MEASURING THE IMPACT OF CLASSROOM QUALITY ON CHILD DEVELOPMENT

Pedro Carneiro

University College London, Institute for Fiscal Studies, Centre for Microdata Methods and Practice

REALLY HARD WORK

- Good Measurements
 - Classroom Quality
 - Child Development
- Credible Causal Statements
 - Attribute differences in child outcomes to differences in classroom quality
- New study from Ecuador, in collaboration with M. Caridad Araujo, Yyannu Cruz-Aguayo and Norbert Schady from the IDB
 - Example of what can be learned with a lot of money and government buy-in

RESEARCH DESIGN

- Measure of classroom interactions from videos of one day of teaching, coded using the CLASS
 - Also measure teacher education, IQ (WAIS), inhibitory control (Stroop), personality (Big 5)
- End of year assessments in math, language (based on Woodcock-Johnson-Munoz) and executive function (attention, memory, inhibitory control, cognitive flexibility)
- Random assignment of two cohorts of Kindergarten students to different classrooms, in 200 schools in Ecuador
 - Follow up one cohort up to 5th grade (and hopefully further)
 - Today only show Kindergarten outcomes, from Araujo et al (2016) (but effects are persistent)

LAGGED TEACHER CHARACTERISTICS AND BEHAVIORS

	Language	Math	Executive Function	All
3 years of experience or less	-0.15*	-0.16	-0.12	-0.17*
	(0.07)	(0.09)	(0.06)	(0.07)
Tenured Teacher	0.05	0.08	0.01	0.06
	(0.03)	(0.04)	(0.04)	(0.04)
Parents' Education (Average years)	0.01	0.00	0.00	0.01
	(0.01)	(0.01)	(0.01)	(0.01)
CLASS (lagged)	0.06*	0.08**	0.06**	0.07**
	(0.03)	(0.03)	(0.02)	(0.03)

CURRENT TEACHER CHARACTERISTICS AND BEHAVIORS

	Language	Math	Executive Function	All
IQ	0.04*	0.04*	0.03	0.04*
	(0.02)	(0.02)	(0.02)	(0.02)
Neuroticism	0.00	0.00	0.02	0.01
	(0.01)	(0.02)	(0.02)	(0.02)
Extraversion	0.03	0.03	0.03*	0.04*
	(0.02)	(0.02)	(0.01)	(0.02)
Openness	0.01	0.02	0.01	0.02
	(0.02)	(0.02)	(0.02)	(0.02)
Agreeableness	-0.00	-0.00	-0.02	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)
Conscientiousness	-0.02	-0.03	-0.02	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)
Stroop	0.02	0.03	0.03*	0.03
	(0.02)	(0.02)	(0.02)	(0.02)

MEASUREMENT ERROR IN CLASS

- Correlation between two CLASS for the same teacher measures taken one year apart is 0.4
 - Large measurement error
- If measurement error is classical (attenuation bias), multiply estimates by 2.5:
 - Language 0.15
 - Math 0.20
 - Executive Function 0.15
 - All 0.18

FINAL COMMENT

- This is very expensive and difficult to pull-off, but it is possible
- We learn a lot from it in a transparent and uncontroversial way
- Given the importance of this issue it is worthwhile focusing resources this way
- Based on our findings we have started another RCT where we train teachers in the CLASS
 - Evidence from other studies shows that CLASS scores change but it is more difficult to affect child outcomes