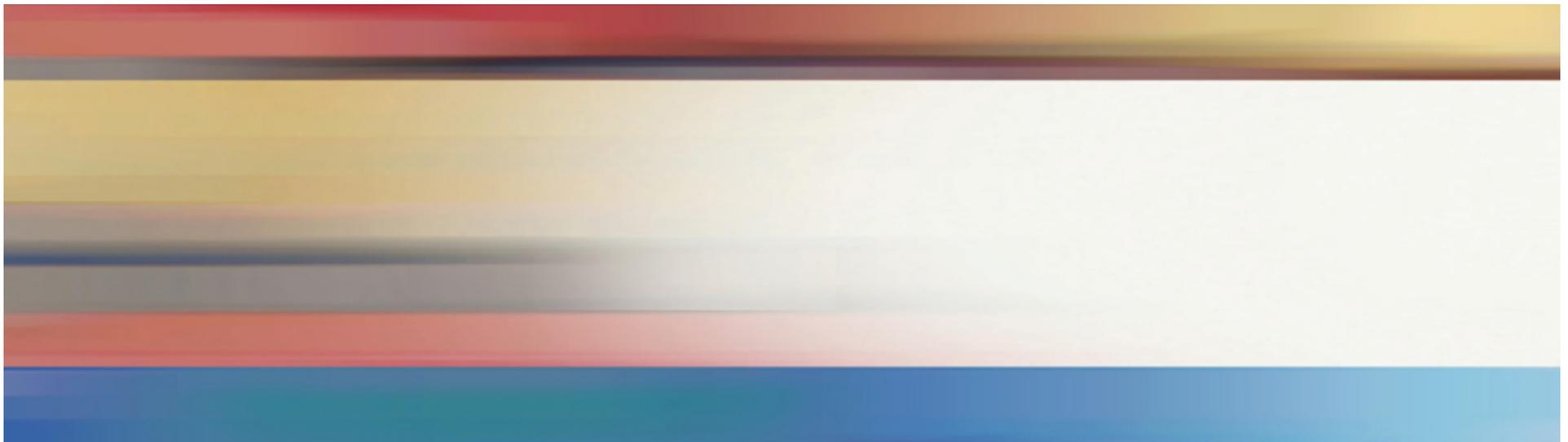# Understanding the
DC Value-Added Model

Value Added in DC Schools

- **Increasing interest in measuring teacher effectiveness**

- **Value added: objective, data-based measure comparing teachers across, within LEAs**

- **50% of evaluation score based on value added for eligible teachers:**
  - **Race to the Top LEAs**
  - **Grades 4 to 8**
  - **Math and English/language arts (ELA) teachers**

MATHEMATICA
Policy Research

Measuring Value Added for DC Teachers

- **Mathematica Policy Research**
  - OSSE's technical partner
  - Value-added methods used in last two years for DCPS IMPACT system

- **OSSE, Technical Support Committee help establish business rules**

- **Roster confirmation links teachers to students**

- **OSSE received value-added results in July**

MATHEMATICA
Policy Research

Understanding the DC Value-Added Model

- **Measuring teacher effectiveness**

- **Steps to calculate value added in DC**

- **Frequently asked questions**

MATHEMATICA
Policy Research

Measuring Teacher Effectiveness
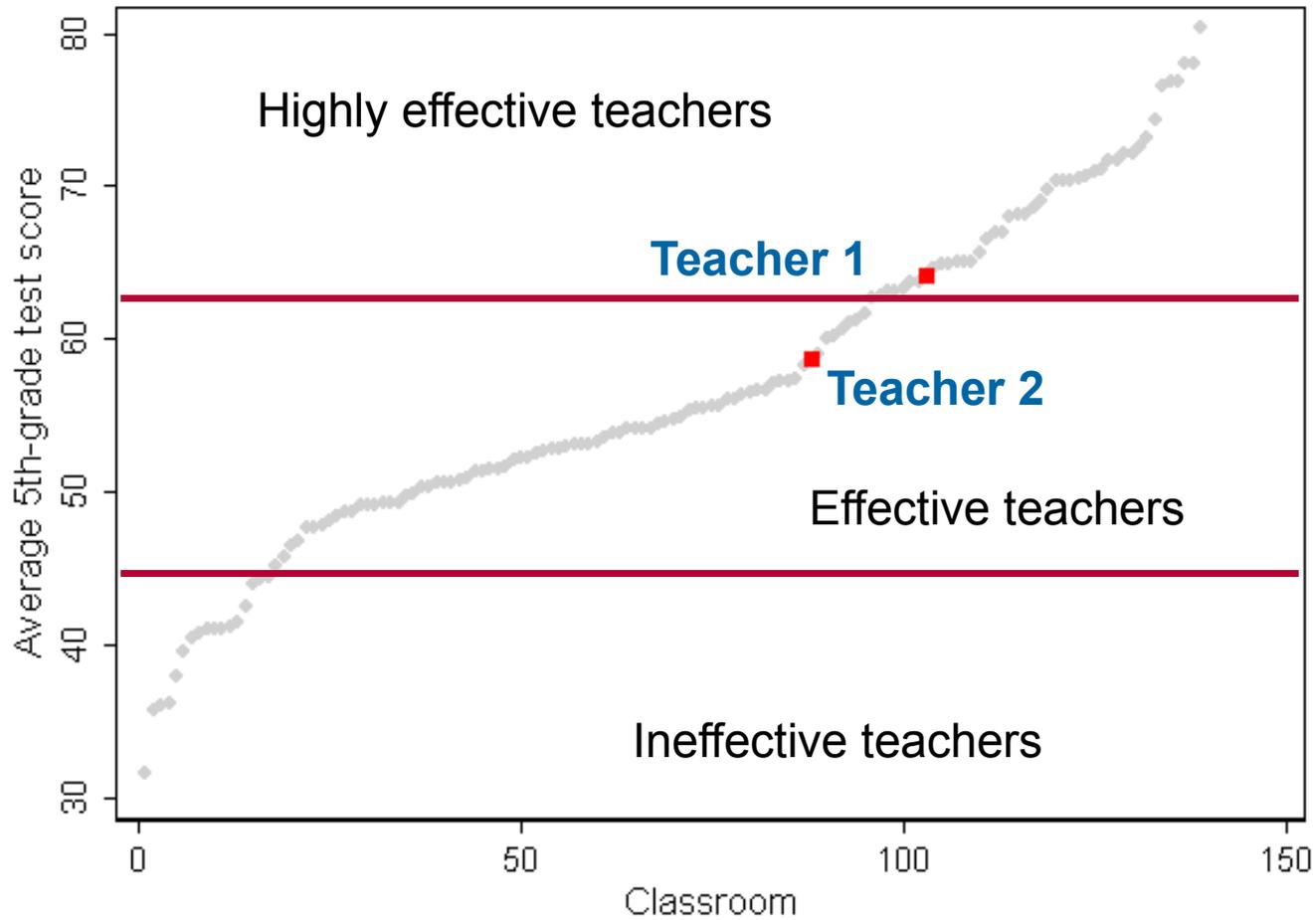
MATHEMATICA
Policy Research

