From Randomized Evaluations to Policy Influence: Insights from the Dominican Republic, India, and Zambia.

Introduction by moderator
John Floretta, Director of Policy and Communications, J-PAL

There has been a steep rise in the number of children enrolled in school in developing countries. From 2000 to 2015, the portion of primary school age children (6–12 years old) enrolled worldwide rose from 83 to 91 percent. For those aged 12–16, enrollment rose from 55 to 65 percent between 2000 and 2014. Despite these gains, pockets of low enrollment remain, particularly in remote or conflict-affected areas. As of 2015, 61million children of primary school age were out of school. Additionally, over 202 million adolescents of secondary school age were out of school. Millions of children who are enrolled in school are not attending regularly. For example, although the national primary school enrollment rate in India was above 96 percent in 2016, on average 29 percent of enrolled students were absent during unannounced visits to schools. In Uganda, while 88 percent of primary school aged children were enrolled 35 percent of those enrolled were absent during random visits.

For many children, being in school does not guarantee that students are learning. In rural India, for example, the 2016 Annual Status of Education Report (ASER) finds that only about half of Grade 5 children in rural India can read a second-grade text. Similarly, the 2013 Uwezo annual assessment report finds, less than one third of Grade 3 students possess basic literacy and numeracy skills. Similar education surveys and measurement tools have found comparable learning levels among children in in Mali, Pakistan, and Senegal.

In recent years, policymakers and researchers working on system improvement in low and low-middle income countries are gravitating toward large-scale experimentation to better understand what it would take to help their education systems transition to providing better access and learning opportunities for all.

The theme of this year's SREE conference aligns closely with J-PAL's and of its affiliated professors collective experience in generating and applying evidence from randomized evaluations to education at scale. We propose a panel to reflect on what we have learned from three educational interventions that are in the process of influencing policy and going to scale and that have inspired future policy-relevant research. Chris Neilson (Assistant Professor, Princeton) will share research from a program aiming to reduce dropouts in the Dominican Republic. Rukmini Banerji (CEO, Pratham) and Jim Berry (Assistant Professor, Delaware) will share insights on the process of going from research to scaling a program with government. Alejandro Ganimian (Assistant Professor, New York University) will discuss his work how one randomized evaluation of the Mindspark program is inspiring a new generation of research through a "Learning Lab" in the Indian state of Rajasthan.

Information Returns in the Dominican Republic
Chris Nielson, Assistant Professor of Economics and Public Affairs at Princeton University

Researcher relationships with policymakers often present the opportunity to incorporate evidence into the design of programs, as well as possibly facilitating an ex post randomized evaluation. The ongoing work in the Dominican Republic by Chris Neilson, Jim Berry, and co-investigators is a clear example of the possibilities of such relationships and partnerships.

Evidence from a previous randomized evaluation in the Dominican Republic by Robert Jensen showed that schooling decisions are influenced by families' perceptions to the returns to education and families underestimate the earnings associated with higher levels of schooling.

Building on this research, Chris Neilson, Jim Berry, and co-authors implemented a randomized evaluation to test a program called Learning the Value of Education (AVE-RD), which aims to reduce student dropout. In the first year, the program was implemented in 400 public schools. In the second year, AVE-RD was implemented in an additional 1600 public schools which accounts for 40 percent of all middle and high schools in the country. The program consists of showing videos (informational or persuasive) that highlight the value and returns to education. The videos are aimed at students in grades 7 to 12.

Preliminary results suggest that students tend to underestimate the benefits of more schooling and overestimate the benefits of less schooling. Self-reported responses from students who were exposed to videos reveal that they are less willing to leave school for a job. The videos also increased the scores on standardized tests.

More than 300,000 students have been exposed to the videos and 2,000 government technicians have been involved in the implementation activities. Government authorities consider this one of the most ambitious programs in the public education sector. In 2016, the Ministry of Education agreed to scale-up this program and aim to achieve full coverage by the end of the 2017 calendar year.

Lessons from Pratham's Teaching at the Right Level
Rukmini Banerji, CEO Pratham; Jim Berry, Assistant Professor, University of Delaware

Teaching at the right level (TaRL) is a pedagogical approach that involves evaluating children using a simple assessment tool and then grouping them according to learning level rather than age or grade. Each group is taught starting from its current competency level, and level-appropriate learning activities and materials are used. Throughout the entire process, teachers assess their pupils' progress through ongoing, simple measurement of their ability to read, write, and comprehend and do basic arithmetic. Over the past 15 years, J-PAL affiliated researches have collaborated with Pratham, an Indian education NGO that pioneered the TaRL approach, to evaluate this method of reorienting teaching to the level of the student. A series of randomized evaluations have consistently showed that TaRL improves students' basic literacy and numeracy. A recent NBER working paper by Jim Berry and co-authors summarizes the iterative approach of design, rigorous evaluation, and redesign that developed the two TaRL models now being scaled across government schools in India.

