Grades 8 and 9 Algebra I EOC 2012-13 Results

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Presentation Overview

- Model overview
- Input data
- Model results
  - R-squared, variance components, precision and distribution of value-added scores
- Impact results
  - Correlations between value-added scores and class characteristics

Model Background

Model Overview

- SGIC approved grade 9 model for use in 2012-13
- Models estimated separately for grade 8 and grade 9
- The school component is estimated in the model, but none of the school component is added to the teacher component to create the final teacher score
- Only FCAT 2.0 scores are used in the model—FCAT scores are not used

Algebra 1 EOC Model Covariates

- Algebra I EOC models have student-level and classroom-level covariates
- Ideally, predictor variables should have the following properties:
  - A high statistical correlation with the outcome
  - A high curricular relationship with the outcome
  - A correlation with factors that contribute to student learning but are not in the control of teachers and schools
  - A high correlation with the unobservable processes by which students are sorted into schools and classes

Algebra I EOC Model Student-Level Covariates

- Up to two prior FCAT 2.0 math scores
- English Language Learner (ELL) status (time as ELL)
- Students with Disabilities (SWD) status
- Gifted status
- Difference from modal age in grade
- Mobility (number of transitions)
- Attendance

Algebra I EOC Model Classroom-Level Covariates

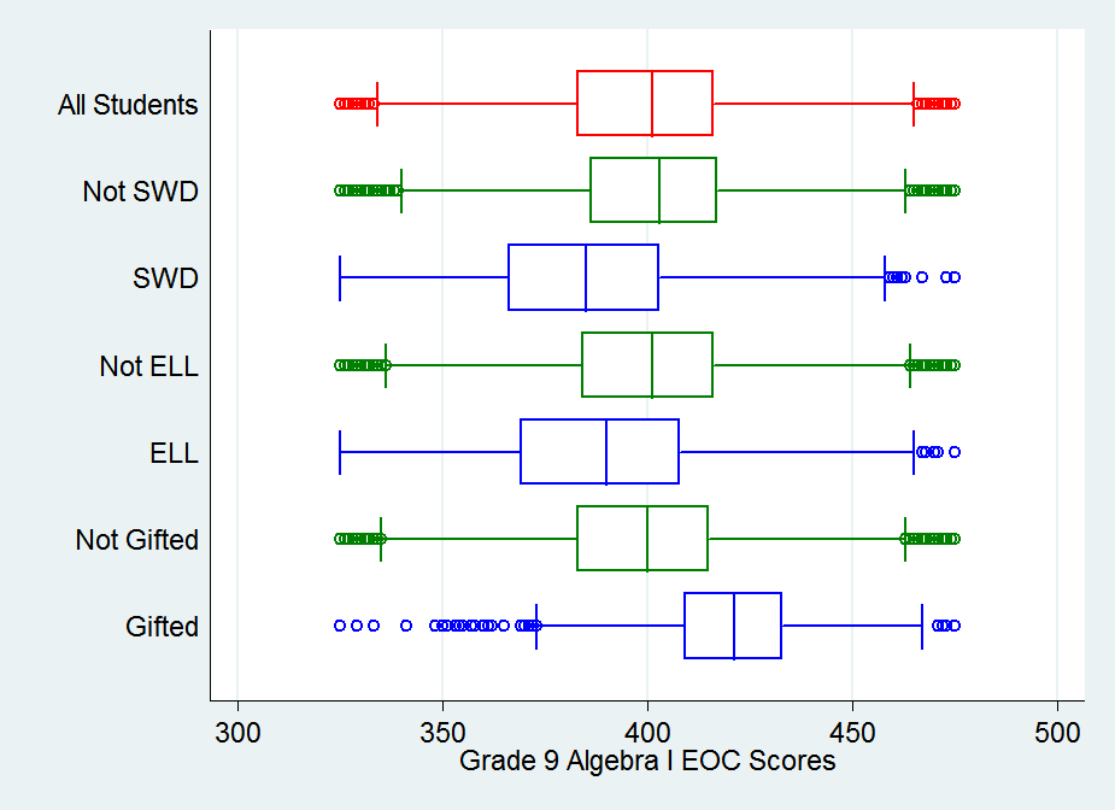
- Class size
- Homogeneity of entering test scores in the class
- Percent gifted in class (not in FCAT models)
- Percent at modal grade (not in FCAT models)
- Mean prior test score in class (not in FCAT models)

