BRIEF

From loss to recovery: Diverging paths and uneven gains across schools

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KEY FINDINGS

- About 1 in 3 schools have recovered in either math or reading, and 1 in 7 schools have recovered in both subjects.
- While recovery was more common among schools with smaller initial declines, some schools rebounded after deep losses.
- Schools serving higher-poverty and historically marginalized students are less likely to be recovered, but they have made the largest gains since the pandemic.

The COVID-19 pandemic caused widespread disruptions to schooling and sharp declines in student achievement that have now been documented extensively. As the education system moves beyond emergency response, the central question is no longer how much learning was lost, but where and how recovery is occurring. This brief intentionally shifts our focus from learning about loss to recognizing recovery.

Existing research shows the gap between pre- and postpandemic test scores has closed only slightly in math and has widened in reading. State assessment data from spring 2024 indicate just 17% of students attend districts that have recovered to their 2019 math levels, and only 11% in reading.

These broad patterns, however, provide limited insight into variation in recovery across schools. Understanding which schools have recovered and how different recovery paths unfolded can inform decisions about resource allocation, intervention design, and expectations for the pace of continued improvement.

We use a longitudinal sample of NWEA® MAP® Growth™ test score data from over 5 million students across 9,326 schools to identify where and how recovery is occurring across schools.[1] We define a school as having "recovered" if its average achievement in fall 2024 is at least as high as it was before the pandemic, in fall 2019.

To better understand how recovery unfolded, we examine two components of schools' recovery: their "initial declines" in average achievement from fall 2019 to fall 2021 and their "postpandemic gains" in average achievement from fall 2021 to fall 2024.[2] We then describe how schools' recovery rates and trajectories vary by subject and school context.

By highlighting groups of schools that are demonstrating stronger-than-typical recovery, this analysis helps clarify where progress is occurring, where gaps persist, and why a one-size-fits-all approach to postpandemic recovery is unlikely to succeed. As policymakers and education leaders reassess COVID-era investments and plan for long-term improvement, understanding these different recovery patterns offers a roadmap for sustaining momentum and targeting support where it is needed most.

1 Additional details about the data and methods used in this brief can be found in the technical appendix. Descriptive statistics for the analytic sample compared to US public schools are presented in Table 1 in the technical appendix.

2 We separate recovery into the two periods: "initial declines" during the pandemic (fall 2019 to fall 2021) and "postpandemic achievement gains" (fall 2021 to fall 2024), for the sake of clarity and brevity throughout the brief, but we acknowledge that some schools experienced increases in average achievement levels during the pandemic and/or experienced declines during the postpandemic period.

About 1 in 3 schools have recovered in either math or reading, and 1 in 7 schools have recovered in both subjects.

By fall 2024, many schools made progress toward regaining prepandemic achievement levels, but full recovery remains uneven. About one-third of schools (32%) have returned to prepandemic achievement levels in math or reading, and only 14% have recovered in both subjects (see Figure 1).

Figure 1. 1 in 3 schools have recovered in either math or reading, and 1 in 7 schools have recovered in both subjects.

32% schools have recovered in math OR reading

14% of schools have recovered in math AND reading

Schools that recovered in one subject were more likely to have also recovered in the other subject. Initial declines were larger in math than in reading. However, schools have also made stronger improvements in math in the years since. As a result, recovery rates across the two subjects are now similar: 22% of schools have recovered in math and 24% in reading.

While recovery was more common among schools with smaller initial declines, some schools rebounded after deep losses.

One possibility is that schools that recovered did so primarily by avoiding the worst of the initial declines. On average, we find this is partly true. Schools that recovered tended to experience smaller-than-typical declines during the pandemic and larger-than-typical improvements afterward (see Figure 2).

