD or coaching support, versus more experienced teachers. Further research is required to better understand what is driving differences in teacher costs.

A deeper understanding of what expenditure decisions related to staffing were made is likely necessary before taking up the question of impact on student outcomes. This type of analysis would benefit from additional data on teacher step, teacher certifications, tenure, and average salaries.

Recommendation E: Monitor cost drivers or pursue an educational cost study

Costs and spending are related but distinct areas of study. This report specifically focused on spending and expenditure patterns for a specific period of time. Spending studies are important for understanding what the funding was invested into and where there might be changes over time. Cost studies, alternatively, analyze the resources needed to actually run a particular program and achieve specific outcomes. During the interview and focus groups, many LEAs shared feedback around the changing costs of various goods and services that are necessary to run a school. This included but is not limited to inflationary pressures, increased special education and transportation costs, and construction expenses.

Additionally, the foundation budget is based on the "Model School Budget" report by Edward Moscovitch from 1993, and further studies could explore how costs have changed. Further analysis to more deeply understand cost drivers could add to the understanding of expenditure trends.

Suggestions and roadmap for future exploration into student and staff causal outcomes

This section provides ideas for how Massachusetts could more intentionally pursue research that might bear more causality towards the student and staff outcomes that stakeholders care about. If Massachusetts were to propose new adjustments to the Chapter 70 formula in the future, there are some options DESE might consider that could improve the likelihood of conducting more causal analyses on the impacts of the proposed changes. It is unlikely that any further quantitative studies of the current SOA and ESSER spending will result in causality given the limitations of the data and structure.

It is important and vital to emphasize that some of the options outlined below could introduce large risks or burden on LEAs, schools, or the state, or would require legislative action. In that sense, consideration these options also requires a balanced understanding of the cost of their pursuit relative to the benefit to be secured. As such, the discussion below is NOT a set of recommendations but rather an outline of what might be necessary in order to more robustly study the impact of policy changes on student-level outcomes.

Data Quality Improvements

1. **Add program codes for each sub-population of students for which a change is intended to impact.** For example, an intention of the SOA was to better support schools with high percentages of English learners. However, there is currently no easy way to identify English learner-related expenditures in the End of Year Reports. Adding a program code would make it easier for researchers to identify English learner-related activities, such as teachers or paraprofessionals specific to English learners or specific curriculum or classroom materials. In any changes to the funding formula moving forward that might prioritize different groups of students, it will be necessary to account for expenditures specific to those students to build a stronger understanding of the

impact. These changes to EOYR reporting may induce greater demands on the LEA staff responsible for reporting, as well as challenges in establishing consistent rules for shared services, equipment, and professionals. As an example, new guidelines would need to be established on how to code teachers who are dual-certified as classroom and ESL. These challenges must be balanced against the potential benefits of better data quality.

2. **Ensure administrative requirements for LEAs related to any changes are aligned to end of year reporting requirements**. As an example in the current structure, all LEAs, regardless of how much they benefitted from the SOA, are required to regularly submit SOA plans. These SOA plans are to track the intent of the funding against a set of evidence-based practices that DESE had suggested the money could be used to support. In practice, there is no way on the expenditure side to see what portion of the increased expenditure was specifically from the SOA changes, as all funding is tagged as net school spending; nor is there a way to track these evidence-based practices. An example "evidence-based practice" might be "#8: Inclusion/co-teaching for students with disabilities and English learners." While the current end of year reporting has codes for teachers and special education teachers, the data do not show which special education teachers are connected to the inclusion/co-teaching model as an evidence-based practice, or which general education teachers are in co-teaching classrooms. It is also not possible to understand if new professional development was procured to support the co-teaching model. Since schools are complex organizations that implement many programmatic changes each year, an ability to connect the end of year reporting to specific evidence-based practice "programs," in this case, could be valuable, perhaps even more so than the separate reporting done through the SOA plans. Ideas for how this alignment could be improved include:

    - Developing reporting standards that specify object and function combinations for each evidence-based practice and the activities that fall within them, allowing future studies to better identify changes in expenditures that are attributable to those practices.
    - Disaggregating fund sources at the LEA-level and adding the specific funding change (e.g. "SOA") as a fund code. Currently, Chapter 70 is a general fund revenue, meaning it gets added to other sources and loses its identity at the LEA-level. Adjustments to how LEAs are able to identify their fund sources could allow researchers to better identify activities added or funded through those dollars. This may add a reporting burden that likely

outweighs the research benefit, though could possibly be offset by adjusting other reporting requirements.

Policy Design and Roll-Out Considerations

1. **Consider roll-out strategies with research in-mind from the beginning.**
    - Priority district* funding could be adjusted to be compatible with a *regression discontinuity* research design, which is a quasi-experimental design. Currently, priority districts are identified as the largest recipients of additional SOA dollars, but do not get any additional Chapter 70 aid or SOA resources as a result of being labeled as priority districts. If priority districts A) received additional dollars per pupil for being priority districts and B) were identified as priority districts based on a cutoff variable (i.e. are over x% high needs), then the Commonwealth could utilize a regression discontinuity identification strategy to measure the impact of additional resources for priority districts.
    - *Randomized control trials* (RCTs) are the "gold standard" for causal research, though can be difficult to implement at scale. DESE could consider utilizing this method if the changes being proposed are substantive enough to warrant the costs. An RCT-based design would better control for unobservable variables that could influence how new revenue impacts outcomes and would be the best option for limiting bias and identifying the most accurate causal effects. To implement, the state would need to randomly assign LEAs into groups that receive the changed formula over different time periods. However, in addition to political and cost limitations that would almost certainly be insurmountable, this method is likely to only yield insights into changes to overall funding levels, not the impact of specific types of investments on outcomes.
    - Qualitative data is essential for understanding the implementation of any policy change. While experimental and quasi-experimental techniques can be helpful in connecting specific student outcomes to funding categories, qualitative data can reveal the implementation details that make that type of investment scalable. While often expensive and time-consuming, considerations of the qualitative data needs from the beginning can make future reporting requirements and messaging about the changes more effective.

* See the appendix for definitions. Priority Districts are state-identified LEAs and distinct from the "high impact" LEAs used in this study.

2. **Consider future formula changes to have explicit fund sources for the changes or as a separate "add-on" to the Chapter 70 formula.** A change to any funding policy, in any sector, faces many unpredictable implementation hurdles. These inconsistencies can make it difficult for researchers to be more precise in estimating the effect on student-level outcomes. Being able to identify both the funding source in the expenditures and the change in revenue due to the change in the formula would be a monumental step in understanding how LEAs changed spending habits.

Appendices

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Appendix A: Original Research Questions

These seven research questions were included in the original Request for Proposals and served as the basis of this report's analysis.

1. **How did districts and schools use SOA and ESSER funds?** What are the **patterns of spending?** Do similar types of districts, based on characteristics like district size, student groups served, have similar patterns of spending (based on categories)? To what degree were SOA and ESSER funds used for similar or divergent activities?

2. To what extent has the additional funding under the SOA and ESSER funds been **targeted to the intended populations** (low-income students, ELs) in districts and schools? To what extent have these funds been allocated and distributed to districts and schools that disproportionately serve these student groups?

3. To what extent has the **growth in required local contributions under the SOA, as well as the state's distribution of SOA funding to districts and schools been more equitable** than the distribution of Chapter 70 funds in the years prior to SOA?

4. What are trends in SOA and ESSER spending, separately and jointly, at the district level, **relative to district spending in the years prior to SOA and ESSER** (i.e., what categories of spending have increased, decreased, stayed constant) in total dollars and proportionally?

5. What are trends in SOA and ESSER spending, separately and jointly, at the school level, **relative to school-level educational spending the years prior to SOA and ESSER** (i.e., what categories of spending have increased, decreased, stayed constant, both over time and relative to one another)?

6. To what extent did Massachusetts public school districts use these funds to **build capacity by funding investments that will continue after ESSER** funding ends? Which evidence-based practices were invested in?

7. To what extent can we quantitatively **identify spending (in categories or programs) that has been high impact** (i.e., has led to improved student outcomes, for example attendance, discipline, course completion, etc.)? To what extent can we quantitatively identify categories of spending that seemed to be high impact and/or cost-effective (e.g., has shown a positive return on investment)?

Appendix B: Definitions

General

- **Local Education Agency (LEA)[55]:** A district (regional or municipal) or other public education administrative body (e.g. charter school) responsible for overseeing the public schools within its jurisdiction. An LEA may be comprised of multiple schools within its system or may operate a single site.

Archetypes and Student Groups*

- **Low-Income:**
    - Data from FY18-FY21 is from an older DESE definition of economically disadvantaged.[56] This measure is based on a student's participation in one or more of the following state-administered programs: the Supplemental Nutrition Assistance Program (SNAP); the Transitional Assistance for Families with Dependent Children (TAFDC) program; the Department of Children and Families' (DCF) foster care program; and MassHealth (Medicaid) up to 133% of the federal poverty level.
    - From FY22 forward, low-income is calculated based on a student's participation in one or more of the following state-administered programs: (1) the Supplemental Nutrition Assistance Program (SNAP); (2) the Transitional Assistance for Families with Dependent Children (TAFDC); (3) the Department of Children and Families' (DCF) foster care program; (4) expanded MassHealth (Medicaid) up to 185% of the federal poverty level, as well as (5) students identified by districts as homeless and students the district confirmed had met the low-income criteria through a supplemental claim form with supporting documentation.
    - While this change in low-income identification does increase the statewide proportion of low-income students starting in FY22, the distribution of low-income students across LEAs does not drastically change. When analyzing data across low-income LEA quintiles, the proportion of low-income students that fall within each quintile does not change more than 4%

* Unless otherwise noted, definitions are from DESE District and School Report Card, Public Schools & Districts tab: https://profiles.doe.mass.edu/help/data.aspx.

between FY21 and FY22. This suggests that the change in low-income definition has minimal impact on analyses based on low-income quintiles.