Using Student Achievement to Measure Teacher Effectiveness

- **Simple way to measure teacher performance: calculate average student achievement by classroom**

- **How would this look in practice?**

MATHEMATICA
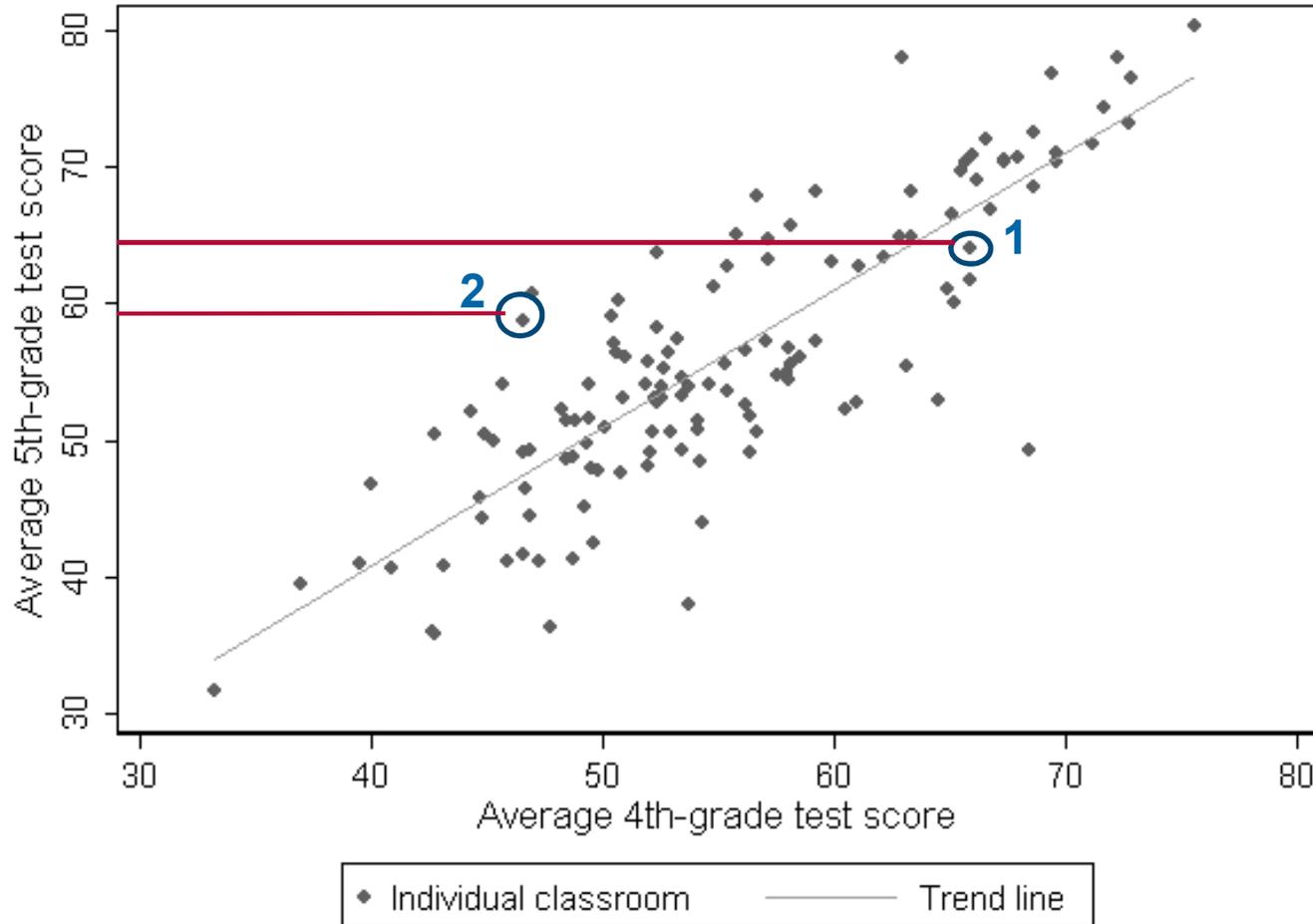Policy Research

Average Student Achievement by Classroom
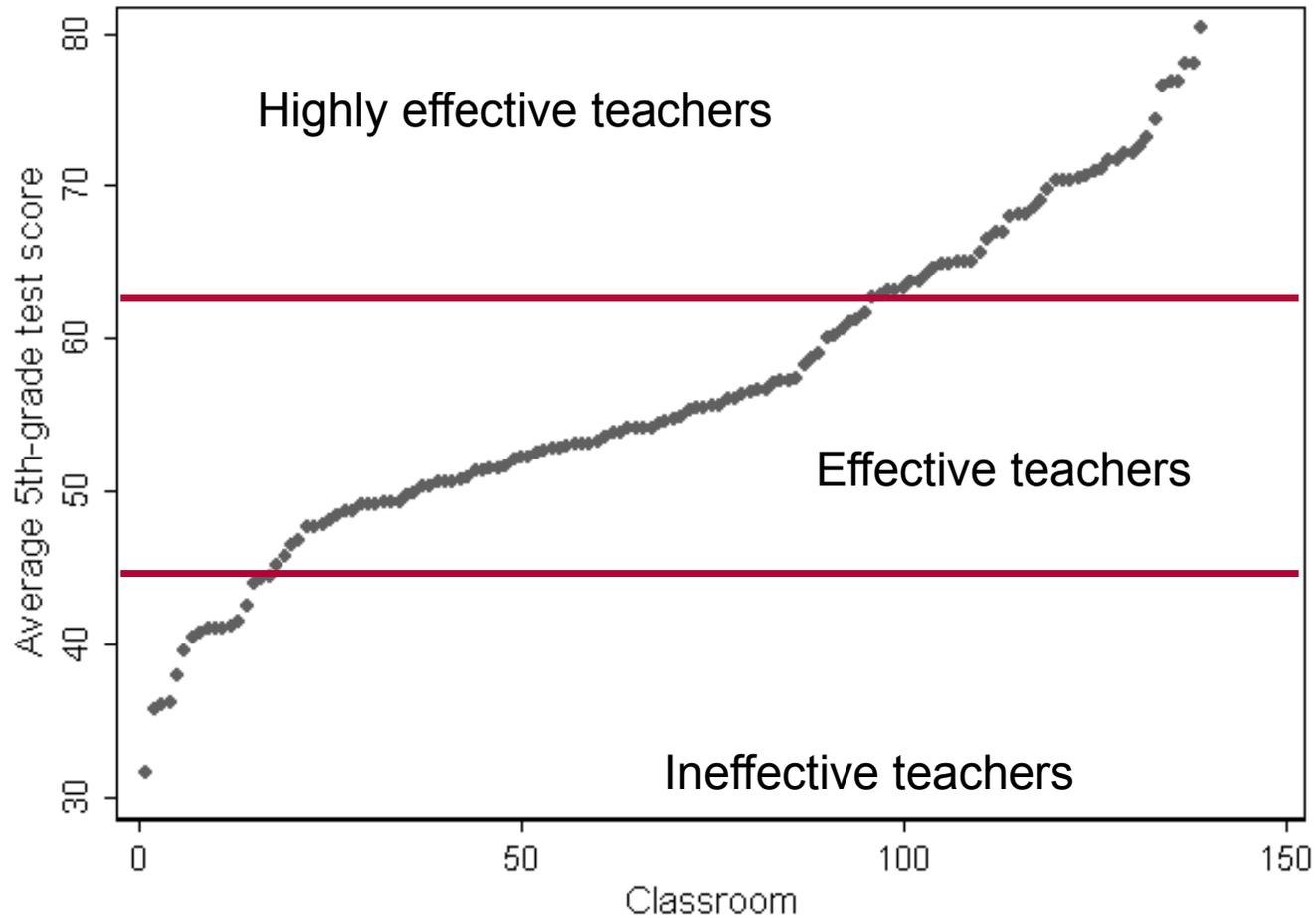
Example Teachers: Teacher 1 and Teacher 2