Input Data

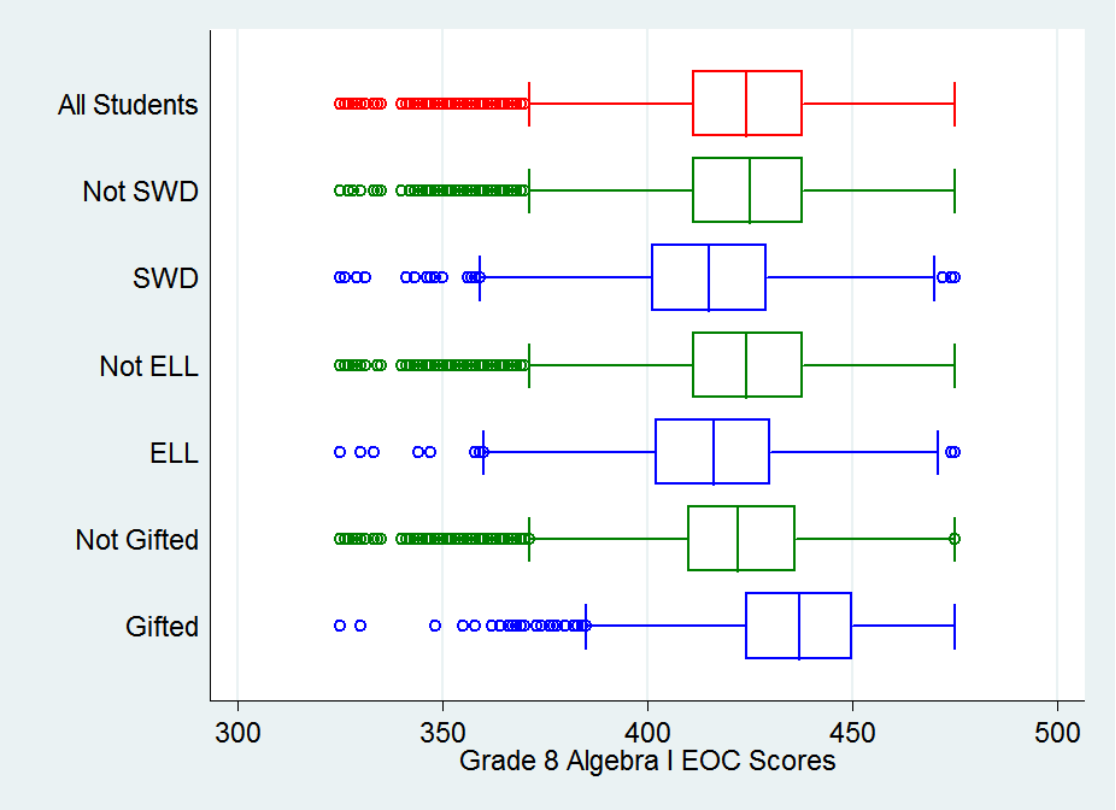
Students Included in the Models

- Grade 8 students must have a prior grade 7 FCAT 2.0 math score.
- Grade 8 model also controls for grade 6 FCAT 2.0 score.
- Grade 9 students must have a prior grade 8 FCAT 2.0 math score.
- Grade 9 model also controls for grade 7 FCAT 2.0 score.
- Number of students included in the models:
  - Grade 8: 53,673
  - Grade 9: 99,717

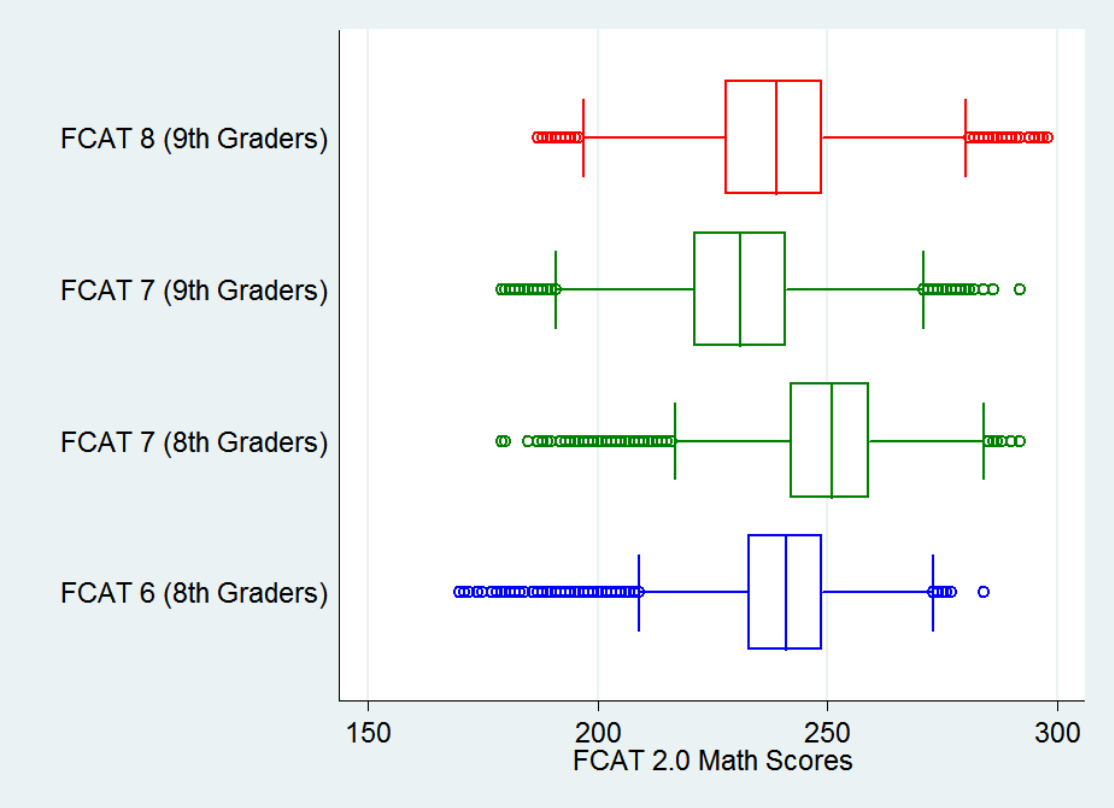
Distribution of Algebra I EOC Scores: 9th Graders



