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## Student Achievement Growth During the COVID-19 Pandemic: Fall 2021 Update

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# **Student Achievement Growth During the COVID-19 Pandemic**

Fall 2021 Update

Tim R. Sass and Thomas Goldring

Metro Atlanta Policy Lab for Education

May 2022

**Table 1. COVID-19 Reported Cases and Deaths by Core Metro Atlanta County**

County	Total Cases per 100,000 People	Total Deaths per 100,000 People
Clayton	21,859	324
Cobb	22,881	231
DeKalb	19,712	222
Fulton	20,407	211
Gwinnett	22,168	197

Source. [nytimes.com/interactive/2021/us/georgia-covid-cases.html](https://www.nytimes.com/interactive/2021/us/georgia-covid-cases.html)

Notes. Figures as of April 3, 2022.

## Introduction

Pandemic-induced disruptions to formal education, including family upheaval, school closures, and remote or hybrid learning modes, were widespread in metro Atlanta school districts during the 2020–21 school year (SY) and continued to varying extents into SY 2021–22. Although these disruptions began two years ago, little information has been available to parents, district administrators, and state policymakers to date about how students in the metro Atlanta area are performing academically. Metro-Atlanta districts have adopted different strategies to help students navigate and recover from the pandemic, including small-group tutoring, expanded summer school programs, and additional supports for technology use and student health and wellness. This report continues the Metro Atlanta Policy Lab for Education’s (MAPLE) ongoing research agenda analyzing how the pandemic has affected student achievement in math and reading in metro-Atlanta districts.

Our [previous report](#) compared actual student performance in the fall and winter of SY 2020–21 relative to projected student performance using data from the fall and winter prior to public school closures in March 2020 (SY 2019–20).<sup>1</sup> We found that the pandemic led to substantial reductions in student achievement growth; the impacts had grown between the fall and winter assessments in 2020; and the effects varied considerably by subject, grade level, and school district. On average, historically-marginalized groups, such as Black students, Hispanic students, and English learners, tended to experience greater reductions in achievement growth (relative to similar students prior to the pandemic) than did White and English-proficient students, but these differences varied substantially across grades, subjects, and districts.

**Table 2. COVID-19 Context in Three Metro Atlanta Districts**

District	Directly Certified Students	Timing of Return to Fully In-Person Instruction		
		Elementary	Middle	High
Clayton County Public Schools	51.2%	4/21/2021	8/2/2021	8/2/2021
Fulton County Schools	26.0%	10/14/2020	10/14/2020	10/14/2020
District X	43.0%	3/15/2021	3/15/2021	3/15/2021

*Source.* Governor’s Office of Student Achievement (Directly Certified Students).

*Notes.* Directly Certified Students are students whose family received benefits from the Supplemental Nutrition Assistance Program (SNAP) or the Temporary Assistance for Needy Families (TANF) program, were homeless, an unaccompanied youth, in foster care, or a migrant student.

To assess any continued impact of the pandemic on student achievement growth, it is important to contextualize the different pandemic-related impacts and responses in metro Atlanta. Health impacts have not been consistent across counties. Table 1 shows that total deaths per 100,000 population were around 45–65% higher in Clayton County, for example, compared to DeKalb County, Fulton County, and Gwinnett County (in contrast to total cases). A correlated fact is that Clayton County Public Schools serves a larger proportion of economically-disadvantaged students than other metro-area districts (see Table 2).

Metro-Atlanta districts also varied in the timing of when students were offered the choice to return to fully in-person schooling (as shown in Table 2). In Fulton County Schools, students could return to in-person schooling in October 2020, while students in District X—another metro Atlanta district—were able to return the following semester (in March 2021). Students in elementary schools in Clayton County Public Schools could return in April 2021 but, due to heightened health concerns, middle and high school students did not return to in-person schooling until the start of SY 2021–22.

## Research Questions

We address the following key research questions:

1. What has been the effect of the pandemic on students' achievement growth in math and reading through fall 2021?
2. How have changes to student achievement growth varied by grade level?
3. How have changes to student achievement growth varied by geography, race and ethnicity, and economic disadvantage?

## Measures and Samples

To analyze the effects of the pandemic on student learning, we use administrative data from three metro-Atlanta districts: Clayton County Public Schools (“Clayton”), Fulton County Schools (“Fulton”), and a third district that has chosen to remain anonymous (“District X”). Our primary outcomes of interest are math and reading scores on the iReady and MAP Growth formative assessments. These assessments are administered by the districts two or three times per school year.<sup>2</sup> We also use data on students' enrollment, grade level, and demographic characteristics (including their race, ethnicity, gender, and free or reduced-price meals status).

Our empirical approach uses national percentile rankings on the iReady and MAP Growth formative assessments to measure student progress. National percentile rankings compare student achievement to that of students throughout the United States. We use the national student performance in SY 2016–17 (for MAP Growth) or SY 2018–19 (for iReady) as a benchmark, so our rankings in each school year are relative to national pre-pandemic achievement levels. Percentile rankings are on a scale of 1–99; a score of 50 represents the national average. These are relative rankings, not absolute scores. For example, moving from the 10th percentile to the 11th percentile is associated with a greater change in scale scores than is moving from the 50th to the 51st percentile.

