

Discussion of Ballou and McCaffrey & Lockwood

Helen Ladd
Duke University

Introductory comments

- Definition of VAM
 - M&L: VAM-P and VAM-A, but focus on teacher effects
 - Ballou: implicit focus on teacher effects
- Perspectives
 - Statistics and economics
- My background
 - Economics – Use of VA for teacher credentials
=> focus primarily on measuring teacher effects

Modeling issues

Start with simple model

$$A_{it} = F(T_{it})$$

If teachers are randomly assigned to students, then can compare one teacher to another simply by comparing the average achievement of the students in each teacher's class.

Big problem – non random sorting of students to teachers (highlighted by Ballou)

How deal with this problem?

Add student controls

Lagged achievement – to represent the knowledge students bring to the classroom.

Justification: Education is a cumulative process.

But requires a number of assumptions.

Coefficient expected to be less than 1

(Note that $\hat{\alpha}$ gain model is not quite right)

Other student characteristics

Time invariant – e.g. race, SES, education of parents

Time variant – e.g. new-to-school

Student fixed effects – replace time invariant variables

Jesse Rothstein challenge

Additional related problems

- How separate teacher from classroom effects?
Can only do with multiple cohorts of students
- What about school characteristics?
Add school fixed effects – but that affects the comparison group.
- What about offsetting contributions of parents?
- What about measurement error?
Particularly serious with small classes

Mixed Methods or Layered Models

Def. -- Estimation of teacher effects based on the joint distribution of the entire multivariate vector of test scores.

- Use of random, not fixed effects

- No student or classroom variables

- Tremendous computational demands

E.g. Sanders TVAAS model

Potential problems

- No student variables

Not a big problem, unless the student population is stratified (L&M, 2007)

- No classroom or school context variables

A problem (Ballou, Sanders & Wright, 2004)

Practical problems with VAM

- Imperfect matching of students to their teachers
- Who is the comparison teacher?
 - Other teachers in the district?
 - Other teachers in the school?
- Less information on teachers having few students
 - Measurement error requires heavier weighting of the mean.

Do the measures need to be transparent?

- Depends on the purpose

See Robert Gordon baseball example

- But need to be viewed as accurate

Confidence needed in the integrity of the technical analysis even if it is not transparent.

And clear process needed for incorporating values

- Transparency needed when used as an incentive

Additional research

If teacher effects are to be used even for low-stakes purposes, need to figure out second or third best approaches that work “well enough”

Example. South Carolina school accountability in the 1980s.

- Use of a transparent gains model

- Addition of divisions of schools, defined primarily by SES of students.