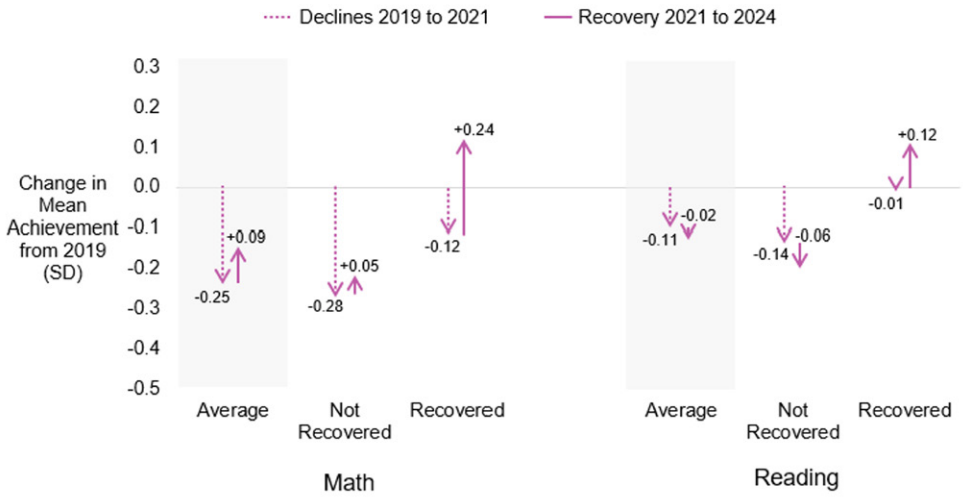
The extent of the typical declines and improvements varied by subject. In math, even recovered schools lost significant ground on average during the pandemic, but they made substantial gains afterward. Schools that had not recovered yet in math declined by over twice as much and gained about five times less.

Reading followed a similar pattern, though typical losses and gains were smaller for each group: recovered schools had minimal initial declines followed by moderate gains, while schools that did not recover experienced moderate losses and continued to decline postpandemic.

Across both subjects, recovered schools declined by 0.13–0.15 SD less than schools that did not recover and gained 0.18–0.19 SD more. These results indicate that, on average, recovery reflects a mix of above-average resistance to initial declines and particularly successful learning acceleration following the pandemic.

But this average pattern masks important variation. Figure 3 provides examples of differing paths schools took to recovery in math. More than one in five recovered schools followed a different path: they experienced average or larger-than-average initial declines and still managed to return to prepandemic achievement levels by 2024. These "Rebounder" schools demonstrate that recovery was possible even after deep setbacks.

Figure 2. Recovered schools had both smaller initial declines and larger postpandemic gains than schools that have not yet recovered



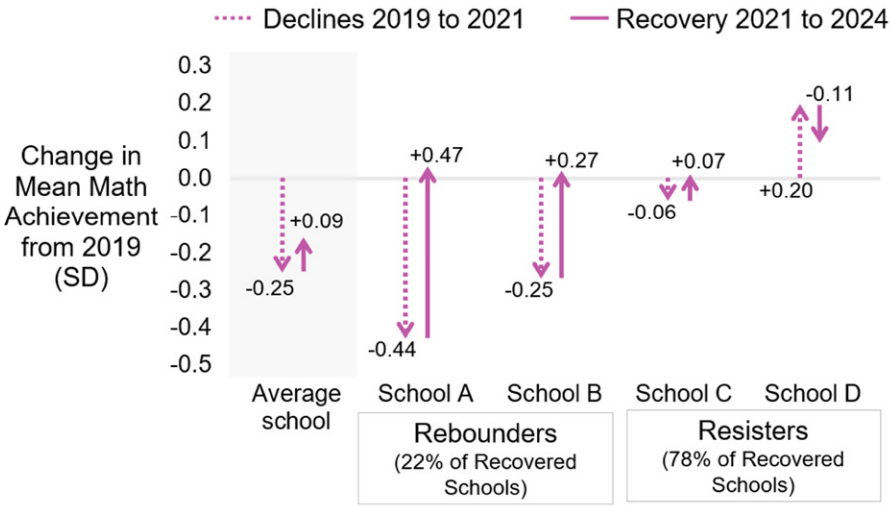
Note. For each group of schools (Average, Not recovered, and Recovered), the value below the left arrow shows the change in a school's mean achievement from fall 2019 to 2021. The value above the right arrow shows the change in a school's mean achievement from fall 2021 to 2024. N = 9,326 schools.

