Trends and Disparities in Outcomes and Funding of Oregon Public Schools Before and After COVID-19

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Introduction

Oregon's public K–12 education system faced extraordinary challenges when in-person schooling was disrupted in March 2020 due to the COVID-19 pandemic. The state and its districts were confronted with the immediate challenges of maintaining educational continuity while protecting student and staff health in the 2019-20 school year. These challenges persisted as schools transitioned to offering hybrid models and in-person learning in the 2020-21 school year and beyond. Throughout these transitions, students, teachers, and other educational personnel experienced varying degrees of academic, social, and emotional challenges that impacted school enrollment levels and important student outcomes including student attendance and academic achievement, as measured by standardized test scores. Simultaneously, the federal government and some states invested additional resources to assist schools in meeting these challenges through programs such as the three waves of the federal Elementary and Secondary School Emergency Relief (ESSER) fund.

In this report, we offer an analysis of the changes in school enrollments, student outcomes, and funding provided to schools that occurred in Oregon after the onset of the COVID-19 pandemic. We specifically investigate the impact severity of the pandemic, defined as the initial shock to school enrollments and student outcomes coinciding with the outbreak of COVID and the trends in these measures that emerged in the years following the onset of the pandemic. To this end, we seek to answer three primary research questions:

1. How did COVID-19 impact key educational measures (e.g., enrollment, test scores, and chronic absenteeism) in Oregon?
2. Did impacts vary across levels of student need?
3. How did patterns of educational funding change during this period?

To answer these questions, we employ a three-stage analytical approach that:

1. measures the impact of COVID-19 on student outcomes using interrupted time series analysis;
2. estimates whether schools and districts with greater shares of high-need students were differentially impacted by COVID-19 across various measures of student outcomes and revenues; and
3. contextualizes the changes in educational measures observed in Oregon to the rest of the United States.

Our interrupted time series (ITS) approach allows us to move beyond simple before-and-after comparisons to understand how the pandemic altered existing trajectories for different schools and student groups. Rather than just noting that the school chronic absenteeism rate increased from an average of 15% in the pre-COVID years to 25% in the post-COVID years, we can examine whether the post-trend significantly deviated from the pre-trend and the degree to which the size of the deviations was related to different student needs.

The remainder of this report is structured as follows. We first offer a review of relevant literature on educational impacts of the COVID-19 pandemic and the relationship between funding and student outcomes and then summarize prominent federal and state school funding legislation in Oregon during the COVID-19 pandemic. We then describe the data sources and methodology supporting the ITS analysis. Next, we present findings from the following two analyses: (1) estimation of the average impact of the COVID-19 pandemic across key student outcomes and revenues and (2) identification of patterns of COVID-19 impacts on student outcomes and district funding for schools (or districts) with high concentrations of students in special needs populations. Then, we offer a high-level descriptive comparative analysis of how the state-level changes Oregon experienced across key educational indicators, including math and reading test scores on the National Assessment of Educational Progress (NAEP), chronic absenteeism rates, enrollment, graduation rates, and school funding compared to the rest of the United States. Finally, we summarize our findings and describe their policy implications.

Literature Review

COVID-19's Impact on Educational Systems

Schools across the United States faced the tremendous challenge of helping students recover from disruptions to learning caused by the COVID-19 pandemic. A series of research syntheses have consistently arrived at the same conclusion: The United States experienced a substantial decrease in student outcomes during school shutdowns resulting from the onset of the pandemic (Agostinelli, 2022; Betthäuser et al., 2023; Dee, 2024; Donnelly & Patrinos, 2021; Patrinos et al., 2022). For example, the World Bank estimates that students in the United States experienced, on average, a 0.14 standard deviation loss in standardized test scores, which is equivalent to losing 0.42 school years of learning time (Patrinos et al., 2022). Non-test score outcomes were similarly affected. For example, Dee (2024) found that between the 2018–19 and 2021–22 school years, chronic absenteeism increased by 13.5 percentage points, which is equivalent to 6.5 million additional students missing more than 10% of the school year. This rise in chronic absenteeism is especially concerning because many students whose learning was

adversely affected during the pandemic are now less frequently present in school and are therefore unable to receive interventions that may address these losses.

If left unaddressed, the learning losses that students experienced during the pandemic will likely have significant and harmful impacts, such as a decreased likelihood of employment and lower expected lifetime earnings (Donnelly & Patrinos, 2021). For instance, Goldhaber and colleagues (2021) estimated that COVID-19-related learning losses would be expected to cost $43,800 in student lifetime earnings on average. This loss is equivalent to $2 trillion in lost lifetime earnings across all students enrolled in K–12 schools at the onset of the pandemic.

Further complicating the consequences of the pandemic is the fact that the impact of COVID-19 was inequitably distributed across several factors. Available research estimates that learning losses were greater in schools and districts that had less in-person instruction after the onset of the pandemic, served lower-performing students, and served more Black, Hispanic, or free or reduced-price lunch-eligible students (Domingue et al., 2021; Hicks & Faulk, 2022; Jack et al., 2021; Kogan & Lavertu, 2022; Kuhlfeld et al., 2022; Pier et al., 2022). For example, Kuhlfeld and colleagues (2022) observed that, based on a sample of 3.5 million students from across the United States, the Black–White difference in math test score growth was more than twice as large in the 2020–21 school year than in pre-COVID school years. Likewise, a McKinsey & Company report estimated that students in schools with average household incomes of $25,000 or less lost an average of 7 months of math learning and 6 months of reading learning, compared to 4 and 3 months, respectively, for students attending schools with average household incomes over $75,000 (Dorn et al., 2021).

School Spending and Student Outcomes

Both the operational challenges posed by COVID-19 as well as the need to address the decline in outcomes required additional investment in schools. Recent advancements in statistical analysis have allowed researchers to estimate the causal relationship between increased school spending and improved student outcomes more robustly than previously possible.

In 2024, Jackson and Mackevicius published a meta-analysis synthesizing the best available scholarly research on the relationship between changes in school spending and student outcomes. When averaging estimates across all 31 identified papers, the authors found that, on average, an increase of $1,000 per pupil, sustained over 4 years, is associated with improved standardized test scores (0.0316 standard deviations) and increased high school graduation (2.0 percentage points) and college-going rates (2.8 percentage points). Furthermore, effects were larger when spending increased for economically disadvantaged populations and were

consistent in magnitude across geographic contexts, baseline spending levels, and capital and non-capital spending increases.

These findings offer compelling evidence that money matters for student outcomes, and, on average, increasing and sustaining educational resources leads to improved student outcomes. In sum, the best available causal literature consistently demonstrates that increasing school spending is a valid avenue for raising student achievement. This makes such investments a compelling policy mechanism to improve educational outcomes generally while also potentially being especially attractive in light of the learning losses caused by the COVID-19 pandemic.

Changes in Funding Following the COVID-19 Pandemic

In response to the challenges presented by the COVID-19 pandemic, the federal government provided substantial financial support through the ESSER funds. Over the course of three funding waves, Oregon received over $1.6 billion in ESSER funds. Ninety percent of these funds were distributed to school districts based on their Title I allocations, while the remaining 10% was reserved by the state.

The three waves of ESSER funding were delivered to states in very different contexts, which can be referred to as Triage, Transition, and Transformation. ESSER I, the Triage wave, provided Oregon with $109 million and was released at the onset of the pandemic in 2020 when schools responded to the immediate needs of transitioning to remote learning. ESSER II, at $449 million, came in December 2020 and was allocated for Transition, as many districts were building the infrastructure to return to in-person learning safely or developing more robust remote learning infrastructure during a “new normal” period. ESSER III, at $1.01 billion, was by far the largest wave of funding and offered an opportunity for Transformation in schools to address the learning losses from the pandemic and make schools stronger than they were before. Generally, ESSER funding came with little to no restrictions on how the funds could be spent. All funds were distributed with strict deadlines for when they had to be expended, with the last of the ESSER funding needing to be encumbered by the end of September 2024.

At the same time, Oregon’s Student Success Act (2019) led to the creation of the Student Success Fund, a separate revenue stream for K–12 education that provides hundreds of millions of dollars in public school revenues each year. Although this policy was designed and implemented prior to the onset of COVID-19, the additional school spending coincided with the pandemic. These changes are explored more fully below.

The impacts that ESSER and other funding streams such as the Student Success Fund have had on outcome recovery after the COVID-19 pandemic cannot yet be fully understood, as the last of the ESSER waves was completed only recently. In particular, it remains to be seen whether

the impact of the one-time and short-term federal funding mirrors the benefits identified in the research literature such as the study by Jackson and Mackevicius (2024), whose conclusions rely on funding increases being sustained for at least 4 years.

Interrupted Time Series – Data and Methodology

We now turn to our analysis of the changes in education outcomes in Oregon after the onset of the COVID-19 pandemic. This analysis will examine what challenges Oregon's K–12 education system faced in the wake of the pandemic and how the impact of COVID-19 differed across schools according to the demographics of student in Oregon.

Data Sources and Variables

Description of Data

Administrative data provided by the Oregon Department of Education (ODE) or gathered from the ODE website were essential to the analyses in this report. These data were supplemented by several other data sources, such as the National Center for Education Statistics (NCES), the U.S. Census Bureau, and the School Finance Indicators Database. The administrative data used for this study, described in the following paragraphs and referenced throughout this report, includes expenditures, enrollments, student outcomes, school characteristics, and geographic contexts. School-level staffing and full-time equivalency data used for the student-to-teacher (FTE) ratio is from the Staff FTE Reports for the 2014–15 through 2022–23 school years provided by the ODE. The enrollment and outcome data are for school years 2014–15 through 2022–23. The fiscal data containing district revenues by funding source are from the school years 2014–15 through 2022–23.

Enrollments, School Characteristics, Student Outcomes, and Geographic Context

The enrollment data used in this report were provided by ODE. Individual data files reported school-level enrollments, which in some analyses are aggregated to the district level in a given year. School-level enrollments are also disaggregated by student characteristics, including students with disabilities (SWD), English Learners (ELs), and economically disadvantaged students (EDS). Using these disaggregated enrollments, we calculated the percentages of students in each school within each of these student groups. In district level analysis, we calculate percentages by totaling school-level counts to the district level in each year and dividing by total enrollment. School-level student-to-teacher (FTE) ratio was constructed by using the ratio of total students enrolled (from the enrollment data) to the number of teachers

reported in full-time equivalents (FTE) so that the data represent the number of students per one full-time equivalent teacher for each school.[1]

Our measures of student outcomes include school-aggregated student test scores, chronic absenteeism rates, dropout rates, and four-year cohort graduation rates, all provided by the ODE. Test scores are for math and English Language Arts (ELA) end-of-grade testing in grades three through eight and grade eleven. Chronic absenteeism rates are defined as the share of a school that missed 10% or more of the total school days in the school year. Dropout rates are the percentage of students who withdrew from school and did not graduate or transfer to another school that led to graduation. Four-year graduation rates are the percentage of students who earned a regular or modified diploma within four years of entering 9th grade.

We used the Common Core of Data from the National Center for Education Statistics (NCES) to obtain geographic locale information for schools and districts. We aggregated the sub-locales provided in the data to represent whether a school or district is in an urban area, a suburban area, a town, or a rural area.

Fiscal Data

The fiscal data used in this report were collected from the ODE Fiscal Transparency portal (n.d. - a). The fiscal data contained district-level revenues from local, state, and federal sources. We then divide the respective total revenues by district-level student enrollment to generate revenues per pupil from local, state, and federal sources for each district.

School Sample

Only schools considered *regular schools* by National Center for Education Statistics (NCES) designation were included in the ITS analysis.[2] In addition, online schools were excluded from the analysis. The ITS design requires a strongly balanced panel (Linden, 2015, 2017a), so for each of our ITS models, our sample can only include schools that reported non-missing data in all years of the analysis (in most models, school year 2014-15 to 2022-23). In most of our models, these requirements led to the exclusion of approximately 50 unique schools and 500 school-year observations from the original data set resulting in an analytic sample of 1,062 unique schools (and 9,585 school-year observations) for our ITS models. When analyzing outcomes such as graduation and dropout rates, only secondary schools and schools that offer high school diplomas and reported graduation rates in every year between 2014-15 to 2022-23

[1] School observations where the student-to-teacher (FTE) ratio was greater than 37 students to one teacher (FTE) were flagged as having underlying accuracy problems in the raw ODE Staffing data or as extreme outliers and were recoded to missing. This means these schools are omitted in our analysis of student-to-teacher ratios.

[2] Regular schools are defined as "a public elementary/secondary school that does not focus primarily on vocational, special, or alternative education" (NCES, 2012).

were included in the analytic sample. This led to the exclusion of approximately 100 schools, leaving a sample of 243 diploma awarding schools in these analyses.

Data on chronic absenteeism is unavailable for the 2019–20 school year due to the COVID-19 interruption. State math and English language arts (ELA) assessment data are also missing from the 2019–20 school year. Therefore, the pre-COVID trend for both measures end in the 2018-19 school year. The Oregon Department of Education advises against using the 2020–21 assessment data for comparative analysis with other years, so 2020–21 testing data are omitted from the analysis (ODE, n.d. -b). Therefore, for test scores, the immediate shock of the COVID-19 interruption is estimated for the 2021–22 school year, with the 2021–22 and 2022–23 serving as the only school years contributing to the estimate of the COVID-19 effect over time.

Methodology

To describe the impact of COVID-19 on Oregon's public K–12 student outcome and finances, we developed a rigorous two-stage analysis as follows:

1. Measure the impact of COVID-19 on various education measures including enrollment, student-teacher ratios, student outcomes, and revenues using an ITS design.
2. Examine whether there were differential impacts of COVID-19 on the education measures for high need schools and districts across the state.

This approach offers a comprehensive assessment of the pandemic's effects. Below, we outline the specific methods for the two stages.

Stage 1: Measuring COVID-19 Impacts

In the first stage of our analysis, we employ an ITS design to estimate the changes in various education outcomes after the onset of COVID-19. The ITS approach differs from a descriptive comparison of education outcome averages from individual years just before and after COVID-19. For example, under a limited descriptive pre-post comparison, observing a drop in graduation rates from 90% to 85% from the year before to the year after the onset of COVID-19 lacks important context. For instance, were graduation rates already declining before the pandemic? Did this decline occur in all schools or only in schools with certain characteristics? Did changes in the graduation rate occur immediately after the onset of COVID-19, or did they occur more gradually over the post-COVID period?