- **Students with Disabilities (SWD):** Students who have an Individualized Education Program (IEP).
- **English Learners:** A student whose first language is a language other than English who is unable to perform ordinary classroom work in English.
- **Gateway City[57]:** A "Gateway City" is a municipality in the Commonwealth of Massachusetts with: a population greater than 35,000 and less than 250,000; median household income below the state average; and rate of educational attainment of a bachelor's degree or above that is below the state average.
- **Priority District:***: Also referred to as "high-funding districts," these LEAs were identified by DESE in two cohorts. Cohort 1 Priority Districts (FY22-FY23) are LEAs that received $1.5 million or more in additional Chapter 70 aid in FY22. Cohort 2 Priority Districts (FY24) are LEAs that received $75 million or more in overall Chapter 70 aid in FY24.

Fund Sources

- **Chapter 70 Funding:** The amount of funding provided to LEAs, not including charter schools, from the state's Chapter 70 aid formula each fiscal year.
- **Chapter 70 SOA:** Portion of Chapter 70 funding allocated to LEAs due to increases in the foundation budget enacted through the SOA.
- **ESSER:** Temporary federal funding through the Elementary and Secondary School Emergency Relief (ESSER) programs that helped schools recover from the COVID-19 pandemic. Includes expenditures funded with ESSER I, ESSER II, and ESSER III.
- **Net School Spending (NSS):** The total amount spent on the support of public education from state and local sources; includes expenditures from Chapter 70 aid and local funding sources, excluding student transportation and capital expenditures. NSS does not include federal funded grant expenditures, state grant expenditures, or revolving fund expenditures.
- **Net School Spending minus Chapter 70 SOA:** The total Net School Spending (NSS) less the Chapter 70 SOA amount. In years prior to SOA, "Net School Spending minus Chapter 70 SOA" and NSS are the same.

* Student Opportunity Plans: Guidance Materials and plan template for superintendents for the creation of three-year, evidence-based plans required by the Student Opportunity Act (Long Form). Winter 2020. Issued by Jeffrey C. Riley Commissioner.

- **Required Net School Spending:** Minimum annual Net School Spending requirements for each LEA set in the Chapter 70 formula.

Function Codes

Within expenditure data, LEAS and schools identify spending by "function codes" or set of categories connected to specific expenditures that all schools and Districts use to report spending to the State of Massachusetts. The report uses these codes as a basis of analysis on spending type.

- **Administration:** Superintendent and Assistant Superintendents; School Committee; Legal; Human Resources; Business and Finance; District Administrative Technology; Other Districtwide Administration
- **Capital:** Debt Service; Rental Leases; Equipment; School Construction; Motor Vehicles; Capital Technology; Land Purchases; Short-term Interest BANs
- **Charter Tuition:** Tuition to Commonwealth Charter Schools; Tuition to Horace Mann Charter Schools; Not included in total expenditures to avoid double counting
- **Guidance, Counseling, and Testing:** Psychological Services; Guidance including Adjustment Counselors; Testing and Assessment of Students for special education Services
- **Health Insurance:** Insurance for Active Employees & Retired School Employees
- **Instructional Leadership:** School Leadership; Curriculum Directors and Department Heads; Administrative Technology and Support; Instructional Technology Leadership and Training
- **Instructional Materials, Equipment, and Technology:** General Classroom Supplies, Textbooks, Computers, Libraries, Instructional Hardware, Software, and Other Equipment, and Other Instructional Services
- **Operations and Maintenance:** Utilities; Maintenance of Buildings Equipment, and Grounds; Custodial Services; Technology Infrastructure; Security Systems
- **Other Benefits and Fixed Charges:** School Crossing Guards; Rental Leases of Buildings and Equipment; Employer Retirement Contributions; Employee Separation Costs; Other Non-Employee Insurance; Short Term Interest RANs; Other Fixed Charges
- **Other Teaching Services:** Substitute Teachers, Paraprofessionals, Medical/ Therapeutic Services, Librarians/Media Center Directors

- **Professional Development:** Stipends for Providing Instructional Coaching, Instructional Coaches, Costs to Attend Professional Development, Outside Professional Development Providers for Instructional Staff, Professional Development Leadership
- **Pupil Services:** Athletics, Food Service, Security, Attendance and Parent Liaison Services, Medical/Health Services, Other Student Activities
- **Special Education Tuition:** The portions of the functions beginning with Program Code 02: Tuition for School Choice, Tuition to Collaboratives, Tuition to Non-Public Schools, Tuition to Out-of-State Schools, Tuition to Mass. Schools; Not inclusive of Tuition to Commonwealth Charter Schools.
- **Teacher Salaries:** Classroom Teachers
- **Transportation:** Transportation Services, Charter Transportation Tuition
- **Tuition:** All Program Codes except Program 02 (Special Education) for the following Function Codes: Tuition for School Choice, Tuition to Collaboratives, Tuition to Non-Public Schools, Tuition to Out-of-State Schools, Tuition to Mass. Schools; Not inclusive of Tuition to Commonwealth Charter Schools.

Function Code Crosswalks

Instructional/Non-Instructional Expenditures

INSTRUCTIONAL	
A	Psychological Services
B	Testing and Assessment
C	Guidance incl Adjustment Counselors
D	School Leadership
E	Curriculum Directors and Dept. Heads (Non-Supervisory)
F	Curriculum Directors and Dept. Heads (Supervisory)
G	Administrative Technology and Support (Schools)
H	Instructional Technology Leadership and Training
I	General Classroom Supplies
J	Other Instructional Materials (Libraries)

K	Instructional Hardware - Student and Staff Devices (computers)
L	Textbooks
M	Instructional Hardware - All Other
N	Instructional Software and Other Instructional Materials
O	Instructional Equipment
P	Other Instructional Services
Q	Librarians/Media Center Directors
R	Paraprofessionals
S	Distance Learning and Online Coursework
T	Medical/ Therapeutic Services
U	Substitutes, Long-Term
V	Substitutes, Short-Term
W	Professional Development Leadership
X	Instructional Coaches
Y	Costs for Instructional Staff to Attend Professional Development
Z	Stipends for Teachers Providing Instructional Coaching
AA	Outside Professional Development Providers for Instructional Staff
BB	Teachers, Classroom
CC	Tuition for School Choice
DD	Tuition to Mass. Schools
EE	Tuition to Collaboratives
FF	Tuition to Non-Public Schools
GG	Tuition to Out-of-State Schools

STUDENT SUPPORTS

A	School Security
B	Attendance and Parent Liaison Services
C	Medical/Health Services

D	Athletics
E	Other Student Activities
F	Food Services
G	Transportation Services
H	Charter Transportation Tuition

NON-INSTRUCTIONAL

A	Administrative Technology-Districtwide
B	Business and Finance
C	Human Resources and Benefits
D	Legal Service for School Committee
E	Other District-Wide Administration
F	Legal Settlements
G	School Committee
H	Superintendent
I	Assistant Superintendents
J	Equipment (7300, 7400)
K	Debt Retirement/School Construction
L	Debt Service/School Construction
M	Short Term Interest BANs
N	Capital Technology
O	Purchase of Land and Buildings (7100, 7200)
P	Debt Service/Educ and Other (8400, 8600)
Q	Motor Vehicles (7500, 7600)
R	Insurance for Active Employees
S	Insurance for Retired School Employees
T	Building Security System
U	Technology Infrastructure, Maintenance, and Support - Salaries

V	Technology Infrastructure, Maintenance, and Support - All Other
W	Heating of Buildings
X	Utility Services
Y	Maintenance of Grounds
Z	Maintenance of Equipment
AA	Maintenance of Buildings
BB	Extraordinary Maintenance
CC	Custodial Services
DD	Employer Retirement Contributions
EE	Other Non-Employee Insurance
FF	Short Term Interest RANs
GG	Rental Lease of Equipment
HH	Rental Lease of Buildings
II	Employee Separation Costs
JJ	Other Fixed Charges
KK	School Crossing Guards

One-Time/Recurring Expenditures

ONE-TIME	
A	Administrative Technology and Support (Schools)
B	Other Instructional Matls (Libraries)
C	Instructional Hardware - Student and Staff Devices (computers)
D	Textbooks
E	Instructional Hardware - All Other
F	Instructional Software and Other Instructional Materials
G	Instructional Equipment
H	Administrative Technology-Districtwide

I	Equipment (7300, 7400)
J	Debt Retirement/School Construction
K	Debt Service/School Construction
L	Short Term Interest BANs
M	Capital Technology
N	Purchase of Land and Buildings (7100, 7200)
O	Debt Service/Educ and Other (8400, 8600)
P	Motor Vehicles (7500, 7600)
Q	Building Security System
R	Extraordinary Maintenance
S	Short Term Interest RANs

RECURRING

A	School Committee
B	Superintendent
C	Assistant Superintendents
D	Psychological Services
E	Testing and Assessment
F	Guidance incl Adjustment Counselors
G	School Leadership
H	Curriculum Directors and Dept. Heads (Non-Supervisory)
I	Curriculum Directors and Dept. Heads (Supervisory)
J	Instructional Technology Leadership and Training
K	General Classroom Supplies
L	Other Instructional Services
M	Librarians/Media Center Directors
N	Paraprofessionals
O	Distance Learning and Online Coursework

P	Medical/ Therapeutic Services
Q	Substitutes, Long-Term
R	Substitutes, Short-Term
S	Professional Development Leadership
T	Instructional Coaches
U	Costs for Instructional Staff to Attend Professional Development
V	Stipends for Teachers Providing Instructional Coaching
W	Outside Professional Development Providers for Instructional Staff
X	Tuition for School Choice
Y	Tuition to Mass. Schools
Z	Tuition to Collaboratives
AA	Tuition to Non-Public Schools
BB	Tuition to Out-of-State Schools
CC	Teachers, Classroom
DD	Business and Finance
EE	Human Resources and Benefits
FF	Legal Service for School Committee
GG	Other District-Wide Administration
HH	Legal Settlements
II	Insurance for Active Employees
JJ	Insurance for Retired School Employees
KK	Technology Infrastructure, Maintenance, and Support - Salaries
LL	Technology Infrastructure, Maintenance, and Support - All Other
MM	Heating of Buildings
NN	Utility Services
OO	Maintenance of Grounds
PP	Maintenance of Equipment
QQ	Maintenance of Buildings