"Rebounder" schools, like Schools A and B, had larger-than-average initial declines and made exceptional gains in the postpandemic period to recover. Alternatively, "Resister" schools (78% of recovered schools), like Schools C and D, experienced smaller-than-average initial declines or even improved test scores during the pandemic such that they could lose ground postpandemic and still be "recovered" in 2024.[3]

These examples highlight the distinct roles that the pandemic years and the postpandemic years played in school recovery, and that being "recovered" includes schools that were successful at resisting initial declines, those that were exceptional at recovering students afterwards, and both. Considering schools' different trajectories to recovery provides a more nuanced picture of how schools navigated the pandemic and can offer valuable insights for policymakers and practice moving forward.

3 The shares of recovered schools classified as Rebounders versus Resisters were similar across math and reading.

Figure 3. Paths to recovery varied across schools (math)



Note. Schools A, B, C, and D in this figure reflect the math recovery trajectories of four schools observered in the sample dataset. For each school, the value below the left arrow shows the change in a school's mean math achievement from fall 2019 to 2021. The value above the right arrow shows the change in a school's mean math achievement from fall 2021 to 2024.

Schools serving higher-poverty and historically marginalized students are less likely to be recovered, but they have made the largest gains since the pandemic.

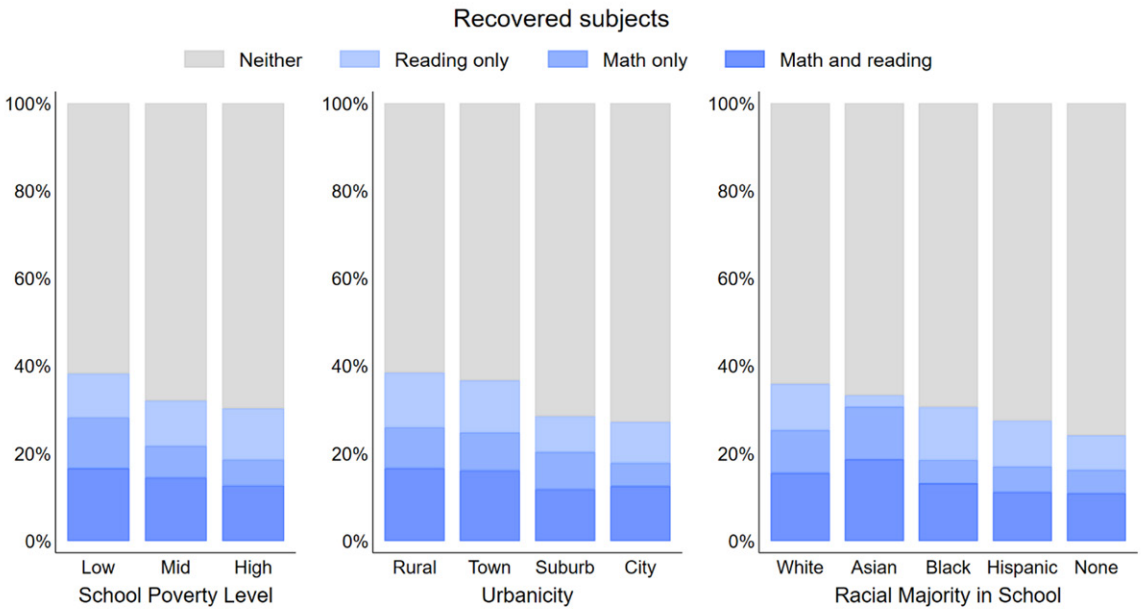
These recovery paths are not evenly distributed across schools. School recovery rates vary by school poverty level, urbanicity, and racial composition. Figure 4 shows 17% (1 in 6) of low-poverty schools have recovered to their prepandemic achievement levels in both subjects, compared to just 13% (1 in 8) of high-poverty schools. Looking at schools that have recovered in at least one subject (the sum of the blue bars), we see an even larger disparity: 38% of low-poverty schools versus 30% of high-poverty schools. High-poverty schools are particularly less likely to be recovered in math.

Schools in rural areas and towns have higher rates of recovery than schools in suburbs and cities. The sizes of the differences in recovery rates between these groups are very similar to those between low- and high-poverty schools.