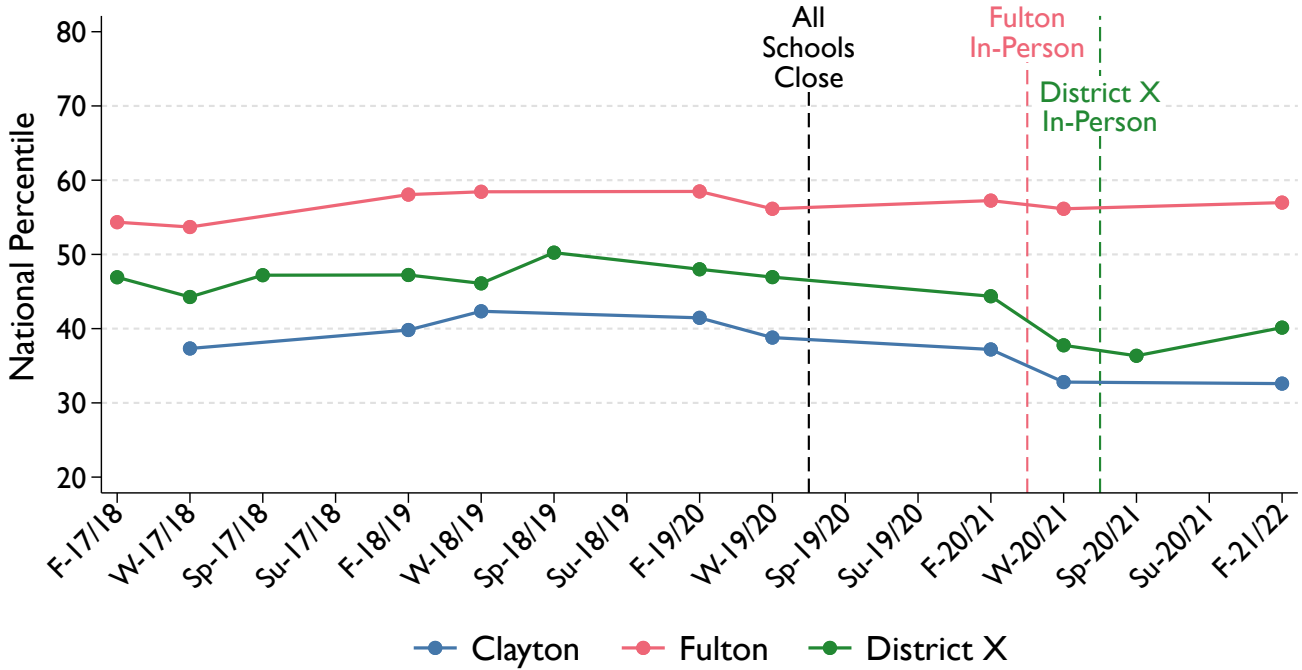
We present two measures of the impact of the pandemic on student learning. The first measure, which captures the trend in student achievement over time, compares average national percentile rankings from fall 2017 through fall 2021.<sup>3</sup> The analytical sample is restricted to students who were enrolled in the district in fall 2017 and took all available pandemic-era formative assessments

(potentially including the fall, winter, and spring assessments in SY 2020–21 and the fall assessment in SY 2021–22).<sup>4</sup> This restriction allows for consistent comparisons of student achievement over time but only for a sample of consistent test takers during the pandemic.

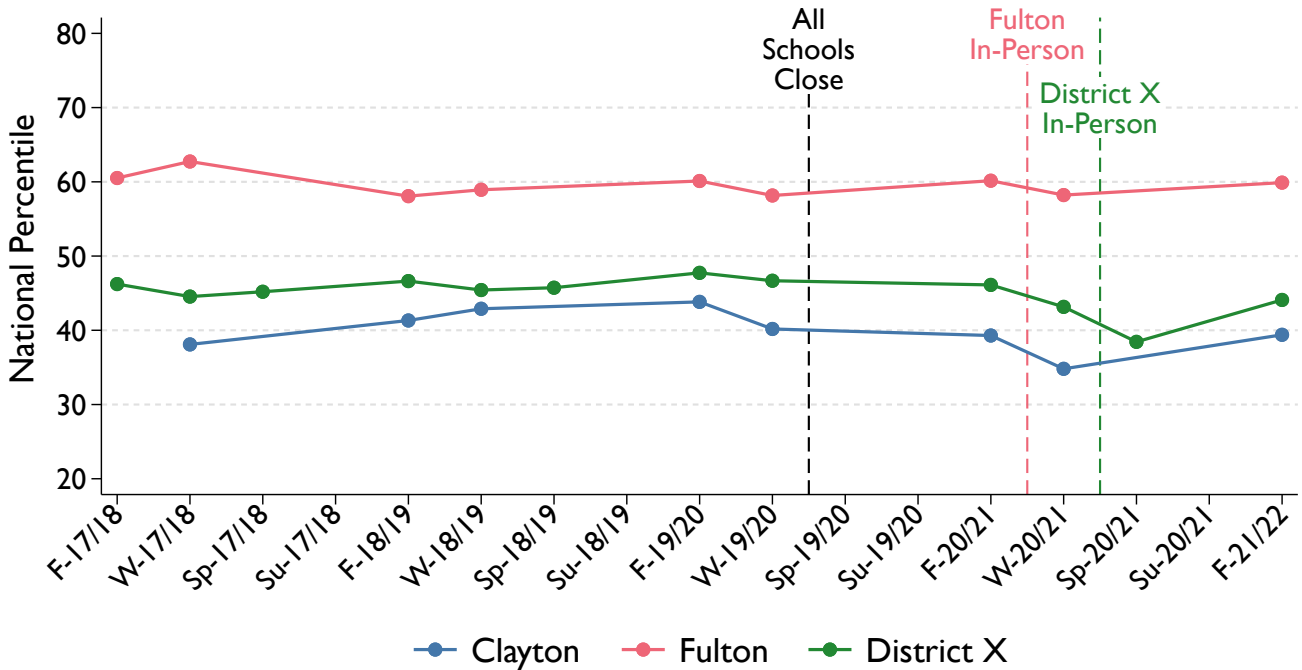
Our second measure of the pandemic’s impact on student learning is the difference between a student’s national percentile ranking in fall 2019 and their national percentile ranking in fall 2021. This measure captures the change in where students would rank among all U.S. students in the pre-pandemic distribution of test scores. A value of -10 means that a student who initially was ranked above half of students would now be ranked above only 40% of students. The analytical sample includes only students with scores for both exams. This restriction is less stringent than the restriction of analyzing test takers for all available pandemic-era exams used in the first measure; our second measure includes nearly all students in the tested grades; however, it only provides a one-time difference in achievement and does not show progress at each point in time during the pandemic.

Figure 1. Percentile Rank Trends by Metro-Atlanta District

Panel A. Math



Panel B. Reading



Notes. National percentile rank is calculated using formative assessment scores relative to the national student performance in SY 2016–17 (MAP Growth) or SY 2018–19 (iReady). Semesters refer to the formative assessments administered during the given testing period and school year (e.g., “F-17/18” refers to the fall testing period of SY 2017–18; “Sp” refers to the spring testing period; and “Su” refers to the summer). Clayton is Clayton County Public Schools; Fulton is Fulton County Schools; and District X is a district that has chosen to remain anonymous. Clayton’s return to in-person schooling differed by school type (see Table 2) and, as a result, is not shown on the graphs.