RR	Custodial Services
SS	Employer Retirement Contributions
TT	Other Non-Employee Insurance
UU	Rental Lease of Equipment
VV	Rental Lease of Buildings
WW	Employee Separation Costs
XX	Other Fixed Charges
YY	School Crossing Guards
ZZ	School Security
AAA	Attendance and Parent Liaison Services
BBB	Medical/Health Services
CCC	Athletics
DDD	Other Student Activities
EEE	Food Services
FFF	Transportation Services
GGG	Charter Transportation Tuition

Evidence-Based Practices

#	EVIDENCE-BASED PRACTICE
1	Expanded access to full-day, high-quality pre-kindergarten for 4-year-olds, including potential collaboration with other local providers
2	Research-based early literacy programs in pre-kindergarten and early elementary grades
3	Early College programs focused primarily on students under-represented in higher education
4	Supporting educators to implement high-quality, aligned curriculum
5	Expanded access to career-technical education, including After Dark district-vocational partnerships and innovation pathways reflecting local labor market priorities
6	Culturally responsive teaching and other strategies that create equitable and culturally responsive learning environments for students
7	Expanded learning time for all students in the form of a longer school day or school year
8	Inclusion/co-teaching for students with disabilities and English learners

9	Language support programs, including dual-language and heritage language programs (students learning in home/native language)
10	Acceleration Academies and/or other summer learning to support skill development and accelerate advanced learners
11	Dropout prevention and recovery programs
12	Diversifying the educator/administrator workforce through recruitment and retention
13	Leadership pipeline development programs for schools
14	Strategies to recruit and retain educators/administrators in hard-to-staff schools and positions
15	Increasing opportunities for educators and support staff to engage in a cycle of continuous improvement, utilizing district and school teaming structures
16	Expanding capacity to address SEL and mental health needs for students/families
17	Increasing opportunities for all students to engage in arts, enrichment, world languages, athletics, and elective courses
18	Developing effective family/school partnerships
19	Community partnerships for in-school enrichment and wraparound services
20	Labor-management partnerships to improve student performance
21	Facilities improvements to create healthy and safe school environments

Appendix C: Archetype Details

Gateway City Status - FY24

Sub-Archetype	Gateway Cities	Non-Gateway Cities
Number of LEAs	26	282
Number of Schools	451	1164
Total Enrollment	241,733	627,484
Average LEA Enrollment	9,297	1,827
Average School Enrollment	533	492
Average % Low Income	66%	34%
Average % High Needs	76%	48%
Average % English Learners	23%	6%
Average % Students with Disabilities	22%	20%
Average Expenditures per Pupil	$25,082	$27,397
Average ESSER per pupil	$1,203	$428
Average SOA revenue	$1,607	$301

Summary of High Vs. Low Percent English Learner - FY24

Sub-Archetype	Low Percent English Learner	High Percent English Learner
By LEA		
Number of LEAs	255	132
Number of Schools	901	897
% English Learner Range	0% - 7%	7% - 61%
Total Enrollment	441,670	627,484
Average LEA Enrollment	1,660	1,687
Average School Enrollment	484	525

Average % Low Income	28%	58%
Average % High Needs	42%	70%
Average % English Learners	3%	18%
Average % Students with Disabilities	20%	20%
Average Expenditures per Pupil	$26,452	$28,630
Average ESSER per pupil	$419	$1,487
Average SOA revenue	$228	$948
By School		
Number of Schools	1197	601
% English Learner Range	0% - 13%	13% - 100%
Total Enrollment	595617	311457
Average School Enrollment	498	518
Average % Low Income	31%	66%
Average % High Needs	45%	79%
Average % English Learners	4%	31%
Average % Students with Disabilities	21%	22%
Average Expenditures per Pupil	$26,273	$30,423
Average ESSER per pupil	$572	$1,648

Summary of LEA Low-Income Quintiles - FY24

Sub-Archetype	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
By LEA					
Number of LEAs	76	76	76	79	80
Number of Schools	401	272	257	305	563
% Low-Income Range	0% - 18%	18% - 28%	28% - 40%	40% - 59%	59% - 94%
Total Enrollment	212,179	136,451	114,855	164,562	286,912
Average LEA Enrollment	2,652	1,706	1,454	2,083	3,542

Average School Enrollment	526	501	447	527	505
Average % Low Income	11%	24%	35%	48%	72%
Average % High Needs	28%	39%	47%	61%	81%
Average % English Learners	3%	3%	5%	10%	18%
Average % Students with Disabilities	18%	20%	20%	21%	22%
Average Expenditures per Pupil	$25,095	$24,389	$28,027	$29,837	$28,454
Average ESSER per pupil	$113	$284	$523	$662	$2,261
Average SOA revenue	$82	$128	$285	$673	$1,546
By School					
Number of Schools	360	363	364	357	354
% Low-Income Range	0% - 17%	17% - 30%	30% - 48%	48% - 72%	72% - 100%
Total Enrollment	190470	183055	171310	204421	157818
Average School Enrollment	529	504	471	573	446
Average % Low Income	11%	23%	38%	60%	83%
Average % High Needs	29%	39%	52%	72%	91%
Average % English Learners	4%	4%	8%	19%	31%
Average % Students with Disabilities	18%	20%	21%	22%	28%
Average Expenditures per Pupil	$25,212	$24,661	$26,985	$27,976	$33,470
Average ESSER per pupil	$117	$301	$592	$1,148	$2,502

LEA High Need Quintiles - FY24

Sub-Archetype	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
By LEA					
Number of LEAs	77	74	76	81	79
Number of Schools	369	293	268	297	571

% High Needs Range	0% - 34%	34% - 42%	42% - 53%	53% - 70%	70% - 97%
Total Enrollment	192,811	151,914	120,898	151,235	298,101
Average LEA Enrollment	2,410	1,899	1,550	1,867	3,726
Average School Enrollment	520	516	451	496	518
Average % Low Income	12%	24%	34%	48%	72%
Average % High Needs	28%	38%	47%	61%	82%
Average % English Learners	2%	3%	4%	9%	20%
Average % Students with Disabilities	17%	19%	21%	22%	21%
Average Expenditures per Pupil	$24,685	$24,551	$27,372	$30,440	$28,618
Average ESSER per pupil	$131	$325	$475	$682	$2,248
Average SOA revenue	$79	$172	$238	$648	$1,633
By School					
Number of Schools	362	361	364	361	350
% High Needs Range	0% - 34%	34% - 45%	45% - 62%	62% - 84%	84% - 100%
Total Enrollment	205034	179751	173964	202192	146133
Average School Enrollment	566	498	478	560	418
Average % Low Income	12%	24%	38%	60%	83%
Average % High Needs	27%	39%	53%	73%	92%
Average % English Learners	3%	4%	8%	18%	32%
Average % Students with Disabilities	16%	19%	22%	23%	29%
Average Expenditures per Pupil	$24,416	$24,767	$27,070	$27,983	$34,147
Average ESSER per pupil	$151	$306	$570	$1,191	$2,466

LEA Students with Disabilities - FY24

Sub-Archetype	Tertile 1	Tertile 2	Tertile 3
By LEA			
Number of LEAs	126	133	128
Number of Schools	405	682	711
% SwD Range	0% - 18%	18% - 22%	22% - 56%
Total Enrollment	230,944	364,498	319,517
Average LEA Enrollment	1,736	2,741	2,402
Average School Enrollment	567	533	442
Average % Low Income	34%	34%	46%
Average % High Needs	46%	48%	59%
Average % English Learners	8%	7%	7%
Average % Students with Disabilities	15%	20%	26%
Average Expenditures per Pupil	$25,493	$26,301	$29,798
Average ESSER per pupil	$619	$630	$1,103
Average SOA revenue	$327	$342	$561
By School			
Number of Schools	597	604	597
% SwD Range	0% - 15%	15% - 18%	18% - 21%
Total Enrollment	347272	331717	228085
Average School Enrollment	560	593	455
Average % Low Income	37%	35%	48%
Average % High Needs	49%	49%	62%
Average % English Learners	16%	12%	12%
Average % Students with Disabilities	12%	17%	27%
Average Expenditures per Pupil	$25,550	$26,103	$31,350
Average ESSER per pupil	$690	$717	$1,395

LEA Nonwhite - FY24

Sub-Archetype	Tertile 1	Tertile 2	Tertile 3
By LEA			
Number of LEAs	125	132	130
Number of Schools	374	574	850
% Nonwhite Range	1% - 19%	19% - 41%	41% - 100%
Total Enrollment	164,010	283,606	467,343
Average LEA Enrollment	1,243	2,116	3,514
Average School Enrollment	438	492	542
Average % Low Income	28%	29%	57%
Average % High Needs	41%	44%	69%
Average % English Learners	2%	5%	17%
Average % Students with Disabilities	20%	21%	20%
Average Expenditures per Pupil	$26,303	$26,882	$28,370
Average ESSER per pupil	$431	$401	$1,509
Average SOA revenue	$223	$256	$1,003
By School			
Number of Schools	600	601	597
% Nonwhite Range	1% - 26%	26% - 57%	57% - 100%
Total Enrollment	267722	321693	317659
Average School Enrollment	446	535	532
Average % Low Income	26%	33%	70%
Average % High Needs	40%	49%	82%
Average % English Learners	3%	9%	28%
Average % Students with Disabilities	20%	21%	24%
Average Expenditures per Pupil	$24,592	$26,973	$31,452
Average ESSER per pupil	$362	$526	$1,921