Current and Prior Achievement

- **Average achievement does not account for students' performance last year**

- **More fair to consider prior achievement**
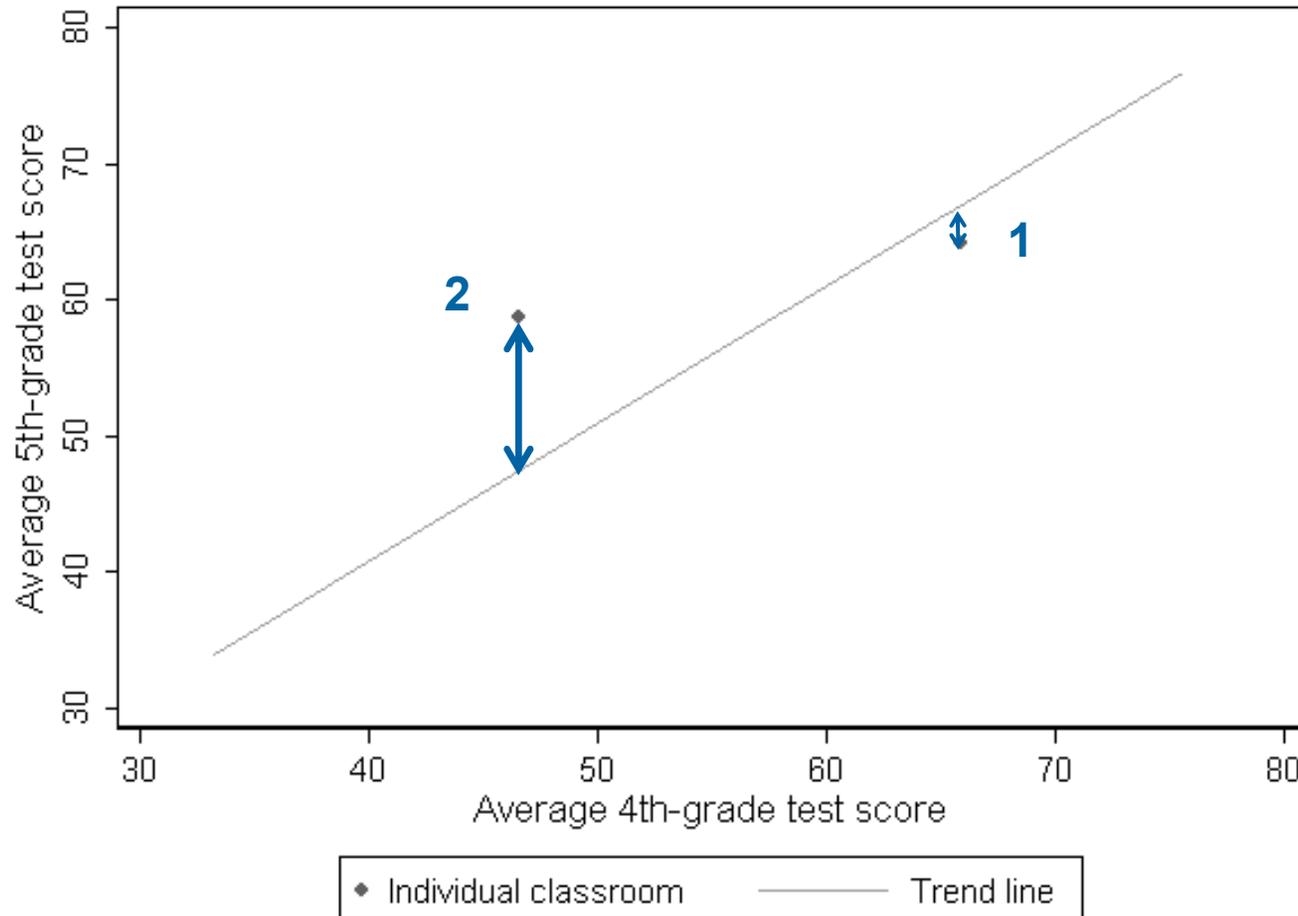
MATHEMATICA
Policy Research

Current and Prior Achievement by Classroom

- Trend line shows how current scores are typically related to prior-year scores.

- Classrooms above trend line are scoring higher than level of typical achievement for class with same 4th grade test scores.

Current and Prior Achievement by Classroom

- Arrows show performance relative to typical class with same 4th grade test scores.

- Classroom 1 scored one point below trend line.

- Classroom 2 scored 15 points above trend line.

Other Factors Affect Achievement

- **Examples of other factors: limited English proficiency, free lunch status**

- **Account for these factors to increase fairness and accuracy of teacher effectiveness measures**

