

POWERED BY NAEP



The COVID Generation's Future

NAEP DECLINES WILL IMPACT STUDENT EARNINGS, ECONOMIC COMPETITIVENESS



RESEARCH BRIEF | MARCH 2024

Broad economic implications for states, nation

The COVID-19 pandemic that disrupted schools in the spring of 2020 has had a devastating and persistent impact on student learning. The degree of the academic decline for students in every state can be seen on the National Assessment of Educational Progress, also known as NAEP or the Nation's Report Card. On the latest main NAEP assessments, which include math and reading for fourth and eighth graders, student achievement dropped significantly across both subjects and grades, across states and districts. Students experienced historically large score declines in eighth-grade math. This has dire implications in school and beyond.

The National Assessment Governing Board, which sets policy for NAEP, is releasing this brief. It examines the economic implications of pandemic-related achievement declines, particularly for the career readiness and future well-being of students enrolled in K-12 education during the pandemic. The students impacted are generally not in the workforce yet, which may be the reason the economic issue hasn't received the attention it deserves.

We highlight pivotal research from leading economists who have analyzed the NAEP achievement declines and quantified the ways in which they likely will impact future earnings and other outcomes for the cohorts of students most affected and for the entire nation. We do not mean to suggest, however, that the impact of the achievement declines on the economy is the only way in which these declines will curtail the nation's progress. The skills tracked by NAEP assessments also matter for civic life and the health of our democracy.

WHY ECONOMIC COMPETITIVENESS MATTERS

Economic competitiveness looks at what contributes to a nation's success, including individual economic success; a larger, more skilled workforce; more inventions and innovations; greater productivity; and more. Data from NAEP provides critical information about economic competitiveness, and additional metrics and measures should be considered for a fuller understanding.