## Finding 1: Differential Impacts by Subject

**The impact of the pandemic on student achievement growth has been greater in math than in reading.**

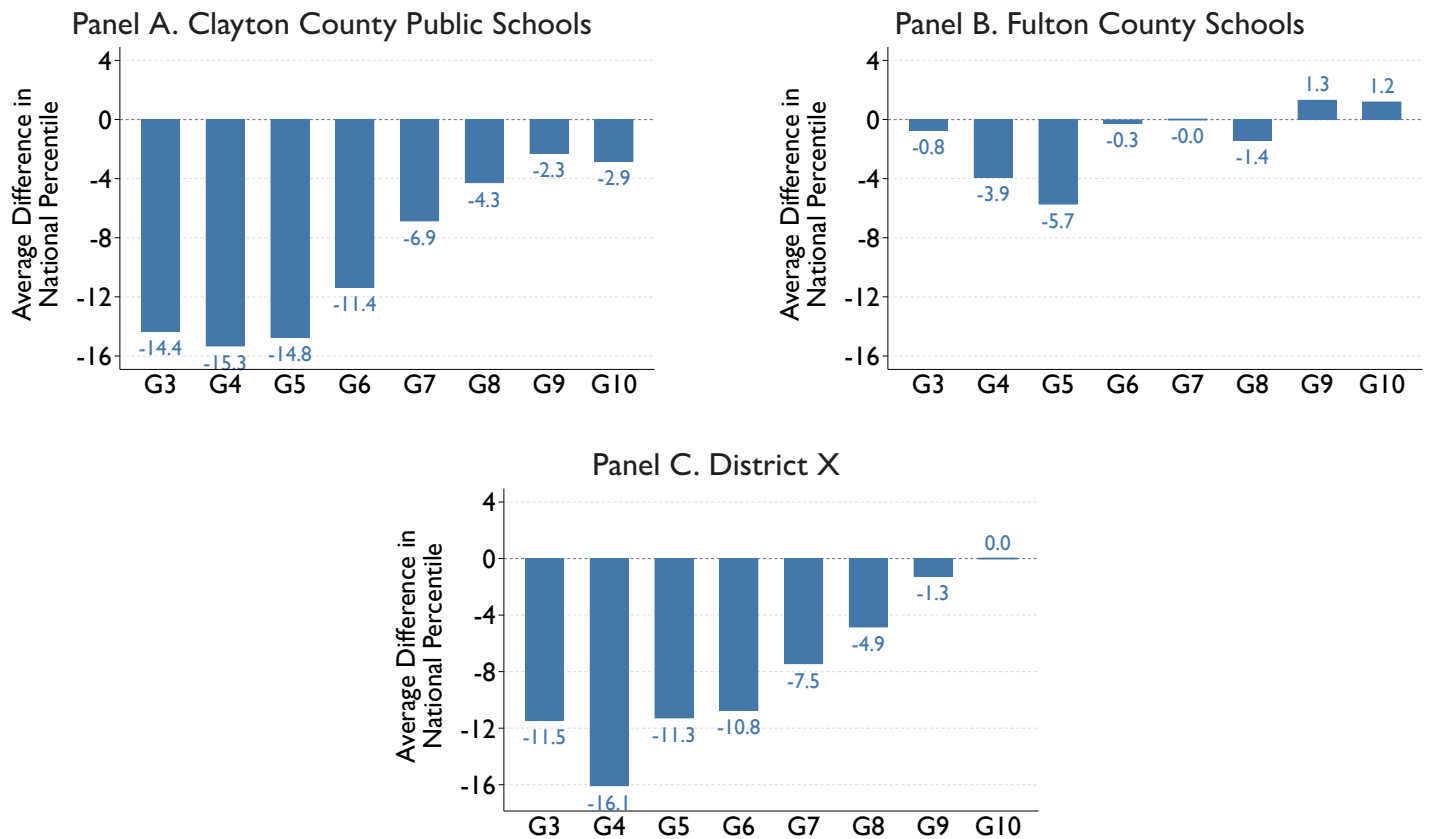
Figure 1 shows achievement trends over time for three metro Atlanta districts. Plotted points represent average scores on formative assessments in the fall, winter, or spring testing periods. The districts have different levels of performance prior to the pandemic (as shown by their position on the vertical axis). In math assessments shown in panel A between fall 2017 and winter 2019, for example, Clayton's average score was around the 40th percentile compared to the national average score in SY 2017–18. District X's average score pre-pandemic was close to the national average at about the 45th–50th percentile, while Fulton's average math score was at the 55th–60th percentile nationally.

The educational effects of the pandemic began with statewide school closures in March 2020 (represented visually in Figure 1 by the black vertical dashed line). For Clayton, math and reading achievement trended downward compared to the pre-pandemic national average, with the decline particularly pronounced between fall 2020 and winter 2020. Reading achievement rebounded close to pre-pandemic levels (relative to the national average) from winter 2020 to fall 2021, but math achievement remained substantially lower than before school closures began.

In District X, achievement in both reading and math trended downward during SY 2020–21. With nearly all students returning to in-person learning in SY 2021–22, both math and reading achievement rose relative to the pre-pandemic national average—although reading increased more than math. In Fulton, achievement trends in both subjects were largely flat, with reading achievement exhibiting slightly more variation over time than math.