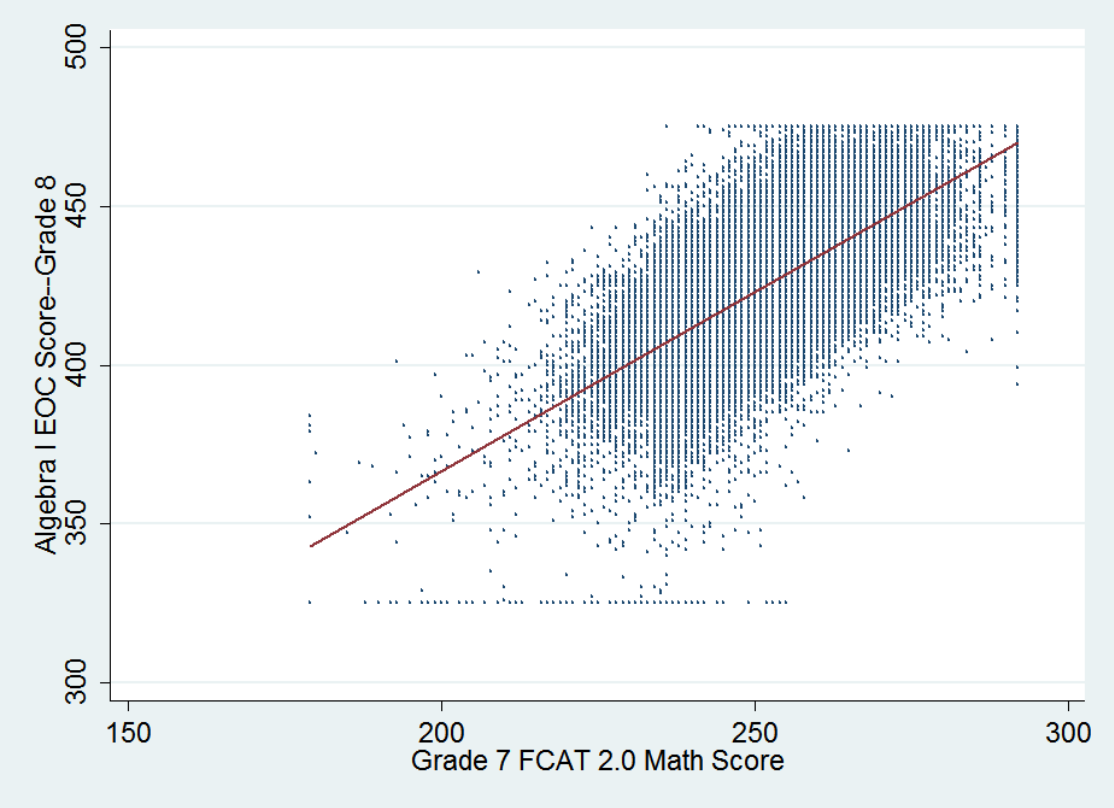
Distribution of Algebra I EOC Scores: 8th Graders



