Chetty, Friedman, and Rockoff (2014) study potential biases in teacher value-added (VA). They take the data from school district (3-8 graders in 1988-1989 and 2008-2009) and corresponding tax records for more than one million children, on the measures of test score for each class (math and English) and earnings at age 28, which covers each child’s match to a teacher across grades.

Actual and predicted?

The second method to uncover the bias is that using teacher switch within students. Across grades when students changed the teacher with VA from low to high, they got significantly high test scores.