The ITS approach allows us to address these questions. First, the ITS accounts for each school's unique pre-pandemic trajectory. This creates a "what if COVID hadn't happened" scenario (counterfactual) for each school based on its pre-pandemic patterns. This approach assumes that preexisting trends in school outcomes would have continued uninterrupted if not for the

pandemic. By maintaining the preintervention trajectory, we isolate the COVID-19 impact by comparing actual outcomes to what was expected based on pre-pandemic trends. We then compare this counterfactual to the school's observed outcome to calculate the COVID effect over time—the difference between what actually happened and what was expected based on pre-pandemic trends.[3]

Second, the ITS design helps determine whether the impact was immediate or gradual by estimating the change in outcome level associated with the immediate COVID effect and the COVID effect over time, or average annual change (slope) in the years after the interruption (Huitema & McKean, 2000). This design allows us to investigate both the immediate effect of COVID-19 and how its effect progresses over time (Linden, 2015, 2017a).[4]

Our ITS design uses the following formula:

$$Outcome_{it} = \beta_0 + \beta_1 Time_t + \beta_2 COVID_t + \beta_3 PostCOVID_t + \epsilon_{it}$$

In this model

- $Outcome_{it}$ tracks each outcome (e.g., enrollment, attendance, and test scores) for individual school (*i)* over years in our sample (*t*);
- $Time_t$ is the number of school years in the study period from 2014–15 to 2022–23;
- $COVID_t$ is an indicator for the period following the onset of COVID-19 (defined as the closest school year for which data is available after 2019-20);
- $PostCOVID_t$ is the number of school years following the interruption caused by the COVID-19 pandemic; and
- ϵ_{it} are the errors clustered at the school level.

The coefficient β_1 measures and accounts for the trend in the outcome over time across the full study period. The estimates for the $COVID_t$ and $PostCOVID_t$ effects are represented by β_2 and β_3, respectively. Specifically, β_2 measures the immediate effect after the onset of COVID-19, while β_3 measures the effect over time in the years following the COVID-19 pandemic.

Using this approach, we estimate COVID-19's effects on several key educational measures:

- Enrollment
- Student-to-teacher (FTE) ratio
- ELA proficiency rates
- Math proficiency rates

[3] While we do not claim our estimates are causal, we use the term "COVID effect" to describe changes in the education measures of interest observed in Oregon's public schools over the course of the COVID-19 pandemic.
[4] The xtitsa Stata program (Linden, 2024) was used to estimate the ITS models.

- Chronic absenteeism
- Graduation rates
- Dropout rates
- Revenues per pupil

Stage 2: Understanding COVID-19's Impact on High-Need Schools

COVID-19 affected Oregon's entire school population, allowing us to use the ITS design in Stage 1 to understand the average impact of COVID-19 on education outcomes and funding across all schools. In Stage 2, we extend these analyses to examine whether schools serving higher incidences of student needs were differentially impacted by the COVID-19 pandemic. Specifically, we seek to understand whether schools serving students with greater levels of need experienced larger impacts on student outcomes, and if so, if these same populations received greater revenues per pupil from local, state, and federal sources that would help to address the challenges that these impacts created.

For this analysis, we identified quintiles of school-level or district-level enrollment shares based on specific need characteristics (EL, SWD, or EDS). We then applied the ITS equation described in Stage 1 to schools in the highest quintile of enrollment share for each need characteristic. As in Stage 1, this analysis was run at the school level for student outcomes and at the district level for per-pupil revenues. To contextualize the level of need in these top quintiles, in the 2022-23 school year:

- Schools in the fifth quintile of EL incidence had an enrollment-weighted average EL enrollment share of 30% present, versus the statewide average of 11%.
- Schools in the fifth quintile of SWD enrollment incidence had an enrollment-weighted average SWD enrollment of 21%, versus the statewide average of 15%.
- Schools in the fifth quintile of EDS enrollment incidence had an enrollment-weighted average EDS of 99%, versus the statewide average of 63%.

By examining the immediate and over-time effect of COVID-19 on high-need schools and districts and comparing these to the statewide average impacts across all schools and districts at all levels of the three needs, we can assess whether the COVID-19 pandemic differentially affected the student outcomes and revenues of high-need districts and schools.

Interrupted Time Series – Findings

Stage 1: Measuring COVID-19 Impacts

In this section we report our findings on the impact that COVID-19 had on Oregon's schools. For each of our outcomes of interest, we offer a detailed summary of our findings and a data visualization of our ITS models that offer the following key results: (a) the statewide average pre-COVID trend (referred to as the *pre-interruption trend)*, which we assume would have continued at a similar trajectory had COVID-19 not occurred; (b) the change that occurred after the onset of the pandemic, also known as the immediate COVID effect; (c) the observed trajectory in the post-COVID years, known as the post-COVID trend; and (d) the COVID effect over time, which is the difference between the slope of the post-COVID trend and the slope of the pre-COVID trend. In our descriptions, we also note whether these four measures represent statistically significant trends, shifts, and differences. In Exhibit 8, we present a table of the ITS model results and estimates.

School Characteristics

Average School Enrollment

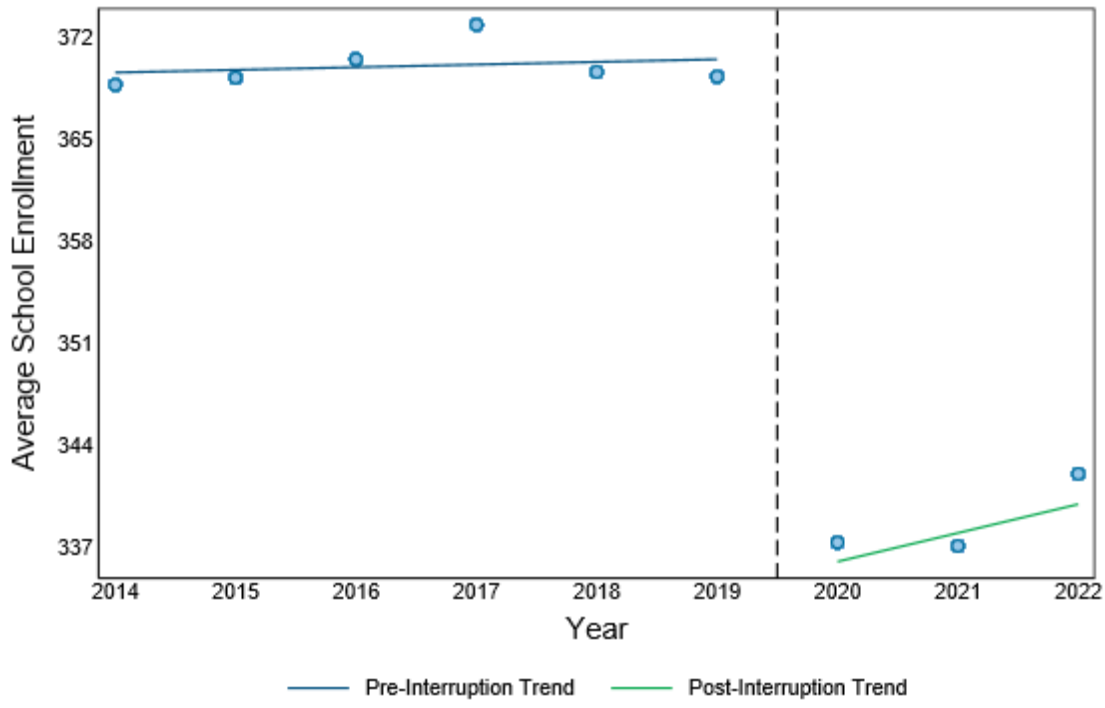
In Oregon, average school enrollment was relatively stable before the COVID-19 interruption between the 2019–20 and 2020–21 school years. However, there was a statistically significant decrease in enrollment immediately after the interruption. Exhibit 1 shows consistent enrollment levels before the COVID interruption, indicated by a flat slope in the pre-interruption trend.[5] This is followed by a sharp drop in enrollment in the 2020–21 school year.

From 2020–21 to 2022–23, the overall trend showed a slight increase in average enrollment. However, this increase occurred between the 2021–22 and 2022–23 school years, while enrollment remained flat from 2020–21 to 2021–22. The upward trend in the post-COVID period was statistically significant, suggesting some gradual rebounding from the significant drop observed from 2019–20 to 2020–21 after the immediate effect of COVID-19. However, this trend should not be over-interpreted, as it was driven primarily by an uptick in enrollment in the 2022–23 school year. Additional years of data are required to fully understand if, and at what rate, enrollment may trend back toward pre-COVID numbers. Furthering this point is the fact that there was no statistically significant difference between the slope of the pre-COVID trend and the slope of the post-COVID trend. This indicates that, based on the three available

[5] To best fit our data to the ITS model, we used the natural log of the number of students enrolled in our models. For the exhibits, we transform these natural logs back into the number of students enrolled on average.

post-COVID years, enrollment values were not changing year-over-year at a meaningfully different rate than they were prior to the pandemic.

Exhibit 1. Average School Enrollment from Before to After the COVID-19 Pandemic (2014–15 to 2022–23)



Note. The blue dots represent the actual average outcome values. The pre-interruption trend presents the preexisting trend in the outcome prior to COVID-19 and serves as the counterfactual trend for the ITS model. The post-interruption trend is the trend in the outcome starting from the COVID-19 interruption and continuing to 2022–23. The dotted vertical line represents the interruption marking the start of the COVID-19 pandemic in 2019–20, the shift in the level of the post-interruption trend's starting point represents the COVID effect, and the difference in slope between the pre- and post-interruption trends is the COVID effect over time.
Source. Data provided by the Oregon Department of Education.

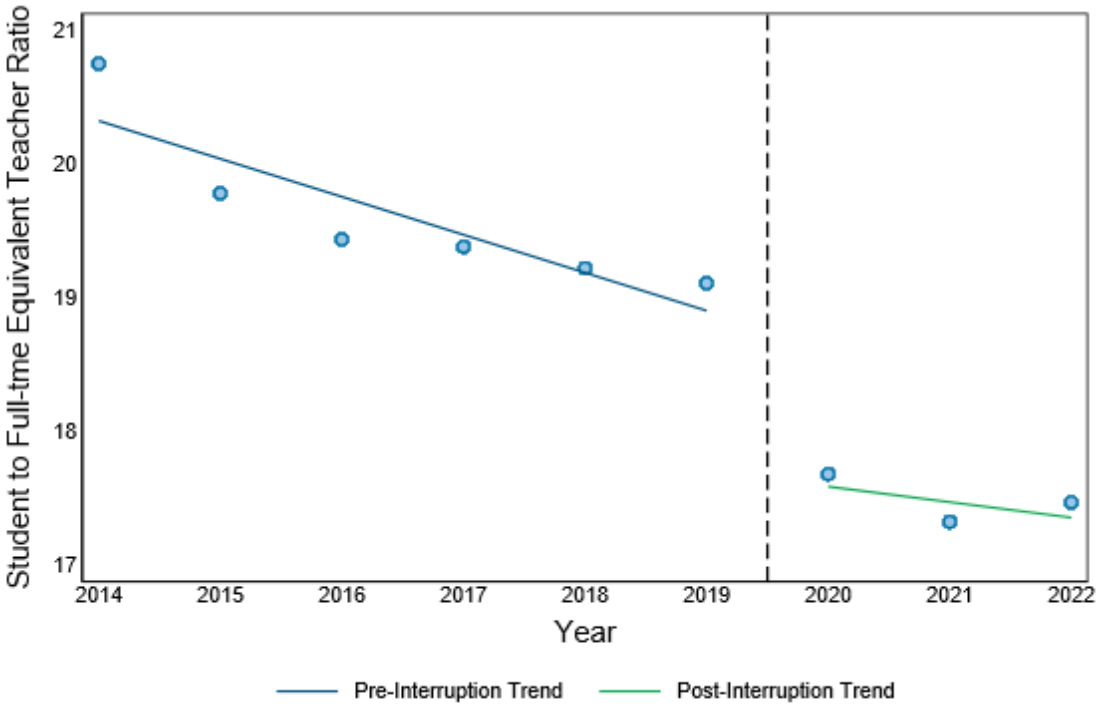
Student-to-Teacher (FTE) Ratio

Exhibit 2 shows that the average student-to-teacher (FTE) ratio had steadily declined before the COVID-19 interruption. This decline was statistically significant and decreased from just over 20 students per teacher FTE to just over 19 from the 2015-15 to 2019-20 school years. The average ratio experienced a statistically significant decrease immediately after the onset of COVID-19, likely due in part to the substantial decrease in school enrollment described above. Last, while the post-COVID trend from 2020–21 to 2022–23 for student-to-teacher (FTE) ratios is sloped downward and is statistically significant, this slope is notably flatter than it was from 2014–15 to 2019–20. Thus, while both the pre- and post-COVID trends indicate that the student-to-

teacher (FTE) ratio was decreasing, the results suggest that the rate at which the ratio was decreasing may have slowed after the onset of COVID.

It is unclear whether this slowdown is due to a stabilization in the number of FTE teachers employed or the relative increase in average student enrollment post-COVID. An additional analysis of teacher FTE levels provided in Appendix A shows that teacher FTE levels increased at a slower rate post-COVID than before the interruption. This finding may indicate that the post-COVID slowdown may be due to staffing levels for FTE teachers not keeping pace with the relative post-COVID increase in average student enrollment observed in the 2022–23 school year.

