Proposal for Symposium at SREE Spring 2019 Conference

Symposium Title:
Creating incentives for effective teaching: Insights from four experimental studies in developing countries

Symposium Chair and Discussant:
David Evans, The World Bank (email: devans2@worldbank.org)

Symposium Papers (*denotes presenters)**:**

1. **Effects, Timing and Heterogeneity of the Provision of Information in Education: An Experimental Evaluation in Colombia**
   Felipe Barrera-Osorio* (Harvard University, felipe_barrera-osorio@gse.harvard.edu),
   Kathryn Gonzalez (Harvard University, kgonzalez01@g.harvard.edu),
   Francisco Lagos (Harvard University, franciscolagos@g.harvard.edu), and
   David Deming (Harvard University, david_deming@harvard.edu)

2. **Educator Incentives and Educational Triage in Rural Primary Schools**
   Daniel O. Gillian (International Food Policy Research Institute, d.gilligan@cgiar.org),
   Naureen Karachiwalla* (International Food Policy Research Institute, nkarachiwalla@cgiar.org),
   Ibrahim Kasirye (Economic Policy Research Centre, ikasirye@eprcug.org),
   Adrienne M. Lucas (University of Deleware, alucas@udel.edu), and
   Derek Neal (University of Chicago, n9na@uchicago.edu)

3. **The Challenge of Designing Effective Teacher Performance Pay Programmes: Experimental Evidence from Tanzania,**
   Isaac Mbiti* (University of Virginia, mbiti@virginia.edu),
   Mauricio Romero (Instito Tecnológico Autónomo de México, mtromero@itam.mx), and
   Youdi Schipper (Amsterdam Institute for International Development, yschipper@twaweza.org)

4. **Do Performance Contracts Attract Better Teachers? Experimental Evidence from Rwandan Primary Schools**
   Clare Leaver* (University of Oxford: clare.leaver@bsg.ox.ac.uk),
   Owen Ozier (World Bank: oozier@worldbank.org),
   Pieter Serneels (University of East Anglia: p.serneels@uea.ac.uk), and
   Andrew Zeitlin (Georgetown University: andrew.zeitlin@georgetown.edu)

Symposium Abstract:

An important goal for any education system is to attract, retain and motivate excellent teaching practices from well performing teachers. But what policies best achieve this aim? In particular, can information on the performance of a teacher's students be used to create appropriate incentives for effective teaching? This session presents recent evidence on this question from four experimental studies in developing countries where the need to improve the quality of schooling is particularly pressing.

The first paper, focused on Colombia, studies the impact of providing families with standardized information about their child's performance. Parents are given a menu of options that they might consider in light of this information, including interacting with their child's teacher. The authors find that information provision improves student achievement, although this impact fades away in the longer term. They hypothesise that the main channel of impact is via increased attendance at parent-teacher meetings which may leverage learning.

The second paper focuses on Uganda and evaluates the impact of using information on student achievement in a performance-contingent teacher compensation package---specifically, the pay-for-percentile (PFP) scheme developed by Barlevy and Neal (AER 2012). The key feature of the PFP scheme is that it rewards teachers for the performance of each of their students, and therefore creates incentives to keep even weaker students enrolled and attending school. The authors find that the PFP teacher incentive scheme increases student attendance and achievement, although impacts are concentrated among students who can access and use grade six math texts.

The PFP scheme has theoretical advantages but is complex and can be challenging to implement. The third paper evaluates the effectiveness of PFP relative to a simple proficiency scheme in Tanzania. Under the proficiency scheme, teachers are paid bonuses when their students master grade-specific skills in the national curriculum. Multiple thresholds are used to create incentives across the range of student abilities (instead of the seeded tournaments in PFP). The authors find that the proficiency scheme is at least as effective PFP in raising student learning. They note that this has important implications for scale-up in contexts, such as Tanzania, where administrative capacity is low.

The above papers study the impact of creating incentives for a given stock of teachers. The fourth paper explores whether use of performance information affects selection---i.e., the types of individuals who choose to become a teacher. The authors study an intervention in Rwanda where distinct labour markets for new primary teaching posts were randomly assigned to either a fixed wage contract paying an increment above the government wage, or to a pay-for-performance contract paying a bonus to the top 20 percent of performers (on a composite index of teacher presence, preparation and pedagogy and student performance) within the district. The authors use 'lab-in-the-field' games to measure teacher skills and motivations prior to application and after placement. They also use a novel re-randomization to decompose on-the-job performance into selection versus incentive effects, directly addressing whether performance contracts attract better teachers. A pre-analysis plan is available. Results are imminent.

