

Assessing the Value-Added Effects of Coaching on Student Learning

Gina Biancarosa

Anthony S. Bryk



Emily Dexter



American Education Research Association

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Student literacy development: A value-added approach

- Assessed all students (K-3) attending 18 public schools across 8 states in the Eastern U.S.
- Tested in fall and spring for 4 years to measure change over time in students' literacy learning using:
 - Dynamic Indicators of Basic Early Literacy Skills (DIBELS) in fall and spring, grades K-2 and fall 3
 - Terra Nova in spring, grades 1-3
- Value-added analyses focused on *grades exposed to LC professional development (K-2) for the first two years*

Low Income	40.1%
Race/Ethnicity	
African-American	15.5%
Latino	6.9%
Asian	4.3%
Native American	0.5%
White	72.8%
Limited English Proficiency	4.0%

Scaling early literacy measures

- **IRT vertical equating measures** (in logits)
 - Raw scores: The meaning of scoring one point more or less depends on the difficulty of the item
 - Measures: Equal differences on scale imply equal differences on the trait measured at any level



Means (in logits) for K-2 students
(Excluding SE's > 1.0 and repeaters)

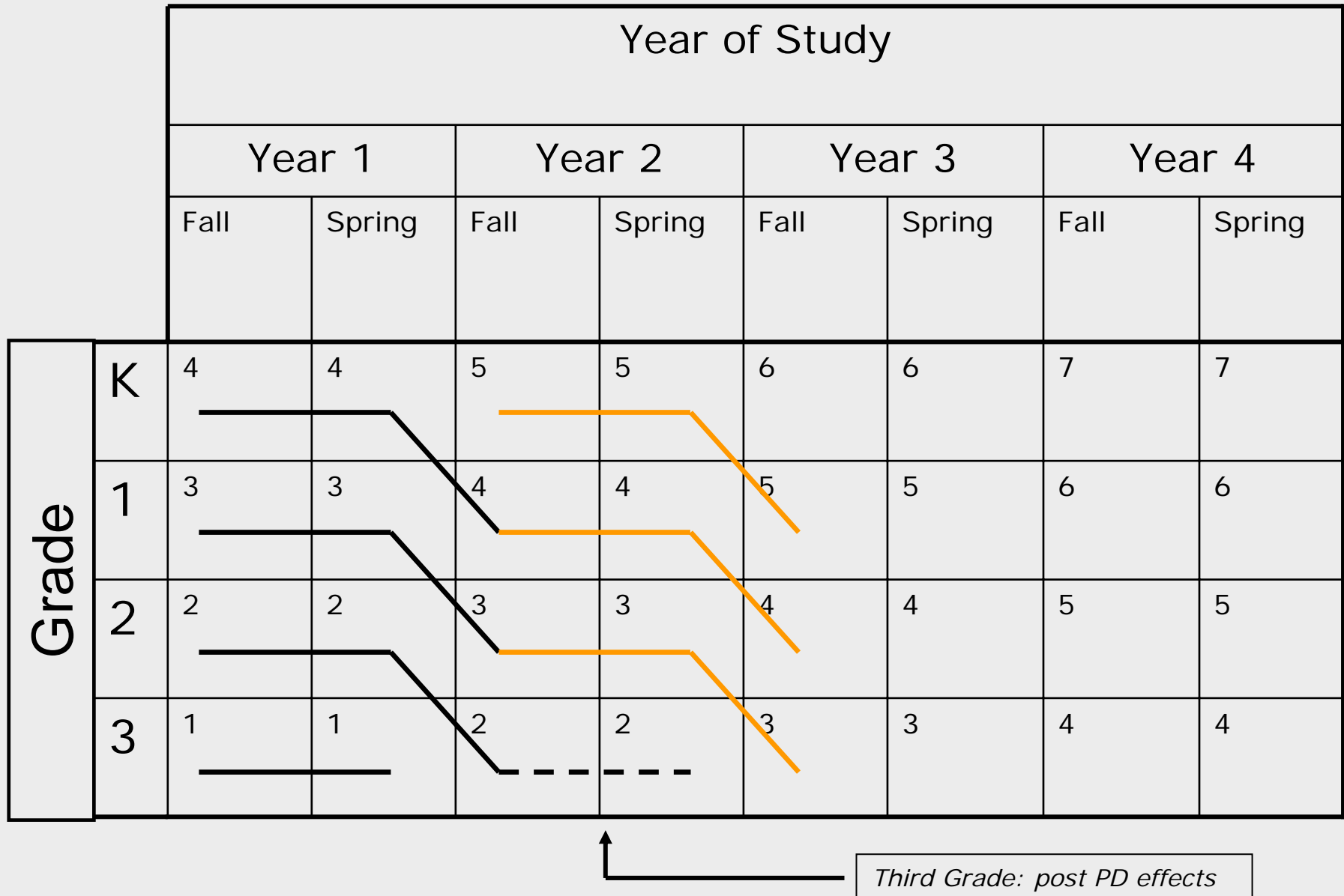
	Mean	SD	n
K fall	0.88	1.49	3939
K spring	2.14	1.45	3990
1 st fall	1.75	1.25	4119
1 st spring	3.00	0.96	4222
2 nd fall	3.48	2.21	3901
2 nd spring	4.31	1.28	4097

Cohort design (baseline data)