LEA Size Quintile - FY24

Sub-Archetype	Quintile 1	Quintile 2	Quintile 3	Quintile 4	Quintile 5
By LEA					
Number of LEAs	75	78	77	79	78
Number of Schools	83	120	205	370	1020
Enrollment Range	0 - 453	453 - 1035	1035 - 1,686	1,686 - 3,307	3307 - 45,724
Total Enrollment	18,100	56,836	106,910	190,498	542,615
Average LEA Enrollment	226	710	1,353	2,381	6,783
Average School Enrollment	215	472	515	505	530
Average % Low Income	46%	41%	36%	29%	39%
Average % High Needs	57%	54%	49%	43%	53%
Average % English Learners	7%	7%	6%	5%	13%
Average % Students with Disabilities	21%	21%	19%	20%	20%
Average Expenditures per Pupil	$33,394	$27,311	$26,162	$24,474	$24,893
Average ESSER per pupil	$1,551	$827	$572	$394	$603
Average SOA revenue	$277	$296	$324	$313	$718
By School					
Number of Schools	343	364	362	365	364
Enrollment Range	0 - 252	252 - 359	359 - 476	476 - 667	667 - 3,586
Total Enrollment	52898	111447	150966	204213	387550
Average School Enrollment	154	306	417	559	1,065
Average % Low Income	51%	41%	39%	42%	41%
Average % High Needs	66%	55%	53%	56%	54%
Average % English Learners	13%	13%	13%	15%	12%
Average % Students with Disabilities	31%	21%	19%	20%	18%

Average Expenditures per Pupil	$34,045	$27,432	$26,242	$25,619	$25,380
Average ESSER per pupil	$1,515	$908	$767	$803	$711

Declining Enrollment - FY24

Sub-Archetype	Declining	Not Declining
Number of LEAs	250	137
Number of Schools	1119	679
Total Enrollment	655,132	259,827
Average LEA Enrollment	2,529	1,856
Average School Enrollment	477	549
Average % Low Income	36%	42%
Average % High Needs	49%	56%
Average % English Learners	7%	10%
Average % Students with Disabilities	20%	20%
Average Expenditures per Pupil	$27,137	$27,300
Average ESSER per pupil	$838	$684
Average SOA revenue	$348	$552

LEA Type - FY24

Sub-Archetype	District	Vocational	Charter - Gateway	Charter - Boston	Charter - Other
Number of LEAs	283	26	30	4	44
Number of Schools	1697	26	29	4	42
Total Enrollment	833,049	29,977	21,127	2,426	28,380
Average LEA Enrollment	2,814	1,153	729	607	645
Average School Enrollment	489	1,153	729	607	579

Average % Low Income	32%	38%	69%	79%	52%
Average % High Needs	46%	52%	80%	87%	64%
Average % English Learners	7%	3%	18%	28%	9%
Average % Students with Disabilities	20%	21%	19%	18%	21%
Average Expenditures per Pupil	$26,770	$32,413	$24,456	$33,044	$28,179
Average ESSER per pupil	$503	$491	$1,667	$3,932	$1,870
Average SOA revenue	$383	$708	$ -	$ -	$ -

Gateway City Status

A Gateway City is a municipality with:

- A population greater than 35,000 and less than 250,000
- A median household income below the state average
- Rate of educational attainment of Bachelor's Degree or above that is below state average

Municipalities can change their Gateway City status. For the purposes of this report, LEAs (including Charters) in the following 26 municipalities were considered Gateway Cities:

Gateway Cities		
Attleboro	Lawrence	Pittsfield
Barnstable	Leominster	Quincy
Chelsea	Lowell	Revere
Chicopee	Lynn	Salem
Everett	Malden	Springfield
Fall River	Methuen	Taunton
Fitchburg	New Bedford	Westfield
Haverhill	Peabody	Worcester
Holyoke		

Appendix D: Detailed Methodology

The study sought to better understand how the Commonwealth's LEAs and schools utilized resources in total, as well as separately, across ESSER and SOA. Attributing any trends, changes, or impacts to a single initiative or funding source is complex, as LEA resource allocation decisions are often influenced by broader contextual factors, including multiple other funding streams and strategic priorities. Therefore, analyzing categorical funding individually may not fully capture the interplay between various funding sources and the strategic decisions LEAs make. **This analysis examines resource expenditures across multiple layers at the LEA and school levels: total expenditures, ESSER-only expenditures, and NSS expenditures.**

Together with DESE, the study developed twelve (12) archetypes, or sets of characteristics, by which to compare schools and LEAs*. Archetypes allow the study to more deeply examine trends across and within groups of LEAs and schools that have meaningful differences from one another.

The study employed multiple approaches to answer the research questions, including summary statistics, variance analysis, multivariate regression, focus groups, and interviews.

Attributing specific expenditures to new Chapter 70 Revenue due to Student Opportunity Act

One primary purpose of this study is to understand how LEAs and schools spent new funds due to the SOA. The study used multiple cuts of expenditure data to triangulate what types of funding might be reasonably attributed to the SOA.†

NSS is used as the primary proxy for associations of SOA funding on specific expenditures. NSS is inclusive of spending that was received as part of an LEA's Chapter 70 allocation as well as any local funding, as both elements were directly impacted by changes brought by the SOA legislation. Looking at changes in NSS across expenditure categories, particularly when comparing LEAs that received higher or lower proportions of SOA funding, is one way to reasonably attribute changes to the SOA.

* Detailed definitions and details on archetype groups is included in the appendix

† Expenditure data is coded by NSS and ESSER. "SOA" funding is not a separate revenue line, and NSS includes both local and Chapter 70 funding.

As a secondary review, the study examined changes in total expenditures. LEAs have some flexibility in how they classify expenditures, and looking at total expenditures highlights changes in spending categories that could have shifted to other fund sources (such as ESSER or other federal grants) or are not eligible for NSS (such as capital expenses).

In addition to quantitative approaches, the study utilized interviews and focus groups to further understand the scale the SOA funds had on specific expenditure groups.

Timeframe

The study focused on the impact of ESSER and SOA investments by analyzing a range of fiscal years before and after these funds were distributed. Fiscal Year 2024 ("FY24", or the 2023-2024 school year) was used as the most recent year for analysis, as it provided the latest complete data on expenditures.

To establish a clear picture of trends before these funds were introduced, the study included several years of data prior to the distribution of ESSER and SOA funds. Since ESSER funds began in FY21 and most SOA investments occurred the following year, the study included data from FY18 onward to ensure at least two years of baseline data before the pandemic began in FY20.

Quantitative Data Sample

The study worked with DESE to define which K-12 schools and LEAs would be included in the analysis, as the universe of schools and LEAs varied by fiscal year.

To capture broad trends across the state, the study included LEAs and schools that had data for at least one year in the study period (FY18 to FY24), even if they didn't appear in every fiscal year. This approach helped include schools that had opened, closed, or merged during the study period. Schools and LEAs that were missing both enrollment and expenditure data for a given year were excluded, as these data points were essential for analysis.

Additionally, many non-traditional specialty schools with different operating models were excluded from the analysis. These excluded schools and LEAs were identified broadly as virtual schools, pre-kindergarten centers, therapeutic day schools, and out-of-state schools.

The total universe of LEAs and schools varied by fiscal year and by dataset. The final dataset included between 406 and 398 LEAs and a school count between 1,835 and 1,798.

Final Number of Schools and LEAs Included in Analysis, by Fiscal Year

FISCAL YEAR	COUNT OF LEAS	COUNT OF SCHOOLS
FY18	406	1,832
FY19	406	1,835
FY20	403	1,831
FY21	400	1,829
FY22	400	1,824
FY23	398	1,813
FY24	399	1,798

Datasets

This report worked to collect, clean, and organize disparate administrative datasets by fiscal year, by LEA, and by school (where applicable) into a singular database across the following broad data categories.

Expenditure Data – This study used End of Year (EOY) reports as the administrative data source for expenditures. This dataset includes detailed records of how LEAs and schools spent their allocated funds, broken down into categories such as instructional spending, student support services, and non-instructional services. This data is self-reported by LEAs.

- The DESE account code structure classifies LEA-reported expenditures into a variety of different categories – for example, by funding source (e.g., state, local, federal), object codes (e.g., wages versus instructional materials) and function codes (e.g., instructional versus non-instructional). This allows DESE and the study to track how much money was spent on key areas such as Teacher Salaries; Instructional Materials, Equipment, and Technology; and Pupil Services across schools and LEAs and assess whether funding was distributed equitably to schools with the greatest needs.

- o Charter schools are included in this dataset. However, Charter schools utilize their own chart of accounts which DESE crosswalks to match the LEA chart of accounts.

Funding Data - This includes data on the amount of funding received by each LEA, including ESSER and SOA funds, as well as other sources such as local funds and state funding allocations.

- Funding data is necessary to understand the total resources available to each LEA and how the infusion of ESSER and SOA funds compares to previous funding years. It helps to answer whether additional state and federal resources were allocated where they were needed most.

- Chapter 70 revenue data was accessed through DESE's publicly available Chapter 70 formula calculation worksheets. This data is only available at the LEA level, by design, and includes Chapter 70 revenue, required NSS targets, and required local contributions for each year. The SOA adjusted all three of these data points for most LEAs starting in FY22. DESE provided the study with estimates on how the SOA changed Chapter 70 revenue, required NSS, and required local contributions compared to the pre-SOA formula. The study used these calculations from DESE as the basis of the analysis of changes to revenue, required NSS, and required local contributions due to the SOA.

Staffing Data - Staffing data includes FTE data on teachers, administrators, and other personnel employed by schools and LEAs, along with the type of staff (e.g., general education, special education, support staff).

- Most school and LEA funds are expended on staff. Since increased expenditures in staff categories does not always translate to increased staff FTE, the study uses both expenditure data staff FTE data to understand how funds affected personnel categories.

Student Needs and Enrollment Data - This data captures information about the demographics and specific needs of the students served by each school or LEA, including data on low-income students, English learners, and students with disabilities. Understanding the student population's needs is critical for assessing whether ESSER and SOA funds were directed toward LEAs and schools serving high-need students. By linking spending patterns to the student groups most in need of support, this study can evaluate whether these funds were effectively targeted to the students who would benefit most.