MATHEMATICA
Policy Research

Achievement by Free-Lunch Status
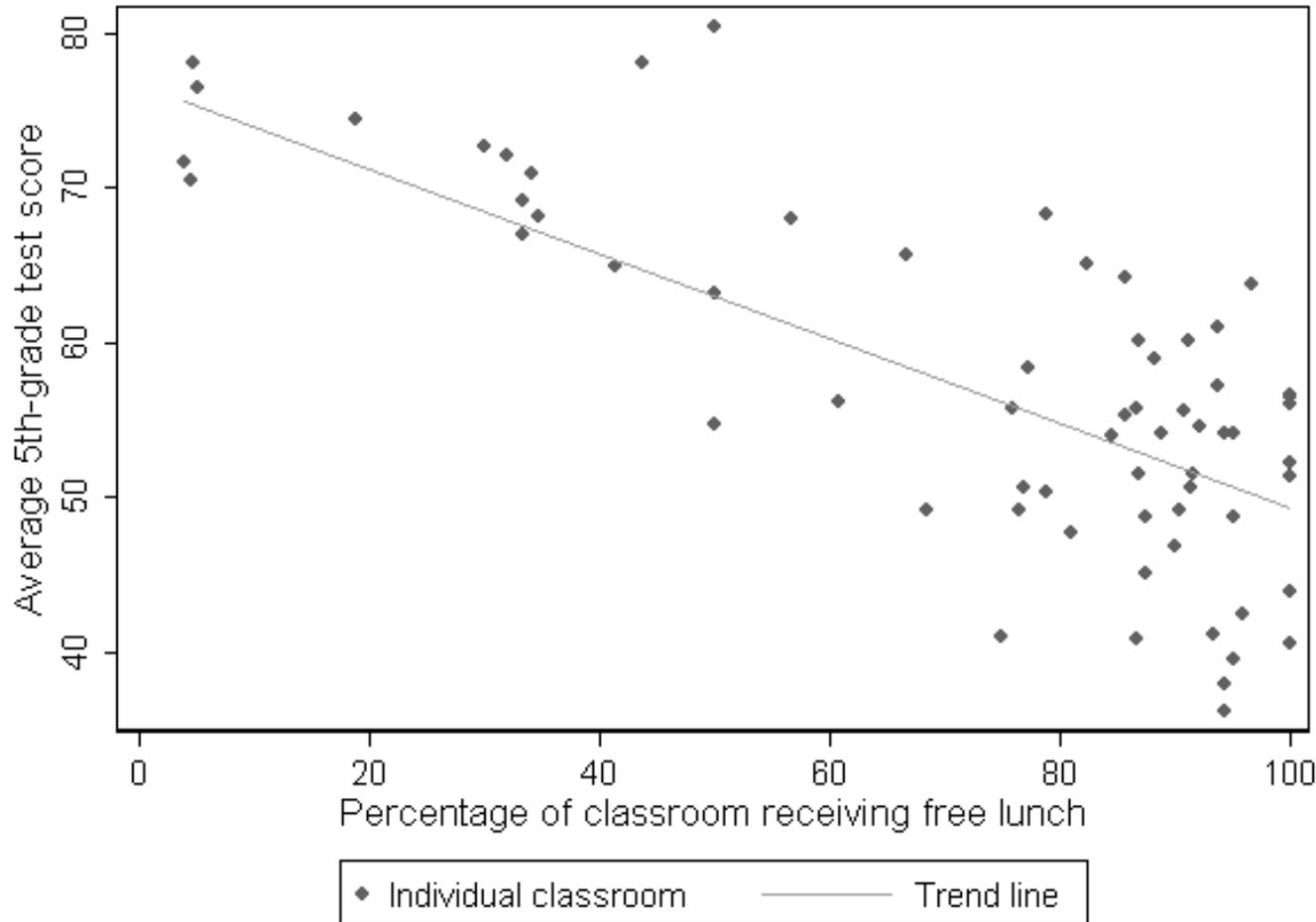
• Diamonds represent classrooms with similar prior-year performance.