Model 1: The Learning Camp model, implemented directly by Pratham staff with assistance from locally recruited and trained volunteers, provides intensive bursts of instruction in math and Hindi for 8-10 days at a time for up to 2 months. Students in grades 3-5 are grouped according to learning level (i.e. whether they can read letters, words, sentences, and paragraphs) and are taught using level-appropriate materials tailored for each group. The environment of the camp is different from normal teaching as it is interactive; there are different activities including math and language games and much of the work is done in groups. When tested in the state of Uttar Pradesh, learning improved by a substantial 0.61 – 0.70 standard deviations in both math and language.

Model 2: Pratham works with state governments in India to integrate teaching at the right level into the government school system. In this model, government teachers set aside one hour per day to reorganize their classrooms by reading ability rather than grade. Students are then taught using level-appropriate materials. Pratham trains cluster-level education staff to implement the program and train and support teachers. In Haryana, a randomized evaluation of this model showed improvements of 0.15 standard deviations in reading

After identifying low learning levels in primary classrooms, the Government of Zambia collaborated with Pratham, J-PAL Africa, Innovations for Poverty Action and others to adapt TaRL for the Zambian

context. This group collectively designed and piloted three models of TaRL in 80 schools. The program, called Catch-up, will be scaled to nearly 2,000 schools by 2021.

Mindspark
Alejandro Ganimian, Assistant Professor of Applied Psychology and Economics at NYU

Alejandro Ganimian, Karthik Muralidharan, and Abhijeet Singh recently released a working paper about a randomized evaluation that tested Educational Initiative's Mindspark program. Mindspark is a computer-assisted learning (CAL) software that provides students with personalized instruction which uses a set of games, videos, and activities that pull from a database of over 45,000 questions to test students and provide explanations and feedback. A key feature of Mindspark is its ability to use data to identify the learning level of every student, deliver customized content targeted at that level, and dynamically adjust to the student's progress. Mindspark can be delivered through desktop computers, laptops, and tablets, and it can be implemented online, in school classrooms, or in after-school programs.

Among students offered the free voucher, 58 percent attended the Mindspark program. Students who received the voucher scored 0.36 standard deviations higher in math and 0.22 standard deviations higher in Hindi that students who did not receive vouchers.
Mindspark was also cost effective in comparison to other common alternatives. The per-student monthly cost of the program was around INR 1000 (around US$15) per month, compared to a cost of around INR 1500 (US$22) per month in spending per student at the public schools from where the students came in Delhi. Researchers expect that the program cost per student would decrease to under US$2 if it were scaled up to a larger number of students.

These evaluation results are being used by the program implementers, Educational Initiatives, to set up potential scale-ups of the intervention in government schools in multiple Indian states. These scale-ups, which are still at the design stage, are expected to integrate Mindspark into classroom settings within government schools.

The Mindspark RCT also informed the conceptualization and setup of a Learning Lab. The usual way to think about evidence-based policies is to evaluate a program and if found effective, to scale it up. While this is an important way in which rigorous program evaluations inform policy, there also other important ways of taking programs to scale, such as debunking well-established "myths", identifying binding constraints of systems, and informing theories about human behavior, as Alejandro Ganimian recently argued in this blog post.

The Mindspark evaluation constitutes an example of yet another way in which randomized evaluations can inform policy and practice: by pushing the measurement frontier. The Mindspark study demonstrated the potential of computer-assisted learning to provide clear and useful descriptive statistics on children's learning. Yet, it also raised the possibility of conducting rapid-cycle randomized evaluations on questions of math and language pedagogy (by randomizing pedagogical stimuli within the software).

The Learning Lab picks up where the Mindspark evaluation left off – in 2017, the lab plans to: (a) produce a review of what we know from experimental and quasi-experimental studies on math and language pedagogy from both developed and developing countries; (b) produce a paper on what we can learn from student errors about their underlying misconceptions; and (c) conduct three randomized evaluations on potential mechanisms through which computer-assisted learning programs like Mindspark may impact student learning: personalization, practice exercises, and gaming. Once a literature review is completed, the Learning Lab organizers can launch a research agenda for 2018 and beyond that focuses on the most important questions in pedagogy. The ultimate goal is to better inform both policy and practice by evaluating the rigor of experimental pedagogical research.

Part (a) and (b) above should have working papers by February 2018, in time for this panel.