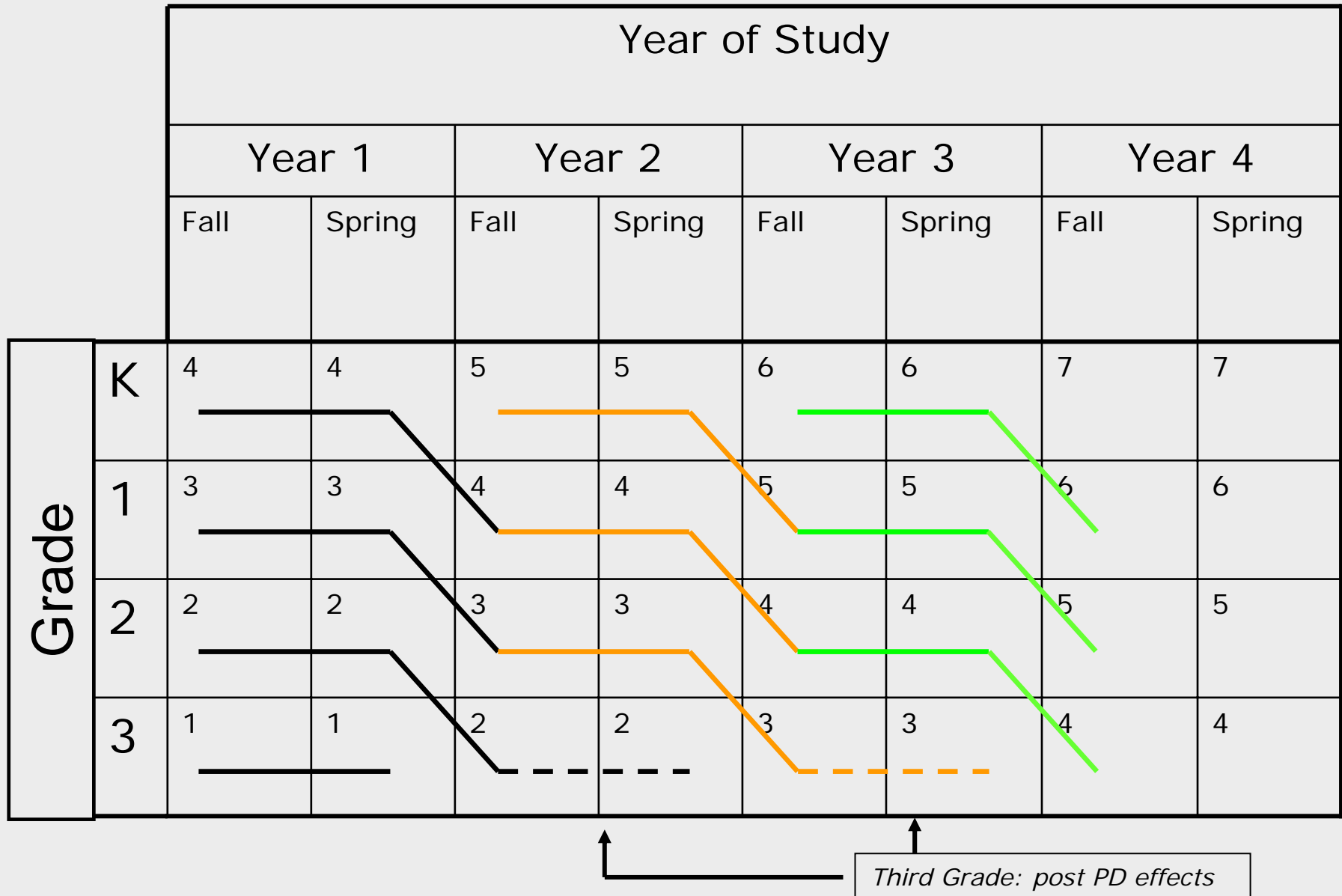
		Year of Study							
		Year 1		Year 2		Year 3		Year 4	
		Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
Grade	K	4	4	5	5	6	6	7	7
	1	3	3	4	4	5	5	6	6
	2	2	2	3	3	4	4	5	5
	3	1	1	2	2	3	3	4	4

The diagram illustrates a cohort design with baseline data. It features a grid where the vertical axis represents 'Grade' (K, 1, 2, 3) and the horizontal axis represents 'Year of Study' (Year 1, Year 2, Year 3, Year 4). Each cell in the grid contains a number representing the baseline data for that grade and year. Three horizontal lines are drawn across the grid, one for each grade level (K, 1, and 2). These lines are horizontal from the start of Year 1 to the start of Year 2, and then diagonal from the start of Year 2 to the start of Year 3, indicating the progression of the cohort over time.

Cohort design (1st year effects)