• Trend line: classrooms with many free-lunch eligible students score lower on average.

Achievement by Free-Lunch Status
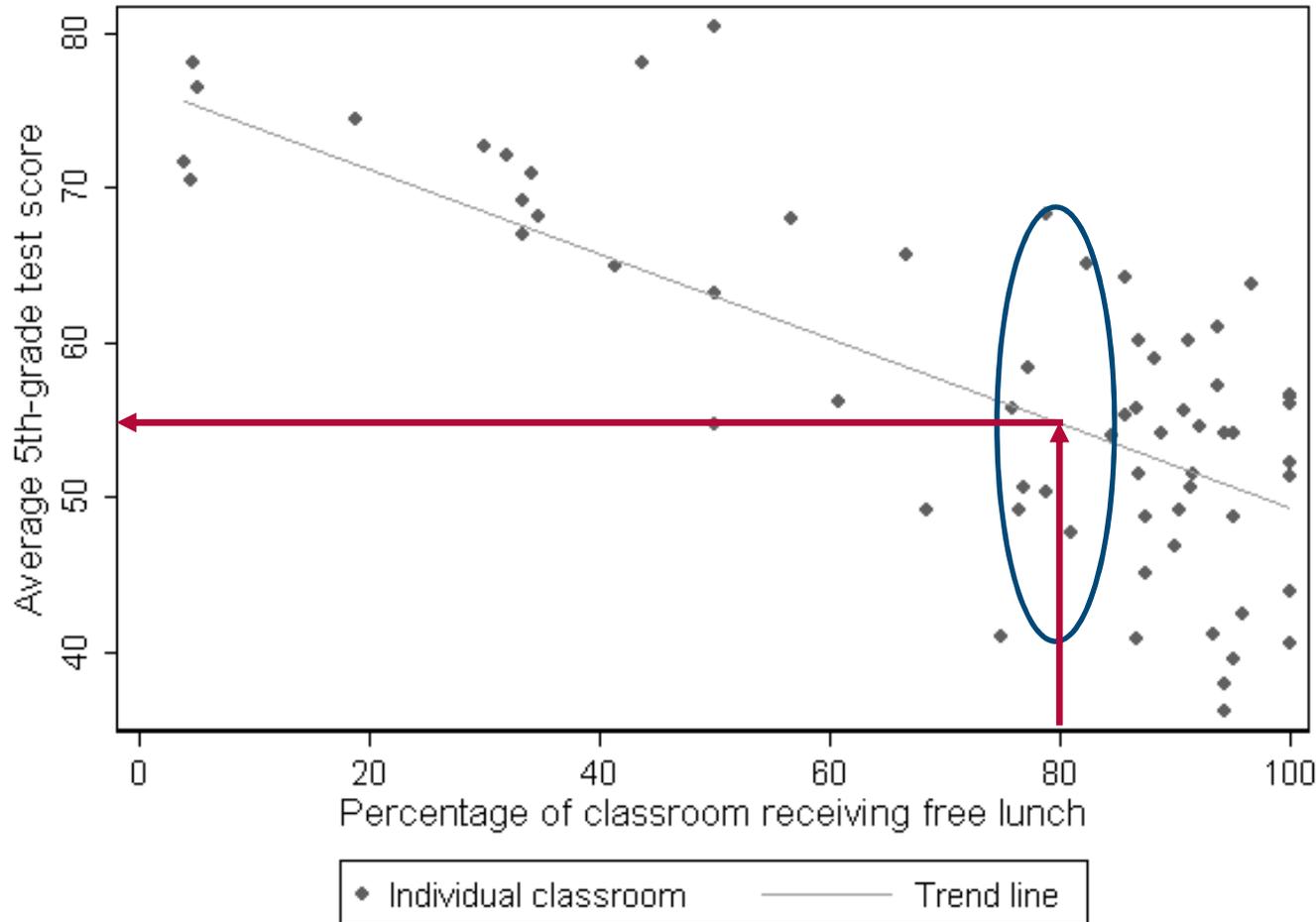
- Diamonds represent classrooms with similar prior-year performance.