Exhibit 2. Average School Student-to-Teacher (FTE) Ratio from Before to After the COVID-19 Pandemic (2014–15 to 2022–23)



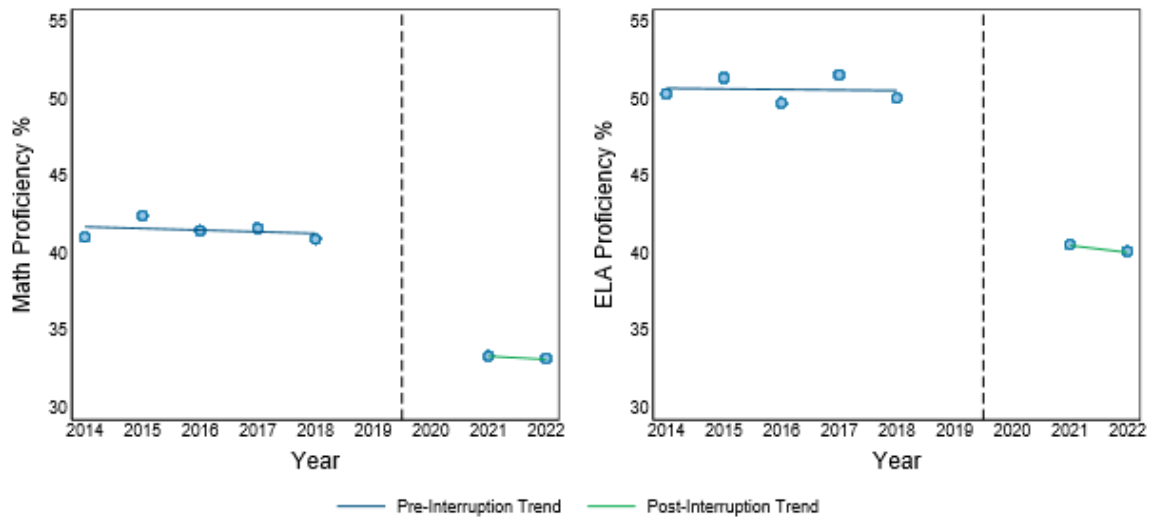
Note. The blue dots represent the actual average outcome values. The pre-interruption trend presents the preexisting trend in the outcome prior to COVID-19 and serves as the counterfactual trend for the ITS model. The post-interruption trend is the trend in the outcome starting from the COVID-19 interruption and continuing to 2022–23. The dotted vertical line represents the interruption marking the start of the COVID-19 pandemic in 2019–20, the shift in the level of the post-interruption trend's starting point represents the COVID effect, and the difference in slope between the pre- and post-interruption trends is the COVID effect over time. Observations that had student-to-teacher (FTE) values greater than 37 students to one teacher (FTE) were excluded from the analysis.
Source. Data provided by the Oregon Department of Education.

Student Outcomes

Math and ELA Assessments

Exhibit 3 presents the pre- and post-COVID trends for math and ELA assessments. Both trends were relatively flat and stable for each period. Note that we are missing achievement data in the years just prior to and after the onset of the COVID-19 pandemic (i.e., 2019–20 and 2020–21). Therefore, the pre-COVID trend in assessment outcomes is from the 2014–15 to 2018–19 school years, and the post-COVID trend is from the 2021–22 to 2022–23 school years. Both pre- and post-COVID trends show slightly decreasing slopes that lack statistical significance. However, there was an approximate 8 percentage point decrease in the math proficiency rate and a 10 percentage point decrease in the ELA proficiency rate in the post-COVID period compared to before the interruption. The nearly flat post-COVID slopes suggest that a return to pre-interruption proficiency levels had not occurred, although this is based on just two years of available data.

Exhibit 3. Average School Math and ELA Proficiency Rates from Before to After the COVID-19 Pandemic (2014–15 to 2022–23)

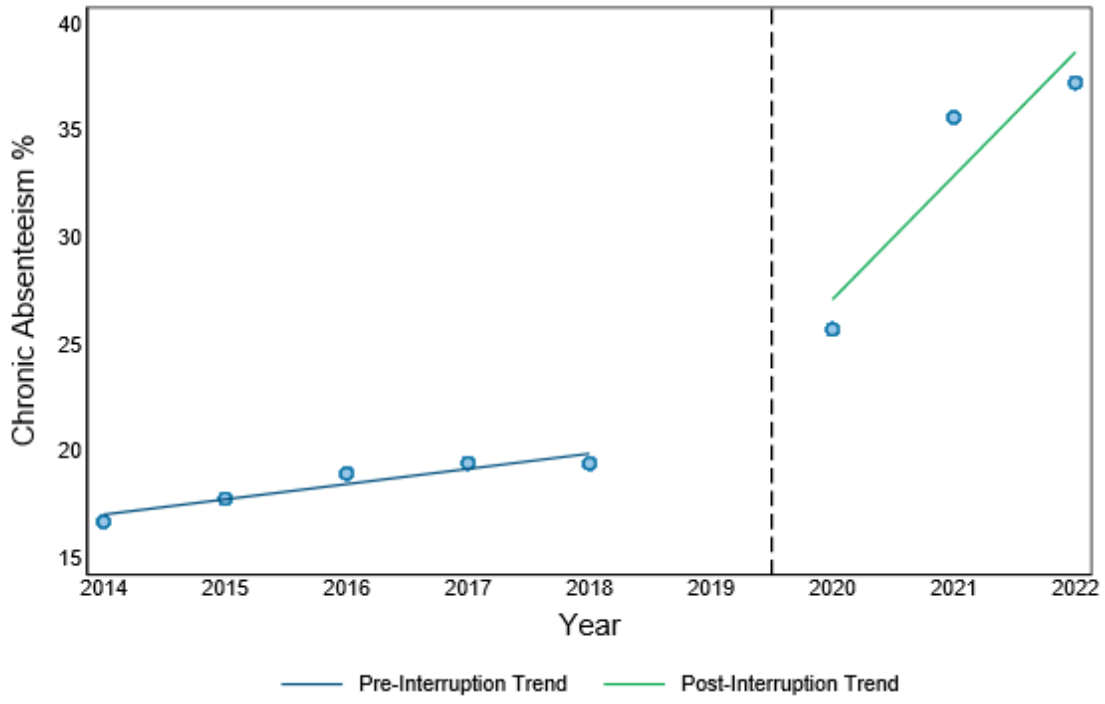


Note. Data for the 2019 and 2020 years are unavailable for math and ELA proficiency rates and are presented as blank spots on the graph. The blue dots represent the actual average outcome values. The pre-interruption trend presents the preexisting trend in the outcome prior to COVID-19 and serves as the counterfactual trend for the ITS model. The post-interruption trend is the trend in the outcome starting from the first year of available data after COVID-19 in 2021–22 to 2022–23. The dotted vertical line represents the interruption marking the start of the COVID-19 pandemic in 2019–20. However, estimation of the immediate effect of COVID-19 occurs between 2018–19 and 2021–22, with 2021–22 and 2022–23 being the only years after the COVID-19 interruption for which reliable achievement data is available. The shift in the level of the post-interruption trend's starting point represents the COVID effect and the difference in slope between the pre- and post-interruption trends is the COVID effect over time.
Source. Data provided by the Oregon Department of Education.

Chronic Absenteeism

In Exhibit 4, we find trends in chronic absenteeism were increasing both before and after the COVID-19 pandemic. Before the interruption, there was a rising trend in chronic absenteeism. This was significantly exacerbated in the year immediately following the COVID-19 interruption. Steep increases in chronic absenteeism continued in the years after the interruption. The estimated slopes of both the pre- and post-COVID trends in chronic absenteeism were found to be statistically significant. The initial COVID-19 interruption led to an estimated increase in the percentage of chronic absenteeism of approximately 5 percentage points from 2018–19 to 2020–21. This surged by over 10 percentage points in the years that followed, leading to a statewide chronic absenteeism rate over 35%. While chronic absenteeism had already been increasing in Oregon prior to the COVID-19, the pandemic created new challenges that significantly exacerbated the issue.

Exhibit 4. Average School Percentage of Chronic Absenteeism from Before to After the COVID-19 Pandemic (2014–15 to 2022–23)

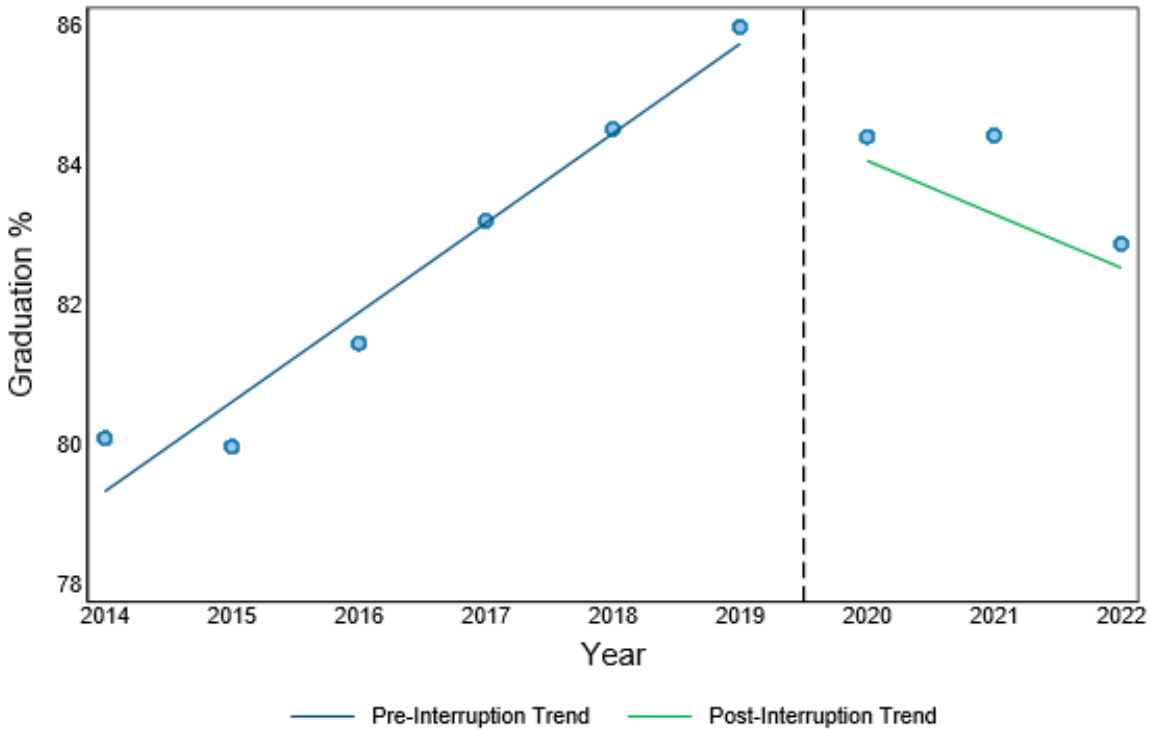


Note. Data for 2019–20 is unavailable for chronic absenteeism % and the corresponding average value missing on the graph. The blue dots represent the actual average outcome values. The pre-interruption trend presents the preexisting trend in the outcome prior to COVID-19 and serves as the counterfactual trend for the ITS model. The post-interruption trend is the trend in the outcome starting from the first year of available data after the COVID-19 interruption in 2020–21 to 2022–23. The dotted vertical line represents the interruption marking the start of the COVID-19 pandemic in 2019-20. However, estimation of the immediate effect of COVID-19 occurs between 2018–19 and 2020–21. The shift in the level of the post-interruption trend's starting point represents the COVID effect, and the difference in slope between the pre- and post-interruption trends is the COVID effect over time.
Source. Data provided by the Oregon Department of Education.

Graduation and Dropout Rates

Exhibit 5 presents the pre- and post-interruption trends for the graduation rates. Graduation rates were steadily increasing in the pre-COVID period and experienced a notably decrease following the onset of COVID-19. In the post-COVID period, the trend is slightly negative but noisy, with graduation rates being relatively stable from the 2020–21 to 2021–22 school year and decreasing substantially from the 2021–22 to 2022–23 school years. Having only three years of post-COVID data makes these trends difficult to interpret. It is unclear whether graduation rates will normalize at the 2020–21 and 2021–22 level or will continue to decrease following the trend from the 2021–22 to 2022–23 school years.

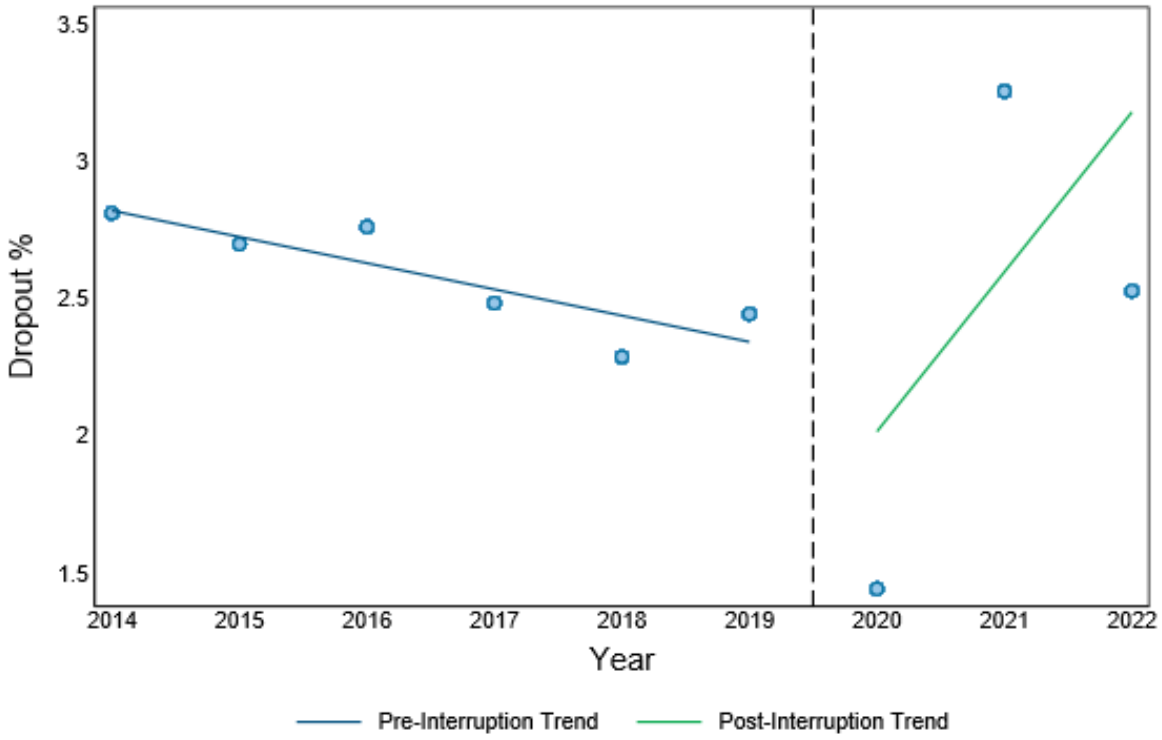
Exhibit 5. Average School Graduation Rate from Before to After the COVID-19 Pandemic (2014–15 to 2022–23)



Note. The blue dots represent the actual average outcome values. The pre-interruption trend presents the preexisting trend in the outcome prior to COVID-19 and serves as the counterfactual trend for the ITS model. The post-interruption trend is the trend in the outcome starting from the COVID-19 interruption and continuing to 2022–23. The dotted vertical line represents the interruption marking the start of the COVID-19 pandemic in 2019–20, the shift in the level of the post-interruption trend's starting point represents the COVID effect, and the difference in slope between the pre- and post-interruption trends is the COVID effect over time. Graduation rates are based on four-year cohorts.
Source. Data provided by the Oregon Department of Education.