Figure 2. Percentile Rank Differences in Math by Grade Level Between Same-Grade Students in Fall 2019 and Fall 2021



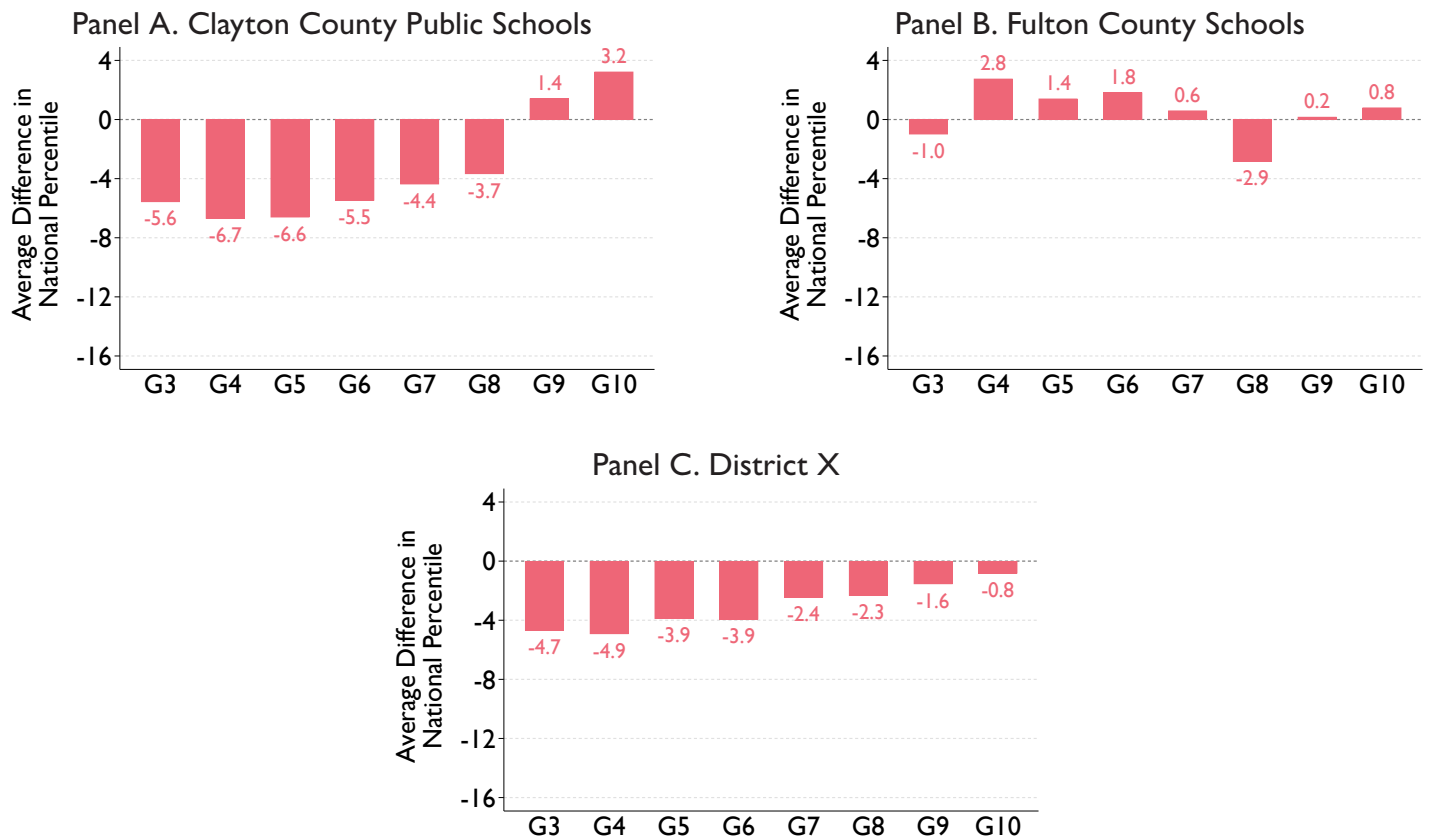
Notes. National percentile rank is calculated using formative assessment scores relative to the national student performance in SY 2016–17 (MAP Growth) or SY 2018–19 (iReady). The figure shows the average difference between students' national percentile rank in fall 2019 and fall 2021. Grade levels are abbreviated (e.g., G2 is Grade 2) and refer to students' grade in fall 2021.

## Finding 2: Differential Impacts by Grade Level

Students who were in elementary school when the pandemic hit have fared worse than students who were in middle school.

Figure 2 shows the change in math national rankings between fall 2019 and fall 2021 by grade level and district. Across all three districts, a consistent pattern is that elementary school students, especially those in Grade 3 and Grade 4 in fall 2021 (i.e., Grade 1 and Grade 2 when the pandemic began during SY 2019–20), have fared worse than middle school students. As shown in Figure 3, a similar finding emerges for reading in Clayton and District X. In Fulton, no clear trend in achievement by grade is apparent for reading.

Figure 3. Percentile Rank Differences in Reading by Grade Level Between Same-Grade Students in Fall 2019 and Fall 2021