- Classrooms with 80% free-lunch eligible students score 55 on average.

- Classrooms above trend line exceed typical performance.

How Does a Value-Added Model Work?

- **Identify factors likely to influence student achievement**
  - Student's prior test scores
  - Student's characteristics from administrative records

- **Estimate each student's typical test score based on information from all students**

- **Compare average actual score to average of typical scores of teacher's students**

MATHEMATICA
Policy Research

Example: Value Added for a Fifth-Grade Teacher

- **This teacher has 25 students:**
  - They had below-average achievement in 4th grade
  - Several have individualized education programs (IEPs)
  - Nearly all are eligible for free lunch program

- **This information used to estimate how these students would typically perform in 5th grade with an average teacher**

MATHEMATICA
Policy Research

Take Average of Typical Student Test Scores

Typical Score

35

Typical Score of Students with an Average Teacher

MATHEMATICA
Policy Research
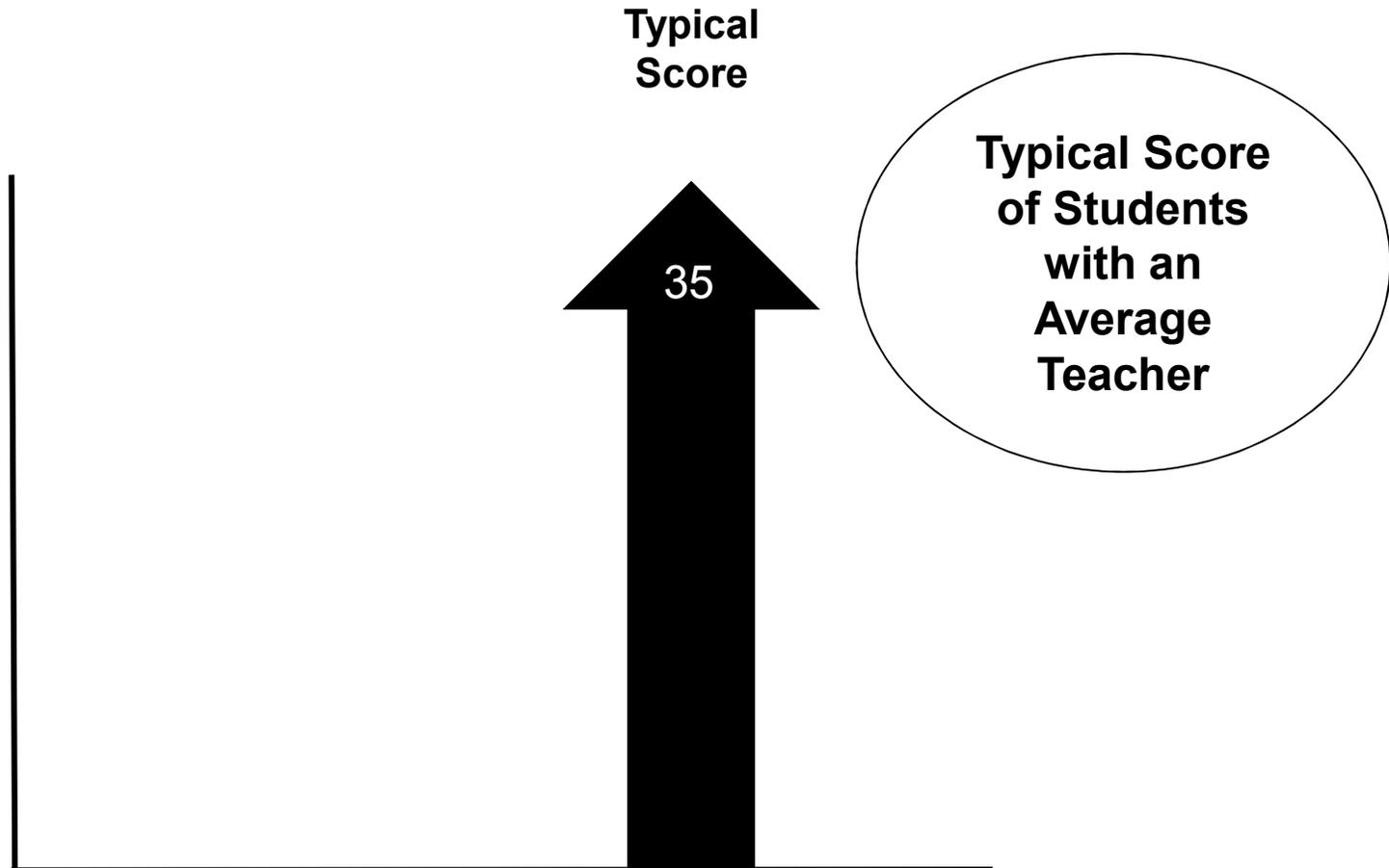
Compare the Actual to the Typical Scores

