

The Federal Growth Model Pilot Program: Is it on track to be proficient by 2013-14?

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The Federal Growth Model Pilot Program

Program Summary

- ❖ In 2005, Secretary of Education, Margaret Spellings, announced the federal growth model pilot program
- ❖ Growth model proposals must adhere to a set of core principles, foremost of which is that the "model must ensure that all students are proficient by 2013-14"
- ❖ True value-added models cannot be used, most accepted proposals (4 of 5 states) use projection models which gauge whether students are on "track to be proficient" at some point in the near future

Accepted Projection Models:

- Florida** – Simple Linear Trajectory
Time 4 score = Time 1 score + (Time 3 score – Time 1 Score)/2*3
- Arkansas** – Growth algorithm partially accounts for expected gains by factoring in the logarithmic nature of the proficiency cutscores
- North Carolina** – Converts scale scores to standardized scale (C-scale) based on the state mean and SD from the standard setting year, then uses a linear trajectory to determine if student is on track to C-scale cut
- Tennessee** – Longitudinal Statistical Model
Uses the pattern of students' past scores to predict future score.

Sample & Data Sources

N ~ 21,500 ~ 31 Schools (at T4)

- Student-level vertically equated scale scores from the Florida Comprehensive Assessment Test (FCAT)
- Reading and mathematics scores
- 2001-02 through 2004-05 school years (T1-T4)
- Data from the Duval County Public School District which is the 20th largest school district in the United States

Research Questions

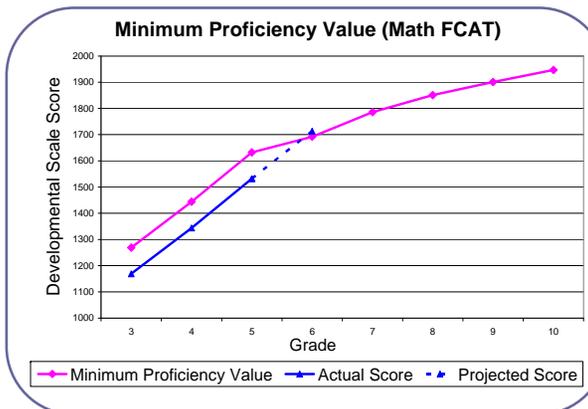
1. How are projection models different from value-added models? What are the implications?
2. How accurate is Florida's linear projection model (with respect to predicting proficiency as well as actual scores)?
3. Do more complex statistical models like Tennessee's produce significantly more accurate projections?

Value-Added vs. Projection

Goal: "Fairly" compare schools to each other or to a one year growth standard
Weakness: Does not require all students to ever reach proficiency

Goal: Determine whether students are "on track to proficiency" and credit schools if they are
Weakness: Different standards for different schools

Florida's Developmental Scale



The above hypothetical student (in blue) remains exactly 100 points below proficient from 3rd through 5th grade, yet using a linear projection this student is "on track to proficiency" in 6th grade. Is it appropriate to use a linear trajectory when the developmental scale is non-linear?

Results



Florida's Projections Using T1, T2, and T3 Data to Predict T4 Proficiency for Students in Grade 3 at T1

		Actual	
		Proficient	Not Proficient
Predicted	Proficient	2731 (41%)	1865 (28%)
	Not Proficient	126 (2%)	1906 (29%)

- 30%** of projections are incorrect
- Projections are biased, overestimating # of proficient students



Arkansas' Projections Using T1, T2, and T3 Data to Predict T4 Proficiency for Students in Grade 3 at T1

		Actual	
		Proficient	Not Proficient
Predicted	Proficient	2551 (38%)	886 (13%)
	Not Proficient	306 (5%)	2885 (44%)

- 18%** of projections are incorrect
- Projections improved, but dependent on proficiency cutscore's alignment with expected gains



North Carolina and Tennessee results coming soon...

Conclusions

1. Projection models may align better with the core principles of NCLB, but should not be mistaken as a way of fairly comparing schools.
2. Linear projections are inaccurate and should not be used, especially when the developmental scale is non-linear.
3. More complex models produce as good, and often better projections than simple linear models.

Future Research

Assess whether the goals of the growth model pilot program realistic. That is, is there evidence that the lowest achieving students can become proficient in the time allotted by the projection models?