
Academic Accountability

Understanding the Value-Added Model

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School Governance Training

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Presentation Outline

- Value-Added Model/Student Growth Model
 - Goal and Challenges of Evaluation
 - Methods of Evaluation
 - Data Used
 - Interpretation of Results

Goal and Challenges of the Evaluation

– Goal

- To evaluate the performance of the state charter schools operating under the authority of the State Charter Schools Commission

– Challenges

- Students and their families choose to attend a state charter rather than a locally authorized charter or a traditional public school.
- Simple comparisons of average test scores may reflect ability/motivation/resources of students rather than the quality of the school they attend.
- State charter schools frequently serve students from multiple counties and have specialized missions.

Value-Added Model (VAM)

- What is it?
 - VAM is a statistical model that predicts what a student's test score would be based on his/her prior test scores and demographic characteristics
- What does it measure?
 - VAM measures the contribution to student achievement by estimating the difference between the actual and predicted test score

Value-Added Model (VAM)

- How is it reported for state charter schools?
 - VAM reports the estimated *school effect*, which is essentially the difference between the actual and predicted test score for each student, averaged over all students in a school
 - VAM uses a reference point, set to have an effect of zero, as the average school effect for a given grade range in the state
 - Test scores are “normalized” by grade and year in order to compare test scores across grades and years