Lost earnings and reduced economic activity in states

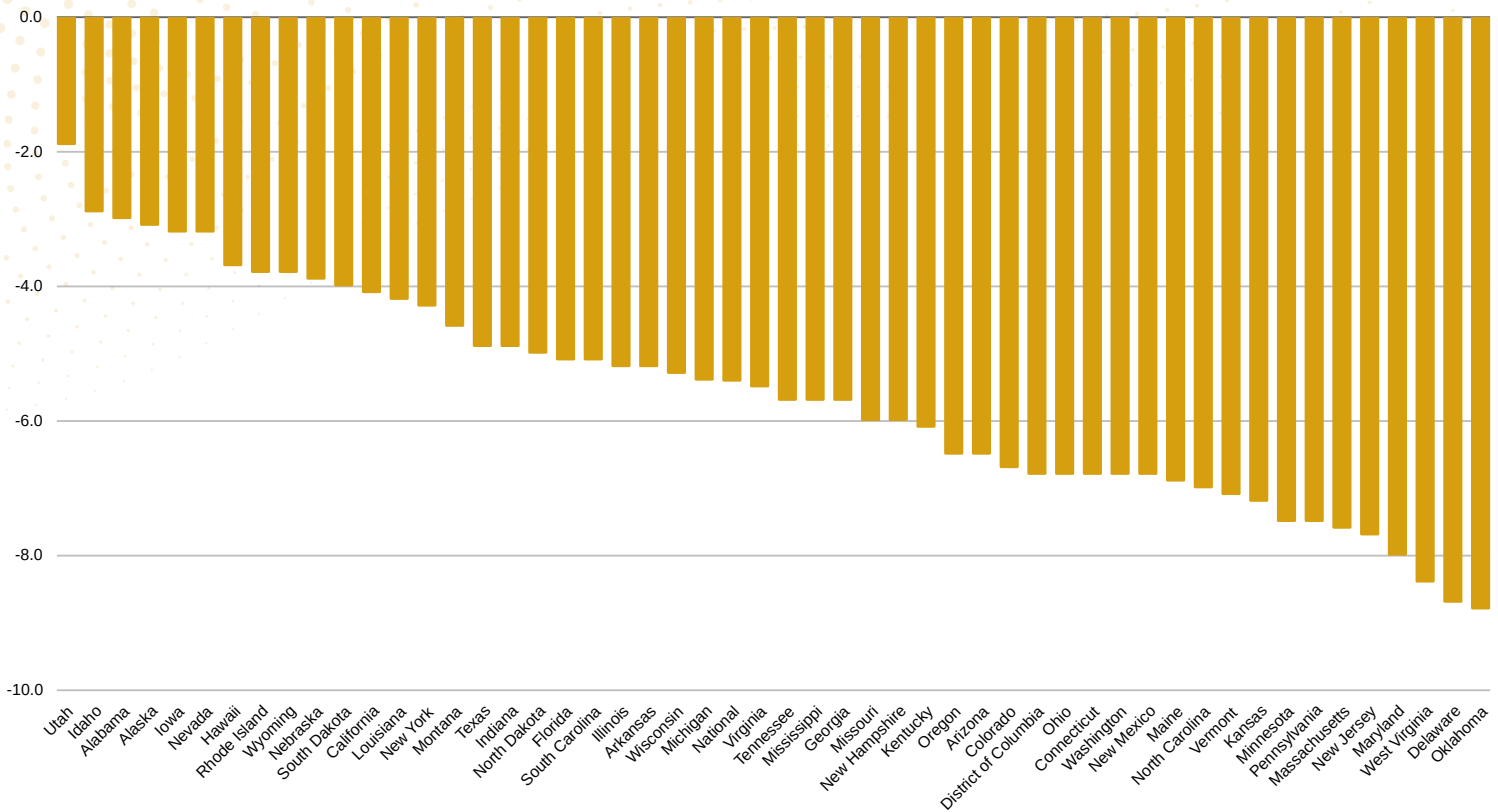
In his research paper, "The Economic Cost of the Pandemic," Stanford economist Eric Hanushek¹ describes the economic harm that lies ahead given achievement declines. Hanushek focuses on the declines on the eighth-grade NAEP math assessment between 2019 and 2022. He explains that students will suffer long-term income loss and individual states will see reduced economic activity, in light of declining achievement. That's because it's widely understood that lower achieving individuals are less productive, on average, and consequently experience reduced compensation in the workforce. In addition, Hanushek notes past historical events that disrupted schooling have been tied to resulting economic losses. Examples Hanushek cites include a period of shortened school years in Germany and teacher strikes in Argentina, both of which have been linked to lower earnings for the cohorts affected. Using historical earning patterns, Hanushek estimates the achievement declines on NAEP will cost the average student in the COVID-cohort 6 percent lower lifetime earnings than those not in this cohort.

Nationwide, Hanushek forecasts that pandemic-related learning loss will equate to \$31 trillion in losses to the nation's economy over the rest of the century. He estimates that this impact on the economy is 17 times the losses suffered from unemployment, business closures, and other aspects of the pandemic downturn, based on calculations using Congressional Budget Office figures.

Though the average NAEP score fell for every state, the severity of those declines varied across states. As a result, students in states that lost the most ground on the NAEP eighth-grade math assessments will likely experience lower lifetime income than their peers in states that didn't lose as much ground, according to the research. For example, students from Utah, which saw small learning declines compared to the nation, can expect a 2 percent decline in lifetime earnings, while students in Delaware and Oklahoma each can expect a nearly 9 point loss in future income.

1. Eric Hanushek served on the National Assessment Governing Board, which sets policy for NAEP, as a testing and measurement expert from 2019-2023.

Chart 1: Expected loss in lifetime income from learning losses by state of schooling



Hanushek also forecasts that states will face a gross domestic product (GDP) that is lower each year for the remainder of the 21st century due to the learning losses that imply a less skilled workforce in the future.