Two different enrollment metrics were used for different analysis:

- *Actual enrollment* was used to calculate LEA/school size and expenditure per pupil statistics. This was based on October 1 student headcounts.
- *Foundation enrollment* was used for calculating per pupil statistics related to Chapter 70 revenue, including Chapter 70 revenue per pupil. Foundation enrollment differs from actual enrollment in that it includes students who attended a non-public school, including Charter schools, in the district LEA enrollment. The study uses foundation enrollment for all Chapter 70 revenue related calculations since the Chapter 70 formula uses foundation enrollment to calculate LEA revenue.

School/LEA Characteristics and Enrollment - This data includes basic characteristics of schools and LEAs, such as school type (e.g. district, vocational, Charter), grade bands (e.g., elementary, secondary), enrollment size, geographic location, and student demographics.

- School and LEA characteristics provide context for the analysis by highlighting factors such as size, location, and student composition that can influence how funds are allocated and used. For example, larger LEAs or urban LEAs with a diverse student population may face different challenges and funding needs compared to smaller, rural LEAs.

Outcomes Data - Student outcomes data is used to begin to assess the impact of resource investments on students. The study used the following outcomes data:

- **MCAS Proficiency:** This study used both MCAS ELA and MCAS proficiency rates for all grades where MCAS is administered. The Massachusetts Comprehensive Assessment System (MCAS) is a set of statewide standardized tests. Students in grades 3-8 and 10 take MCAS tests in English language arts and mathematics.
- **Attendance Rates:** Since attendance rates have remained low post-COVID-19 nationwide, the study examines changes in attendance rates as a measurement of post-COVID-19 outcomes. This study utilizes attendance rates for all grades by school.

Processing and Categorizing Expenditure Data

Fund Sources:

Every expenditure in the EOY reports is attributed to a specific fund source. The study organized expenditures by fund source the following ways:

- **Total expenditures** included all expenditures that were attributable to a school or LEA, regardless of fund source. This includes state, local, federal, and grant funds .
- **Net school spending** expenditures were aligned to the state's calculation for NSS. This included expenditures that were tagged with school committee or city/town (i.e. municipality) as the funding source, excluding the following functions: 3300 (Transportation services), 2400 (Food Services), 5450 (Short-term interest (BANS)), 5500 (other fixed charges), 5550 (school crossing guards), 6000 series (recreation, services to non-public schools), 7000 (capital), 8000 (debt services), 9130 (charter school transportation).
- **SOA expenditures** are expenditures that are directly attributable to increases in the Chapter 70 formula due to the SOA. While a primary purpose of this study is to understand how LEAs and schools spent new funds due to the SOA, the study cannot attribute specific expenditure lines to SOA dollars for several reasons:
    - The "SOA" funding was a set of statutory changes to the Chapter 70 aid calculations, and therefore LEAs do not receive a separate revenue stream specifically tied to SOA. Chapter 70 aid is distributed to LEAs as one fund – the portion of Chapter 70 aid that is due to the SOA is not a distinct funding source from total Chapter 70 aid; rather, all Chapter 70 aid is sent to LEAs as one fund source. Moreover, Chapter 70 aid cannot be disentangled from locally generated revenue in the EOY expenditure reports. All these funds appear in either the School Committee or City/Town funding source. Therefore, the study cannot reliably identify specific expenditures that can be attributed to new revenue from the SOA.
- **ESSER expenditures** only included funds that were tagged with ESSER 1, ESSER 2, ESSER 3, or ESSER SEA as the funding source.

Functions:

All expenditures are tagged with functions, which indicates what activity the expenditure was used for. Massachusetts' chart of accounts differs from others in

that function codes, rather than object codes, are the most granular expenditure category. While objects are used for a select few analyses, function were most useful in understanding how funds were spent.

- **School vs. Central office:** All functions are designated as school functions or central office functions, with central office functions only being attributed at the LEA level. Some school functions are also reported at the LEA level and not the school level. For example, some LEAs reported centrally managed and dispatched special education instructional staff as central office teachers. While these staff primarily serve in schools, they appear as central office resources on EOY reports. To account for these staff at the school level, the study distributed those costs to each school within the LEA within a fiscal year based on actual enrollment data. For example, if school A had 50% of enrollment for an LEA in FY24, then 50% of the school functions attributed to central office were distributed to school A for the purpose of school-level analysis. While this estimate does not perfectly account for where centrally managed school resources were utilized at the school level, excluding these from school analysis could under-count expenditures for LEAs that put more school-based resources on central office books.

- **Excluded Functions:** While all function codes were included in the study's database, some functions were excluded from analyses of total and per pupil expenditures. These functions were excluded either because they would be double counted with other expenditures, such as tuition dollars that would show up as expenditures from the sending LEA as well as expenditures for the charter or special school, or because they are not used within the school or LEA. The following functions were excluded from per pupil and total school/LEA expenditures: Civic Activities, Health Services to Non-Public Schools, Indirect Cost Transfers, Recreation Services, Regional School Assessments, transportation to non-public schools, tuition to commonwealth charter schools, and tuition to Horace Mann Charter Schools.

- **Function Groups:** While there are 91 function codes in Massachusetts's unified chart of accounts for EOY reporting, for most analysis the study has rolled these functions up into 15 function groups (see Appendix B for how function codes were mapped to function groups). The study opted to use function groups over the more detailed functions for two main reasons. Firstly, it is easier to understand larger trends with broader buckets of funding. Secondly, the EOY reports did not include any narrative information attached to each expenditure to indicate further

details. Had that information been available, the study would have audited each expenditure line to understand the variation across schools and LEAs in how they tagged expenditures with functions.

- **Instructional vs. Student Supports vs. Non-Instructional:** Each function was categorized as instructional, student support, or non-instructional to better understand what proportion of school and LEA expenditures were related to instructional activities. Instructional included functions that support instruction, not just direct instruction. Student supports were primarily central office activities that directly impact students. Non-instructional expenditures included everything else. See Appendix B for how the study mapped functions.
- **Recurring vs. One-Time:** The study was interested in whether new investments, particularly for ESSER, were spent on one-time or recurring expenditures. For the purpose of this study, one-time expenditures indicated those that would not be expended every year. It is possible for one-time expenses to incur future operations costs; for example, a capital project to build a new school would incur new yearly expenditures. In this case, the capital expenditure would be considered one-time and all subsequent operations expenditures would be considered recurring. The study could not perfectly identify recurring versus one-time expenditures in the expenditure data. Instead, the study used function codes as a proxy by categorizing each function as primarily being recurring or one-time. This is not a perfect proxy since many function codes could be used for either one-time or recurring expenditures. See Appendix B for how the study categorized expenditures.

Archetypes

The study used (12) archetypes, or sets of characteristics, on which to compare schools and LEAs against. Archetypes allow the study to more deeply examine trends across groups of LEAs and schools that have meaningful differences. While the study examined all research questions across all archetypes, not all are used in the final report. Low-income, Gateway City status, and English Learners were included in the report because they were contextually important and yielded interesting results.

Other archetypes were excluded from the final analysis for the following reasons:

- **High Needs:** this is a composite identification that includes low-income, English learner status, and disability status. As such, it highly correlates with those archetypes.
- **Priority Districts** – While these are identified by DESE, they do not receive any additional resources for being a Priority Districts. Moreover, these are highly correlated with Gateway Cities.
- **Enrollment Quintile** – This was a useful control variable but did not yield interesting results on its own.
- **BPS** – This was merged into Gateway Cities analyses.
- **Declining Enrollment** – This functioned as a useful flag when analyzing other archetypes but did not yield interesting results largely since most LEAs were declining enrollment.
- **Students with Disabilities** – This was a useful control variable but did not yield interesting results on its own, largely because Students with Disabilities are distributed relatively evenly across the state.
- **Nonwhite** – This highly correlated with percent low-income and percent English learner.
- **LEA type** – This was contextually useful for gathering qualitative data and functioned as a useful control variable, but did not yield interesting results when looking at quantitative data.
- **Declining Staff per Pupil** – Since resources levels were a primary dependent variable, including that as an independent variable skewed analysis of this archetype.

ARCHETYPE	SUB-ARCHETYPE	REASON FOR INCLUDING	IDENTIFICATION METHOD
High Needs	Quintiles Q1 – Q5	SOA legislation was targeted toward high needs student groups.	School/LEA % high needs, quintile calculated within each fiscal year. Quintiles were calculated for LEAs and for schools, and both are used for different analyses.
Priority Districts	Priority, Not Priority	SOA legislation identifies priority districts as largest recipients of SOA investments.	LEA belongs to either cohort 1 or cohort 2 priority districts, determined by DESE

Declining Enrollment	Declining Enrollment, Not Declining Enrollment	Identifying declining enrollment LEAs and schools helps the study understand how enrollment trends impact expenditures per pupil.	LEAs/Schools that had less enrollment in FY24 than they did in FY18
Enrollment Quintile	Quintiles Q1 – Q5	LEA and school size can impact resourcing levels in student-based funding formulas.	School/LEA enrollment, quintiles calculated within each fiscal year. Quintiles were calculated for LEAs and for schools, and both are used for different analyses.
Boston Public Schools (BPS) versus Non-BPS	BPS, Not BPS	Boston Public Schools is often an outlier in size, costs, and expenditures per pupil.	Boston LEA/Schools separated from non-Boston LEAs/schools
Gateway City Status	Gateway City, Not Gateway City, BPS	Gateway Cities typically have different conditions that influence costs and needs. Moreover, Gateway Cities are a target group for SOA investments.	Gateway City LEAs/ schools separated from non-Gateway City LEAs/ schools. BPS separated into 3rd category so it does not confound Gateway/non-Gateway summary statistics since BPS is an outlier. Charters are not included.
LEA Type	District, Vocational, Boston Charter, Gateway City Charter, Other Charter	Different types of LEAs have different costs structures and needs.	District and vocational LEAs/schools separated out into their own categories. Charter LEAs/ schools are further separated out based on Boston charters (i.e. have a Boston address), Gateway City charters (i.e. have an address in a Gateway City), and all other charters. Note – Boston and Gateway charters are based on school address, not student sending districts since the study did not have sufficient data to track students' home district.
Low Income Quintile	Quintiles Q1 – Q5	Low-income students are a driver for Chapter 70 formula revenue and are a target group for the SOA.	School/LEA % low income, quintiles calculated within each fiscal year. quintiles were calculated for LEAs and for schools, and both are used for different analyses.