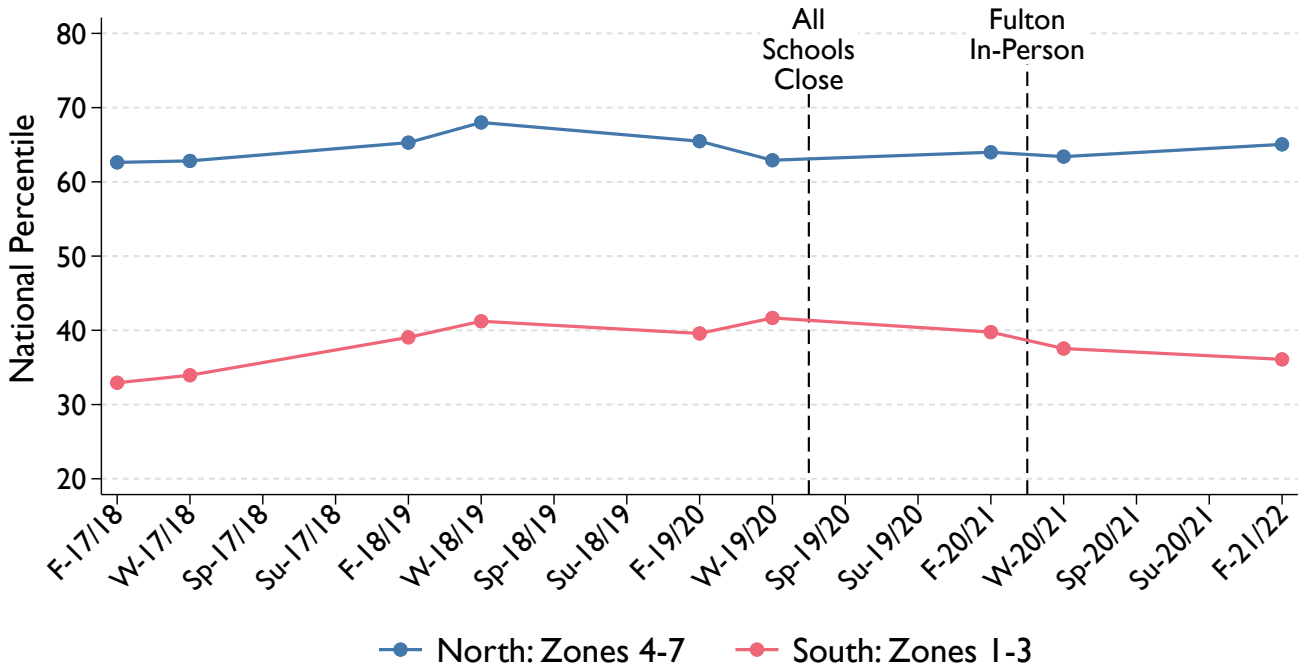


Notes. National percentile rank is calculated using formative assessment scores relative to the national student performance in SY 2016–17 (MAP Growth) or SY 2018–19 (iReady). The figure shows the average difference between students' national percentile rank in fall 2019 and fall 2021. Grade levels are abbreviated (e.g., G2 is Grade 2) and refer to students' grade in fall 2021.

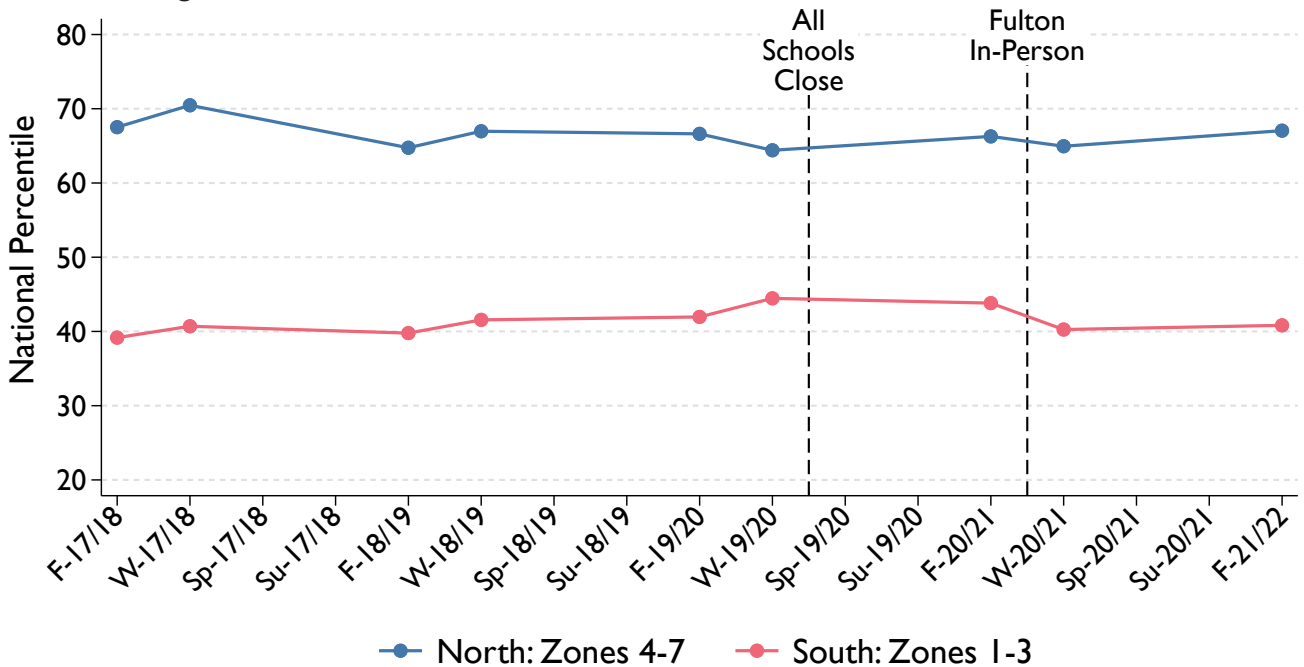
How do achievement trends in metro-Atlanta districts compare to national trends? The data suggest that their average performance was similar to many other school districts around the country. NWEA, developers of the MAP Growth assessment, report that math achievement fell between 9 and 11 percentile rank points between fall of SY 2019–20 and fall of SY 2021–22 (see Appendix Figure 1) depending on grade. Reading achievement fell between 3 and 7 percentile rank points. Clayton's and District X's two-year percentile rank differences for math and reading fall within the national trend intervals.

Figure 4. Percentile Rank Trends by Geographic Zones in Fulton County Schools

Panel A. Math

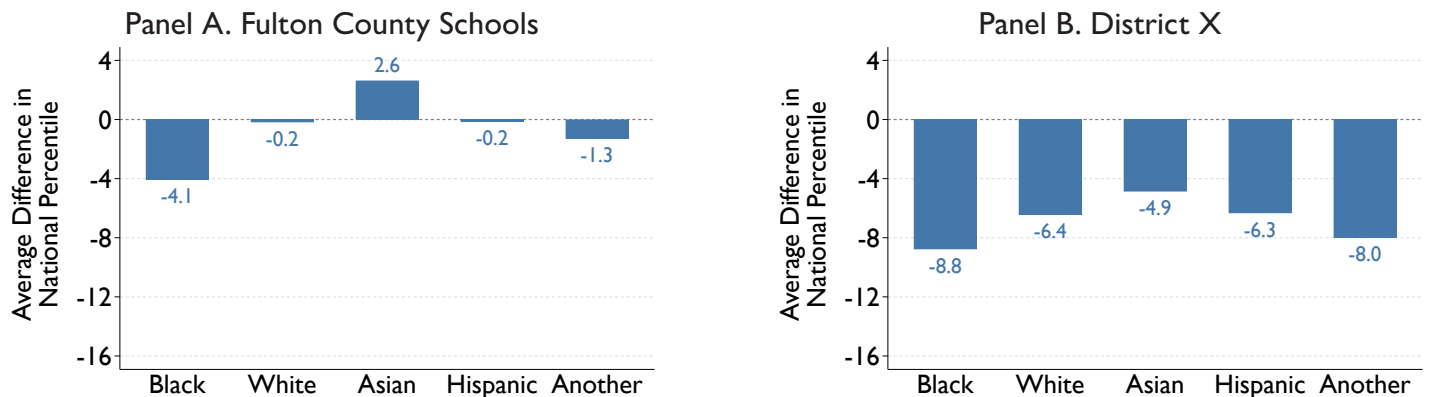


Panel B. Reading



Notes. National percentile rank is calculated using formative assessment scores relative to the national student performance in SY 2016–17 (MAP Growth) or SY 2018–19 (iReady). Semesters refer to the formative assessments administered during the given testing period and school year (e.g., “F-17/18” refers to the fall testing period of SY 2017–18; “Sp” refers to the spring testing period; and “Su” refers to the summer).