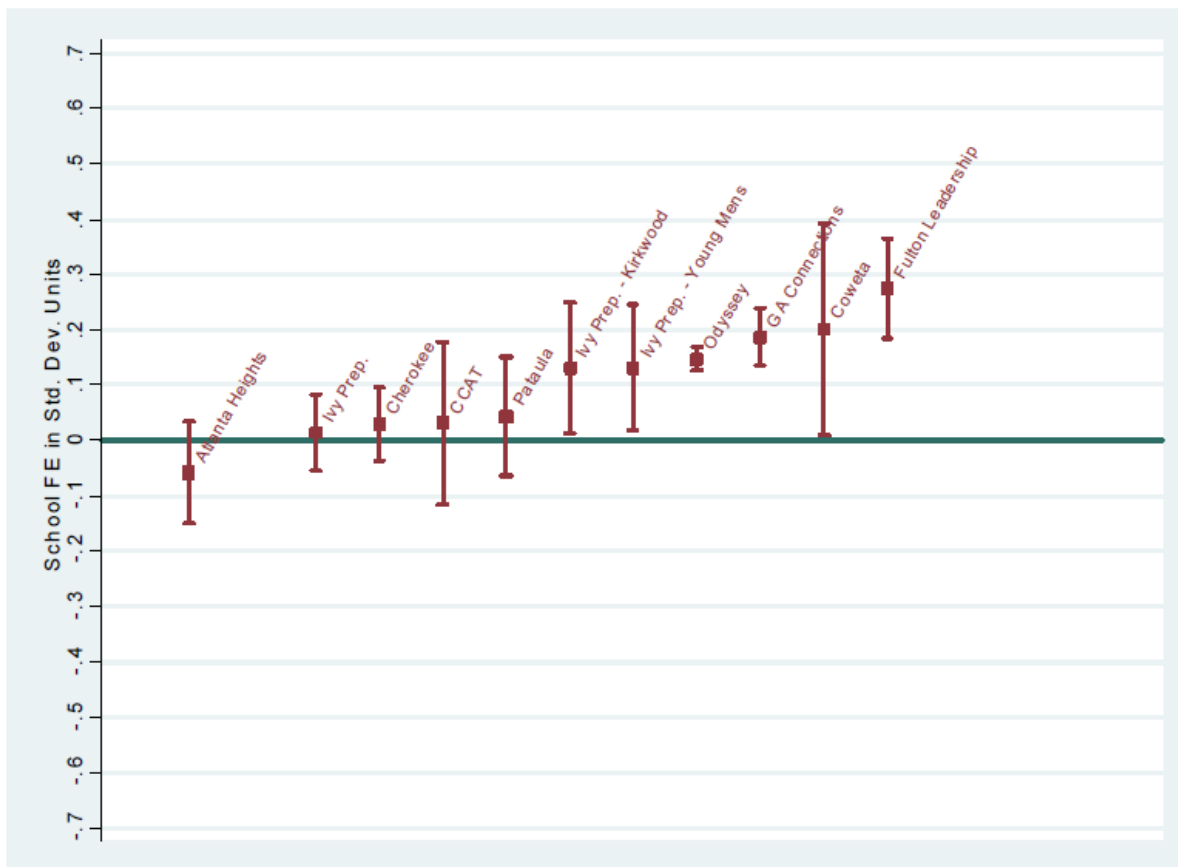
Data for Value-Added Modeling

- Student-level data from GA•AWARDS
 - Test Scores
 - End-of-grade scores for grades 3-8
 - End-of-course scores in high school
 - Student Demographics
 - Gender, age in grade, foreign-born indicator, race/ethnicity, ESOL enrollment, free/reduced-price lunch eligibility, gifted status, primary-language-not-English indicator, disability status (15 specific disability categories), number of schools attended in the current year, an indicator for students who changed schools from the prior year, number of disciplinary incidents in the prior year, and attendance in the prior year

Example of VAM Findings

Performance of State Charters Relative to All Schools in Georgia – Grades 6, 7 and 8, Reading

School Value-Added Estimate with 95% Confidence Intervals
(Mean Effect with all controls across all Georgia public schools= 0)



Example of VAM Findings

Summary by Grade Level and Subject

	Value-Added (Controls for Student Demographics and Prior Test Scores)				
Grade Level and Subject	School Effect	State Percentile (higher is better)	Statistically Different From State Average?	District Rank (lower is better)	Statistically Different From District Average?
<i>Middle</i>					
Reading	0.2748	99	Higher	1 of 24	Higher
ELA	0.2197	98	Higher	2 of 24	Higher
Math	-0.0113	49	No	14 of 24	No
Science	-0.0705	27	No	19 of 24	No
Social Studies	0.1128	77	Higher	5 of 24	Higher
All-Subject Average	0.1033	89	Higher	5 of 24	Higher
<i>High</i>					
9th Grade Lit.	0.3009	98	Higher	1 of 19	Higher
Coordinate Algebra	0.2485	92	Higher	6 of 18	No
Physical Science	-0.0105	50	No	12 of 19	No

Note: statistical significance based on a 95 percent confidence level.