English Learner Percentage	High English Learner (Tertile 3) versus Low English learner (Tertile 1 and 2).	English learners are a driver for Chapter 70 formula revenue and are a target group for the SOA.	School/LEA % English learners, tertiles calculated within each fiscal year. Tertiles were calculated for LEAs and for schools, and both are used for different analyses. Since the majority of high needs students are in Tertile 3, this represented a natural cutoff for analyzing data, and therefore Tertile 1 and Tertile 2 are categorized together into "Low English Learner."
Students with Disabilities Quintile	Tertiles T1, T2, T3	Students with disabilities have varying needs that can affect school resourcing.	School/LEA % Students with Disabilities, tertiles calculated within each fiscal year. Tertiles were calculated for LEAs and for schools, and both are used for different analyses.
Nonwhite Quintile	Tertiles T1, T2, T3	Nonwhite students are a target group for the SOA.	School/LEA % nonwhite, tertiles calculated within each fiscal year. Tertiles were calculated for LEAs and for schools, and both are used for different analyses.
Declining Staff per Pupil	Declining Staff per Pupil, Not Declining Staff per Pupil	Declining staff per pupil can indicate declining resourcing.	LEAs/Schools are declining staff if total staff per pupil ratio in FY18 is higher than total staff per pupil ratio in FY24.

Qualitative Research Design

Overall, this study employed a mixed-methods explanatory sequential design, meaning quantitative data was analyzed first, and qualitative data was gathered afterwards to add nuance and meaning to the quantitative information. To gather the qualitative data, a phenomenological research design was used consisting of in-depth interviews and focus groups to capture the experiences of LEAs after the initial infusion of funding.

The goals of the qualitative research were to better understand:

1. How LEAs evaluated their Chapter 70 aid and ESSER funding options;

2. What specific investments were underneath the quantitative data, particularly as it related to evidence-based practices; and

3. The felt impact of the funding infusions on LEA programming, budget processes, student needs, staffing and the workforce.

Data collection occurred from March – May 2025, during which eight (8) semi-structured interviews were conducted with "High Impact" LEAs, nine (9) focus groups were conducted across 38 LEAs, and six (6) LEAs completed a survey that mirrored the focus group questions.

Qualitative Data Sample

All LEAs in the Commonwealth were offered an opportunity for participation in an interview or focus group. Emails were sent to all CFO/Budget Officers in the State requesting voluntary participation in one of the 90-minute focus groups. A separate email was sent to the Superintendent and CFO/Budget officer of the "High Impact" LEAs to request voluntary participation in a 2-hour interview. Analysis of the participant demographics after completing the initial interviews and focus groups revealed potential bias in understanding for some LEA types. A survey was designed and distributed to a sub-set of LEAs, detailed below, that followed the exact questions from the focus groups.

In total, 63 individuals across 52 LEAs participated in the qualitative data collection process. This sample is about 13% of the total LEAs in the state in FY24.

Final LEA Participation in Qualitative Data by LEA Type

LEA TYPE*	PARTICIPATING LEAS	# FOCUS GROUPS OFFERED
Charter	7	1
Regional-Vocational	5	1
Regional-Municipal	10	1
Non-Gateway Municipal	15	3
Gateway/Urban Municipal	15	3
TOTAL	**52**	

"High Impact" LEAs are included across the data above.

Final LEA Participation in Qualitative Data by Engagement Type

ENGAGEMENT TYPE	PARTICIPATING LEAS
Focus Group	38
Interview (only "high impact" LEAs)	8
Survey	6
TOTAL	**52**

Criteria for "High Impact" LEA designation

The "High Impact" LEAs were identified using a rubric of twelve criteria, detailed below. A total of 34 LEAs fit within two or more criteria. To be considered "High Impact" an LEA had to have a minimum of seven of the twelve criteria and at least one per group. A total of nine (9) LEAs fit this criteria, and each was provided opportunities for deeper interviews with the Superintendent and CFO.

These nine LEAs were of particular interest as there was an assumption that this group was likely to have "benefitted most" from the infusion of funding, meaning that the amounts they received were more likely to be more meaningful across the parameters of interest. There was also an assumption that due to the large amounts of funding, their choices within the function categories might be more meaningful to understanding more specific investments across the changes in functions over time.

ESSER Funding

- Received over $10 million in ESSER
- Received over $50 million in ESSER
- Received over $100 million in ESSER

FY20 Chapter 70 funding

- Received over $25 million in FY20 Chapter 70
- Received over $100 million in FY20 Chapter 70
- Received over $200 million in FY20 Chapter 70

FY24 SOA Funding

- Received over $10 million in FY24 SOA
- Received over $30 million in FY24 SOA

FY24 SOA Per pupil Funding

- Received over $1,000 per pupil in FY24 SOA
- Received over $1,500 per pupil in FY24 SOA

Priority District

- Identified as a Cohort 1 Priority District
- Identified as a Cohort 2 Priority District

An additional twenty-two (22) LEAs met between two and six of the criteria. During the outreach period, LEAs in this group were given extra notifications to encourage their participation, as well as offered the survey instrument as an alternative to the focus group to reduce sampling bias.

Qualitative Data Instruments

To develop the interview and focus group questions, a cross-walk of the research questions to the available quantitative data was conducted to identify areas where qualitative data could supplement the understanding of the quantitative outputs.

Focus Groups

The focus group protocol included four sections: (1) Introductions; (2) Active Poll; (3) Specific Data Review; (4) Discussion. A minimum of two Afton staff attended each focus group, depending on the size. All focus groups were conducted virtually, lasted 90-minutes, and notes were captured by an Afton team member. No DESE staff participated in the focus group sessions or reviewed any notes. To enhance credibility, an audit trail was maintained throughout the analysis process. Member checking was not completed, as the data was captured anonymously across the notes and platforms.

After the Introductions, participants were provided a QR code and/or website link to anonymously participate in an Active Poll specific to their focus group. The Active Poll included five questions:

1. What are the first three words you think of when you hear SOA or Student Opportunity Act?
2. What are the first three words you think of when you think about ESSER?
3. Do you think about SOA as separate from Chapter 70 funds?

4. On a scale of 1-5 (1= Not Impactful; 5=Transformative), please rank how impactful SOA funds were for your District in terms of:
    a. Programming
    b. Budget process
    c. Responsiveness to student needs
    d. Workforce retention
5. On a scale of 1-5 (1= Not Impactful; 5=Transformative), please rank how impactful ESSER funds were for your District in terms of:
    a. Programming
    b. Budget process
    c. Responsiveness to student needs
    d. Workforce retention

Participant responses were pooled together once they were submitted and presented out to the group in real time. This approach allowed the participants to understand and react to the data and perspectives in real-time, providing a light-touch member-check process for respondents to validate or disagree with the feedback presented back. LEA types that offered multiple focus group day/time options participated in the same Active Poll for their group, so all responses by LEA type were compiled together automatically and anonymously.

Part 3 of the focus group consisted of presenting a set of data to the group for reaction. The data slide topics were consistent across groups, though the content was specific to their LEA type. For example, the charter focus group was presented with the year-over-year per pupil spending by function area for all charter schools, while the Regional Vocational focus group was presented the same chart but only including data from the Regional Vocational sector.

Depending on the size of the group, participants then engaged together as a large group or were broken into smaller break-out rooms for a discussion. Some focus groups utilized a structured note-capture platform during the discussion, while others captured notes through Afton staff. Discussions focused on gaining more detail on specific investments undertaken by their LEAs, perceived impact of funding infusions to their LEA, and other context specific to their LEA type that could inform interpretation of the quantitative outputs.

Interviews

The interview protocol followed almost the same structure as the focus groups. All interviews were conducted virtually, lasted between 60-120 minutes, and notes were captured by an Afton team member. No DESE staff participated in the interviews or reviewed any notes.

Part 2 of the protocol remained the same, noting that all participants in Interviews pooled into one Active Poll. The only difference for Part 3 is that the LEA's specific data was shown and discussed, providing a validation of the quantitative data from the LEA directly and more direct opportunity to discuss specific investments and which function areas they show up within.

Survey

The survey instrument was a single-source digital platform that followed the exact questions from the focus group protocol Section 1, Section 2, and Section 4. Specific data was not able to be shared as it was individualized for each focus group and interview. Respondents were able to answer the questions in the same order as the focus group participants.

Data Cleaning

Data from across the LEA types, engagement types, and digital platforms were compiled and collated into a Qualitative database. Because the surveys were offered as an alternative to the focus groups, responses from surveys were integrated into the appropriate LEA types and Active Polls to complete a comprehensive picture.

Analyzing Student Outcomes

This study's approach to evaluating the impact of funding changes on student outcomes consists of regression modeling of inputs with respect to some factors that should explain variations in expenditure types and student need. This type of model shows whether levels of education spending by function area are associated with determinants of needs. This model is unable to establish causal relationships and outputs should be interpreted with caution.

Correlative Approach

The study utilizes fixed effects multivariate regression models with time and school fixed effects to identify correlations between resource investments and outcomes. The output of these regressions indicates the marginal change in outcomes that correlates with marginal changes in resources.

This analysis was done at the school level rather than the LEA level. While the SOA most directly impacted funding at the LEA level, this analysis is interested in understanding the relationship between specific resources and changes in outcomes. School level analysis was selected since the relationship between resourcing and students is more accurate at the school level. Moreover, inter-class correlations show that most of the variation in student outcomes can be attributed to variation at the school level rather than the LEA level, with LEAs contributing between 4% and 21% of the variation depending on the outcome and time range analyzed.