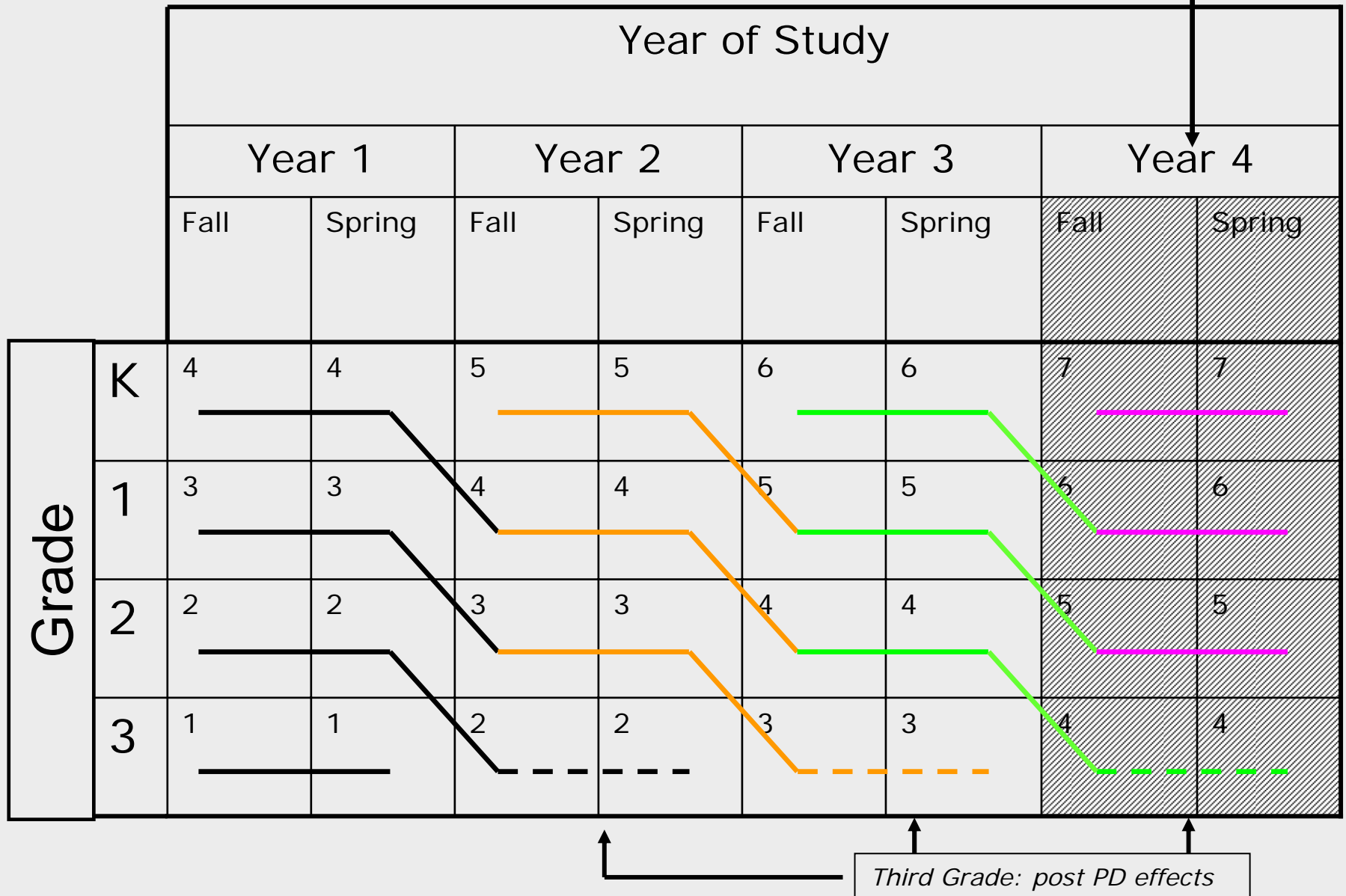


Cohort design (2nd year effects)