Symposium paper abstracts:

Effects, Timing and Heterogeneity of the Provision of Information in Education: An Experimental Evaluation in Colombia

Felipe Barrera-Osorio*, Kathryn Gonzalez, Francisco Lagos, and David Deming

We evaluate the effects of providing information to families on their children's reading and math achievement in a mid-size city, Colombia. Most families are poorly informed about their children's performance; our information intervention closes the gap between beliefs and performance and induces behavioral response among treated parents. We find mixed impacts of providing information on student achievement, with null findings in the first two semesters after treatment, followed by a statistically significant and positive impact and then fadeout by year two. This overall pattern is driven by large gains (and then fadeout) for students with low baseline test scores.

Educator Incentives and Educational Triage in Rural Primary Schools

Daniel O. Gillian, Naureen Karachiwalla*, Ibrahim Kasirye, Adrienne M. Lucas, and Derek Neal

In low-income countries, educators often encourage weak primary students to drop out before reaching the end of primary school in order to avoid the negative attention they receive when their students perform poorly on primary leaving exams. We conducted an experiment in rural Uganda that sought to reduce dropout rates in grade six and seven by rewarding teachers for the performance of each of their students. Teachers responded to this Pay for Percentile (PFP) incentive system in ways that raised attendance rates two school years later from .56 to .60. These attendance gains were driven primarily by outcomes in treatment schools that provide textbooks for grade six math students, where two-year attendance rates rose from .57 to .64. In these same schools, students whose initial skills levels prepared them to use grade six math texts enjoyed significant gains in math achievement. We find little evidence that PFP improved attendance or achievement in schools without books even though PFP had the same impact on reported teacher effort in schools with and without books. We document several results that are consistent with the hypothesis that teacher effort and books are complements in education production.

The Challenge of Designing Effective Teacher Performance Pay Programmes: Experimental Evidence from Tanzania,

Isaac Mbiti*, Mauricio Romero, and Youdi Schipper

A growing body of evidence suggests that teacher performance pay systems can improve student learning outcomes, particularly in settings where existing mechanisms for teacher accountability are weak. We use a field experiment in Tanzanian public primary schools to directly compare the effectiveness on early grade learning of two randomly assigned teacher performance pay systems: a pay for percentile system, which is more complex, but can (under certain conditions) induce optimal effort among teachers and a simple system that rewards teachers based on student proficiency levels. We find that both systems improve student test scores. However, despite the theoretical advantages of the pay for percentile system, the proficiency system is at least as effective in raising student learning. Moreover, we find suggestive evidence that the pay for percentile system favors students from the top of the distribution, highlighting the challenge of designing incentives that can deliver optimal and equitable learning gains for all students.

Do performance contracts attract better teachers?

Clare Leaver*, Owen Ozier, Pieter Serneels, and Andrew Zeitlin

This paper presents the first experimental evidence of the impact of pay-for-performance schemes on the ability of developing-country governments to attract effective teachers. To do so, we worked with the Rwanda Education Board and Ministry of Education to design and implement a pay-for-performance (P4P) scheme based on the 'pay-for-percentile' design of Barlevy and Neal (2012). We undertook a two-stage experiment built around this scheme. In the first stage, we randomly assigned labor markets in which the Government of Rwanda was hiring government teachers to either P4P or expected-value-equivalent fixed wage contract advertisements. Using this design, we first test for impacts measures of applicant quality in the universe of applications to study jobs. We trace hired teachers to the schools in which they are placed, gathering measures of teacher skill and intrinsic motivation that allow us to test for compositional effects among placed teachers on these margins. In the second stage, we implemented a 'surprise' re-randomization of experienced contracts at the school level. This re-randomization allows us to separately identify the effects of advertised and experienced P4P contracts on teacher value added; the former represents a pure compositional effect within each experienced contract type. We used a dataset in which the researchers were blinded to the treatment exposure of recruit and incumbent teachers to develop a pre-analysis plan (Olken 2015). Simulations undertaken as part of that exercise reveal that the study is powered to detect at power levels in excess of 80 percent a two percentage point improvement in the qualifications of applicants to teaching positions, or an increase in teacher value added equivalent to 0.07 standard deviations in induced student achievement. Given interest in performance contracts as a means to improve the learning effects of existing teachers, this study will provide evidence of whether performance contracts are effective---or harmful---in attracting effective teachers.