The racial composition of schools is also associated with recovery. In general, we see higher rates of recovery for majority white and Asian schools, followed next by majority Black and Hispanic schools. Schools that are the most diverse, with no more than half of their student population belonging to any one race group, are least likely to be recovered across all school groups included in Figure 4: just 11% in both subjects and 24% in either subject.

Figure 4 shows that high-poverty schools, schools located in cities and suburbs, and schools serving a majority of students of color are less likely to have fully recovered to prepandemic achievement levels. Figure 5 tells a different, but related, part of the story.

Figure 4. Recovery rates are higher for low-poverty schools, schools in rural areas and towns, and schools that predominantly serve white or Asian students



Note. Low, mid, and high school poverty levels respectively refer to schools with free or reduced-price lunch eligibility at the following levels: 25% or less, between 25% and 75%, and 75% or more. Racial majority categories indicate 50% or more of a school's enrolled students identified as the given race. School demographics are from the 2023 CCD. Descriptive statistics for each group are presented in Table 2 in the technical appendix. N = 9,326 schools.

Although these schools are less likely to be fully recovered, Figure 5 shows they have made the largest improvements in average achievement since the pandemic. Between 2021 and 2024, postpandemic gains were largest among high-poverty schools and schools enrolling a majority of students of color; in math, gains were also greater among schools located in cities than in other locales. These patterns indicate that recent progress has been concentrated in the schools that experienced the deepest pandemic-era declines. Indeed, schools with the largest losses from 2019 to 2021 have, on average, shown the greatest improvement in the years that followed (see Figure 1 in the technical appendix).

Despite making relatively large gains, these schools still lag in overall recovery because their recent progress has not been enough to overcome their larger initial declines during the pandemic. More critically, because these schools entered the pandemic with lower levels of achievement, their greater remaining distance to recovery means that achievement gaps between schools remain wider than the already unequal prepandemic baseline (see Table 3 in the technical appendix). But the above-average growth made by these schools postpandemic points to real momentum. If sustained or accelerated, this growth offers promise for continued recovery and additional progress toward educational equity.

Figure 5. Postpandemic gains were largest for urban schools, high poverty schools, and schools that predominantly serve Black or Hispanic students

Note. Low, mid, and high school poverty levels respectively refer to schools with free or reduced-price lunch eligibility at the following levels: 25% or less, between 25% and 75%, and 75% or more. Racial majority categories indicate 50% or more of a school's enrolled students identified as the given race. School demographics are from the 2023 CCD. Descriptive statistics for each group are presented in Table 2 in the technical appendix. N = 9,326 schools.

Conclusion

Several years after the onset of the COVID-19 pandemic, school recovery reflects uneven but measurable progress. About one-third of schools have returned to prepandemic achievement levels in at least one subject, and a smaller share have recovered in both math and reading. Recovery has been stronger in math, where average achievement has rebounded, while reading continues to show net declines. Taken together, these patterns indicate that recovery is underway, but incomplete.

How schools recovered also differed. Some schools largely resisted initial declines, while others—despite experiencing deep setbacks—have since made above-average gains. Both resistance and rebound mattered: schools that recovered typically had smaller initial declines and stronger postpandemic gains, but there was no single pathway to recovery. Understanding which practices helped schools limit early losses and which enabled others to accelerate learning afterward can provide valuable insights for future policymaking.

Recovery rates also vary across different types of schools. Low-poverty schools, rural and town schools, and schools serving mostly white or Asian students are more likely to have recovered to prepandemic levels of achievement. In contrast, high-poverty schools, urban schools, and schools serving historically marginalized students remain further from full recovery—largely because they experienced deeper initial declines. Yet these same schools have posted the largest gains since 2021, pointing to real momentum that, if sustained, could support continued progress toward beginning to narrow the achievement gaps that widened during the pandemic.

Recommendations

Based on the recovery patterns observed in this study, several recommendations emerge for local education leaders and state policymakers planning next phases of postpandemic support.