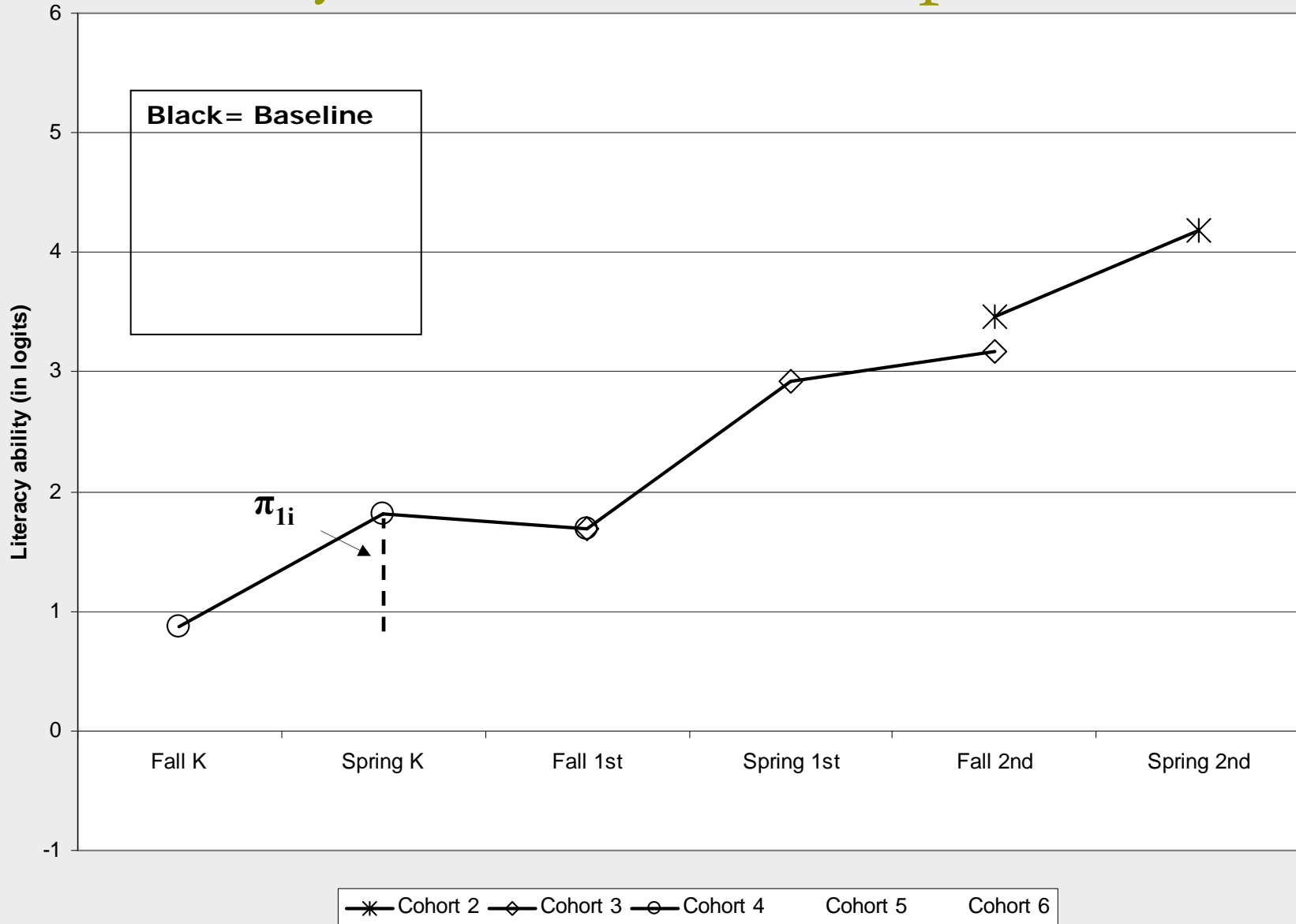


Cohort design (3rd year effects)

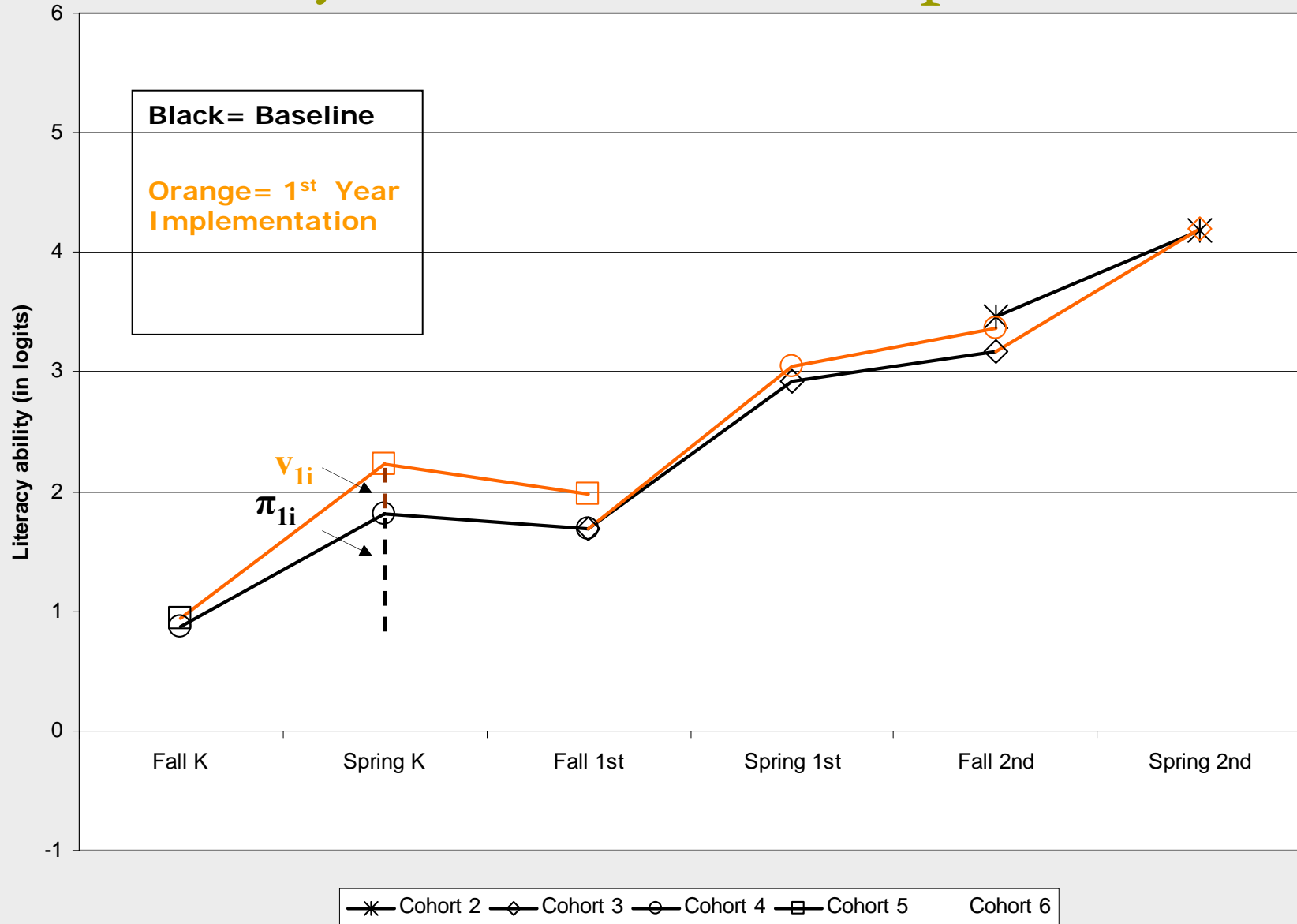
Current Year
(SY 2007-08)