Actual Score

Typical Score

Difference = 5

40

35

Teacher's Value Added Is 5 Points ABOVE Typical Score
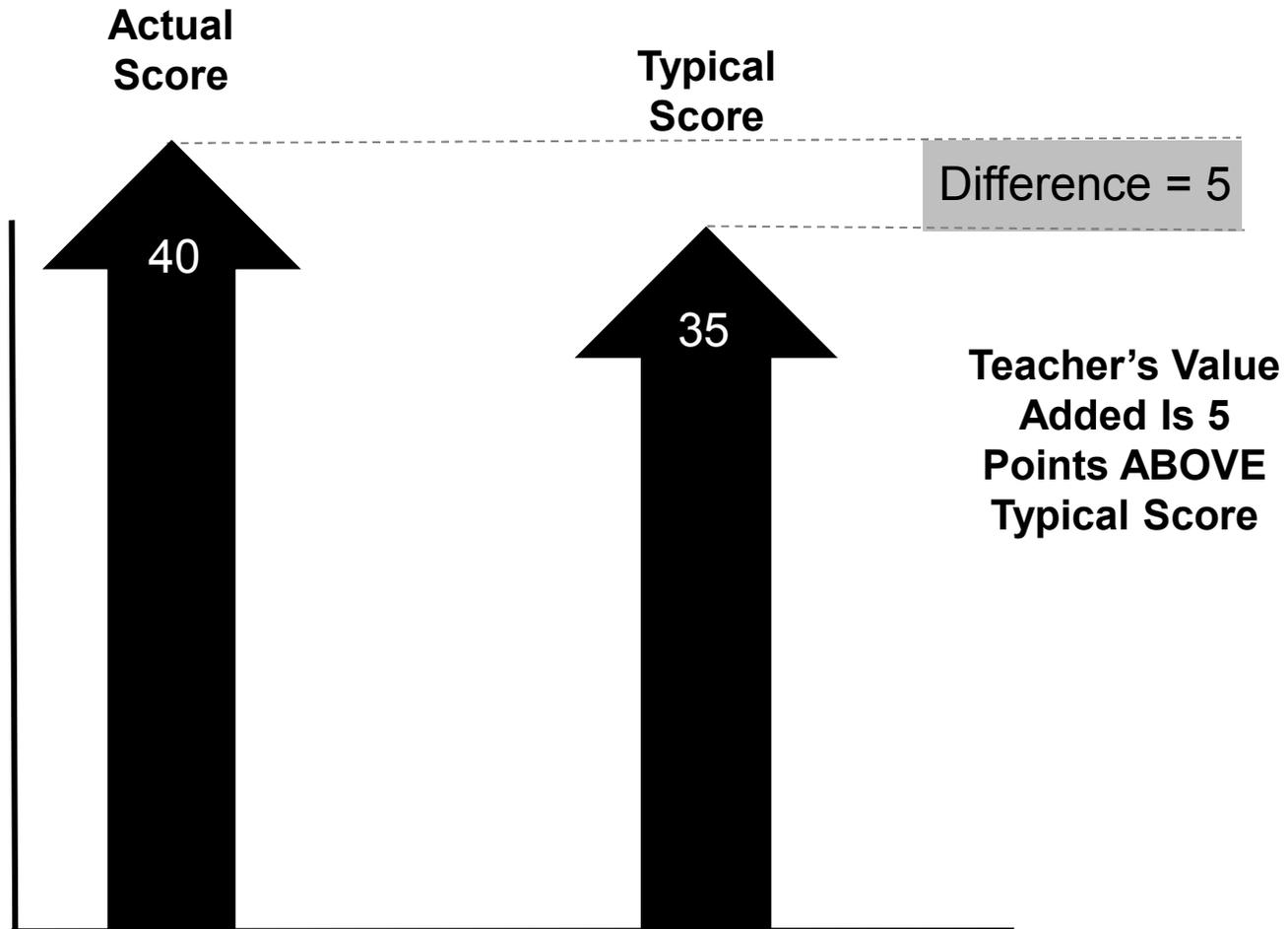
Recap: Calculating Value Added