Exhibit 6 shows the pre- and post-interruption trends for the dropout rates.[6] The patterns in the trends are inverse to those observed in graduation rates, except for a notable immediate decline at the onset of COVID-19 following a downward trend in the pre-COVID period. Then, we see a large increase in dropout rates from the 2020–21 to 2021–22 school years, and a decline in the year after. Once again, the overall post-COVID trend is difficult to interpret based on these data. Additional years of data are needed to understand how COVID-19 may have affected average school dropout rates and graduation rates in the longer-run.

Exhibit 6. Average School Dropout Rate from Before to After the COVID-19 Pandemic (2014–15 to 2022–23)



Note. The blue dots represent the actual average outcome values. The pre-interruption trend presents the preexisting trend in the outcome prior to COVID-19 and serves as the counterfactual trend for the ITS model. The post-interruption trend is the trend in the outcome starting from the COVID-19 interruption and continuing to 2022–23. The dotted vertical line represents the interruption marking the start of the COVID-19 pandemic in 2019–20, the shift in the level of the post-interruption trend's starting point represents the COVID effect, and the difference in slope between the pre- and post-interruption trends is the COVID effect over time.
Source. Data provided by the Oregon Department of Education.

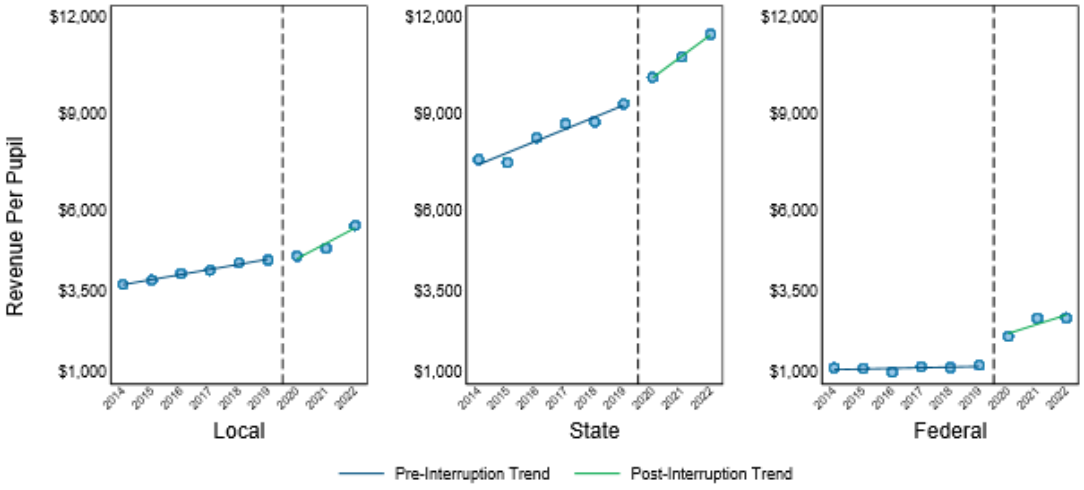
[6] To best fit our data to the ITS model, we used the natural log of the dropout rate in our models. For the exhibits, we transform these natural logs back to dropout rates.

Funding

Exhibit 7 compares the pre- and post-COVID interruption trends and funding levels for per-pupil revenue from local, state, and federal sources at the district level.[7] State revenues have generally been considerably higher than local revenues, which in turn have been considerably higher than federal revenues. This pattern remained consistent during and after the COVID-19 interruption. The largest estimated relative change in funding was a 76% increase in federal per-pupil revenue from 2019–20 to 2020–21, likely due to ESSER grants. The largest estimated absolute increase per-pupil revenue was from state sources at $986 from 2019–20 to 2020–21.

Federal revenue per pupil showed the greatest change in slope from the pre-COVID years to the COVID-19 and post-COVID years, likely influenced by ESSER grants. State per-pupil revenue increased in the post-COVID years at a slightly higher rate than prior to the pandemic. There was a very slight drop in local per-pupil revenue from the year before to the year after the interruption. However, compared to state revenue, local revenue showed a greater change in slope from the pre- to post-COVID interruption trends.

Exhibit 7. Average Local, State, and Federal Per-Pupil Revenue from Before to After the COVID-19 Pandemic (2014–15 to 2022–23)



Note. The blue dots represent the actual average outcome values. The pre-interruption trend presents the preexisting trend in the outcome prior to COVID-19 and serves as the counterfactual trend for the ITS model. The post-interruption trend is the trend in the outcome starting from the COVID-19 interruption and continuing to 2022–23. The dotted vertical line represents the interruption marking the start of the COVID-19 pandemic in 2019–20, the shift in the level of the post-interruption trend's starting point represents the COVID effect, and the difference in slope between the pre- and post-interruption trends is the COVID effect over time. The dollar amounts on the y-axis for the local, state, and federal per-pupil revenue outcomes are the exponentiated average natural log values used in the ITS analysis.
Source. Data provided by the Oregon Department of Education.

[7] While the ITS estimated model made use of logarithmic transformations (natural logarithms) of these revenue streams, the exhibit presents the results converted back into dollar amounts. These models are run at the district level, as revenues are reported at the district level.

Exhibit 8. ITS Model Results and Estimates

Dependent variables	Constant	Pre-COVID trend	Immediate COVID effect	Post-COVID trend	COVID effect over time
School Characteristics					
ln(Enrollment)	5.910***	0.001	–0.099***	0.006*	0.005
Student-to-teacher (FTE) ratio	20.285***	–0.275***	–1.049***	–0.115*	0.160**
Student Outcomes					
Math Proficiency %	41.709***	–0.111	–7.636***	–0.208	–0.097
ELA Proficiency %	50.679***	–0.018	–10.059***	–0.453	–0.435
Chronic absenteeism %	17.034***	0.711***	5.803***	5.783***	5.072***
Graduation %	79.063***	1.279***	-2.648***	–0.766*	–2.045***
Dropout %	3.080***	–0.147**	–0.200	0.503***	0.650***
School Funding					
Local revenue per pupil	$3,608.18***	$104.49***	$134.18	$460.78***	$356.29***
State revenue per-pupil	$7,661.32***	$411.06***	$985.63***	$1,134.54***	$723.48***
Federal revenue per-pupil	$1,034.40***	$26.01	$799.63***	$198.89***	$172.88***

Note. Standard errors clustered at the school level. *$p < 0.05$. **$p < 0.01$. ***$p < 0.001$. This exhibit reports the results of Model (1) for each of the dependent variables of interest in our analysis. *Constant* refers to the intercept for the dependent variable. *Pre-COVID trend* refers to the trend in the dependent variable from 2014–15 to 2019–20 (or to 2018–19 for math and ELA proficiency %) and represents the projected trend in the dependent variable had COVID-19 not occurred. *Immediate COVID effect* represents the actual shift in the dependent variable from the counterfactual expectation after the onset of COVID-19. *Post-COVID trend* refers to the trend in the dependent variable from 2020–21 (or from 2021–22 for math and ELA proficiency %) to 2022–23. *COVID effect over time* refers to the difference between the *Post-* and *Pre-COVID trends*, which represents the gradual effect of COVID-19 on outcomes. ELA = English language arts.

Stage 2: Understanding COVID-19's Impact on High-Need Schools

We present our findings on how COVID-19 impacted schools and districts with the highest rates of economic disadvantage, SWD, and EL students in the state.

In Exhibit 9, Panel 1, we show the estimates of the immediate COVID effect, while in Panel 2, we present the COVID effect over time on our five student outcome measures. These estimates are derived using our ITS model for each of our four samples: (a) all schools in Oregon (reproduced from Exhibit 8), (b) schools in the top quintile of EL incidence, (c) schools in the top quintile of SWD incidence, and (d) schools in the top quintile of economically disadvantaged students (EDS) incidence. By comparing the coefficients in columns (b), (c), and (d) to column (a), we can determine whether the average effect of COVID-19 in high-need schools differed from the statewide average.

Starting with standardized test score proficiency rates, the first panel of Exhibit 9 shows that, on average, high-need schools experienced a smaller immediate decrease in testing proficiency rates compared to the full sample of schools in Oregon. For example, while all schools in Oregon experienced a 7.64 percentage point decrease in math proficiency rates from the 2018–19 to 2021–22 school years, on average, schools in the highest quintile of SWD rates experienced a 5.14 percentage point decrease. The standard deviation for math proficiency in our sample was 19.94, meaning the 2.5 percentage difference between the full sample and high-incidence SWD schools was equivalent to a .125 standard deviation difference, a notable but modest difference. Similarly, EL students experienced an immediate decrease in ELA proficiency of 6.95 percentage points, while the full sample saw a larger decrease of 10.06 percentage points. Once again, these differences are notable, but modest. Other differences between the full sample and the high-need subsamples are generally small (less than two percentage points). The COVID effect over time on math and ELA proficiency is statistically indistinguishable from zero across the four samples.

Turning to chronic absenteeism rates, we see more substantial differences for both immediate and over-time COVID effects. For example, our high-incidence EL and SWD subsamples experienced an average immediate COVID effect approximately 2 percentage points higher than the full sample average of 5.8. Notably, the subsample of high EDS schools experienced an 11.32 percentage point increase in chronic absenteeism following the onset of COVID, almost twice the average increase experienced statewide. To put these changes in context, in our full sample, the standard deviation of chronic absenteeism was 13.28. This means that the 11.32 percentage point average increase in chronic absenteeism experienced by high-incidence EDS schools was a .85 standard deviation increase. This increase was also .42 standard deviations

higher than the increase experienced by the full sample. Both values indicate a large average change in chronic absenteeism that was meaningfully worse for high-incidence EDS schools.

The high-incidence SWD and EDS subsamples also have slightly lower coefficients than the full sample in the COVID effect over time. This suggests that while these schools experienced greater initial increases in chronic absenteeism than the full sample and had a positive shift in the annual rate of increase in chronic absenteeism in the post-COVID period, the size of these trend shifts were not as large as the statewide average. The high-incidence EL subsample tells a slightly different story, with the average COVID effect over time estimate being higher for high-incidence EL schools than the statewide sample at 6.10% versus 5.07%. This indicates that these schools, compared to the statewide sample, experienced both a larger initial increase in chronic absenteeism and a greater upward shift in their trend in chronic absenteeism following the onset of COVID-19, relative to their pre-COVID trend.

Finally, Exhibit 9 reports our analysis of differential graduation and dropout rates across our high-need samples. The results indicate that each high-need sample experienced decreases in graduation rates immediately following the onset of COVID-19, on average. These decreases were greater than those observed in the full sample, with statistically significant estimates for the high-incidence EL and SWD subsamples. In the post-COVID period, the high-incidence SWD and EDS subsamples showed a slightly larger negative deviation from their pre-COVID graduation rate trends compared to the full sample (with only the high-incidence SWD subsample being statistically significant). In contrast, neither the full sample nor any subsample experienced an immediate change in dropout rates that were statistically distinguishable from zero. However, we observe notable differences in the COVID effect over time. The high-incidence EL and SWD subsamples experienced substantially larger upward deviations in dropout rate trends following the onset of the pandemic (with the estimate for the high-incidence SWD sample being substantively large but statistically insignificant).

In Exhibit 10, we examine the immediate and over time COVID effect on district-level revenues from local, state, and federal sources for the full sample and three high-need district subsamples. For local revenues per pupil, we observe no statistically significant changes immediately following the onset of COVID-19 (with the high-incidence EL and EDS samples having large average increases that are statistically insignificant). In contrast, state revenues per pupil did increase substantially immediately following the onset of COVID-19, with the expected increases being larger in each of our high need subsamples. These increases align with the onset of the Student Success Act in Oregon, which introduced new revenues for the K-12 education system.

For the COVID effect over time, the full sample and high incidence EL sample experienced statistically significant and positive deviations in their post-COVID trend, relative to their pre-COVID trend, in local and state revenues that were of a similar magnitude. High-incidence SWD and EDS districts did not experience statistically significant shifts in their trends in revenue from pre-Covid trends in the years following COVID-19. However, the average increase in state revenues per pupil for these high-need districts was similar to the entire sample, being approximately $30 per pupil greater for high-incidence SWD districts and $60 per pupil less in high-incidence EDS districts.

All subsamples experienced increases in federal revenues immediately following the onset of the COVID-19 pandemic and had statistically significant upward shifts in trends in the post-COVID period, relative to the annual trend in federal revenues pre-COVID. These trends align with the disbursement of ESSER funding in response to COVID-19. These increases, in per-pupil terms, were generally smaller than those observed for state revenues over this same period.

For the high-incidence SWD and EDS subsamples, both the immediate increases and upward influence on the trend in federal revenues were greater than the respective immediate increase and upward shift in the trend observed in the full sample. However, compared to the full sample, the average immediate increase observed in high incidence EL districts were slightly lower and the COVID effect over time was of a similar magnitude.

Our findings indicate that schools serving the highest concentrations of EL, SWD, and ESD students generally experienced worse overall impacts from the COVID-19 pandemic than the statewide sample. While COVID-19's effect on test score proficiency rates did not appear to differentially worsen outcomes in the high need subsamples, we do observe that across chronic absenteeism rates, graduation rates, and dropout rates, the impact of COVID-19 was frequently worse for schools that serve the highest concentrations of high need students, on average. Our findings also indicate that these high need school districts received additional revenues from state and federal sources following the onset of COVID-19, and that the size of these increases were generally larger than those experienced by the full sample, on average.