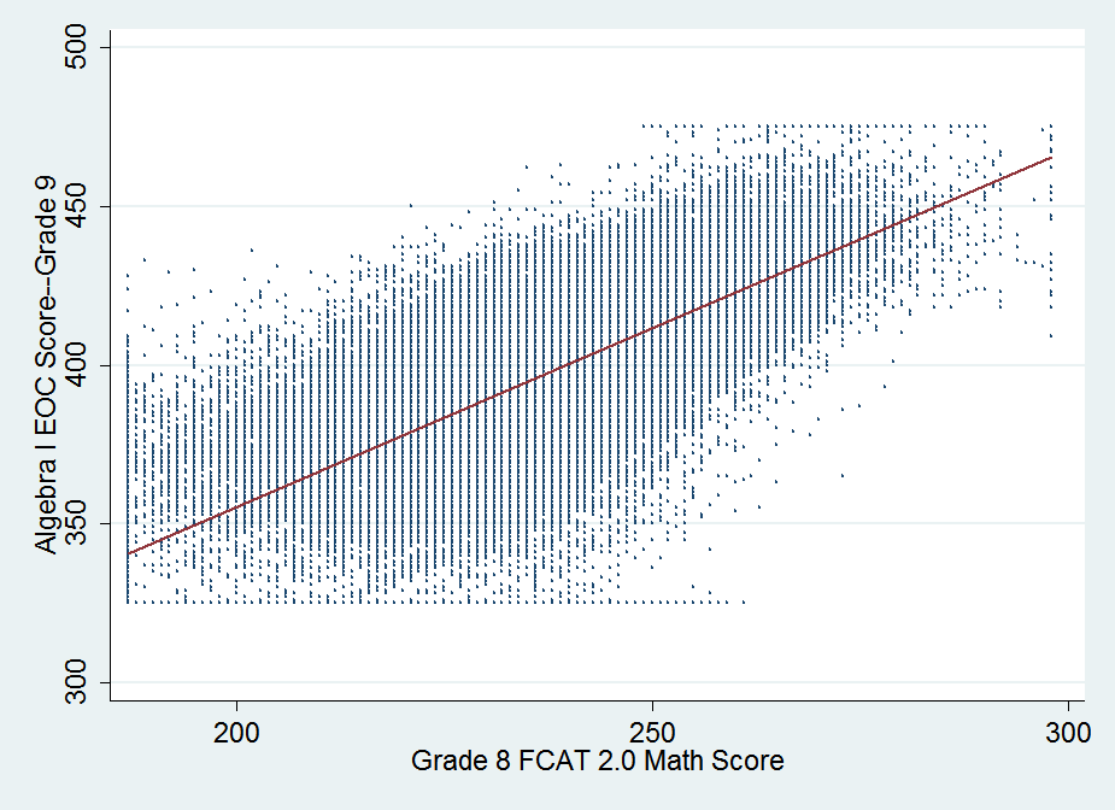
Distribution of Prior FCAT 2.0 Math Scores



Algebra I Score and Prior Grade 7 FCAT 2.0 Math Score (Correlation = 0.68)



Algebra I Score and Prior Grade 8 FCAT 2.0 Math Score (Correlation = 0.70)