The economic impact of the NAEP declines on a state depends on both the degree of that decline and the size of a state's economy. For example, because of its large economy, even though California's learning losses were less than average, it will suffer the largest impact — experiencing an estimated loss in present value of \$1.3 trillion.

Hanushek notes the issue of future earnings and economic losses may not be getting the attention it deserves, as the students affected have not yet entered the labor market. But he argues it's a big problem that we can't afford to ignore now. Even if education should return to pre-pandemic levels in states over the coming years — and Hanushek says that's not happening in a widespread way —

“The concern is about the distribution. Who’s paying the price?” Kane asked. “Those income losses will be likely close to zero for kids in wealthy districts like Wellesley and Newton. But they’ll be much larger in districts that are serving lower-income students.”

there will be many students who will move through the labor market with lower achievement and fewer skills than those before and after them. That will likely lead to a slowdown in economic growth.

Lost earnings, lower graduation rates, and more

In [another research paper](#), economists examined the impact of the academic declines seen on the NAEP eighth-grade math assessment. Tom Kane at Harvard University and Douglas Staiger at Dartmouth College analyzed the relationship between NAEP scores and later earnings for different birth cohorts within each state.

Prior to the pandemic, U.S. achievement rose steadily over three decades on NAEP. This trend was accompanied by improvements in later-life outcomes, including higher incomes, better educational attainment, and declines in teen motherhood, incarceration and arrest rates. Crucially, Kane and Staiger show that students in the states where eighth-grade NAEP math scores grew the most, experienced the largest long-term benefits. In other words, rising NAEP scores during the 1990s and the first decade of this century forecasted long-term economic and social improvements in many states.

As Staiger explained in [The 74](#), "We interpret this evidence as saying NAEP means something. When there are improvements in scores, those kids coming out of school are going to have better outcomes in life. And we can infer from this recent decline that all cohorts in school now are going to do a bit worse than we expected."

During the pandemic — between 2019 and 2022 — students lost 40 percent of that decades-long increase in math achievement. Kane and Staiger estimated the declines would total \$900 billion in lost earnings for the 48 million students in public schools during the 2020-21 school year.

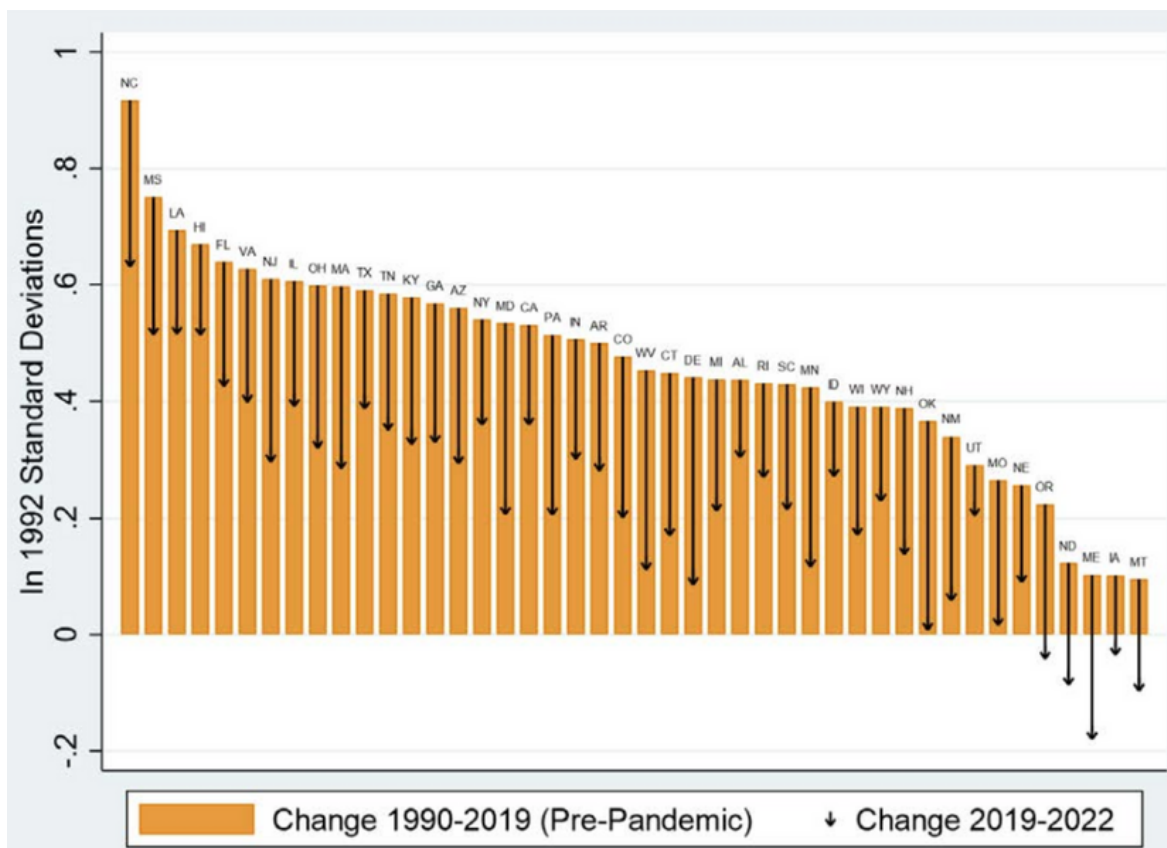
Every state lost ground in the pandemic. Students in five states scored lower than their 1990 counterparts on the latest NAEP assessment — those in Oregon, North Dakota, Maine, Iowa, and Montana — and can expect steeper economic impacts.