Exhibit 9. Estimating COVID-19 Effects on Student Outcomes in High Need Schools

Dependent variables	(1) Immediate COVID effect				(2) COVID effect over time			
	(a) Full sample	(b) High EL sample	(c) High SWD sample	(d) High EDS sample	(a) Full sample	(b) High EL sample	(c) High SWD sample	(d) High EDS sample
Math proficiency %	–7.64%***	-7.48%***	-5.14%**	-7.31%***	–0.10%	-0.01%	1.18%	-0.46%
ELA proficiency %	–10.06%***	-6.95%***	-8.22%***	-9.69%***	–0.44%	-0.50%	-0.58%	0.30%
Chronic absenteeism %	5.80%***	7.45%***	7.69%***	11.32%***	5.07%***	6.10%***	4.99%***	3.91%***
Graduation rate	-2.65%***	-8.32%**	-5.29%**	-3.72%	–2.05***	-0.56%	-2.49%*	-2.43%
Dropout rate	–0.20%	-0.50%	-1.20%	-0.86%	0.65%***	4.64%**	4.99%	0.49%

Note. $^{**}p < 0.01$. $^{***}p < 0.001$. This exhibit reports the results of our ITS model for each of the dependent variables. All coefficients represent percentage point changes. This model is run separately for four samples in our data: (a) the full sample of Oregon's schools, and a subsample of high need schools, which are schools in the top quintile of (b) EL rate, (c) SWD rate, and (d) EDS rate. *Immediate COVID effect* refers to the immediate level shift in the actual dependent variable outcome from the expectation of the pre-COVID trend in the dependent variable after the onset of COVID-19. *COVID effect over time* refers to the difference in the trend of the dependent variable after the COVID-19 interruption from 2020–21 to 2022–23 (or 2021–22 to 2022–23 for math and ELA proficiency rates) from the trend expected by the counterfactual (trend from 2014 to 2019).

Exhibit 10. Estimating COVID-19 Effects on School Revenues in High Need Schools

Dependent variable	(1) Immediate COVID effect				(2) COVID effect over time			
	(a) Full sample	(b) High EL sample	(c) High SWD sample	(d) High EDS sample	(a) Full sample	(b) High EL sample	(c) High SWD sample	(d) High EDS sample
Local revenues per-pupil	$134.18	$253.33	$141.84	$412.48	$356.29*	$342.21*	$268.31	$166.70
State revenues per-pupil	$985.63*	$1,119.99*	$1,359.17*	$1,308.50*	$723.48*	$697.78*	$753.17	$666.11
Federal revenues per-pupil	$799.63*	$716.82*	$895.94*	$917.44*	$172.88*	$198.53*	$304.29*	$321.37*

Note. $^{*}p < 0.05$. This exhibit reports the results of our ITS model for each of the dependent variables. All coefficients represent percentage point changes. This model is run separately for four samples in our data: (a) the full sample of Oregon's schools, and a subsample of high need schools, which are schools in the top quintile of (b) EL rate, (c) SWD rate, and (d) EDS rate. *Immediate COVID effect* refers to the immediate level shift in the actual dependent variable outcome from the expectation of the pre-COVID trend in the dependent variable after the onset of COVID-19. *COVID effect over time* refers to the difference in the trend of the dependent variable after the COVID-19 interruption from 2020–21 to 2022–23 (or 2021–22 to 2022–23 for math and ELA proficiency rates) from the trend expected by the counterfactual (trend from 2014 to 2019).

Comparison of Oregon's Trends to Other States and National Patterns

Having identified key trends in the impact of COVID-19 on student outcomes and school funding in Oregon, we now contextualize these findings amid the rest of the United States. In this section, we present a descriptive comparative analysis of the changes each state experienced after the onset of the COVID-19 pandemic on various student outcomes (test scores, chronic absenteeism, graduation rates, and enrollment) and K–12 revenues (by state and local or federal sources). By comparing Oregon to other states, we can contextualize how student outcomes and funding changed both immediately after the onset of the COVID-19 pandemic and in more recent years, following a period of significant state and federal investment aimed at addressing the pandemic's impact on students.

Data and Methods

We utilize a variety of data sources to conduct our cross-state comparisons of the relative changes in student outcomes and school finance after the onset of the COVID-19 pandemic. To observe the changes over time, we collected data from three school years. The first was the baseline year, which for all measures was the 2018–19 school year, the last year before the onset of COVID-19. The second school year was the first observed year after the pandemic's onset, either the 2020–21 school year or the earliest available year thereafter. Comparing changes in state-level outcomes and finances from the onset year to the baseline year demonstrates how each measure changed after the start of the pandemic. The third school year was the recovery year, the most recent year of data available for outcomes and finances. By comparing the recovery year to the onset year, we can see how student outcomes and school finances have changed over the course of the pandemic years.

In our analysis, we highlight four peer states (Colorado, Idaho, Montana, and Washington). These states, also highlighted in our Task 2 report, were selected based on the federal Department of Education Regional Educational Laboratory program's northwest region, which includes Oregon, Alaska, Idaho, Montana, and Washington (Brooks et al., 2025a). Because Alaska presents a relatively unique educational context, we substituted it with Colorado, which shares several demographic and contextual similarities with Oregon, such as the racial demographics of the student population and the proportion of traditional public school districts classified as city, suburb, small town, or rural-remote by the National Center for Education Statistics.

The following provides an overview of the data sources for each of the student outcomes or finance measures used in the analysis, including definitions of the baseline, onset, and recovery years, and any adjustments or transformations made in order to analyze the data.

Chronic absenteeism—reported as the percentage, ranging from 0% to 100% of students in a given state who missed more than 10% of the total days in the school year. These data are reported by FutureEd (2024), which collects reported rates from state educational agency websites.[8] For our analysis, the baseline year is the 2018–19 school year, the onset year is the 2021–22 school year, and the recovery year is the 2022–23 school year. In our analysis, we report the percentage point differences between the baseline year and the onset year, between the onset year and the recovery year, and between the baseline year and the recovery year as changes in this measure across these periods.

Enrollment—the continuous count of reported fall enrollment for each state. These data are reported by the NCES in the annual Digest of Education Statistics (2024c). For our analysis, the baseline year is the 2018–19 school year, the onset year is the 2020–21 school year, and the recovery year is the 2023–24 school year. In our analysis, we transform the continuous enrollment data to represent percent changes in overall enrollment from the baseline year to the onset year and from the onset year to the recovery year.[9]

High school graduation rate—NCES (2023) reported 4-year adjusted cohort high school graduation rate, which ranges from 0% to 100%.[10] For our analysis, the baseline year is the 2018–19 school year, the onset year is the 2020–21 school year, and the recovery year is the 2021–22 school year. In our analysis, we take the percentage point difference between the onset and baseline years, between the recovery and onset years, and between the baseline year and the recovery year as changes in this measure across these periods.

National Assessment of Educational Progress (NAEP) scores—continuous fourth and eighth grade math and reading scores. These data are reported by the NCES and accessed via the NAEP Data Explorer (NCES, 2024a). Unlike the other outcome measures that are reported annually, NAEP is reported only once every three years. Thus, there is only one post-COVID test administration available for analysis. Therefore, the baseline year is the 2019 NAEP and the onset year is the 2022 NAEP. In our analysis, we take the difference in scores for each grade and

[8] The following states either had missing data in these years or did not report chronic absenteeism rates that could be collected by FutureEd: Arkansas, Idaho, Iowa, Kentucky, Minnesota, Montana, New Hampshire, Pennsylvania, Vermont, and Wyoming.
[9] This was done by subtracting the earlier year (either baseline or onset) from the latter year (either onset or recovery), dividing this difference by the earlier year, and multiplying by 100 to show the relative (percent) changes from baseline to onset year and from onset to recovery year, respectively.
[10] Graduation rates are defined by NCES (2023) as "the percentage of public high school freshmen who graduate with a regular diploma or a state-defined alternate high school diploma for students with the most significant cognitive disabilities within 4 years of starting 9th grade. Students who are entering 9th grade for the first time form a cohort for the graduating class. This cohort is 'adjusted' by adding any students who subsequently transfer into the cohort and subtracting any students who subsequently transfer out, emigrate to another country, or die."

subject combination between the baseline year and the onset year as the change in this measure across these periods.

Revenues—a continuous total of statewide K–12 education revenues, broken down by source (local, state, and federal). These data are reported by the NCES (2024b) and are taken from the National Public Education Financial Survey Data. For our analysis, the baseline year is the 2018–19 school year, the onset year is the 2020–21 school year, and the recovery year is the 2021–22 school year. In our descriptive analysis, we combine state and local revenues into a single measure and analyze federal revenues separately. Further, we transform the continuous revenue data to represent percent changes in revenue from the baseline year to the onset year and from the onset year to the recovery year.[11]

Findings

Comparing Changes in Student Outcomes During COVID-19 Across States

Below we share our descriptive findings on how state-level education and finance measures changed over the course of the COVID-19 pandemic. Importantly, the findings presented are entirely descriptive. While the trends in each state may be expected to be at least partially attributable to COVID-19 and subsequent policy responses, we stress that the findings should not be interpreted as causal. In no way can we make the claim that the patterns in the student outcomes or financial measures observed for different states were *caused* by the onset of COVID-19 or any subsequent recovery-related efforts undertaken by the states or the federal government. For instance, other concurrent policy changes or reforms to state education or school finance systems may have occurred that simultaneously impacted these state-level measures. For instance, the passage of the Student Success Act in Oregon in 2019 led to a substantial increase in educational funding that was unrelated to the COVID-19 pandemic but would be expected to impact measures of school finance and student outcomes over the period observed in the following exhibits. Nonetheless, these figures are helpful for contextualizing the changes that Oregon experienced over this time period amidst the changes experienced by other states.

NAEP Scores

Exhibits 11 and 12 visualize the change in NAEP test scores from the 2018–19 to 2021–22 testing for each state. These exhibits demonstrate that nearly every state in the U.S. experienced a decrease in average NAEP scores across both math and reading and in both

[11] This was done by subtracting the earlier year (either baseline or onset) from the latter year (either onset or recovery), dividing this difference by the earlier year, and multiplying by 100 to show the relative (percent) changes from baseline to onset year and from onset to recovery year, respectively.

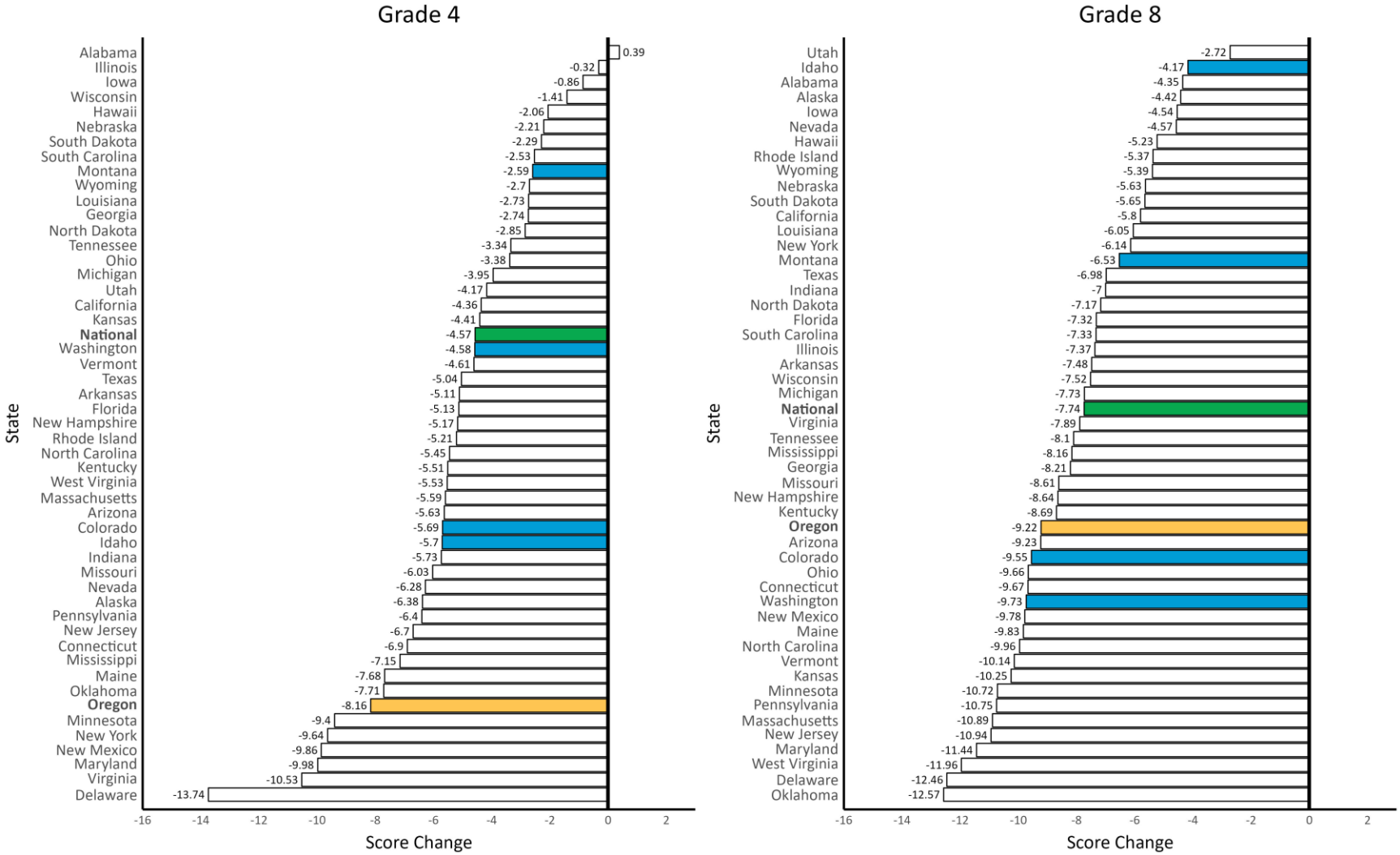
fourth grade and eight grade after the onset of the COVID-19 pandemic. Exhibit 11 shows that Oregon experienced one of the larger average decreases in fourth grade math scores among all states, at -8.16 points. This decrease is also notably greater than any of the highlighted peer states. The decrease in Oregon's average eighth grade math scores was closer to the national average (-7.74), at -9.22 points. This decrease is slightly smaller than those observed in Washington and Colorado, but somewhat greater than either Montana or Idaho.

Turning to reading outcomes, Exhibit 12 shows that, once again, Oregon experienced one of the largest decreases in average test scores for fourth grade students at -7.40 points, just 0.22 points smaller than the greatest decrease experienced by any of the peer states (-7.62 for Idaho). The relative size of the decrease in reading test scores is similar in eighth grade, where Oregon experienced the third largest decrease in average test scores of any state and experienced a greater decrease than any of the peer states.

