Students' early test scores don't predict academic growth over time

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For years, parents and policymakers have looked to test scores to gauge the effectiveness of school districts and teachers. New research from Stanford Graduate School of Education Professor Sean Reardon provides a different measure: students' academic progress over a period of years.

Reardon examined test scores for students in third through eighth grade at 11,000 school districts across the country. Third-grade test scores, he found – whether they were higher or lower than the national average – did not correlate to students' academic growth through elementary and middle school. In fact, growth rates in many low-income districts outpaced those where students enjoyed greater access to learning opportunities in early childhood.

"There are many relatively high-poverty school districts where students appear to be learning at a faster rate than kids in other, less poor districts," said Reardon, who holds an endowed professorship in Poverty and Inequality in Education. "Poverty clearly does not determine the quality of a school system."

The findings were released in a working paper on Dec. 5 and drawn from the Stanford Education Data Archive (SEDA), a massive online collection of roughly 300 million math and reading test scores from every public school district in the United States during 2009-15.

Average third-grade test scores in a school district, Reardon noted,

reflect the extent of learning opportunities available in early childhood and early elementary grades – opportunities that are strongly related to a district's socioeconomic resources (families' incomes and parents' education levels). But Reardon found that the average rates of academic growth between third and eighth grade bore very little relationship to third-grade scores and early childhood advantages.

"There's a widespread belief that schools exacerbate inequality, that schools are worse in poor communities and better in rich ones," said Reardon, who led the development of SEDA and devised the statistical methods used to compare test results from state to state. "It's true that there's a lot of inequality among students when they start school. But these data suggest that at least in some systems, schools are equalizing forces – that it's possible for schools in disadvantaged communities to be forces for equity."

Intriguing patterns

Not unexpectedly, third-grade test scores were highest in many suburban school districts around metropolitan areas (particularly in the northeast and on the California coast), and low in much of the Deep South and the rural West. But growth rates were more varied. Many districts had low third-grade test scores but above-average growth rates. Others had above-average test scores but very low growth rates.

Even in large, urban districts where third graders tested well below the national average, Reardon and his colleagues found substantial academic gains between third and eighth grade. In Chicago, for example, students advanced on average the equivalent of six years of learning in only five years.

"Chicago students start out with low test scores in third grade, but their growth rate is much higher than the national average – 20 percent

higher," said Reardon. "That is true for all racial and ethnic groups in the district."

Community impact

Reardon speculated that the findings could help promote more equitable demographics among communities by revealing above-average learning opportunities in a lower-income area.

"To the extent that information about school quality influences middle-class families' decisions about where to live, data on growth rates might provide very different signals," he said. "You might find parents ranking communities differently if they weren't relying on average test scores, which are highly correlated with socioeconomic background."

Meanwhile, he noted, the findings can help researchers identify districts that are outperforming expectations and explore what these school systems have done to produce such remarkable results.

"There are many places where learning rates are much higher than you might predict on the basis of families' economic resources," he said. "We have to learn what those places are doing and build on those lessons."

Reardon's working paper and data can be downloaded free from SEDA, along with maps, graphs and other explanatory materials.

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