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Understanding the Relationship Between Upper Elementary Math Assessment Scores and Algebra I With Additional Supports

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How do upper elementary math scores relate to receiving additional supports for Algebra I?

Algebra I is viewed as a gateway course to college preparatory math. Some students require additional supports to succeed in Algebra I, including differentiated instruction and the strategic grouping of students. We analyzed one of the placement criteria used to assign students to Algebra I with additional supports—scores on statewide math assessments taken in upper elementary grades—in a metro-Atlanta school district. Are math test scores in fourth and fifth grade predictive of receiving additional supports in Algebra I years later?

What did we learn?

There is a strong statistical link between performance on the end-of-grade math assessment in fourth and fifth grades and the end-of-course Algebra I score years later.

However, fifth-grade math scores are not particularly predictive of receiving additional supports in Algebra I.

Algebra I students with additional supports have about as much chance of scoring better on Algebra I (compared to fifth-grade math) as students taking regular Algebra I.

There is not an obvious, distinct cut point to assign students to Algebra I with additional supports using only the distribution of fifth-grade and fourth-grade math scores.

What are the policy implications?

The district could place greater weight on math test scores in upper elementary grades when determining additional support needs for students taking middle school math coursework and Algebra I.

In particular, the district could try to identify why some students scored well below the state average in upper elementary math but did not receive additional supports in Algebra I.

Researcher

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What questions did we answer?

1. Does a strong statistical relationship exist between math test scores in upper elementary grades and scores on Algebra I?
2. Are math test scores in upper elementary grades predictive of receiving additional supports in Algebra I?

What data did we use?

We used administrative data from a metro-Atlanta school district. Students took Algebra I between school year (SY) 2015-16 and SY 2018-19. Most students took Algebra I in ninth grade, but about a sixth of students took Algebra I in eighth grade and approximately 10% of students took the Algebra I assessment in grades 10 to 12. On average, 13% of students took Algebra I with additional supports.

Why is this issue important?

Black and Hispanic students across the United States experience inequitable access to advanced learning opportunities. The evidence suggests, however, that when advanced learning opportunities are extended to traditionally marginalized students, and students and teachers receive training and resources, many students thrive. Participation in advanced coursework, including Algebra I, can precipitate a virtuous cycle of higher academic achievement and higher teacher and counselor expectations.

Algebra I is commonly viewed as a gateway to college-preparatory math. Given its strategic importance to students' learning trajectory, ensuring that students have the supports they need to succeed is an important policy goal for districts.

The **Metro Atlanta Policy Lab for Education (MAPLE)** is a component of the **Georgia Policy Labs (GPL)**, a research collaboration between Georgia State University and a variety of government agencies committed to leveraging the power of data to drive policy and programmatic decisions that lift children, students, and families—especially those experiencing vulnerabilities.

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