States with steep academic declines also are expected to experience declines in high school graduation rates and college enrollment and increases in teen motherhood and criminal arrests, according to the research. To conduct their analysis, they combined NAEP data with information from the US Census and FBI.

\$900 BILLION

Estimated amount of lost earnings for the 48 million students in public schools during the 2020-21 school year.

Chart 2: Changes in math achievement by state²



2. In 1990, not all states participated in NAEP for state-level results, and therefore are not included in Kane and Staiger's research. All states began participating in 2003 after the passage of No Child Left Behind.

Kane has also been at the forefront of research tracking students' academic recovery. In an interview in February 2024, he noted students around the country had made up about one-third of their learning gaps in math, which indicates the lost earnings may be closer to \$600 billion rather than the \$900 billion he and Staiger previously estimated. But he noted in many states, including his home state of Massachusetts, the recovery is being led by wealthier districts, worsening inequities. "The concern is about the distribution. Who's paying the price?" Kane asked. "Those income losses will be likely close to zero for kids in wealthy districts like Wellesley and Newton. But they'll be much larger in districts that are serving lower-income students."

Where to go from here

The research studies demonstrate the value of using NAEP, along with other data, to consider the impact of the pandemic on students and society and inform key decision making.

Reflecting on his research, Hanushek, a former National Assessment Governing Board member, said he hoped it would serve as a wake-up call. "The learning losses are huge. Economic growth depends on the skills of your labor force," he said. "We're going to have a lower skilled workforce. We're going to have fewer inventions. People with high achievement and strong academic skills are good for the economy."

“Our ability to ameliorate the pandemic learning losses is quickly disappearing. More than 17 million students have already completed their K-12 schooling without being substantially brought up to the learning levels as seen prior to the pandemic. For them, the learning losses are most likely permanent, and the implications for future earnings losses are locked in,” Hanushek warned.

Kane said states should try to track those cohorts of students who have already graduated from high school and see if they need support resuming post-secondary education or job training.

He called on school districts to share test score data with parents of students who are behind and urge those families to enroll their kids in summer school. He added that districts should set aside money for summer programs now and sign contracts with organizations that can provide tutoring in the 2024-25 school year soon — before September — or risk losing those funds due to federal rules around when the pandemic relief money is spent.

