
Elementary School Data Issues: Implications for Research

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**Using Student Test Scores to Measure Teacher Performance:
The State of the Art in Research and Practice**

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Policy Research

Administrative Data Feeds Value-Added Models

- **Value-added models require**
 - Test score data
 - Student background characteristics
 - Teacher-student links
- **Administrative data supply all three**
 - NCLB requires testing in grades 3–8, high school
 - Program participation, demographic data collected
 - Student assignment or course scheduling data

Grades 4–5 Seen as Superior to Grades 6–8

- **Self-contained classrooms for each teacher**
- **More equally balanced classrooms**
 - No tracking in elementary schools
 - More homogeneous classrooms
- **Potential problems with heterogeneous classrooms**
 - Unobservable differences between students
 - Different degrees of alignment with post-test
 - Lack of overlap between teachers of different students

Teacher Misclassification to Subjects Common

- **Battelle for Kids has confirmed rosters in many states, districts**
- **Based on 2012-2013 school year:**
 - 1/3 of teacher rosters inaccurate
 - 1/4 of teachers linked to wrong subject
- **Data worse in large, urban districts**

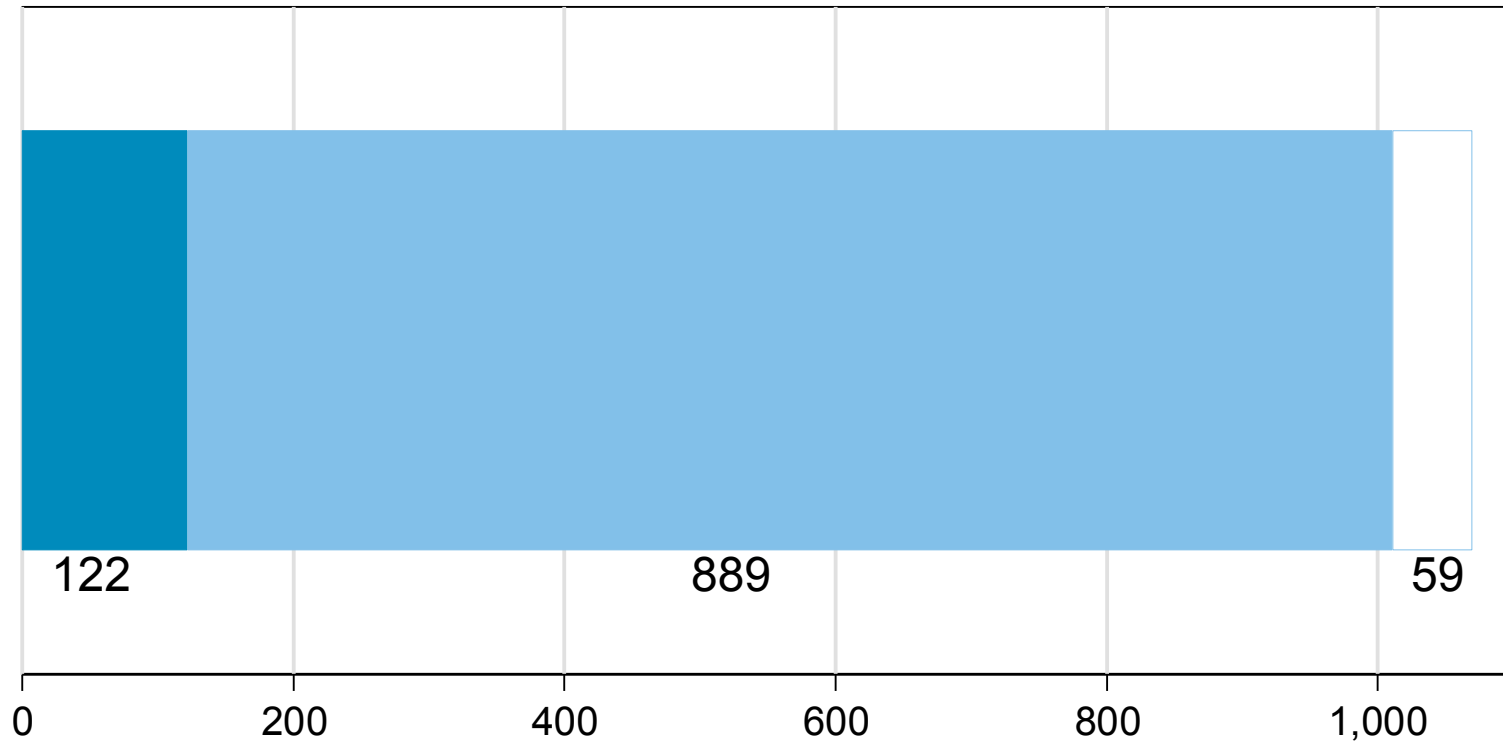
DC Roster Confirmation

- **Regular education teachers of math/reading in grades 4–8 receive list of students**
- **Teachers confirm**
 - Subject
 - Students taught (can add or subtract students)
 - Portion of instructional time with student
- **Central office staff resolves anomalies**
- **Principals verify rosters (starting in 2011–2012)**

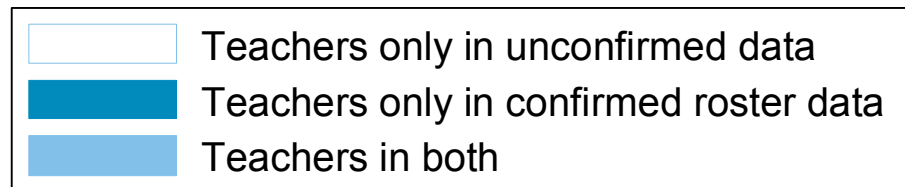
Compare Two Data Sets

- **Confirmed DC Public Schools (DCPS) teacher-student links**
 - Teachers linked to at least seven students in subject
- **Unconfirmed course data for DCPS**
 - List of students, eligible courses, and teachers
 - List of students and homeroom teachers
 - Students linked to departmentalized courses over homeroom
 - Teachers linked to at least seven students in subject