Overall, the patterns of decreases observed in Oregon's NAEP scores mirror the experiences of nearly every state. However, the magnitude of these changes experienced by Oregon is larger than for many states, including the highlighted peer states. Across both subjects and grade levels, the score decreases observed in Oregon from 2018–19 to 2021–22 were statistically significant at the .05 level. The magnitude of these decreases is quite substantial. For example, Oregon experienced a decrease in average fourth grade reading scores of 7.4 points. If 7 points were added to Oregon's 2021–22 average score of 210, the state would improve from the 6th lowest score among states to being tied for the 19th highest score (NAEP Data Explorer, 2024a).

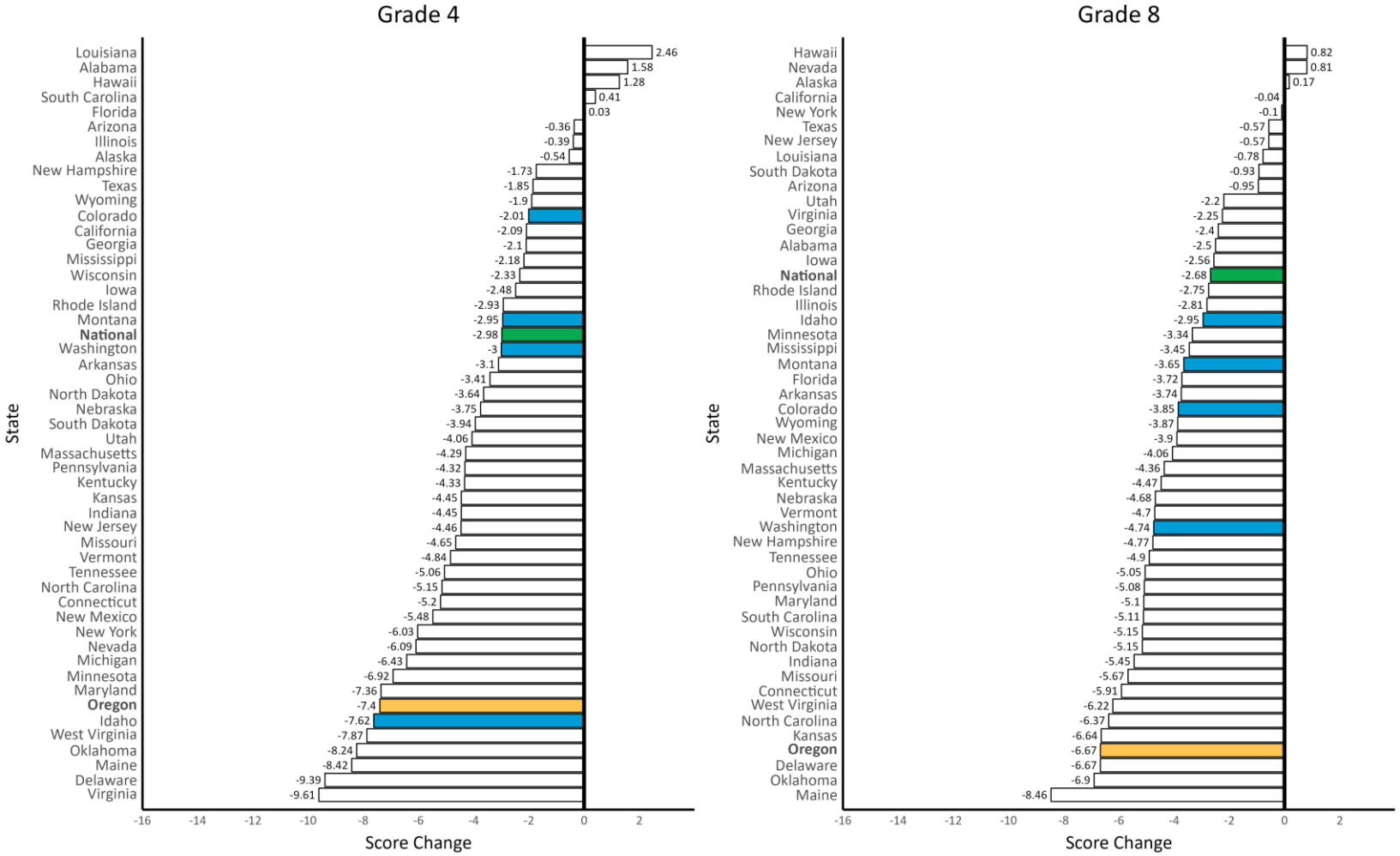
Finally, while our analysis focusses on the relative changes in test scores, it should also be noted that Oregon is among the lowest performing states on the NAEP (NAEP Data 2024a). In the 2021–22 testing period, Oregon's fourth grade math scores were the 7th lowest among all states, and as noted above, ranked 6th in reading scores. Both averages were also below the national average at a statistically significant level. In eighth grade test, Oregon had the 16th lowest average math scores and 15th lowest average reading scores among states. However, these averages are not different from the national average at a statistically significant level.

Exhibit 11. Changes in Grade 4 and Grade 8 Math NAEP Scores Across All States from 2019 to 2022



Note. National average based on the average score change for all test takers in the U.S. Oregon is highlighted in yellow and the national average is highlighted in green. States highlighted in blue represent peer states used as comparisons in the Task 2 report (Brooks et al., 2025a).
Source. NAEP Data Explorer (2024a).

Exhibit 12. Changes in Grade 4 and Grade 8 Reading NAEP Scores Across All States from 2019 to 2022



Note. National average based on the average score change for all test takers in the U.S. Oregon is highlighted in yellow and the national average is highlighted in green. States highlighted in blue represent peer states highlighted in the Task 2 report (Brooks et al., 2025a).
Source. NAEP Data Explorer (2024a).

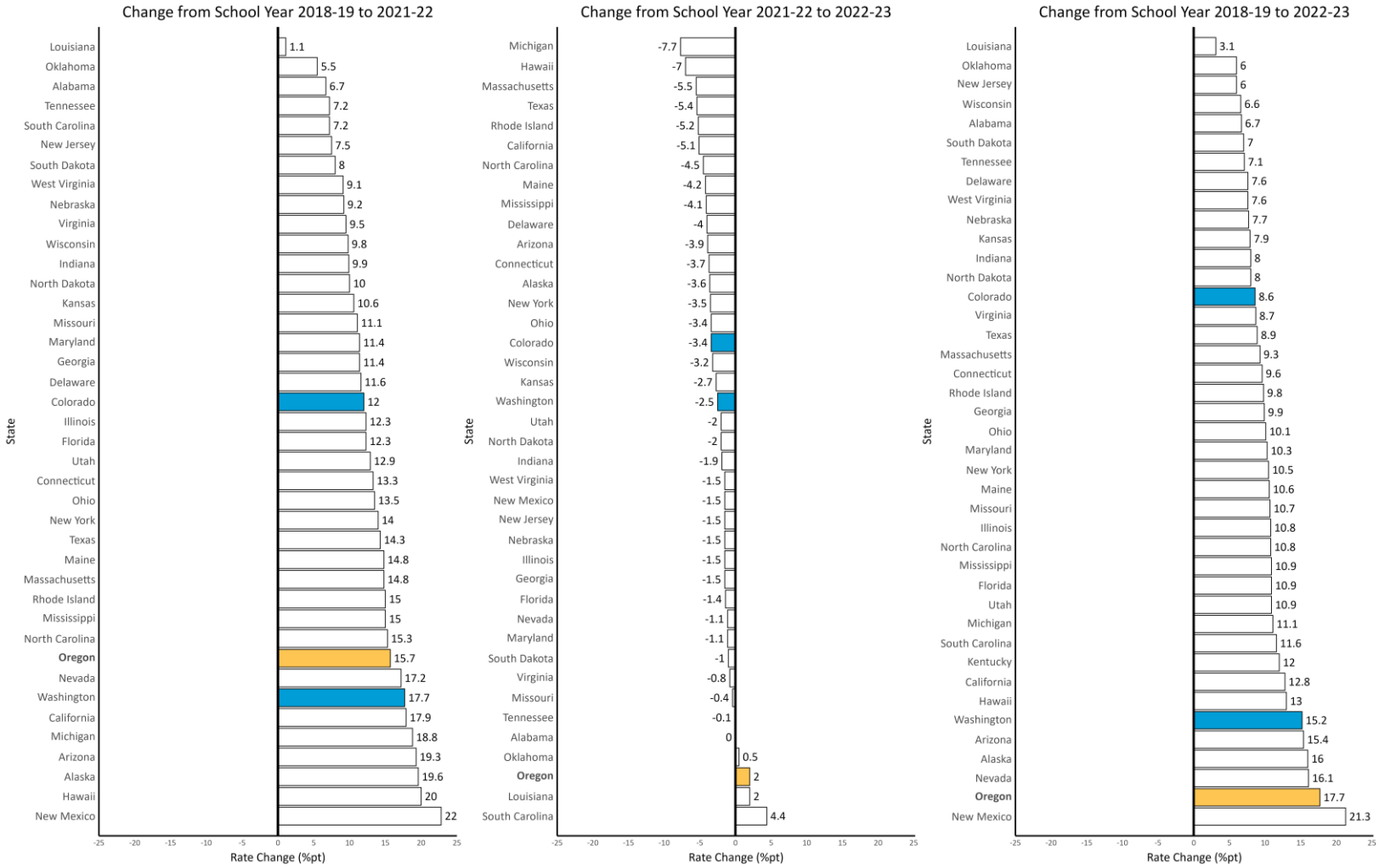
Chronic Absenteeism

Exhibit 13 visualizes the percentage point change in the share of students who were chronically absent in each state. On the left, the difference between the 2018–19 school year and the 2021–22 school year is visualized, representing the change in chronic absenteeism rates from the last pre-COVID school year to after the disruptions related to the onset of the COVID-19 pandemic. For all states with available data, chronic absenteeism increased, and in many cases, the increases were quite substantial. For example, Oregon's 15.7 percentage point increase in chronic absenteeism to 36.1% represented a 77% increase over the 2018–19 chronic absenteeism rate of 20.4%. The increase in chronic absenteeism observed in Oregon was the ninth largest of the states with available data and was between Washington (17.7 percentage point increase) and Colorado (12.0 percentage point increase) among peer states with available data.

The middle figure in Exhibit 13 illustrates the percentage point changes in chronic absenteeism rates for each state between the 2021–22 and 2022–23 school years. This change offers insights into how chronic absenteeism rates changed with an additional year removed from the onset of COVID-19, during a time of increased federal, and often state, investment in K–12 education. Exhibit 13 shows that although almost every state with available data had lower chronic absenteeism rates in the 2022–23 school year than they did in the 2021–22 school year, Oregon was one of four states that actually saw an increase in this period. While this was much smaller than the increase Oregon experienced from 2018–19 to 2021–22, it is nonetheless notable that the increase in chronic absenteeism in the state continued even through the 2022–23 school year.

Finally, the figure on the right of Exhibit 13 displays the percentage point changes in chronic absenteeism rates for each state between the 2018–19 and 2022–23 school years. This change summarizes the total difference in chronic absenteeism from the last year prior to COVID-19 and the most recent year with available data. This figure shows that Oregon experienced the second largest increase in chronic absenteeism rates over this period, at 17.7 percentage points. Further, Oregon had the third highest overall reported chronic absenteeism rate among this set of states in the 2022–23 school year, at 38.1%.

Exhibit 13. Percentage Point Changes in Chronic Absenteeism Rates Across All States During the COVID-19 Pandemic



Note. Chronic absenteeism is defined as a student being absent for more than 10% of the days in a school year. Idaho, Iowa, and Kentucky are omitted due to missing data. Arkansas, Minnesota, Montana, New Hampshire, Pennsylvania, Vermont, and Wyoming do not publicly report chronic absenteeism. Oregon highlighted in yellow. States highlighted in blue represent peer states highlighted in the Task 2 report (Brooks et al., 2025a).
Source. FutureEd (2024).

Enrollment

Exhibit 14 illustrates the change in fall enrollments that each state in the U.S. experienced after the onset of COVID-19. To improve comparability across states, the results are reported as percent changes in enrollment from the baseline to onset year (2018–19 and 2020–21), onset to recovery year (2020–21 and 2022–23), and baseline to recovery (2018–19 and 2022–23. For example, from 2018–19 to 2020–21 Oregon saw a decrease in enrollment from 609,507 to 578,723 students (equal to a 5.05% decrease). This was among the largest percent decrease in enrollment after the onset of COVID-19 among all states, exceeded only by Mississippi, Vermont, New Hampshire, and West Virginia. Oregon's precent enrollment decrease was also the largest among all the peer states.

The middle of Exhibit 14 shows the percent change in fall enrollments each state experienced from 2020–21 to 2022–23. In this period after the onset of COVID-19, Oregon experienced a very slight enrollment decline equal to -0.24%. Washington saw an equally small enrollment increase (0.26%) over the same period. Colorado also experienced a further enrollment decline, with its enrollment decreasing 1.4%. In contrast, Idaho and Montana experienced pronounced enrollment increases over the post-COVID-19 period equal to 3.24% and 3.06%, respectively.