The study was interested in both expenditure categories as well as FTE categories that correlated with changes in student outcomes. While expenditures per pupil more directly measure the impact of dollar investments, FTE per pupil better identify changes in staff levels. For example, different LEAs could have widely differing teacher costs, which could confound any analysis of Teacher Salary expenditures on outcomes since a dollar in one LEA could afford more teacher FTE than another LEA. Conversely, looking only at FTE can ignore differences in staff cost and experience levels, which can affect outcomes. If both dollars per pupil and FTE per pupil in the same resource category correlate with outcome changes, then that indicates a stronger relationship with that investment.

The study considered running the models with year-over-year changes (i.e. first differences model), but determined that outputs were not reliable since outcomes data for FY20 was missing. Instead, the study ran the models using two different time periods:

- **FY18 – FY24:** This time span is used to measure progress since before the COVID-19 pandemic.
- **FY21 – FY24:** This time span is used to measure progress since the start of the COVID-19 pandemic.

The study ran four different fixed effect regression models with school and time fixed effects for each range of years to look at the impact of resourcing different ways.

- **Model 1:** All expenditures, broken out by school and central office totals. This answers whether broad changes in expenditures impact outcomes, but does indicate which expenditure categories correlate with outcomes.
- **Model 2:** All expenditures, broken out by function group. This model indicates which types of expenditures correlate with outcomes. All components of total funding per pupil, by function group, are included in this model with coefficients estimated for each function group. Regressing all functions together eliminates the risk of functions that do not drive outcomes showing statistically significant relationships because they correlate with other functions that do drive outcomes.
- **Model 3:** All FTE. This answers whether broad changes in FTE impact outcomes, but does indicate which FTE categories correlate with outcomes.
- **Model 4:** All FTE broken into staff categories. This model indicates which types of FTE correlate with outcomes. All FTE categories are included in this model with coefficients estimated for each function group. Regressing all FTE categories together eliminates the risk of categories that do not drive outcomes showing statistically significant relationships because they correlate with other categories that do drive outcomes.

All four models utilized the same control variables:

- School fixed effects
- School type (District, Charter, Regional Vocational)
- Grade bands
- Percent high needs enrollment
- Percent English learners
- Gateway City status

Additionally, the study re-ran these regressions for specific groups of schools to see if certain types of schools had different relationships between investments and outcomes. This included the following archetypes:

- Highest % low-income (low-income schools only Quintile 5)
- Gateway schools only (excluding Boston Public Schools)
- High % English learner schools only (tertile 3)

Causal Approach

The study explored methods for establishing causal relationships, but determined this analysis was not viable for four main reasons.

1. **The impacts of SOA and ESSER dollars cannot be fully disentangled.** While ESSER dollars can be separated out in accounting data, their impact on other fund source use cannot be. Both sources of funding were distributed to LEAs at similar times. While LEAs had to establish plans for their investments, some of the goals of SOA and parts of ESSER III, namely the investments in evidence-based practices, overlap. Moreover, LEAs have some ability to move costs from one funding source to another, which makes it difficult to know the net effect of new funding by looking solely at the stated funding source of expenditures.

2. **The COVID-19 Pandemic had widely varying impacts that cannot be fully measured.** Many immeasurable factors determined how communities were impacted by the COVID-19 pandemic. This impacted schools through health impacts, different reliance on virtual methods of providing instruction, different impacts on students' economic and home conditions, and different pressures on the labor market. The disruptions to the education system were complex and difficult to disentangle. LEAs were still grappling with the extreme impacts of the COVID-19 pandemic on students as ESSER and SOA dollars began to flow into the system. Not only did this directly impact every year since the pandemic, but made the pre-intervention years less useful for establishing pre-investment trends since the pandemic greatly affected community conditions.

3. **The study could not isolate all variables that could impact student outcomes.** Even under ideal conditions it is difficult to establish reliable causality between school and LEA investments and outcomes. Many factors that are outside of any dataset can impact student outcomes, whether they are factors that are controlled by schools and LEAs or not. The study could not find a viable identification strategy to counteract this bias.

4. **There were not opportunities for quasi-experimental methods .** Quasi-experimental research techniques can be employed by researchers to counteract unobservable factors that can confound causal research. These methods rely on exploiting conditions in the data that approximate random selection between treatment and control. However, quasi-experimental methods cannot always be used depending on the data and underlying system being studied. The study explored the following quasi-experimental methods,

but determined that they could not utilize any of them to establish causal links between investments and student outcomes.

a. **Difference-in-difference:** This method relies on finding similar schools/LEAs that either did or did not receive treatment and had no other changes that could impact outcomes. However, since the COVID-19 pandemic had varying impacts on schools and LEAs in a way that could not be measured, the study could not reliably assume that the SOA was the only meaningful change.

b. **Regression discontinuity:** This identification strategy relies on exploiting treatments that switch on at a cutoff point on a continuous variable. Since the SOA did not distribute any resources based on a cutoff point, the study could not use this strategy.

c. **Instrumental variable:** Instrumental variable identification strategies rely on using a variable, the instrument, that correlates with treatment but does not correlate with outcomes except through the treatment variable. While this identification method can help reduce bias from unobserved variables, the study could not identify a viable instrument.

Other Regressions and Analysis Outputs

Correlation of changes in Chapter 70 aid per pupil and LEA characteristics.

The study utilizes fixed effects multivariate regression models with time and school fixed effects to identify correlations between LEA characteristics and changes in Chapter 70 aid between FY19 and FY24. The coefficients of each variable represent the marginal change in Chapter 70 aid that correlates with marginal changes in LEA demographics and LEA characteristics.

The LEA was the unit of analysis since Chapter 70 aid was distributed at the LEA level. This multivariate regression used control variables for percent Low-Income percent English learners, percent students with disabilities, LEA enrollment, LEA type, and Gateway City Status.

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
% Low-Income	4665.562	357.005	13.07	0	3963.011	5368.113	***

% English Learner	1773.839	862.628	2.06	0.041	76.271	3471.407	**
% Students with Disabilities	-5558.066	1303.329	-4.26	0	-8122.89	-2993.241	***
LEA Type							
Vocational	972.969	165.152	5.89	0	647.965	1297.973	***
Enrollment	0.051	0.018	2.76	0.006	0.015	0.087	***
Gateway City Status							
Gateway City	663.414	236.887	2.80	0.005	197.245	1129.584	***
BPS	-4939.809	766.401	-6.45	0	-6448.011	-3431.607	***
Constant	631.839	238.187	2.65	0.008	163.111	1100.567	***
Mean dependent var		1414.563		**SD dependent var**		1333.149	
R-squared		0.739		**Number of obs**		308	
F-test		.		**Prob > F**		.	
Akaike crit. (AIC)		4906.022		**Bayesian crit. (BIC)**		4932.133	
*** p<.01, ** p<.05, * p<.1							

Correlation of SOA aid per pupil and LEA characteristics.

The study utilizes fixed effects multivariate regression models with time and school fixed effects to identify correlations between LEA characteristics and SOA aid per pupil between FY22 and FY24. The coefficients of each variable represent the marginal change in SOA per pupil that correlates with marginal changes in LEA demographics and LEA characteristics.

The LEA was the unit of analysis since SOA aid was distributed at the LEA level. This multivariate regression used control variables for percent Low-Income percent English learners, percent students with disabilities, LEA enrollment, LEA type, and Gateway City Status.

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
% Low-Income	900.649	84.159	10.70	0	735.487	1065.811	***
% English Learner	1045.195	248.808	4.20	0	556.909	1533.48	***
% Students with Disabilities	-720.087	199.168	-3.62	0	-1110.954	-329.219	***
LEA Type							
Vocational	291.349	30.606	9.52	0	231.284	351.414	***
Gateway City Status							
Gateway City	663.414	236.887	2.80	0.005	197.245	1129.584	***
BPS	-4939.809	766.401	-6.45	0	-6448.011	-3431.607	***
Enrollment	0.019	0.007	2.82	0.005	0.006	0.032	***
Fiscal Year							
2023	146.853	15.969	9.20	0	115.513	178.192	***
2024	345.807	22.986	15.04	0	300.698	390.916	***
Constant	-245.16	47.543	-5.16	0	-338.464	-151.856	***
Mean dependent var		228.477		**SD dependent var**			418.910
R-squared		0.654		**Number of obs**			947
F-test		84.300		**Prob > F**			0.000
Akaike crit. (AIC)		13137.702		**Bayesian crit. (BIC)**			13186.235
*** p<.01, ** p<.05, * p<.1							

Correlation of ESSER Expenditures per pupil and LEA characteristics.

The study utilizes fixed effects multivariate regression models with time and school fixed effects to identify correlations between LEA characteristics and ESSER expenditures per pupil between FY21 and FY24. The coefficients of each variable represent the marginal change in ESSER expenditure per pupil that correlates with marginal changes in LEA demographics and LEA characteristics.

The LEA was the unit of analysis since ESSER was distributed at the LEA level. This multivariate regression used control variables for percent Low-Income percent

English learners, percent students with disabilities, LEA enrollment, LEA type, and Gateway City Status.