Model Results

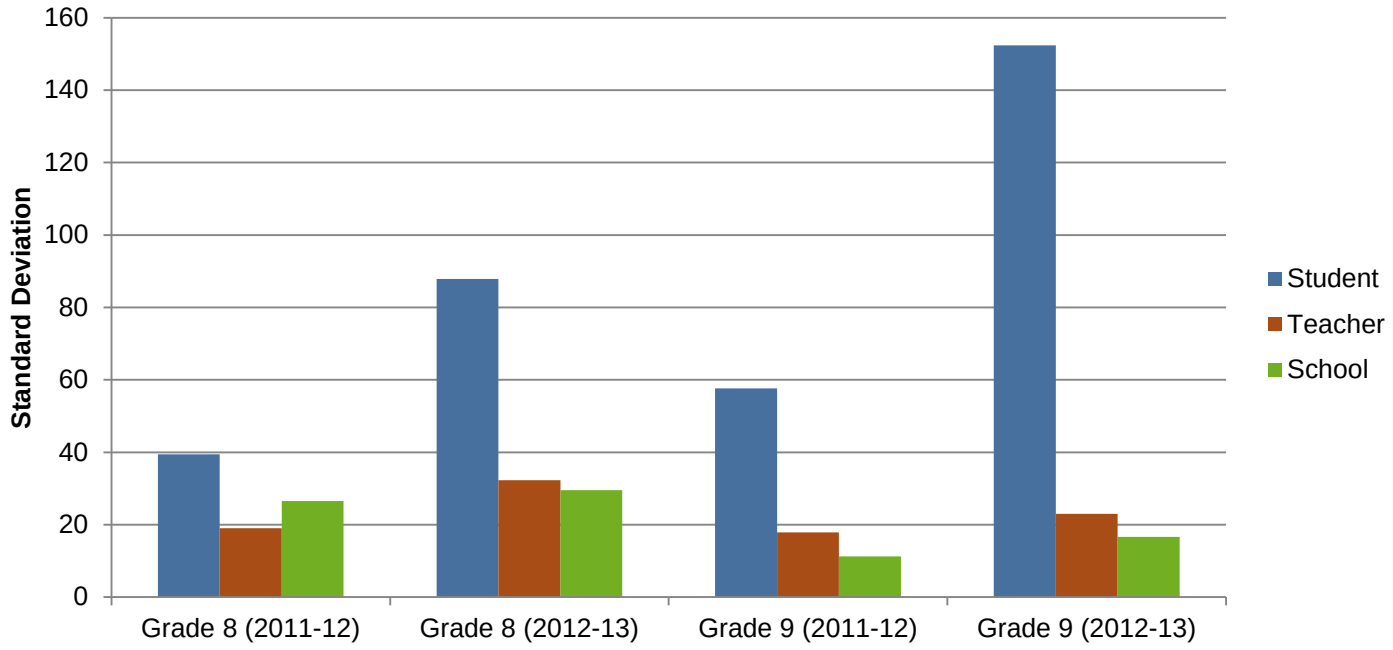
Model Diagnostics

- R-squared is one measure of model fit.
  - Grade 8 R-squared (2012-13): 0.50
  - Grade 9 R-squared (2012-13): 0.51
  - Grade 8 R-squared (2011-12): 0.52
  - Grade 9 R-squared (2011-12): 0.51
- Share of teacher VAM scores significantly different from zero (95% confidence interval):
  - Grade 8 (2012-13): 10.2%
  - Grade 9 (2012-13): 9.8%
  - Grade 8 (2011-12): 6.4%
  - Grade 9 (2011-12): 11.8%

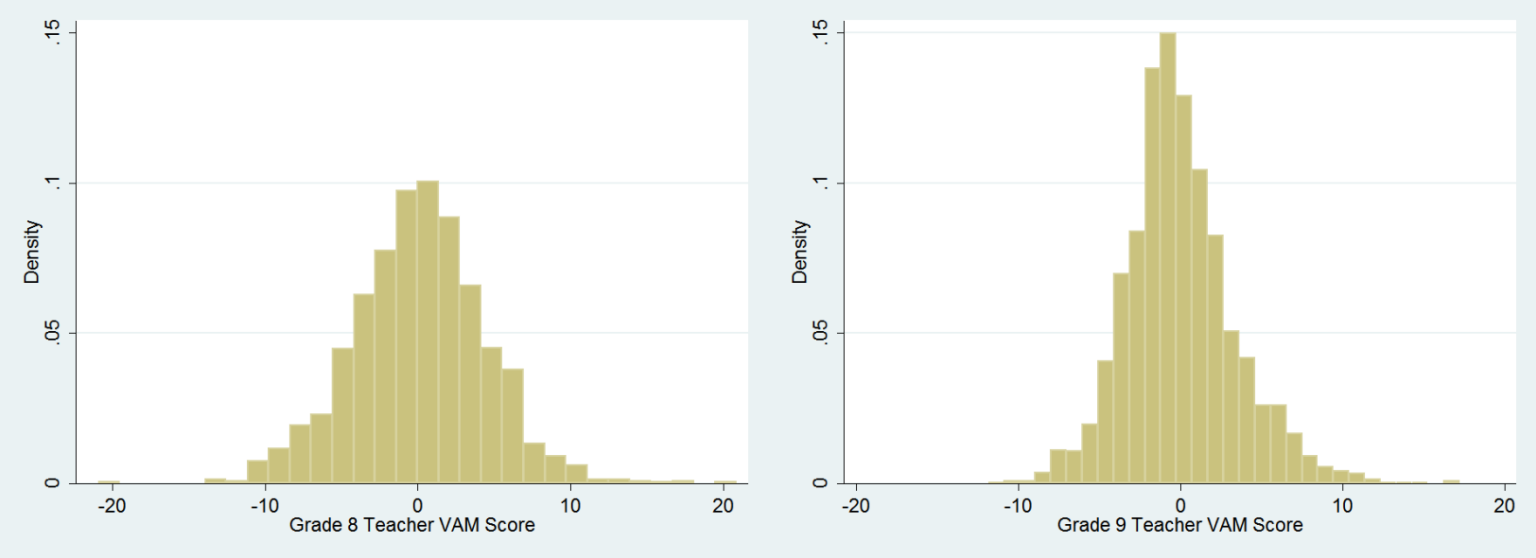
Standard Deviations of Model Components

- The next slide shows the standard deviations of the student, teacher, and school components.
- The student component is typically expected to have more variability than the teacher component.
- The teacher component is typically expected to have more variability than the school component.
- In the 2012-13 grade 8 model, the variance of the school component is nearly as large as the variance of the teacher component.