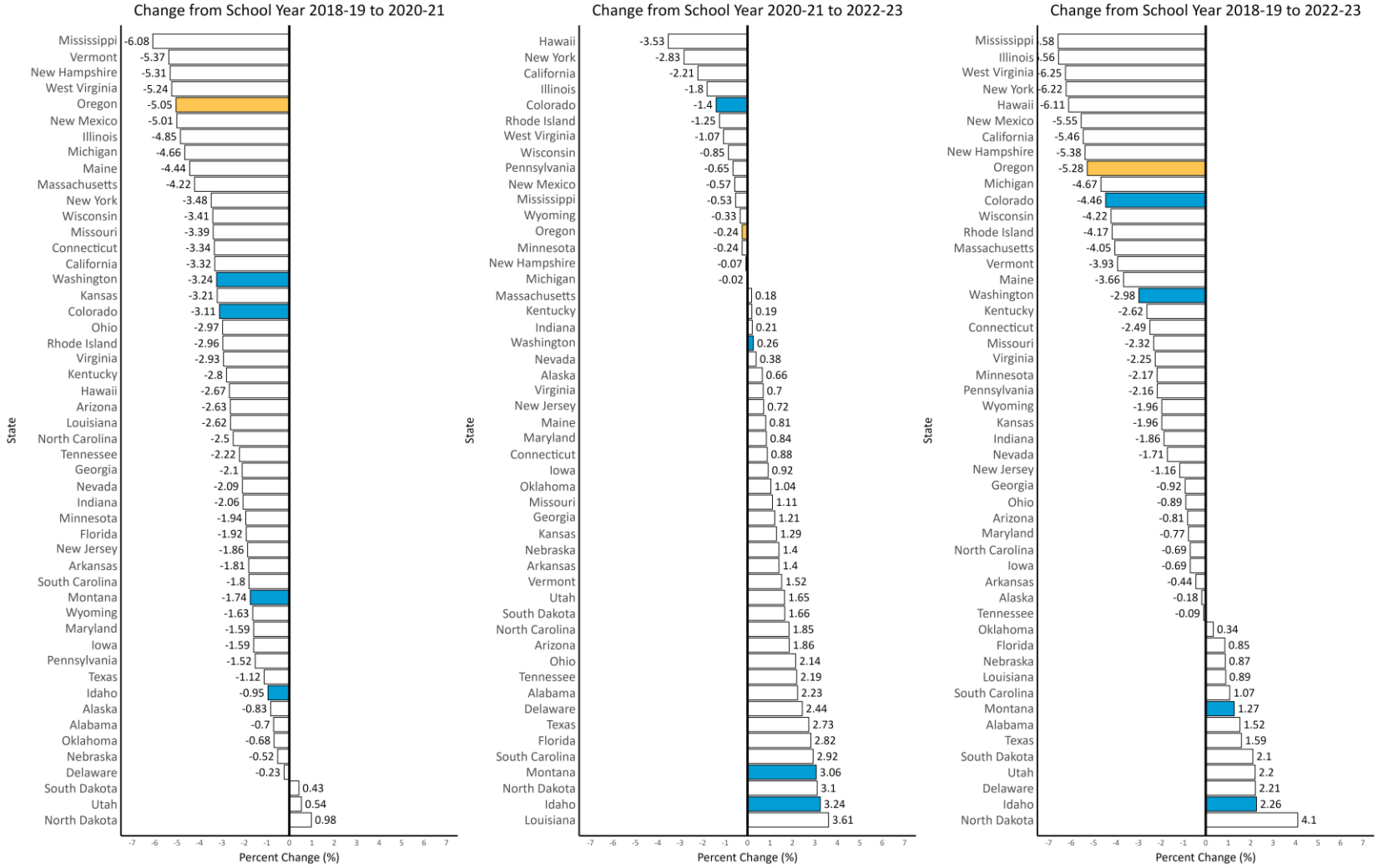
Finally, the figure on the right in Exhibit 14 shows the shows the percent change in fall enrollments each state experienced from 2018–19 to 2022–23. This figure demonstrates that over this time period, Oregon experienced one of the largest proportional decreases in total enrollment and had the largest decrease among all of the peer states. Overall, Oregon experienced a substantial decrease in enrollment after the initial onset of COVID-19 and these students did not return by the 2022–23 school year. However, it is notable that this pattern of substantial enrollment decline followed by a lack of meaningful enrollment recovery is mirrored in many states across the U.S., including several peer states.

Four-Year Graduation Rate

Exhibit 15 visualizes the percentage point changes in the 4-year graduation rate that occurred in Oregon and the rest of the United States after the onset of COVID-19.

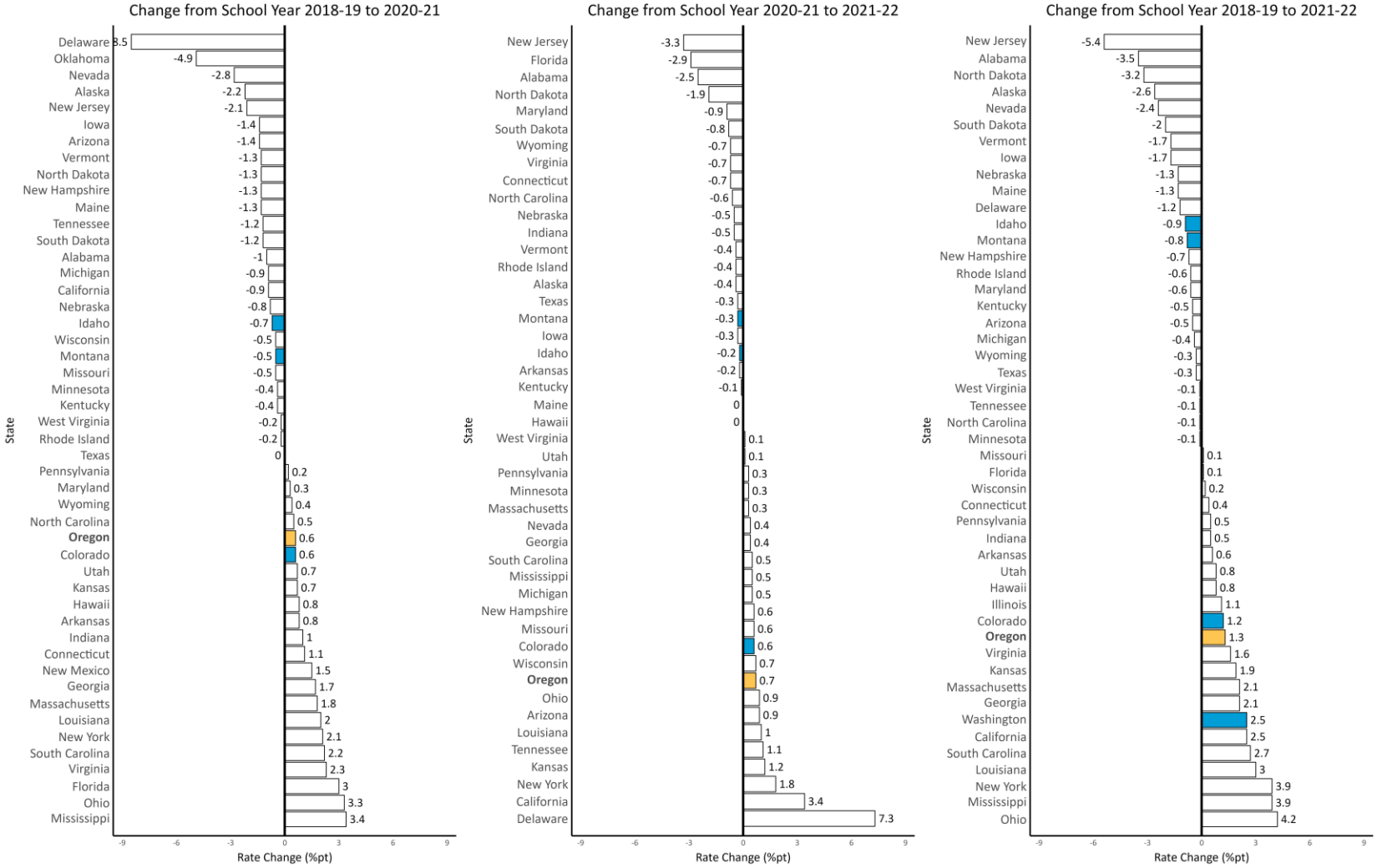
The left side of the exhibit shows that from 2018–19 to 2020–21, Oregon was one of 22 states that experienced an increase in statewide 4-year high school graduation rate over this period. However, the 0.6 percentage point increase (from 80% to 80.6%) was among the smallest of these 22 states and was the same as that observed in Colorado. Idaho and Montana

Exhibit 14. Percentage Changes in K–12 Enrollment Across All States During the COVID-19 Pandemic



Note. Enrollment figures are based on fall enrollment counts for a given school year. Oregon highlighted in yellow. States highlighted in blue represent peer states highlighted in the Task 2 report (Brooks et al., 2025a).
Source. NCES Digest of Education Statistics (NCES, 2024c).

Exhibit 15. Percentage Point Changes in 4-Year High School Graduation Rates Across All States During the COVID-19 Pandemic



Note. Oregon highlighted in yellow. States highlighted in blue represent peer states highlighted in the Task 2 report (Brooks et al., 2025a). Due to missing data, Illinois, Oklahoma, New Mexico, and Washington are missing from these figures.
Source. NCES Digest of Education Statistics (NCES, 2023).

experienced decreases in graduation rates over this same period of -0.7 and -0.5 percentage points, respectively.[12] The middle figure in the exhibit shows that from the 2020–21 to 2021–22 school years, Oregon once again experienced an increase in graduation rates, this time of 0.7 percentage points. This increase is once again similar to Colorado (0.6) and proved to be the ninth largest gain among the listed states. Finally, the right side of Exhibit 15 shows that Oregon experienced one of the largest increases in graduation rates from 2018–19 to 2021–22. However, Oregon's statewide 4-year high school graduation rate was the fifth lowest among this set of states in the 2021–22 school year, at 81.3%.

Comparing Changes in K–12 Education Revenues During COVID-19 Across States

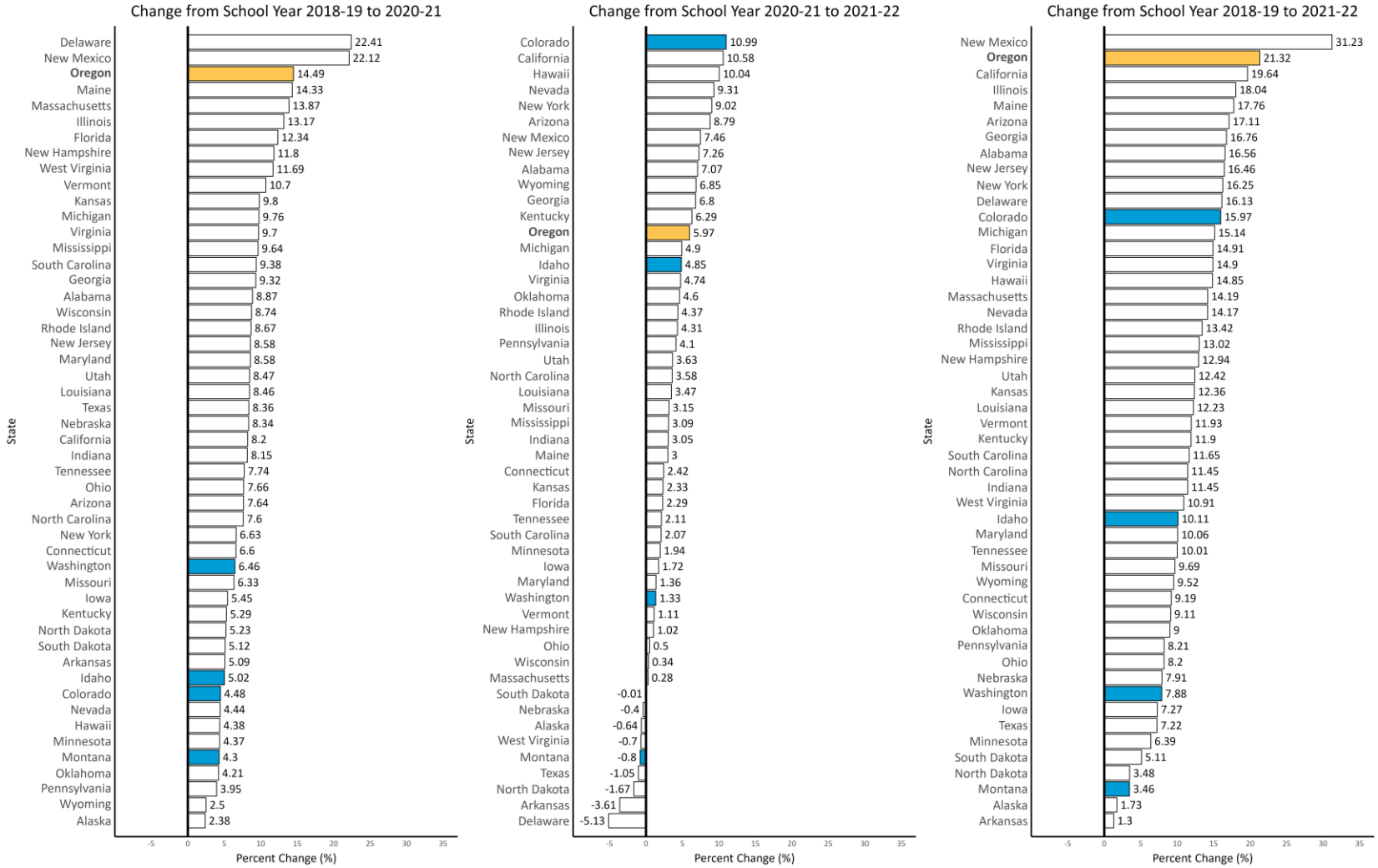
Exhibits 16 and 17 summarize how educational revenues per pupil from different funding sources changed after the onset of the COVID-19 pandemic. To improve comparability across states, changes in revenues are reported as percent changes from the baseline to onset year (2018–19 and 2020–21) and onset to recovery year (2020–21 and 2021–22). For example, Exhibit 16 depicts percent changes in per-pupil revenues from state and local sources across states over these two periods. The exhibit shows that Oregon experienced an increase in state and local revenues per pupil of 14.49% from 2018–19 to 2020–21, which represents an increase from $13,400 to $15,341 per pupil. This increase was the third largest among all states over this same period and also proved to be the largest among all peer states. The next largest increase among the peer states was less than half this size (6.46% for Washington). Note that Oregon's increased state and local revenues over this period also coincided with the passage of the Student Success Act of 2019, which led to a substantial increase in education spending in the state.

In the middle panel of Exhibit 16, we report the percentage change in state and local revenues from 2020–21 to 2021–22. Once again, Oregon experienced among the highest percentage increases among all states, at 5.97%. This represents an increase from $15,341 to $16,257 per pupil. Among peer states, only Colorado experienced a greater increase in state and local revenues per pupil over this period, with an increase of 10.99%.

Lastly, the right panel of Exhibit 16 reports the overall percent change in state and local revenues per pupil from 2018–19 to 2021–22. Here we see that Oregon experienced the second largest percent change in revenues from state and local sources, at 21.32%. This is more than twice as large as any other peer states except for Colorado, which experienced an increase of 15.97%.

[12] Washington is missing data for the 2020–21 school year and therefore not included in the chart.