Georgia's Student Growth Model

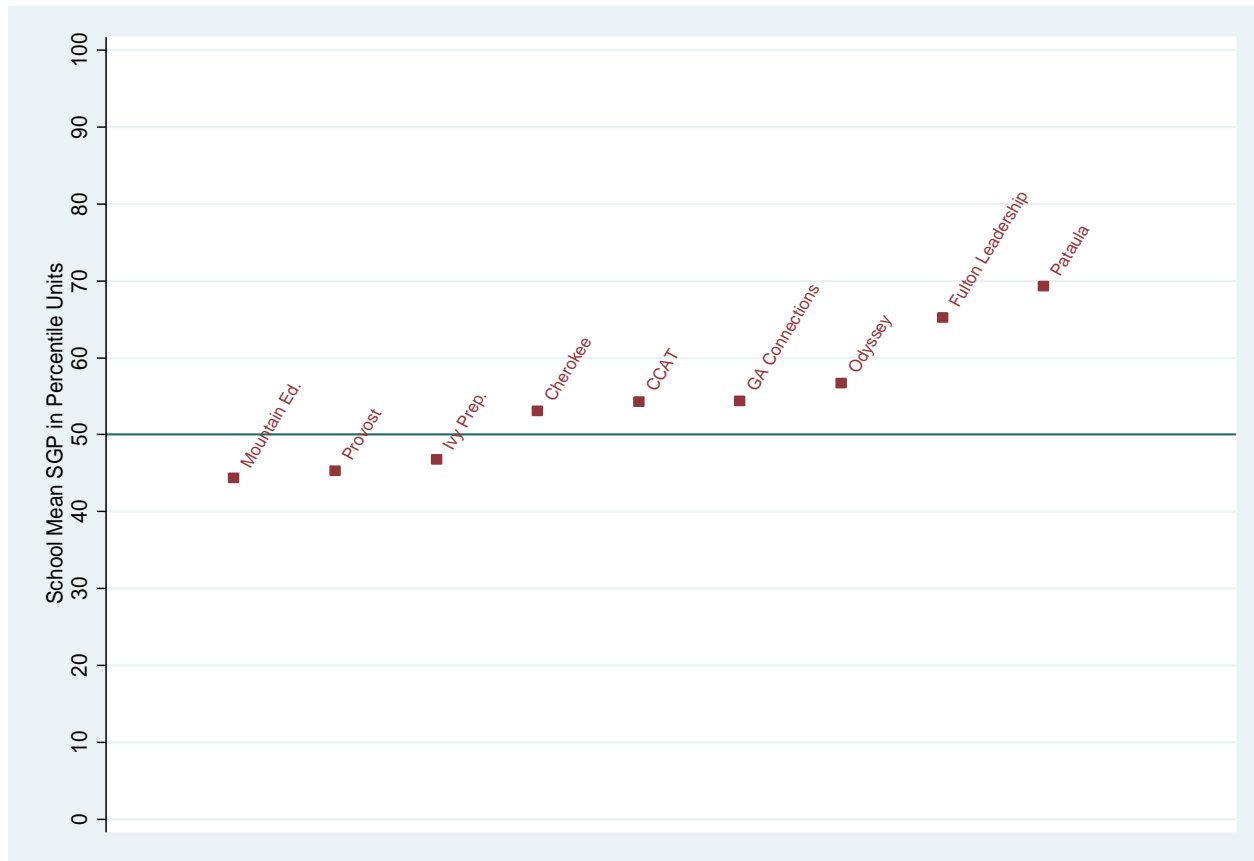
- The student growth model calculates a ranking of a student's current test score relative to other students with the same prior-year score.
- The student growth model yields a “student growth percentile” (SGP).
 - By definition, the median SGP is 50.
- SGPs are calculated by GaDOE.
- The SCSC annual accountability report also includes mean SGPs aggregated to the school-level.

Example of SGP Findings

Performance of State Charters Relative to All Schools in Georgia- 9th Grade Literature

Mean Student Growth Percentile

(Median SGP across all Georgia public school students = 50)



Example of SGP Findings

Summary by Grade Level and Subject

	Student Growth Percentiles		
Grade Level and Subject	School Mean of Individual SGPs	State Percentile (higher is better)	District Rank (lower is better)
<i>Middle</i>			
Reading	63	95	2 of 24
ELA	49	56	14 of 24
Math	44	33	16 of 24
Science	47	30	15 of 24
Social Studies	53	71	6 of 24
All-Subject Average	51	55	12 of 24
<i>High</i>			
9th Grade Lit.	65	99	1 of 19
Coordinate Algebra	52	59	11 of 18
Physical Science	48	52	10 of 19

Note: statistical significance based on a 95 percent confidence level.

Comparison of VAM and Student Growth Model

- The annual SCSC accountability report includes results from the VAM and the Student Growth Model
- Theoretically, both models compare each student's performance to a reference standard
 - VAM: expected score of students with similar observable characteristics and prior scores
 - Student Growth Model: actual performance of students with same prior-year score (or history of scores)

Comparison of VAM and Student Growth Model

–VAM measures how much a student’s score exceeds the expected score; the Student Growth Model uses rankings

–VAM publishes a measure of uncertainty of the estimated school effects (standard error); the Student Growth Model does not

–Student Growth Model accounts for prior test scores but does not explicitly control for differences in student characteristics

Alternative Method: Proficiency Benchmarks

- Proportion of students whose test scores meet or exceed a pre-determined threshold
- Unlike VAM and Student Growth Model, yields an absolute measure of school performance
 - All schools could potentially improve from one year to the next
- Measures level of student achievement, not growth
 - Student achievement may reflect both school performance and ability/motivation/resources of students
- As a result, the annual accountability report focuses on school performance estimates from VAM and student growth model

Questions?

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