Standard Deviations of Model Components

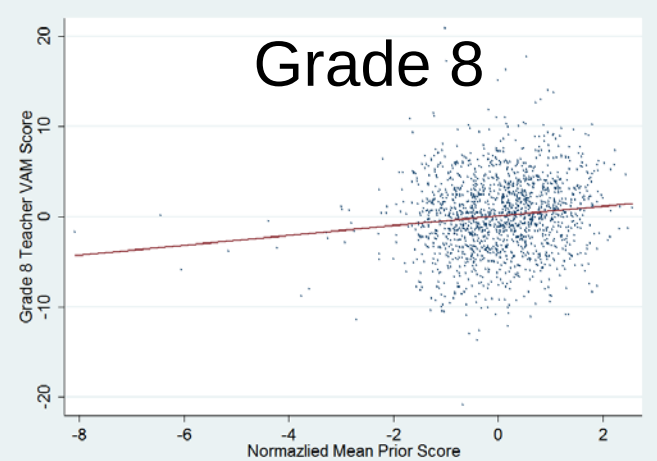


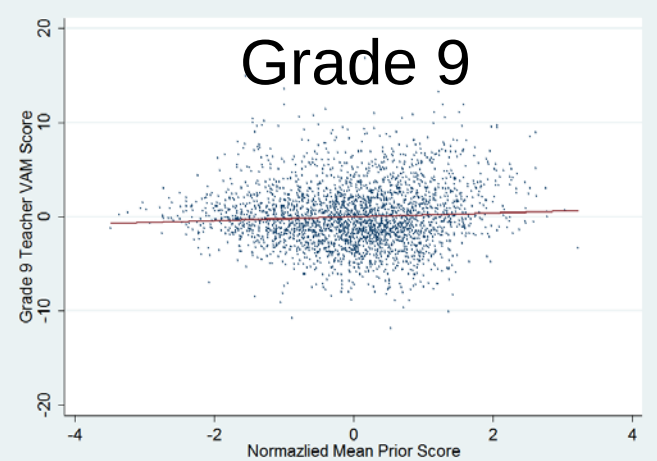
2012-13 Distribution of Algebra I Teacher VAM Scores by Grade



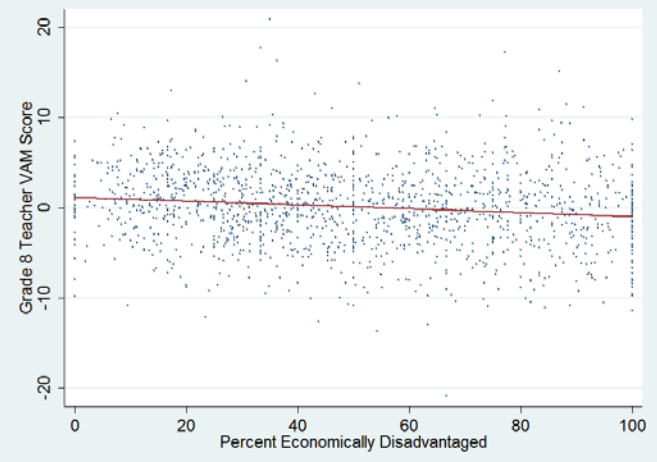
Model Impact Results

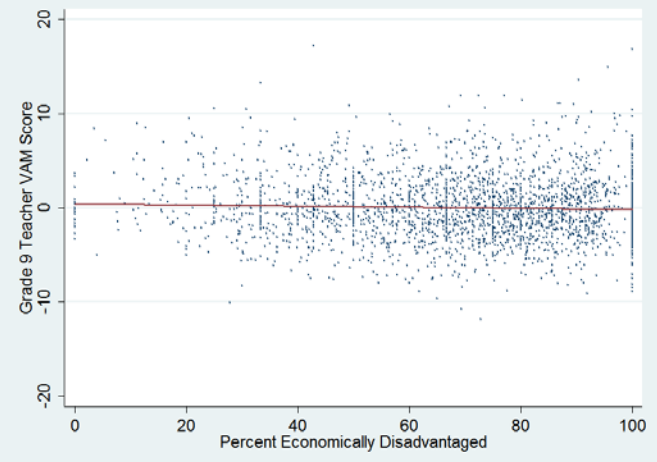
Observed Correlations of Mean Prior Score and %ED in Class with Algebra I Teacher VAM Scores