Figure 5. Percentile Rank Differences in Math by Race and Ethnicity Between Students in Fall 2019 and Fall 2021



Notes. National percentile rank is calculated using formative assessment scores relative to the national student performance in SY 2016–17 (MAP Growth) or SY 2018–19 (iReady). The figure shows the average difference between students’ national percentile rank in fall 2019 and fall 2021. Race categories (Black, White, Asian, another) are non-Hispanic. “Another” refers to a race or ethnicity not explicitly shown on the graph. Data for Clayton County Public Schools are not broken out by race and ethnicity because over 90% of students identified as Black or Hispanic, and only 2% identified as White.

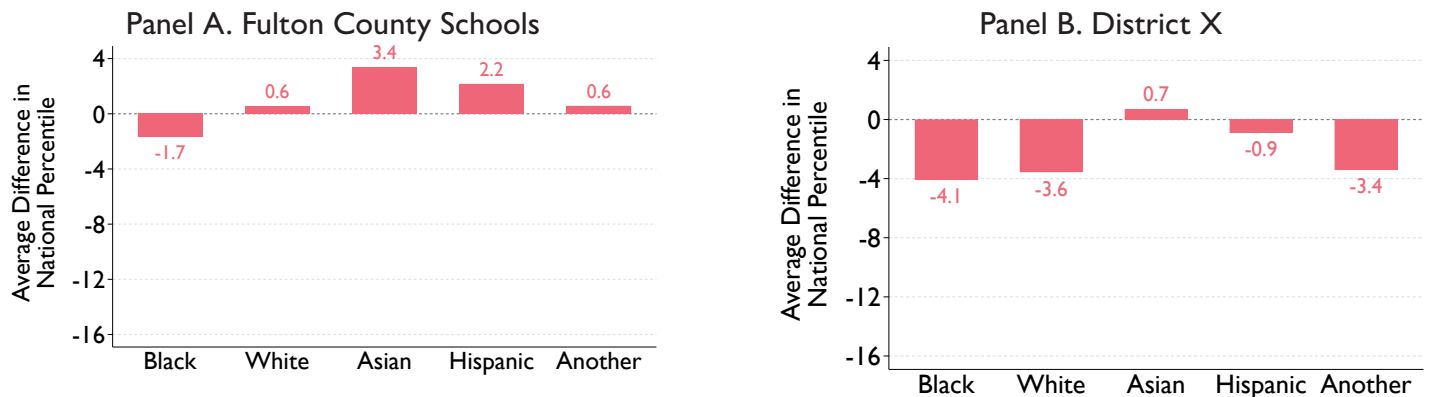
### Finding 3: Uneven Recovery

**Many students have started to recover academically, but improvement is uneven.**

Within a given district, subject, and grade, students have been affected unequally by COVID-19. In the figures that follow, we show that there are differences in achievement trends by geography within at least one district, by race and ethnicity within districts, and by economic disadvantage.

Figure 4 displays math and reading achievement trends for a cohort of elementary school students in Fulton in SY 2017–18. The figure shows students by two groups of Learning Zones, which geographically divide Fulton into northern and southern regions.<sup>5</sup> Figure 4 shows the stark difference in achievement levels between the northern and southern regions of Fulton. It also shows that, before the pandemic, the southern Learning Zones were improving academically and catching up with the northern Learning Zones. However, once the effects of the pandemic were felt, achievement in the southern Learning Zones fell compared to the pre-pandemic national average. The achievement difference widened again, and the difference was as large in fall 2021 as it was in fall 2017.

Figure 6. Percentile Rank Differences in Reading by Race and Ethnicity Between Students in Fall 2019 and Fall 2021



Notes. National percentile rank is calculated using formative assessment scores relative to the national student performance in SY 2016–17 (MAP Growth) or SY 2018–19 (iReady). The figure shows the average difference between students’ national percentile rank in fall 2019 and fall 2021. Race categories (Black, White, Asian, another) are non-Hispanic. “Another” refers to a race or ethnicity not explicitly shown on the graph. Data for Clayton County Public Schools are not broken out by race and ethnicity because over 90% of students identified as Black or Hispanic, and only 2% identified as White.