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
% Low-Income	2614.898	189.443	13.80	0	2243.31	2986.486	***
% English Learner	-940.164	494.38	-1.90	0.057	-1909.879	29.551	*
% Students with Disabilities	1093.182	843.051	1.30	0.195	-560.444	2746.809	
LEA Type							
Charter - Boston	532.379	373.062	1.43	0.154	-199.375	1264.132	
Charter - Gateway	-401.652	199.228	-2.02	0.044	-792.434	-10.87	**
District	-470.413	104.782	-4.49	0	-675.94	-264.885	***
Vocational	-655.499	127.594	-5.14	0	-905.772	-405.227	***
Gateway City Status							
Gateway City	-296.019	95.24	-3.11	0.002	-482.83	-109.208	***
BPS	549.315	565.977	0.97	0.332	-560.837	1659.468	
Enrollment	0.004	0.01	0.42	0.676	-0.015	0.023	
Fiscal Year							
2022	346.222	38.917	8.90	0	269.887	422.556	***
2023	491.745	41.95	11.72	0	409.461	574.03	***
2024	480.395	52.936	9.07	0	376.562	584.229	***
Constant	-427.029	141.469	-3.02	0.003	-704.518	-149.541	***

Mean dependent var	602.074	**SD dependent var**	1033.475
R-squared	0.409	**Number of obs**	1581
F-test	43.740	**Prob > F**	0.000
Akaike crit. (AIC)	25629.930	**Bayesian crit. (BIC)**	25705.051

**** p<.01, ** p<.05, * p<.1*

Correlation of Changes in Total Expenditures per pupil and LEA characteristics.

The study utilizes fixed effects multivariate regression models with time and school fixed effects to identify correlations between LEA characteristics and changes in total expenditures per pupil between FY18 and FY24. The coefficients of each variable represent the marginal change in total expenditure per pupil that correlates with marginal changes in LEA demographics and LEA characteristics.

The LEA was the unit of analysis since this study was interested in understanding spending at the LEA level (the subsequent model repeats this at the school level). This multivariate regression used control variables for percent Low-Income percent English learners, percent students with disabilities, LEA enrollment, LEA type, and Gateway City Status.

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
% Low-Income	7966.457	2209.217	3.61	0	3622.3	12310.613	***
% English Learner	9195.423	5055.936	1.82	0.07	-746.462	19137.308	*
% Students with Disabilities	24615.387	11986.547	2.05	0.041	1045.295	48185.479	**
LEA Type							
Charter - Boston	1314.209	2149.491	0.61	0.541	-2912.504	5540.923	
Charter - Gateway	-3986.795	1355.834	-2.94	0.003	-6652.879	-1320.712	***
District	-306.648	1012.685	-0.30	0.762	-2297.969	1684.673	
Vocational	-35.339	1961.878	-0.02	0.986	-3893.135	3822.457	
Gateway City Status							
Gateway City	-2824.668	1051.32	-2.69	0.008	-4891.961	-757.374	***
BPS	7171.03	4260.513	1.68	0.093	-1206.753	15548.813	*
Enrollment	-0.129	0.111	-1.16	0.246	-0.348	0.089	
Constant	-306.149	2087.147	-0.15	0.883	-4410.27	3797.973	
Mean dependent var		7414.961		**SD dependent var**		6148.843	
R-squared		0.170		**Number of obs**		382	

F-test	.	**Prob > F**	.
Akaike crit. (AIC)	7697.058	**Bayesian crit. (BIC)**	7736.513

**** p<.01, ** p<.05, * p<.1*

Correlation of Changes in Total Expenditures per pupil and School characteristics.

The study utilizes fixed effects multivariate regression models with time and school fixed effects to identify correlations between school characteristics and changes in total expenditures per pupil between FY18 and FY24. The coefficients of each variable represent the marginal change in total expenditure per pupil that correlates with marginal changes in school demographics and school characteristics.

The school was the unit of analysis since this study was interested in understanding spending at the school level (the previous model repeats this at the LEA level). This multivariate regression used control variables for percent Low-Income percent English learners, percent students with disabilities, school enrollment, school type, and Gateway City Status.

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
% Low-Income	5539.88	1500.872	3.69	0	2596.167	8483.592	***
% English Learner	1460.32	1955.905	0.75	0.455	-2375.864	5296.503	
% Students with Disabilities	14120.778	4008.708	3.52	0	6258.361	21983.195	***
School Type							
Charter - Boston	2861.608	2107.94	1.36	0.175	-1272.768	6995.983	
Charter - Gateway	-3204.635	1248.685	-2.57	0.01	-5653.724	-755.546	**
District	-2485.491	1068.211	-2.33	0.02	-4580.61	-390.373	**
Vocational	-440.891	2038.204	-0.22	0.829	-4438.491	3556.709	
Gateway City Status							
Gateway City	429.586	621.055	0.69	0.489	-788.51	1647.683	
BPS	5978.454	810.845	7.37	0	4388.115	7568.793	***

Enrollment	-1.357	0.428	-3.17	0.002	-2.195	-0.518	***
Constant	4844.794	1448.606	3.34	0.001	2003.593	7685.995	***
Mean dependent var		7808.696		**SD dependent var**		7002.297	
R-squared		0.243		**Number of obs**		1743	
F-test		61.973		**Prob > F**		0.000	
Akaike crit. (AIC)		35346.873		**Bayesian crit. (BIC)**		35406.970	
**** p<.01, ** p<.05, * p<.1*							

Correlation of Change in Teacher Salary Expenditures per pupil and LEA demographics.

The study utilizes fixed effects multivariate regression models with time and school fixed effects to identify correlations between LEA characteristics and changes in Teacher Salary expenditures per pupil between FY18 and FY24. The coefficients of each variable represent the marginal change in Teacher Salary expenditures per pupil that correlates with marginal changes in LEA demographics and LEA characteristics.

The LEA was the unit of analysis since this study was interested in understanding spending at the LEA level. This multivariate regression used control variables for percent Low-Income percent English learners, percent students with disabilities, LEA enrollment, LEA type, and Gateway City Status.

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
% Low-Income	63.871	515.945	0.12	0.902	-950.673	1078.414	
% English Learner	4100.336	1536.255	2.67	0.008	1079.477	7121.195	***
% Students with Disabilities	8793.487	3715.485	2.37	0.018	1487.436	16099.538	**
LEA Type							
Charter - Boston	304.074	1105.62	0.28	0.783	-1869.995	2478.142	
Charter - Gateway	-1424.795	554.819	-2.57	0.011	-2515.78	-333.81	**

District	-753.858	365.571	-2.06	0.04	-1472.709	-35.007	**
Vocational	-1254.587	413.826	-3.03	0.003	-2068.325	-440.85	***
Gateway City Status							
Gateway City	-734.153	339.703	-2.16	0.031	-1402.137	-66.168	**
BPS	2096.477	1082.067	1.94	0.053	-31.276	4224.231	*
Enrollment	-0.021	0.029	-0.71	0.478	-0.077	0.036	
Constant	661.047	621.419	1.06	0.288	-560.899	1882.993	
Mean dependent var		1939.068		**SD dependent var**		1522.063	
R-squared		0.184		**Number of obs**		382	
F-test		.		**Prob > F**		.	
Akaike crit. (AIC)		6623.930		**Bayesian crit. (BIC)**		6663.384	
*** p<.01, ** p<.05, * p<.1							

Limitations

Throughout the analysis, the study sought to ensure a robust and thorough examination of spending in the Commonwealth. Nonetheless, there are factors that limit the study's ability to fully describe the trends and impacts.

Timeline

The current study timeframe utilized expenditure data from FY18-FY24. However, ESSER funds are able to be spent midway through FY26, meaning the current analysis will likely underestimate the full impact of ESSER spending for LEAs that continue to expend funds beyond the study's timeframe.*

Additionally, new SOA funding is projected to continue being distributed through FY27. LEAs may have multi-year plans for the use of those funds that are not fully captured by the current study timeframe.

* Guidance on the rules for ESSER spending and late liquidation evolved during the writing of this report.

Data Completeness and Consistency

Several data sources have limitations within their structures resulting in natural limits to the analysis.

- Chapter 70 is a general fund revenue, so once it is deposited it loses its identity compared to other local source revenues. As a result, for NSS (and by association SOA and local funding), expenditures cannot be disaggregated at the function or program level by fund source, limiting the study's ability to accurately attribute SOA changes or understand local funding adjustments. Researchers cannot tell if a single NSS related expenditure was funded through local funds or Chapter 70 state aid.
- Teacher Salary expenditure and FTE data do not specify teacher types outside of classroom or special education teachers, limiting the ability to understand changes in programs targeting English learners or other student groups. Additionally, staffing data was not available by fund source, so all staffing analysis is limited to total funding.
- Current expenditure and FTE data does not include information on specific evidence-based practices. For example, it is not possible to delineate teachers who were hired for co-teaching models or for tutoring and summer school programming. Understanding and analysis of specific evidence-based practices is limited to qualitative data.
- As with any qualitative data, there is the potential for sample size insufficiency as there is no standard measure for qualitative data saturation, i.e. the point where increasing the sample size does not yield meaningfully new information. Sample size insufficiency can threaten validity and generalizability of the results. Also, the events discussed during the focus groups and interviews occurred several years ago, introducing potential recall bias.
- The study assumes that expenditures reported in account categories (e.g., function codes for teachers or capital) are used uniformly across LEAs. However, implementation of these funds can vary depending on local context.
- There is no way to identify supports for English learners in the expenditure data, which limits this study's ability to identify spending related to this student group.

Analysis

The study recognizes certain analytical choices introduce certain limitations, including:

- While the study identified correlations between spending and student outcomes, it did not establish direct causal relationships. Many other factors outside of spending and funding, such as school leadership experience or external policy changes, may influence outcomes and cannot be fully controlled for in the analysis. Moreover, proficiency rates do not always capture smaller variations in test results since small changes in test scores do not always result in changes in proficiency identification.
- While the study reported on variation in data, it also reported on averages, which can mask variation and disparities between LEAs and schools.
- The study primarily focused on quantitative data and, as such, it did not fully capture qualitative factors such as school climate, leadership experience, or community involvement, which can also influence spending decisions and outcomes.
- While the study analyzed both school-level and LEA-level data, reporting on LEA-level trends can obscure important differences within LEAs. LEAs may have schools with vastly different resource needs. Additionally, LEAs and schools are distal entities, meaning that funding goes through additional layers of decision-making before "trickling down" and therefore it is more difficult to directly connect the resources to the outcomes.
- The use of interviews and focus groups introduced subjectivity in interpreting qualitative data. The responses from participants may reflect personal biases or specific local conditions that may not be generalizable to all LEAs.

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