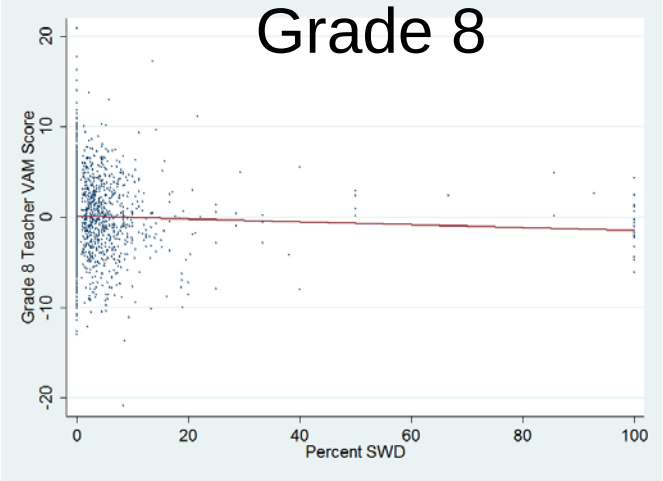
Mean Prior

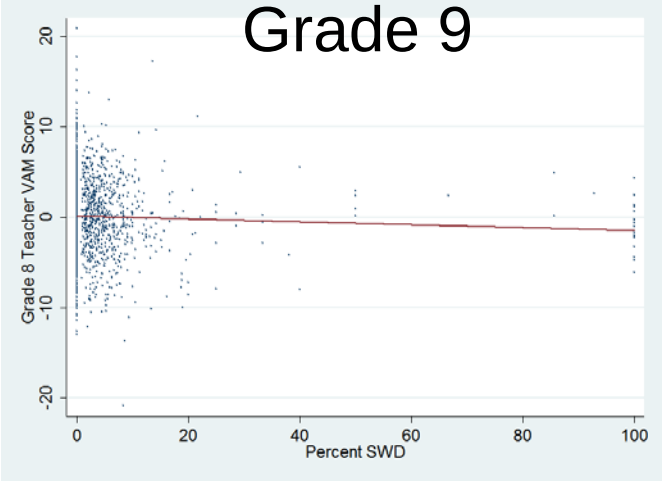




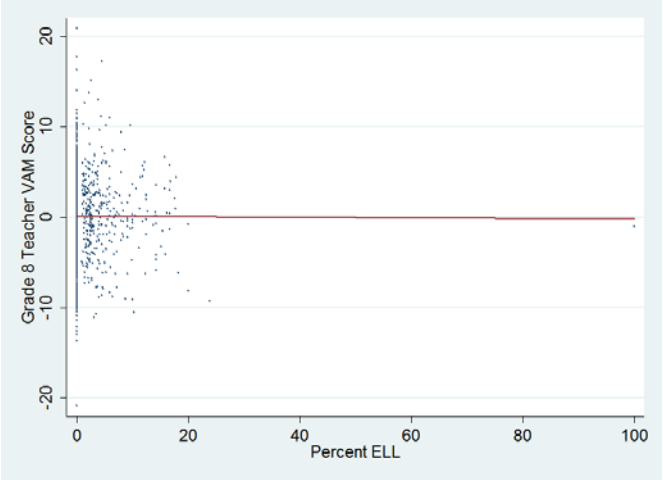
%ED

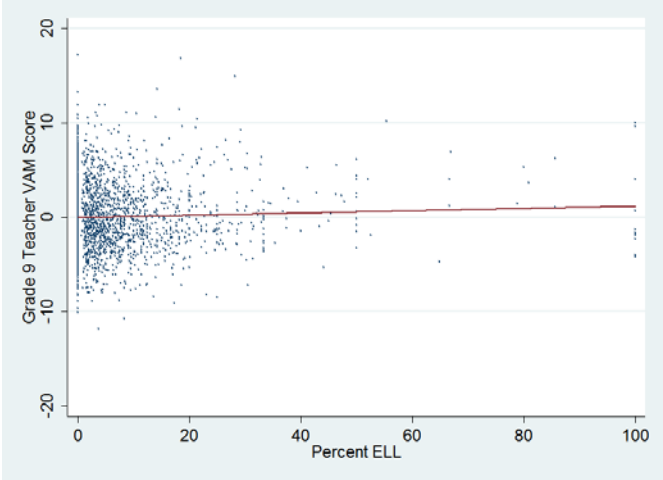
Observed Correlations of %SWD and %ELL in Class with Algebra I Teacher VAM Scores