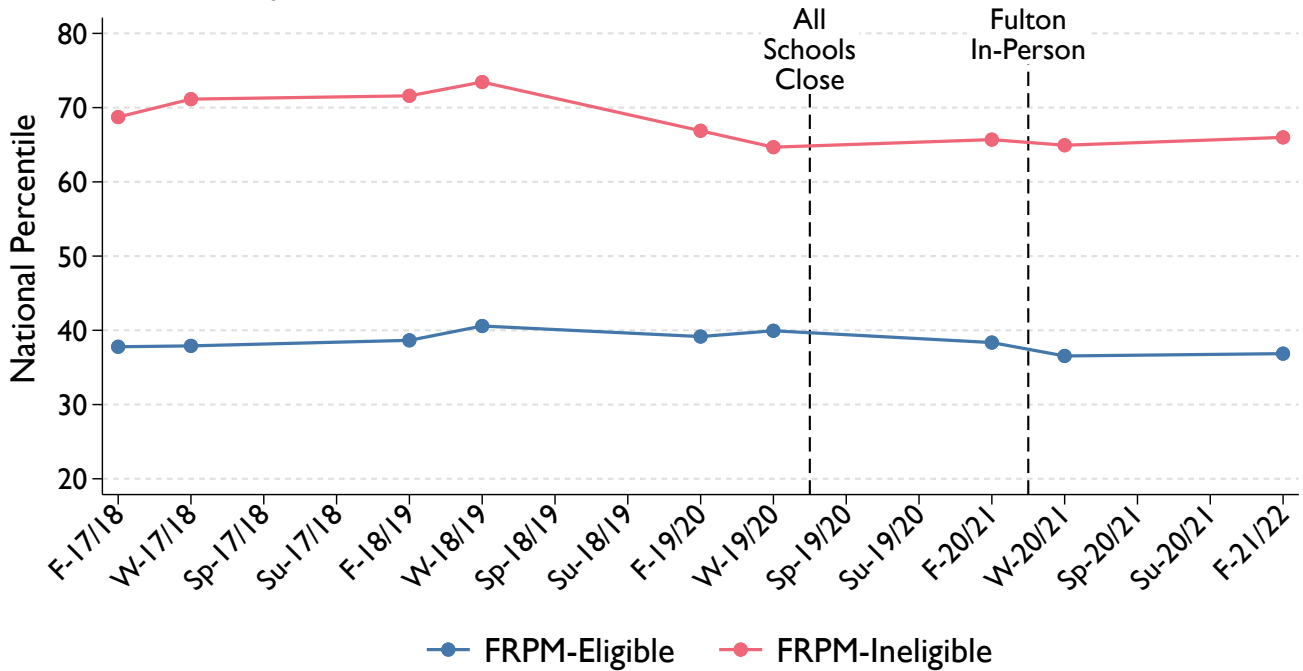
Figure 5 shows disparities in math achievement growth by race and ethnicity in District X and Fulton.<sup>6</sup> In both districts, Black students experienced the largest decline in rankings relative to the pre-pandemic national distribution of scores. For reading achievement growth (shown in Figure 6), Asian students and Hispanic students were able to roughly maintain performance relative to the pre-pandemic national average between fall 2019 and fall 2021. Black students and White students in District X experienced a fall in rankings relative to the pre-pandemic national distribution of scores, albeit by a smaller amount than for math.

Appendix Figure 2 and Appendix Figure 3 show trends in national percentile rankings by race and ethnicity. Similar disparities are visible in the graphs, although it is harder to visually detect the disparities over time.

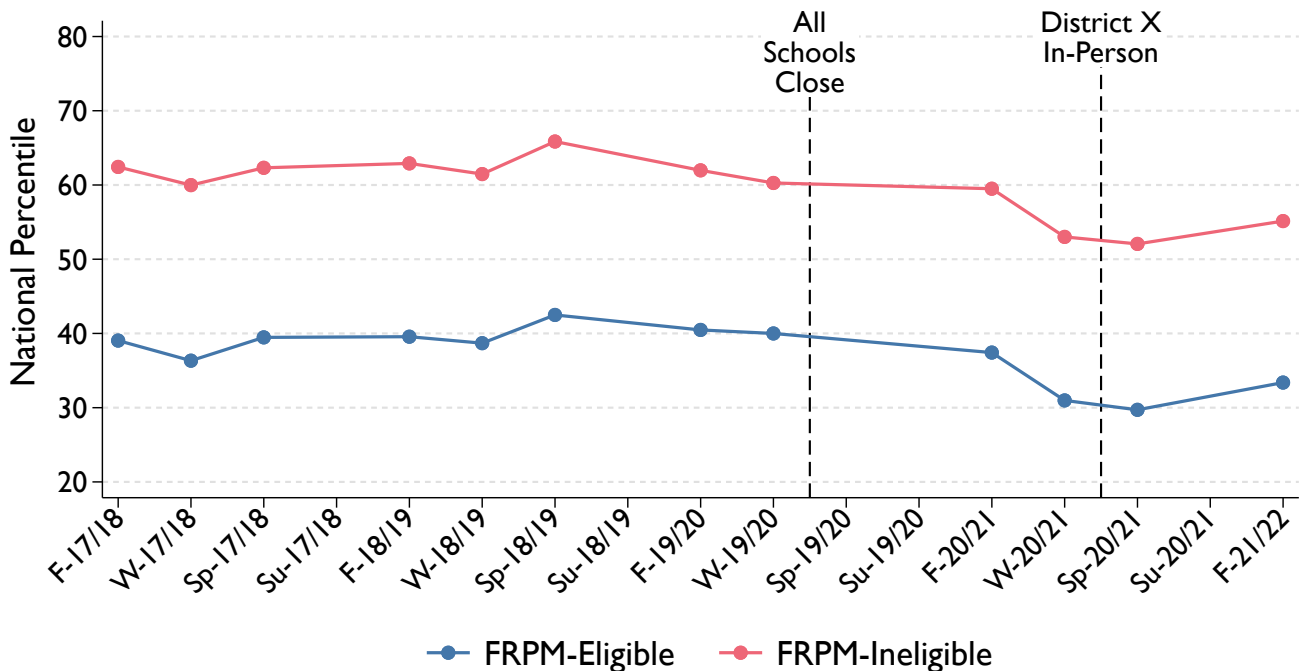
Finally, Figure 7 shows math national percentile ranking trends by free or reduced-price meals (FRPM) eligibility status—a crude proxy measure for economic disadvantage. In District X, students eligible for FRPM initially experienced a fall in achievement relative to the pre-pandemic national average greater than students not eligible for FRPM—particularly on the three tests during SY 2020–21. This decline reversed the narrowing of the math achievement difference during the calendar year prior to the pandemic.

Figure 7. Percentile Rank Trends in Math by Economic-Disadvantage Status

Panel A. Fulton County Schools



Panel B. District X



Notes. National percentile rank is calculated using formative assessment scores relative to the national student performance in SY 2016–17 (MAP Growth) or SY 2018–19 (iReady). Semesters refer to the formative assessments administered during the given testing period and school year (e.g., “F-17/18” refers to the fall testing period of SY 2017–18; “Sp” refers to the spring testing period; and “Su” refers to the summer). FRPM-eligible refers to eligibility for free or reduced-price meals and is a crude proxy measure for economic disadvantage. Data for Clayton County Public Schools are not broken out by FRPM-eligibility because over 90% of students were FRPM-eligible in fall 2021.

However, students eligible for FRPM slightly reduced the achievement difference by the time of the fall 2021 test.

In Fulton, a substantial narrowing of the math achievement difference between FRPM-eligible and ineligible students in the calendar year prior to the pandemic was reversed when the effects of the pandemic began. The difference increased from around 23 percentile points in winter 2019 to nearly 30 percentile points in fall 2021, with a small but continuous widening of the difference in each of the three formative assessments during the pandemic.