> **Teacher value added =**
>
> **Students' actual end-of-year test scores –**
>
> **Students' typical end-of-year test scores**

- **Objective, data-based measures**

- **Can compare teachers of students with different circumstances**

Steps to Value Added in DC

MATHEMATICA
Policy Research

Steps to Value Added

- **Teachers confirm rosters**

- **OSSE provides student background data**

- **Students take DC CAS**

- **Mathematica calculates value added**

- **LEAs use value added to inform decision-making**

Teachers confirm rosters	OSSE provides background data	Students take DC CAS	Mathematica analyzes data	Value-added results
March	**April**		**June–July**	**July**

Roster Confirmation

- **Teachers confirm:**
  - Which students they taught
  - Whether they taught math, reading/ELA, or both subjects
  - The portion of each term they taught these students

- **Value added:**
  - Combines roster confirmation data with school-enrollment history for each student
  - Holds teachers responsible only for students on their confirmed roster
  - Weights students in proportion to time spent with teacher

Accounting for Students' Backgrounds

- **Prior test scores: math and reading**

- **Poverty status**
  - **Eligibility for free lunch; eligibility for reduced-price lunch; no eligibility**

- **Limited English proficiency**

- **Learning disability**
  - **Specific learning disability; other learning disabilities; no learning disability**

- **Attendance in previous year**

MATHEMATICA
Policy Research

Calculating Value Added

- **Statistical model estimates how each student would have performed with average teacher, accounting for background information**

- **Compare actual to typical scores**
  - **Average actual DC CAS score for each teacher's students**
  - **Average typical DC CAS score for each teacher's students**
  - **Difference between the actual and typical scores is teacher's value added**

Reporting Value-Added Results

- **Value added reported on scale from 1.0 to 4.0**

1	2	3	4

← **Below Average**　**Average**　**Above Average** →

- **Value added does not**
  - **Indicate what works**
  - **Capture every aspect of effective teaching**

- **Value added does**
  - **Provide objective, data-based measure**
  - **Focus on student achievement**
  - **Account for students' backgrounds**
  - **Compare teachers to peers across DC**

Using Value Added for Teacher Evaluations

- **Value-added measure combined with other components**
  - Value added: 50 percent of overall evaluation for teachers in grades 4-8, math and ELA
  - Other 50 percent from measures like classroom observation rubrics

- **Overall evaluation informs decision-making**

MATHEMATICA
Policy Research

Frequently Asked Questions

Which teachers are included in value added?

- **Each LEA submits to OSSE a list of teachers who are to receive a value-added estimate.**

- **This includes regular education teachers of math and/or ELA in grades 4 to 8, and may include resource teachers.**

- **OSSE may allow additional teachers to be included in the future.**

MATHEMATICA
Policy Research

What about students who are in a teacher's class for only part of the year?

- **The roster confirmation information that teachers provide is combined with school enrollment data to calculate the fraction of the year that the teacher is responsible for each student.**

- **For example, if a teacher teaches one student for the whole year and another student for half the year, the second student counts for half as much toward the calculation of the value-added measure as the first student.**

How does value added account for team-teaching with another teacher?

- **Any teacher who confirms having taught a student will get credit for the student based on the proportion of the year specified.**

- **Two teachers who team-teach all their students will receive the same value-added measure.**

- **If a teacher team-teaches some students, the calculation of the value-added measure will depend in part on team-taught students and in part on the other students.**

Does a value-added measure correspond to months of learning gained by students?

- **No. The value-added measure shows how a teacher performs relative to other teachers in DC.**

- **Value added does not translate to an absolute measure such as months of learning.**

MATHEMATICA
Policy Research

Can teachers calculate their own value-added measure?

- **No. Student's typical scores are calculated using information on all students and teachers in DC schools.**

- **The information teachers have about their own students is not enough to determine how these students would have performed with an average teacher.**

MATHEMATICA
Policy Research

Can a teacher with many students with IEPs and limited English proficiency earn a high value-added measure?

- **Yes. Value added accounts for these characteristics when estimating typical scores for each student.**

- **As a result, teachers of disadvantaged students can and do receive high value-added measures.**

MATHEMATICA
Policy Research

If a teacher's students all have high prior test scores, can he or she earn a high value-added measure?

- Yes. Students with high prior test scores typically score a little lower if they have an average teacher.

- By maintaining high test scores for students, teachers of students who were high achievers last year can and do receive high value-added measures.

MATHEMATICA
Policy Research

How will these value-added results be used?

- **Each Race to the Top LEA will incorporate value-added measures into their teacher evaluation systems.**

- **Value added is one of multiple measures used to make personnel decisions.**

- **OSSE has asked Mathematica to use value-added results to examine relationships between effective teaching and student disadvantage.**

MATHEMATICA
Policy Research

More Questions?