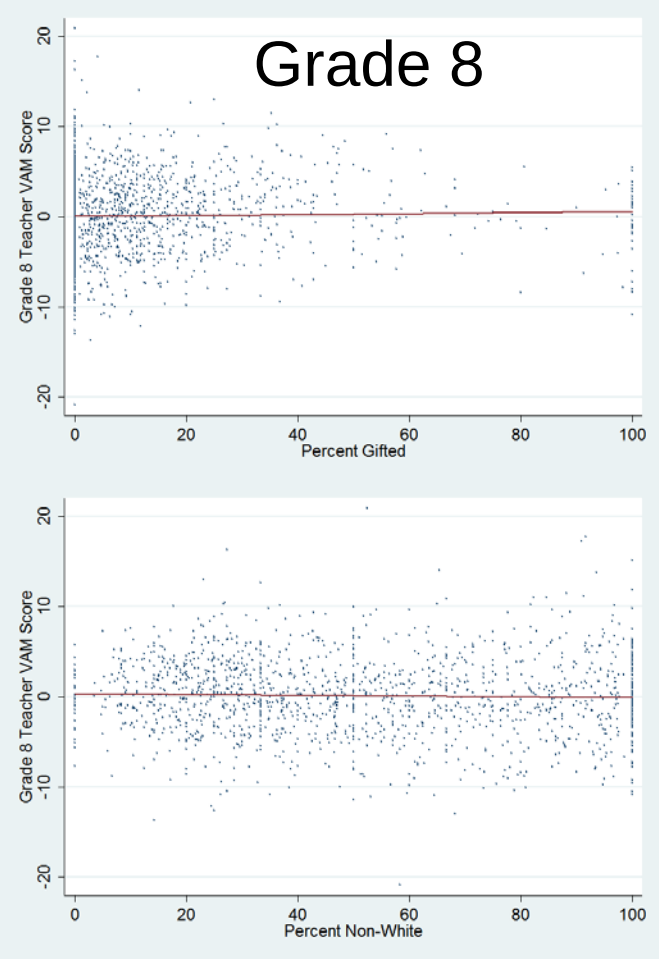
%SWD

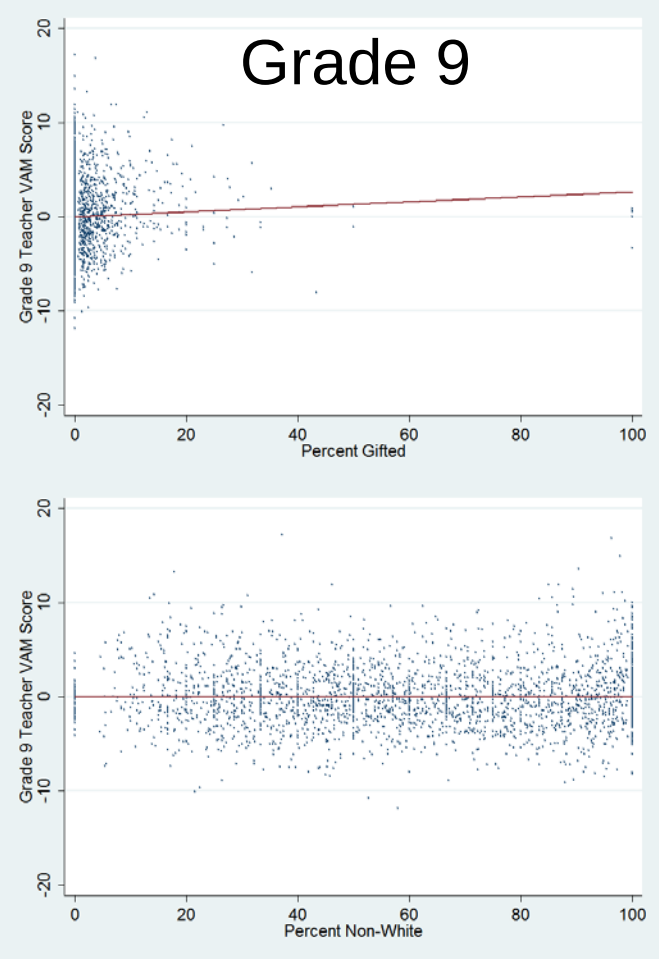




%ELL

Observed Correlations of %Gifted and %Non-White in Class with Algebra I Teacher VAM Scores





%Gifted

%Non-White

Observed Correlations with Algebra I Teacher VAM Scores

	Mean Prior	%ED	%SWD	%ELL	%Gifted	%Non-White
Grade 8 (2012-13)	0.13	-0.14	-0.05	-0.00	0.03	-0.03
Grade 8 (2011-12)	0.20	-0.17	-0.04	-0.04	0.06	-0.05
Grade 9 (2012-13)	0.06	-0.04	-0.03	0.04	0.05	-0.00
Grade 9 (2011-12)	0.02	-0.10	-0.04	0.02	0.06	-0.02

Summary

- Models estimated separately for grades 8 and 9.
- In grade 8 model, Algebra I EOC score is predicted using FCAT 2.0 math 7 and math 6 scores and student and classroom characteristics.
- In grade 9 model, Algebra I EOC score is predicted using FCAT 2.0 math 8 and math 7 scores and student and classroom characteristics.
- Correlation between outcome and prior scores is lower in the Algebra I EOC models than in the FCAT models.
- As a result, R-squared of Algebra I EOC models (~.50 in both grade 8 and 9) is lower than R-squared of FCAT models (typically around .7).

Summary

- Some differences in impact data between grade 8 and grade 9 models:
  - In grade 8, correlation between teacher score and mean prior score is 0.13. In grade 9, correlation between teacher score and mean prior score is 0.06.
  - In grade 8, correlation between teacher score and percent economically disadvantaged is -0.14. In grade 9, correlation between teacher score and percent economically disadvantaged is -0.04.

Contact Information

Harold Doran
202-403-5035
hdoran@air.org

Eric Larsen
650-843-8260
slarsen@air.org

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