Exhibit 16. Percentage Changes in State and Local Revenues Per Pupil Across All States During the COVID-19 Pandemic



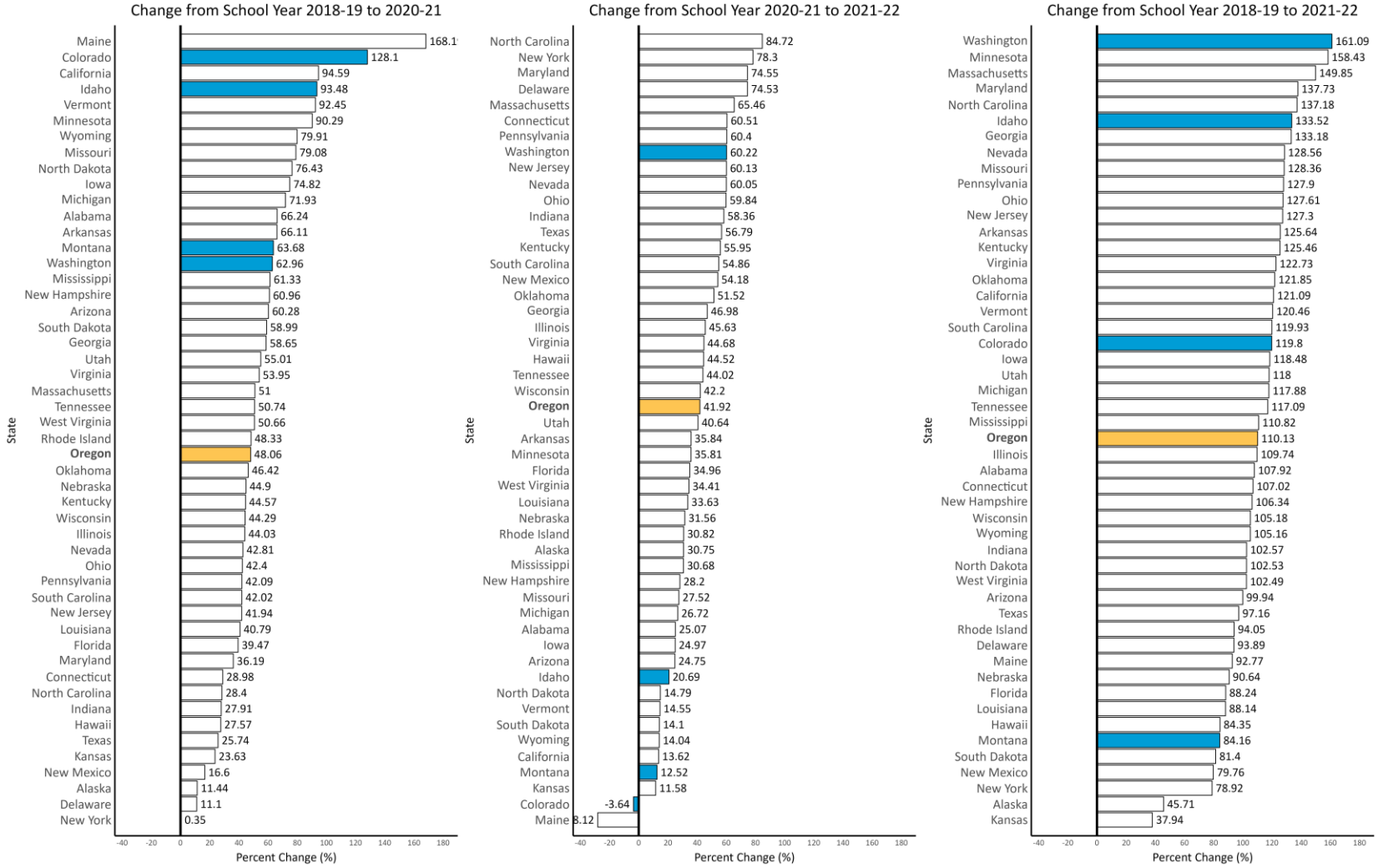
Note. Per-pupil rates are calculated by dividing total state and local revenues by fall enrollment for a given school year. Oregon highlighted in yellow. States highlighted in blue represent peer states highlighted in the Task 2 report (Brooks et al., 2025a).
Source. National Public Education Financial Survey Data 2018–19, 2020–21, and 2021–22 (NCES, 2024b).

Exhibit 17 reports on the percentage change in federal revenues that each state experienced after the onset of COVID-19. During this period, the federal government released $190 billion in funds to schools to help address the practical challenges of educating students during the pandemic and addressing the impacts that COVID-19 had on student learning and well-being. This substantial investment is reflected in the exhibit, wherein states demonstrate sizable percent increases in federal revenues. The left panel shows Oregon experienced a 48.06% increase in federal revenue per pupil from 2018–19 to 2020–21, which translates into an increase in absolute terms from $956 to $1,416 per pupil. The magnitude of this increase falls just about at the median increase across all states, but notably below all other peer states. Among the peer states Colorado experienced the largest percent increase in federal revenue per pupil over the period equal to 128.1% (from $794 to $1,812 per pupil).

In the middle panel, we once again show that Oregon experienced a substantial increase in federal revenues per pupil from 2020–21 to 2021–22. The 41.92% change over this period represents an increase from $1,416 to $2,009 in federal revenue per pupil. This increase was once again close to the median increase experienced across all states in these data but was the second highest increase experienced among the peer states.

The left and middle panels of Exhibit 17 show notably fluctuations in percentage increases in federal revenues across the two panels. likely partly attributable to differences in the timing of ESSER funding allocations from the federal government to the states. Each wave of ESSER required states to submit spending plans that needed to be approved by the federal Department of Education before funds could be dispersed. Fluctuations in the timing of the allocations to states across school years may at least partially explain the stark differences observed over the two periods in states such as Colorado, which experienced large gains in federal funding per pupil after the onset of COVID-19 followed by stagnation in the recovery period. The right panel of the exhibit helps illustrate this, as overall, states experienced substantial percentage increases in federal revenues per pupil. From 2018–19 to 2021–22, Oregon experienced an increase of approximately $1,000 per pupil in federal revenues.

Exhibit 17. Percentage Changes in Federal Revenues Per Pupil Across All States During the COVID-19 Pandemic



Note. Per-pupil rates are calculated by dividing total federal revenues by fall enrollment for a given school year. Oregon highlighted in yellow. States highlighted in blue represent peer states highlighted in the Task 2 report (Brooks et al., 2025a).
Source. National Public Education Financial Survey Data 2018–19, 2020–21, and 2021–22 (NCES, 2024b).

Conclusion

In this report, we have offered a comprehensive examination of the impact that the COVID-19 pandemic has had on Oregon's public K–12 schools. The COVID-19 pandemic posed unprecedented challenges to Oregon's public K–12 education system, having a significant and negative impact on many student outcomes and overall system enrollment. Our analysis reveals several critical findings that highlight the extent and nature of these impacts.

First, the pandemic led to a notable decline in student enrollment, increases in chronic absenteeism, and decreases in math and ELA proficiency. The data indicates an 8% drop in math proficiency, a 10% drop in ELA proficiency post-COVID, and statewide chronic absenteeism rates reaching over 35% in the post-COVID years with no significant recovery for any of these measures observed in the available data. These trends are in keeping with broader national trends around learning losses and school engagement after the COVID-19 pandemic, although in many instances Oregon experienced somewhat larger negative impacts than most other states. Graduation and dropout rates exhibited complex patterns over the period studied. Initially, graduation and dropout rates decreased, potentially due to unique circumstances related to remote learning. For example, graduation rates are based on four-year cohorts; thus, one possible explanation is that immediately after the onset of COVID-19, students took an additional year(s) to graduate, rather than drop out entirely. Over the post-COVID period, graduation rates continued to decline, while trends in dropout rates increased. This suggests that the temporary measures during the pandemic may have masked underlying issues that resurfaced, or worsened, once normal schooling resumed.

We also identified several patterns for how COVID-19 differentially impacted high-need schools and districts. When our ITS models were run on subsamples of schools or districts in the top quintile of EDS, EL, or SWD enrollment shares, we found that these higher need schools, on average, were more greatly impacted by COVID-19 across measures like chronic absenteeism, graduation rates, and dropout rates. Our findings also indicate that high need school districts received more revenues from state and federal sources following the onset of COVID-19, and that sizes of these increases were generally larger than those experienced by the full sample of districts, on average. While this suggests that resources were targeted towards high-need and highly impacted school districts, our findings to not tell us whether this additional funding is sufficient of addressing the impacts of the COVID-19 pandemic.

One important limitation of our analysis is that only two or three years of data post-COVID were available for analysis, limiting the strength of the inferences, conclusions, and recommendations we could make based on the analysis. Additional years of post-COVID data

will be able to help differentiate the early emergence of post-COVID trends in outcomes from statistical noise or differentiate a potential shock in the return to in-person schooling in 2021–22 from a return to normalcy from 2022–23 and onward.

An additional limitation of our ITS analysis is the requirement that each school in our sample have non-missing data in all the years of our analysis. Given the magnitude of the COVID-19 disruption, it is possible that schools may have at least one year of unreported data on our various outcomes of interest from the 2014-15 to 2022-23 period. Such schools would be omitted from the ITS estimates for that outcome. While our analyses speak to the trends occurring in the vast majority of schools in Oregon, we acknowledge that our sample does not include every traditional public school. We therefore caution against the assumption that our samples are perfectly representative of the statewide K-12 population in this period.

We also emphasize that our multistate analyses are based on simple pre-post comparisons across various time points before and during the COVID-19 pandemic. Unlike our ITS analyses, these do not observe trends over time or interpret trends prior to COVID-19 relative to trends after COVID-19. Nonetheless, the patterns observed in Oregon are generally repeated in most states across the country, suggesting these descriptive analyses are somewhat capturing a common experience across states and situate Oregon's experiences among its peer states.

While Oregon's public K–12 education system has shown resilience in the face of the COVID-19 pandemic, significant challenges remain. This makes it even more important that the state ensures that both the level and distribution of funding allows all schools to offer their students equal opportunities for adequate education. In the Task 5 report, we will estimate the costs of adequate education for all students and offer specific policy recommendations on how Oregon funds K–12 education to provide the opportunity to meet the educational needs of all students and enable them to achieve to common outcomes (Brooks et al., 2025b). Such investments will be critical for promoting recovery from the impacts of COVID-19 that have been outlined in this report and will promote the long-term educational success of students even beyond the COVID-impacted cohorts.

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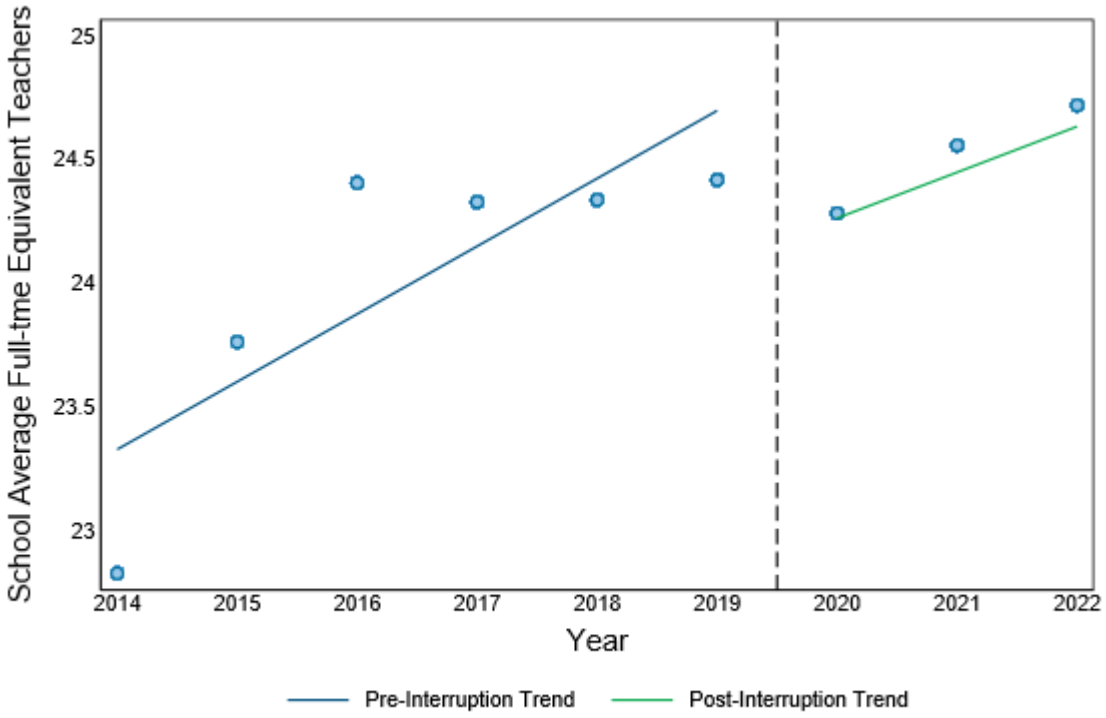
Appendix A. Additional Exhibit

Exhibit A–1. Average School Teacher (FTE) Staffing Levels from Before to After the COVID-19 Pandemic (2014–15 to 2022–23)



Note. The blue dots represent the actual average outcome values. The pre-interruption trend presents the preexisting trend in the outcome prior to COVID-19 and serves as the counterfactual trend for the ITS model. The post-interruption trend is the trend in the outcome starting from the COVID-19 interruption and continuing to 2022–23. The dotted vertical line represents the interruption marking the start of the COVID-19 pandemic in 2019–20, the shift in the level of the post-interruption trend's starting point represents the COVID effect, and the difference in slope between the pre- and post-interruption trends is the COVID effect over time.
Source. Data provided by the Oregon Department of Education.

The school average full-time equivalent teacher staff levels are statistically significant and were increasing pre-COVID interruption from 2014 to 2019. The COVID-19 interruption had a negative impact, decreasing the actual teacher staffing level from the expected level based on the pre-COVID trend. The pre-COVID trend seemed to be heavily influenced by low average teacher (FTE) staffing in 2014–15 and 2015–16, while the actual average staffing levels stabilized slightly below 24.5 full-time equivalent teachers from 2016–17 to 2019–20 and slightly decreased during the COVID-19 2020–21 year. The COVID effect over time is not statistically significant, but the post-COVID interruption trend is statistically significant and increasing, but at a lower rate than the pre-COVID interruption trend

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