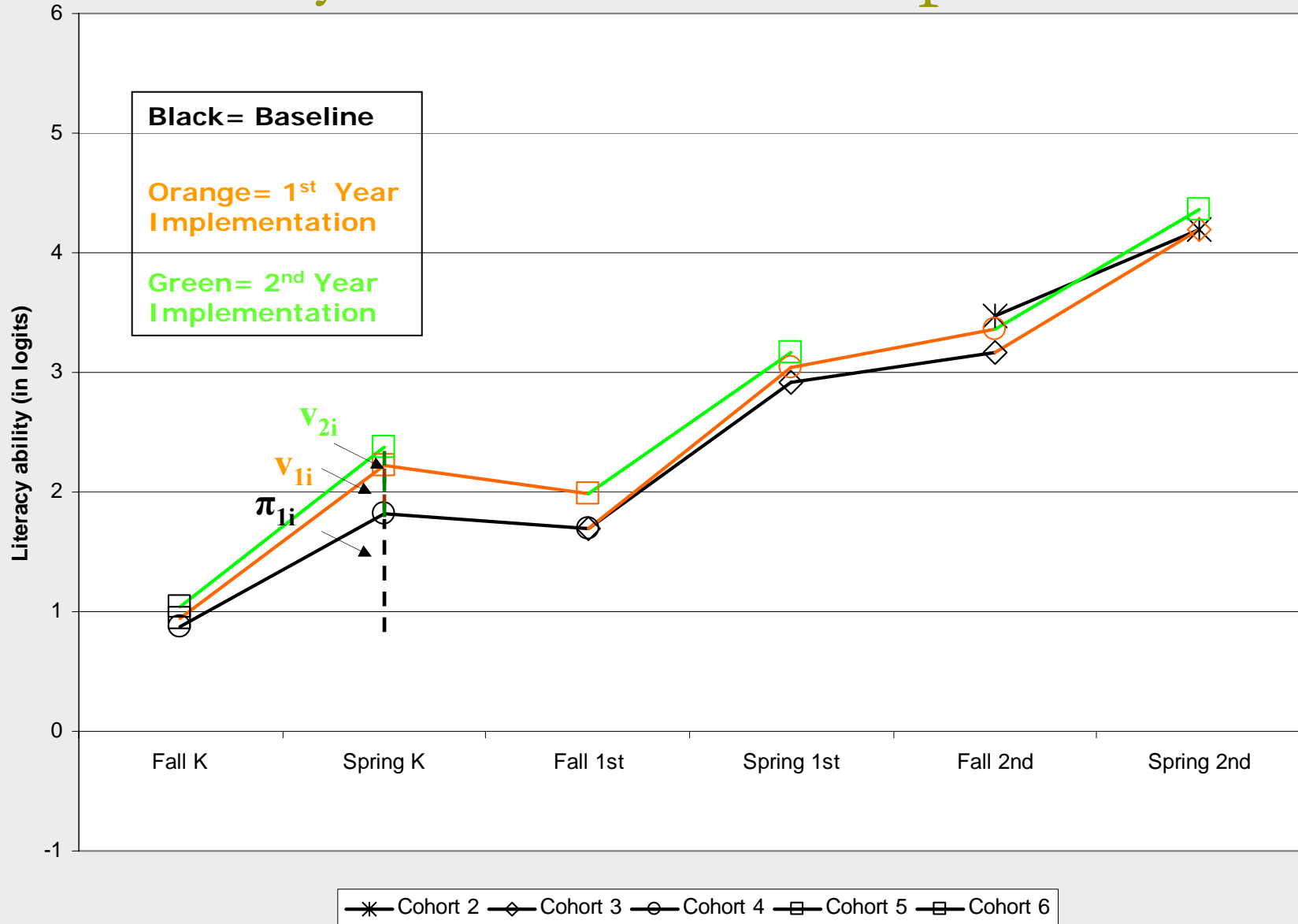
Unweighted Means by Cohort and Year of Literacy Collaborative Implementation



Unweighted Means by Cohort and Year of Literacy Collaborative Implementation



Unweighted Means by Cohort and Year of Literacy Collaborative Implementation



The Hierarchical Crossed Value-added Effects Model

- Model Levels
 - Repeated measures on students (level 1)
 - Students (level 2) crossing Teachers (level 3) over time
 - This (students x teachers) is in turn nested within Schools (level 4)

- Effects of Interest
 - Baseline Academic Year effect
 - Year One Implementation Value-added
 - Year Two Implementation Value-added