Differences in Teachers in Data Sets



Number of DCPS Teachers
(2010-2011 and 2011-2012 school years)



Misclassification in Administrative Data

Grade	Math		Reading/ELA	
	Teachers Incorrectly Identified as Math Teachers (%)	Students Incorrectly Linked to Teachers (%)	Teachers Incorrectly Identified as Reading/ELA Teachers (%)	Students Incorrectly Linked to Teachers (%)
Grade 4	12.8	21.2	16.7	18.1
Grade 5	16.4	18.2	18.1	19.3
Grade 6	5.4	5.5	6.1	6.7
Grade 7	0.0	4.2	0.0	7.7
Grade 8	0.0	4.1	0.0	7.4

When Departmentalization Matters

- **Departmentalization does not matter if**
 - Classrooms of students stay intact
 - Teachers are not linked to other data
 - Example: Distribution of effective teaching

- **Departmentalization does matter if**
 - Classrooms do not stay intact
 - Teacher value added linked to other data
 - Examples
 - How teacher mobility depends on effectiveness
 - Effect of teacher characteristics on student achievement

Heterogeneity of Classrooms Both Between and Within Schools

- Variance of pre-test scores decomposed

Math	Between Schools	Between Classrooms	Between Students
Grades 4–5	0.28	0.03	0.69
Grades 6–8	0.12	0.22	0.66

Reading	Between Schools	Between Classrooms	Between Students
Grades 4–5	0.23	0.04	0.73
Grades 6–8	0.12	0.15	0.73

- Within-school sorting offset by between-school sorting
- Tracking, size of attendance areas play role

Parallel Concerns at Both Grade Spans

- **Unobservable differences in students**
 - Parents of upper-track students
 - Parents living in more affluent attendance areas
- **Lack of overlap between teachers of high- and low-achieving students**
 - Tracking within schools
 - Segregation across schools
- **Different alignment to post-test**
 - Tracked courses cover different material
 - Different content at same grade level

Conclusions

- **Do not trust unconfirmed elementary school teacher assignments**
- **Do not assume that classes are more balanced across district in elementary schools**
- **Do not worry if you do not link teacher value added to other data**

For More Information

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