Former Massachusetts Gov. Jane Swift, a member of the Governing Board and founder of a nonprofit that connects college students with employers, agreed action is needed now. She said it was up to policymakers, business leaders, and the higher education community to help fill in learning gaps that K-12 students and those who’ve recently left high school are experiencing. She noted that programs connecting community college students with workforce opportunities are examples of efforts that can develop targeted skills in young adults whose education was disrupted by the pandemic.

Governing Board member Michelle Cantú-Wilson is a trustee at Houston’s San Jacinto College, a leader among community colleges as measured by student outcome data. She says her teaching colleagues are seeing significant gaps in knowledge, skills, and critical thinking among recent enrollees. However, she said improvements in the sequencing of how courses are offered and how developmental education is provided at the community college level are among the changes in higher education that she hopes will help close pandemic-era gaps. She added that developmental classes, sometimes referred to as remedial courses, are often now embedded within regular credit-bearing college courses, allowing students to catch up and move forward. That can be more affordable and motivating than having to take non-credit bearing classes first. She also said classes at the community college level are often delivered in flexible ways, including on virtual platforms, which can be helpful to many students, particularly those who work and study simultaneously.

Like Swift, Cantú-Wilson said strong ties between industry and community colleges help ensure students are getting relevant learning experiences that yield good employment. “Industry partners with community colleges so well, making learning more relevant and better allowing students to take charge of their learning.” she said.

“The purpose of collecting data is to take action. These results show us that we need to pivot as a nation. This isn’t about one state; this is about the entire nation.”

Swift added that forging connections between school and work shouldn't be limited to post-secondary experiences but must be integrated into K-12 education in high-quality ways. "There's a movement toward more career and technical education (CTE) programs in schools, and that's positive. The best programs combine interesting real-world experiences with academic rigor," Swift said.

Academically rigorous CTE programs that are available to all students have been a high priority in Rhode Island. "We're not talking about the old approach to CTE. Our CTE courses are rigorous. They're infused with math and other important academic content," said Rhode Island Commissioner of Elementary and Secondary Education Angélica Infante-Green, who also serves on the Governing Board. She added that high school students in the new CTE courses are applying what they're learning in relevant, real-world ways, making these experiences highly engaging. "They're so excited to go to those classes," she added.

Infante-Green noted that the pandemic upended student learning in devastating ways but also brought greater attention to the need to improve math instruction, the subject most affected by the disruption to schooling. For the past two years, Rhode Island, like other states, has enacted policies to improve math that should have long-lasting positive effects. These include creating more clarity and rigor around math course requirements, supporting districts in adopting high-quality math curricula and implementing those well, ensuring schools have math coaches, and providing teachers with strong professional development on the new approaches.

Infante-Green says it's vital that policymakers nationwide take steps to overhaul and improve teaching and learning in light of the achievement declines seen on the Nation's Report Card as well as state assessment data across the country and on international assessments like PISA. "The purpose of collecting data is to take action. These results show us that we need to pivot as a nation. This isn't about one state; this is about the entire nation," she said.

Further Reading

- [The Economic Cost Of The Pandemic: State By State](#)
By Eric Hanushek, Hoover Education Success Initiative
- [What Do Changes in State Test Scores Imply for Later Life Outcomes?](#)
By Elena Doty, Thomas J. Kane, Tyler Patterson & Douglas O. Staiger, NBER

About Powered By NAEP

This research brief is part of a new series highlighting policies, practices, and research that have been Powered by NAEP. Learn more about what else has been Powered by NAEP [here](#) and join the conversation with #PoweredbyNAEP on [X](#) and [LinkedIn](#).

About the National Assessment Governing Board

The National Assessment Governing Board is an independent, nonpartisan board whose members include governors, state legislators, local and state school officials, educators, business representatives, and members of the general public. Congress created the 26-member Governing Board in 1988 to set policy for the National Assessment of Educational Progress. For more information, visit www.nagb.gov.