Peter Courtney: Research Statement
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I am a development economist working on education and economic history in South Africa. My primary question is how schools in Africa can raise learning quickly when there is little money to spend. The answer matters for growth: between 1960 and 2000, what students knew in mathematics and science explained three-quarters of the differences in growth across countries (Hanushek and Woessmann 2021), and South Africa's students learn too little for education to do that work. And in a country where 42% of people who want work cannot find it, what schools teach must match what employers need.

Much of the evidence in my field rests on proxies for learning: enrolment, grade progression, teachers per student. I start from a simpler rule: measure the thing you want to improve. Each of my three doctoral papers measures something the state does not, from the administrative records it already keeps: (1) learning outcomes comparable across schools without a common test; (2) whether a bantustan border abolished three decades ago still shapes schooling; and (3) why only about half of each extra teacher post reaches the classroom.

Measuring learning

My job market paper is "Making School-Set Assessments Comparable: How School Assessments Hide Learning Inequality". Assessments improve learning system-wide only where results are comparable (Bergbauer, Hanushek and Woessmann 2024), yet at most a quarter of countries test every primary student on a common instrument (Gustafsson 2019). Everywhere else, a mark of 60% may mean very different amounts of learning at different schools.

I put these schools' marks on one scale without a new test. A secondary school sets the same tests for all the students who arrive from its feeder primary schools. If two students arrive with the same primary-school mark and one then does better in secondary school, that student's primary school set harder tests. Each primary school feeds several secondary schools, so a two-way fixed-effects estimator can chain these comparisons across 1.2 million South African students into a single scale. To my knowledge, no one has used this design on school-set marks before.

Moving from raw marks to the common scale changes three things. Inequality is larger: the richest schools set the hardest tests, so raw marks show only about a third of the learning gap between rich and poor schools. Rankings change: about three-quarters of primary schools move to a different quintile. The trend is different: on raw marks the poverty gap halved between 2018 and 2022; on the common scale it did not narrow at all. The common scale is also more informative: five years on, it predicts results in the national school-leaving examination better than raw marks do. The method works wherever students from many schools move into shared ones. It also gives each secondary school a comparable measure of its intake, so I can estimate value added for 1,135 schools.

Why inequality persists

"Invisible Borders, Living Institutions" asks whether the former KwaZulu bantustan border, abolished in 1994 and without legal existence for thirty years, still causes disadvantage, and why. A gap at an old border is usually read as the scar of a dead institution, but it also reflects sorting: who moves in and who moves out. I follow each student who changes school across the border and compare their outcomes before and after the move with those of students on the same path who change school without crossing. This is, to my knowledge, the first movers design to separate sorting from place

at a historical border, and it never uses where the border was drawn. Sorting explains one-half to two-thirds of the raw gap. The rest is causal and symmetric: crossing into the former bantustan raises a child's chance of repeating a grade by about 10%, and crossing out lowers it by about 13%.

The teacher payroll points to a reason. All teachers are on one national pay scale, yet schools inside the border pay 9.2% less per teacher, because the more senior teachers leave. Across 21 birth cohorts, the gap has not closed. The common scale now lets me ask the same question of learning itself.

Public finance in the classroom: what a teacher post buys

The homelands work also showed me how unevenly the state deploys its teachers, the largest item in any education budget. The state allocates teachers by formula and monitors staffing by the pupil–teacher ratio, 32.8 on average, rather than by class size. "Provision Not Deployment: What a Teacher Post Buys in South African Schools" uses a novel reconstruction of school timetables from national records and finds that the average student sits in a class of 43.3. The gap between the pupil–teacher ratio and class size is widest in the poorest schools, probably exists in most school systems, and has barely been measured.

To find out why, I instrument staffing with the formula that sets each school's posts from last year's enrolment. Holding this year's enrolment fixed, the formula should affect this year's classes only through the posts it grants. Only about half of a formula-funded post reaches the classroom as smaller classes. The rest is absorbed, largely as free periods. With the teachers they already have, schools could cut the average student's class by up to a fifth.

Free periods might still be good for teaching, but to test that I needed a comparable measure of learning. None existed, so I started an appendix to build one; it became my job market paper. Where the absorbed time is largest, I find no measurable return in learning.

Research and policy

The research governments need and the research that gets done are not the same thing, so I work closely with government partners to get a real sense of where the demand for knowledge lies. I advise the Western Cape Education Department on reading-assessment data as testing scales to about 200,000 students, and I have built data pipelines and dashboards for Gates Foundation partners in Kenya and West Africa.

Next projects

This year I will submit the three thesis papers to journals; two new projects follow.

The first follows learning into the labour market. National Treasury's secure data facility, run with the South African Revenue Service and UNU-WIDER, has linked school-leaving examination results to tax records. I have worked with UNU-WIDER through SA-TIED. I will ask where on the learning distribution an extra rand of education spending does most for employment, growth and the state's own revenue.

The second asks how to find and keep the able students the system loses. Some of the strongest students in poor areas go on to secondary schools that add little. The common scale identifies these students at the end of primary school, and my value-added estimates show which schools appear to add more. I will count how many strong students enter low value-added schools and how far they fall behind, and then test one remedy: transport to a high value-added school. The Gates Foundation and Western Cape policymakers have shown interest in a randomised trial of such bussing.