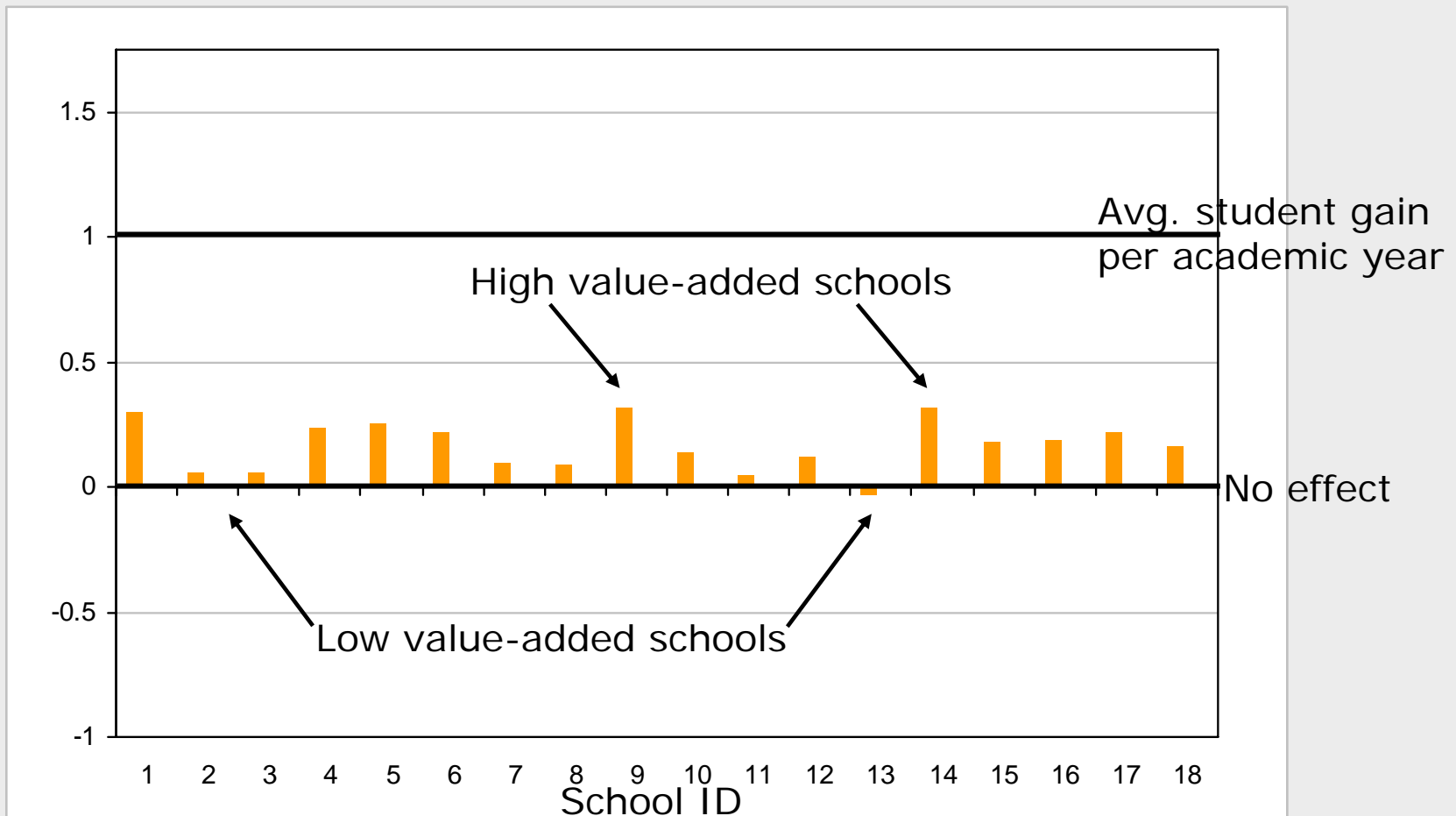
- Estimates generated at 3 levels
 - Fixed (mean) effects
 - Empirical Bayes residuals for schools
 - Empirical Bayes residuals for teachers