1. **Track recovery trajectories.** States should make school-level recovery measures publicly accessible and pair them with information on schools' recovery paths, including the size of initial declines and the pace of postpandemic gains. This would help local leaders distinguish between schools that resisted initial losses, those that are rebounding through accelerated growth, and those that remain stalled, supporting more informed decision-making and enabling them to identify and learn from those that are rebounding.

2. **Align supports with schools' recovery trajectories.** Schools face distinct challenges depending on whether they have yet to make progress on addressing pandemic-era learning loss or are working to sustain and extend recent gains. Recovery strategies may be more effective when aligned to these differing needs rather than applied uniformly across schools.

3. Prepare for future crises. Schools that experienced larger pandemic-era declines have made substantial postpandemic gains, but most have not yet fully recovered. Policies that reduce instructional disruption during future crises, including advance planning and management protocols that support instructional continuity and rapid responses to student needs, will be important for limiting initial achievement declines and reducing the scale of subsequent recovery efforts.

4. **Prioritize schools with the largest remaining gaps.** Schools that experienced the largest initial declines—often high-poverty urban schools and those serving historically marginalized students—remain furthest from prepandemic achievement levels, even though they have demonstrated above-average postpandemic gains. Targeting support at these schools may be essential to sustaining their recent gains and making progress toward recovery.

5. **Use realistic timelines and benchmarks for recovery.** Given differences in the size of pandemic-era declines across schools, uniform expectations for the pace of recovery may be unrealistic. Benchmarks that account for initial losses and recent growth may provide a more accurate basis for monitoring progress and setting expectations. Tools like the NWEA MAP Growth Goal Explorer can help leaders to evaluate and set realistic goals for their students that account for shifts in typical academic growth postpandemic.

ABOUT THE AUTHORS

Emily Morton's research focuses on estimating the effects of K–12 education policies and programs related to instructional time and learning environments on student outcomes. She conducts much of her work in partnership with schools and districts, with the intention of producing actionable findings that will directly inform policy and practice and serve to reduce inequality. Before rejoining NWEA in 2025, Dr. Morton was a researcher at the Center for Analysis of Longitudinal Data in Education Research at the American Institutes of Research. She holds a PhD in education and a master of public policy from Stanford University.

Dr. Megan Kuhfeld is director of growth modeling and data analytics at NWEA. Her research seeks to understand students' trajectories of academic and social-emotional learning (SEL) and the school and neighborhood influences that promote optimal growth. Dr. Kuhfeld completed a doctorate in quantitative methods in education and a master's degree in statistics from the University of California, Los Angeles (UCLA).

Dr. Ayesha K. Hashim draws on interdisciplinary and mixed-methods research designs to study the impacts of district-level school policies on student learning, as well as the leadership, organizational, and implementation conditions that can explain observed results. Her research covers a range of topics, including the integration of technology with standards-based instruction, school choice and accountability, teacher professional development, and COVID recovery. Ayesha's work has been published in *Education Finance and Policy, Economics of Education Review*, *Educational Evaluation and Policy Analysis*, *Computers and Education*, the *American Journal of Education*, and the *Peabody Journal of Education*. Prior to joining NWEA, Ayesha was an assistant professor at the University of North Carolina, Chapel Hill. She completed her PhD in education policy, MA in economics, and master's in public policy at the University of Southern California.

Dr. Scott J. Peters is the director of research consulting partnerships at NWEA and specializes in educational assessment and data use, gifted and talented student identification, equity within advanced educational opportunities, and effectiveness of educational policy. His research focuses on how schools can leverage assessment data for maximum school and student benefit. His ongoing projects relate to balancing cost, sensitivity, and equity in gifted and talented student identification; how to proactively screen students for advanced learning opportunities; examining growth trajectories for advanced learners; and how to ensure all students have access to advanced learning opportunities.

Prior to coming to NWEA, for 13 years, Dr. Peters served as a professor of assessment and research methodology at the University of Wisconsin—Whitewater. His scholarly work has appeared in the *Australian Educational Researcher*, *AERA Open*, *Teaching for High Potential*, the *British Journal of Educational Psychology*, *Exceptional Children*, *Gifted Child Quarterly*, and many other publications. He received his PhD from Purdue University in educational psychology and applied research methodology.

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