## Recommendations

Like school districts across the country, metro Atlanta districts continue to face the challenge of how best to mitigate the impact of the pandemic on student achievement. The disparities in achievement growth trends shown in this report should inform how districts allocate their scarce resources—including time, administrative capacity, and finances—to implement programmatic and policy decisions. Based on the evidence in this report, we recommend the following strategic approach:

First, given the large differences in how the pandemic has impacted students, *district recovery efforts ought to target those students who have experienced the greatest declines in national rankings and have been the slowest to recover.* Despite the large influx of funding from the federal government, resources are not limitless, and effective acceleration strategies can be expensive. For example, high-intensity, small-group tutoring aligned with classroom content has been shown to yield the greatest impact on student achievement but can cost as much as \$3,800 per student per year.<sup>7</sup> Based on the evidence presented, districts should place greater emphasis on recovery efforts in math, particularly for students who are currently in Grades 3–6.

Second, *districts should emphasize recovery strategies that have been shown by prior research to be effective.* The American Rescue Plan Act requires that at least 20% of funding to school districts be spent on evidence-based interventions. *In addition to high-intensity, small-group tutoring, proven strategies include extended learning time and extensive summer academic learning programs.*<sup>8</sup>

Third, even the best strategies will be ineffective if students do not fully participate. *Acceleration activities are more effective if offered during the regular*

*school day*. When that is not feasible (e.g., summer learning programs or acceleration academies during school breaks), *it may be necessary to either mandate attendance or create strong incentives for participation*.

Fourth, no matter how thoughtfully conceived, acceleration activities may not work as well as intended. Therefore, *it is essential that districts have a plan for rapid program evaluation of current recovery efforts*, including summer learning programs in 2021 and other programs undertaken during SY 2021–22. Districts should learn what is working for the most students and what is not as effective, then use the evidence to adjust programs as needed. Simply assuming that programs are working as intended or relying on casual observation could lead to a missed opportunity for improvement or, worse yet, continued spending on resources that are not significantly improving student outcomes. Further, moving forward, districts should think about evaluation and ongoing program refinement as part of the initial design process rather than after the program has started or finished.



## Endnotes

1. Sass, T. R., & Goldring, T. (2021). *Student Achievement Growth During the COVID-19 Pandemic: Insights from Metro-Atlanta School Districts*. Georgia Policy Labs.

2. Formative assessments are low-stakes exams that provide a measure of student achievement at multiple points during the school year. They have been administered by metro-Atlanta districts both before and during the pandemic. Prior to the pandemic, all testing was conducted at schools; however, when schools were closed and only virtual learning was offered, most testing was conducted remotely. Remote testing is hard to monitor, and there is substantial evidence that test scores in the early elementary grades were inflated as a result. See Sass and Goldring (2021) for further details.

3. Fall 2017 refers to the formative assessment administered during the fall of SY 2017–18. Likewise, winter 2017 and spring 2018 refer to the formative assessments administered during the winter and spring of the same school year.

4. Only District X tested all students in spring 2021. Fulton tested a select group of students and Clayton did not administer formative assessments in the spring.

5. The city of Atlanta, which is served by Atlanta Public Schools, lies in-between the two regions in Fulton: The northern Learning Zones are largely north of Atlanta, and the southern zones are south of Atlanta. See [fultonschools.org/learningzones](http://fultonschools.org/learningzones). North and south Fulton have different levels of economic disadvantage and student mobility (see [ajc.com/news/local-education/schools-tale-two-fultons/wKdUFX2cYqPsUVgl6Gah7O/](http://ajc.com/news/local-education/schools-tale-two-fultons/wKdUFX2cYqPsUVgl6Gah7O/)).

6. Data for Clayton is not broken out by race and ethnicity because over 90% of students identified as Black or Hispanic, and only 2% identified as White.

7. Pan, W., & Sass, T. R. (2020). *Potential Remediation Strategies in the Wake of COVID-19 School Closures: A Review of the Literature*. Georgia Policy Labs.

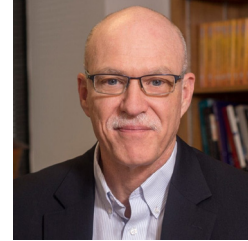
8. Allensworth, E., & Schwartz, N. (2020). *School Practices to Address Student Learning Loss*. EdResearch for Recovery.

McCombs, J., & Augustine, C. (2021). *Advancing Student Learning and Opportunity Through Voluntary Academic Summer Learning Programs*. EdResearch for Recovery.

## About the Authors

### Tim R. Sass

Tim R. Sass is a Distinguished University Professor in the department of economics at Georgia State University and the W.J. Usery Chair of the American Workplace in the Andrew Young School of Policy Studies. He is also the faculty director of the Metro Atlanta Policy Lab for Education (MAPLE). His research interests include the teacher labor supply, the measurement of teacher quality, and school choice. His work has been published in numerous academic journals and has been supported by several federal and philanthropic grants. He has acted as a consultant to school systems across the country. He is also a senior researcher at the Center for Analysis of Longitudinal Data in Education Research (CALDER).



### Thomas Goldring

Thomas Goldring is the director of research at the Georgia Policy Labs. His research uses administrative data to examine programs and policies that touch the lives of Georgia's children, students, and families. Recent projects have examined Georgia's universal Pre-K Program, student achievement during the COVID-19 pandemic, and copayment waivers for Georgia's childcare subsidy program. Thomas holds a Ph.D. in public policy and management from Carnegie Mellon University and completed a postdoctoral fellowship at the University of Michigan.



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The Georgia Policy Labs is an interdisciplinary research center that drives policy and programmatic decisions that lift children, students, and families—especially those experiencing vulnerabilities. We produce evidence and actionable insights to realize the safety, capability, and economic security of every child, young adult, and family in Georgia by leveraging the power of data. We work alongside our school district and state agency partners to magnify their research capabilities and focus on their greatest areas of need. Our work reveals how policies and programs can be modified so that every child, student, and family can thrive.

Housed in the Andrew Young School of Policy Studies at Georgia State University, we have three components: the Metro Atlanta Policy Lab for Education (metro-Atlanta K-12 public education), the Child & Family Policy Lab (supporting children, families, and students through a cross-agency approach), and the Career & Technical Education Policy Exchange (a multi-state consortium exploring high-school based career and technical education).

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