Variability in school value-added, year 1

Year 1

Mean value-added = .167

School 95% plausible value-added range = $\pm .4912$



Variability in school value-added, years 1 & 2

Year 1

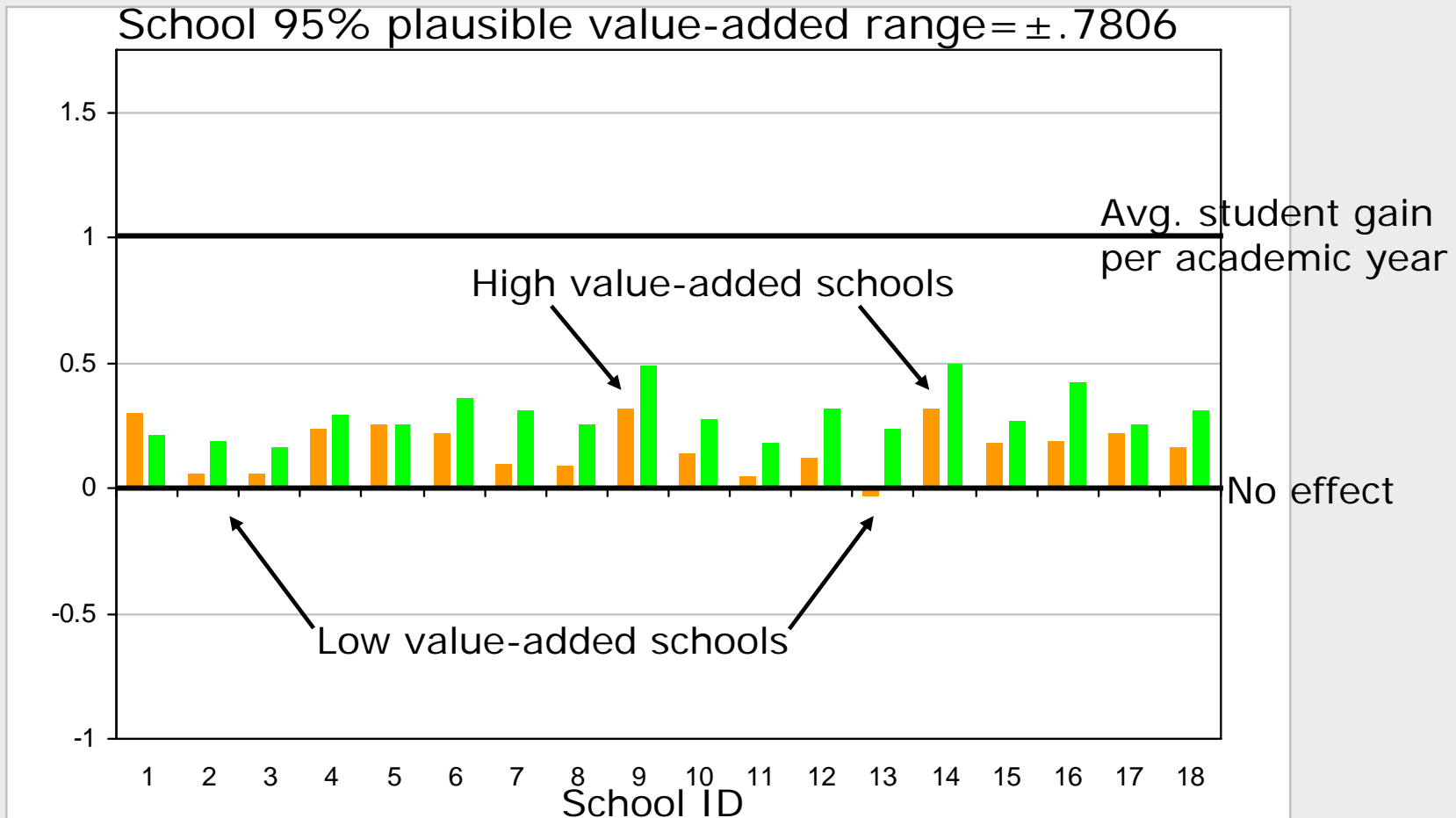
Mean value-added = .167

School 95% plausible value-added range = $\pm .4912$

Year 2

Mean value-added = .294

School 95% plausible value-added range = $\pm .7806$



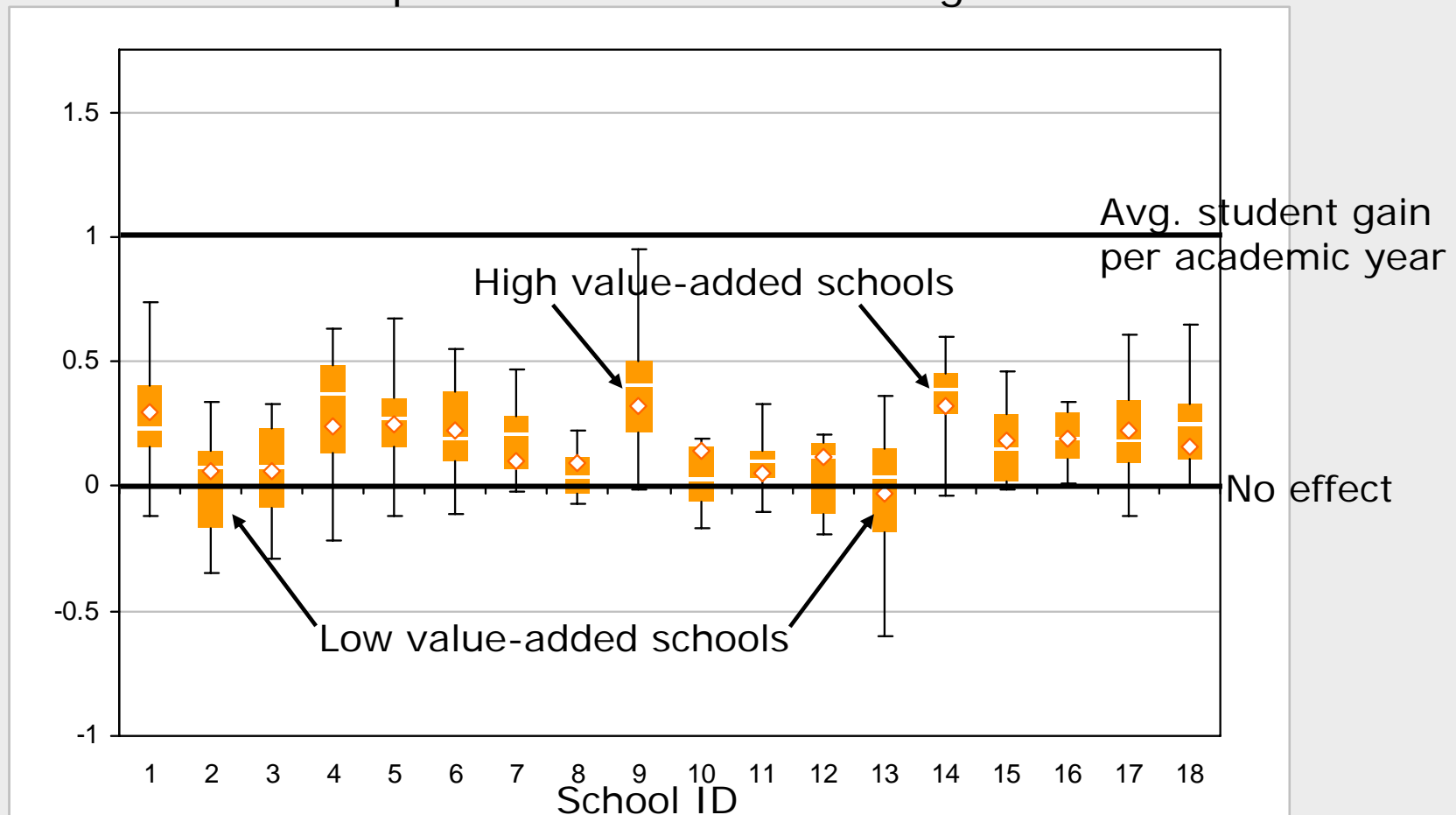
Variability in teacher value-added within schools, year 1

Year 1

Mean value-added = .167

School 95% plausible value-added range = $\pm .4912$

Teacher 95% plausible value-added range = $\pm .2192$



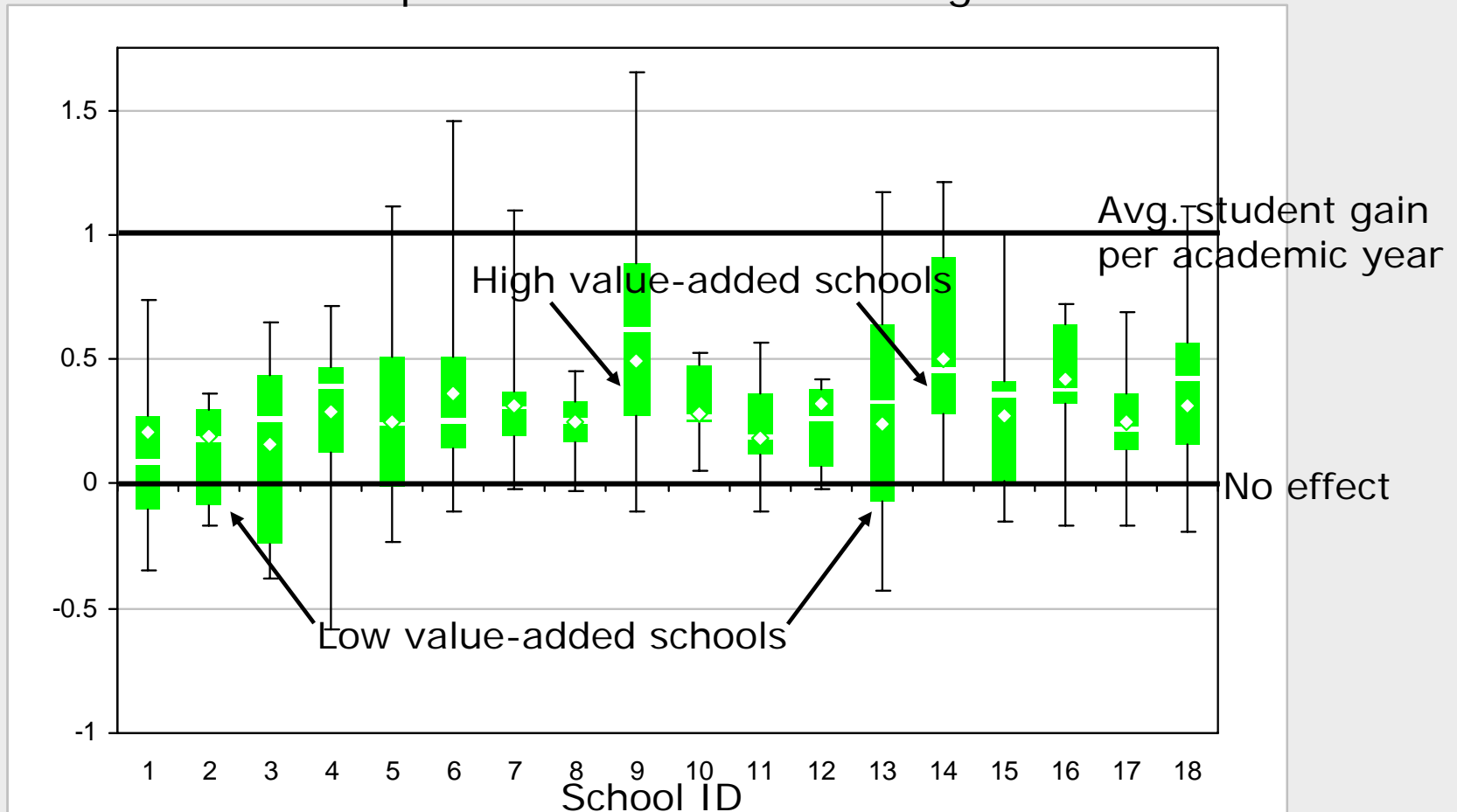
Variability in teacher value-added within schools, year 2

Year 2

Mean value-added = .294

School 95% plausible value-added range = $\pm .7806$

Teacher 95% plausible value-added range = $\pm .2206$



Implications

- Value-added analyses demonstrate an overall positive effect across schools on children's literacy learning
- Considerable variability exists
 - between schools ...
 - Some schools show 50% additional learning over usual growth
 - Some show substantial increments to average growth only after two years
 - ... and among teachers within schools
 - Vast majority of teachers show some value-added after two years in the program
 - Within high growth schools, teachers can range from no improvement in value-added to 150% additional learning over base academic year growth rate
- Next step: formally model causal relationship between changes in student learning and coaching and changes in teacher practice

Thank you!

<http://www.iisrd.org>

- Click on “program of inquiry”
- Then “papers and presentations”
- Questions? Email lwalker@uchicago.edu

- Papers/presentations will be available next week.