



Fighting Poverty: What Works?

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Education: Meeting the Millennium Development Goals

The international community has promised to achieve universal primary education and to eliminate gender disparity in primary and secondary education by 2015. With an estimated 115 million children not attending primary school, there have been widespread calls to increase funding to reach these goals. But what is the best way to spend the resources? In this bulletin, we assess the most effective ways of increasing children's attendance at school, based on recent randomized evaluations.

Primary Education for All

THERE is no consensus on why so many poor children don't attend school, or the best way to increase participation (Kremer, 2003). If children's labor is crucial to their family's welfare or cultural barriers to girls' education are very high, it may prove very difficult to attract more children to school. However, if children contribute relatively little to the family income, as authors like Drèze and Kingdon (2001) argue, even small reductions in the cost of going to school or bigger rewards to schooling (from increased school quality) could have a dramatic impact.

Over the last five to ten years, a series of programs in Latin America, sub-Saharan Africa, and South Asia have been carefully assessed using randomized evaluation techniques (page 2). They have highlighted the different ways of making progress towards the goal of universal primary education. And they suggest that making school cheaper, and even subsidizing attendance, is an effective way to increase participation. Improvements in child health can be particularly cost-effective as a way of increasing school participation.



Most of the programs discussed here were directed equally at boys and girls; yet often the biggest improvements were seen in girls' attendance (page 4). Surprisingly, though, an improvement in the quality of education didn't always lead to wider participation, and higher attendance didn't always lead to a measurable improvement in learning (page 3). The good news is that, at least in the countries in which these programs took place, participation was relatively responsive to incentives, suggesting that the many barriers to participation can be surmounted.

Cutting the cost of education

There is plenty of evidence that cutting the cost of schooling achieves results. The PROGRESA program in Mexico provided cash grants to families if their children attended school regularly and received preventative health care like vaccinations. Schultz

(2004) takes advantage of the fact that the program was randomly phased-in in different areas to assess its effectiveness. The program's main focus was improving child health and welfare—but it also increased enrollment for students in grades 1 through 8 by 3.4 percent.

Payments after grade 6 were increased to address a drop-off in

attendance as children moved up into junior high school. Attendance by girls who'd completed grade 6 rose the most—by 14.8 percent. In part because the randomized introduction of the program meant the benefits were so clear, the Mexican government expanded it, and similar schemes are now being introduced elsewhere in Latin America and Turkey.

Uniform gains?

There is more evidence of the benefits of helping parents with the cost of sending a child to school. These costs can include school fees, uniforms, and school materials. Kremer et al. (2003) evaluate a program in which a non-governmental organization (NGO), International Child Support Africa (ICS Africa), provided uniforms, textbooks, and classroom

construction to seven schools, randomly selected from a pool of 14 poorly performing schools across Kenya. The cost of uniforms, at \$6, is substantial for a country which had per capita income of just \$340. In the treatment schools, dropout rates fell considerably: after five years, their pupils had completed about 15 percent more schooling.

The idea proved so popular that many students in surrounding areas transferred into program schools, raising class size by 50 percent. Students and parents showed their willingness to trade off much larger class sizes for free uniforms, textbooks, and improved classrooms. The results suggest that the savings from a modest increase in class size could be used to reduce the cost of school attendance enough to increase participation substantially. This could be done without jeopardizing test scores for the students themselves.

Food for thought

Free school meals is another way to subsidize attendance: an approach already tried in a range of countries. In India, the Supreme Court recently made it mandatory for all public schools. However, there have been few rigorous evaluations of the program's effectiveness. One exception is a program providing meals to children attending preschools in Kenya, evaluated by Vermeersch and Kremer (2005) using the randomized trial technique. They found that school participation was 30 percent greater in the 25 schools with a free breakfast, than in 25 comparison schools. Test scores in schools receiving the meals also increased.

Healthy increase

Poor health is yet another barrier. For example, intestinal helminths (such as hookworm) affect a quarter of the world's population and are particularly prevalent among school-age children. Miguel and Kremer (2004) evaluate a Kenyan program where inexpensive deworming drugs

were used in mass school-based treatment twice a year. Seventy-five schools were phased into the program in random order. Health and school participation improved not only at program schools, but also nearby—because transmission of the disease was reduced. Absenteeism in treatment schools went down 25 percent compared to comparison schools: more schooling, then, for healthier children.

A similar program run by Pratham and evaluated by Bobonis et al. (2004), designed to improve child health in poor urban communities in India, had similar positive effects on participation (as well as on the health of children). A cheap package of iron supplementation and deworming drugs were distributed to children aged 2 to 6 through a network of preschools. Not only did they gain healthy weight, but school participation went up, i.e. absenteeism went down.

Value for money?

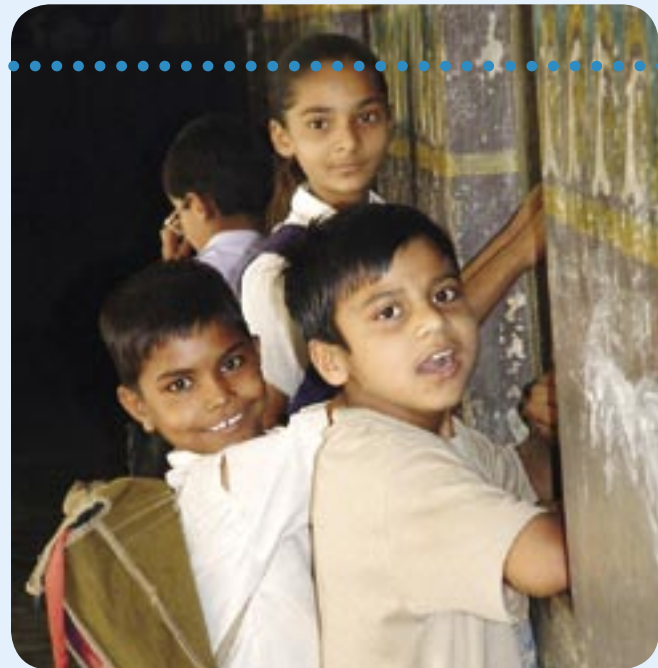
The costs of all these approaches vary widely (see chart), with deworming medication costing just \$3.50 for every additional year of schooling induced, and PROGRESA costing \$1,000-6,000 per additional year of schooling (depending on the age of the child and exactly how you measure the results). As far as possible, costs have been made comparable and include the amount spent on inputs and staff time to manage the projects. Evaluation costs are not included. However, it is important to keep in mind some caveats when making these comparisons.

Many of these programs have other objectives than just increased schooling. PROGRESA aimed to get money into the hands of poor families, so it is not surprising that it cost more. Deworming led

Why Randomize?

EVALUATION aims to determine how the lives of people involved in a program differ from what they would have been like without it. But it is impossible to achieve the pure counterfactual—the same people, same time, same place, but without the program. So evaluators seek a control group as similar as possible to those receiving the program—people of a similar age, gender, and income in another part of the country.

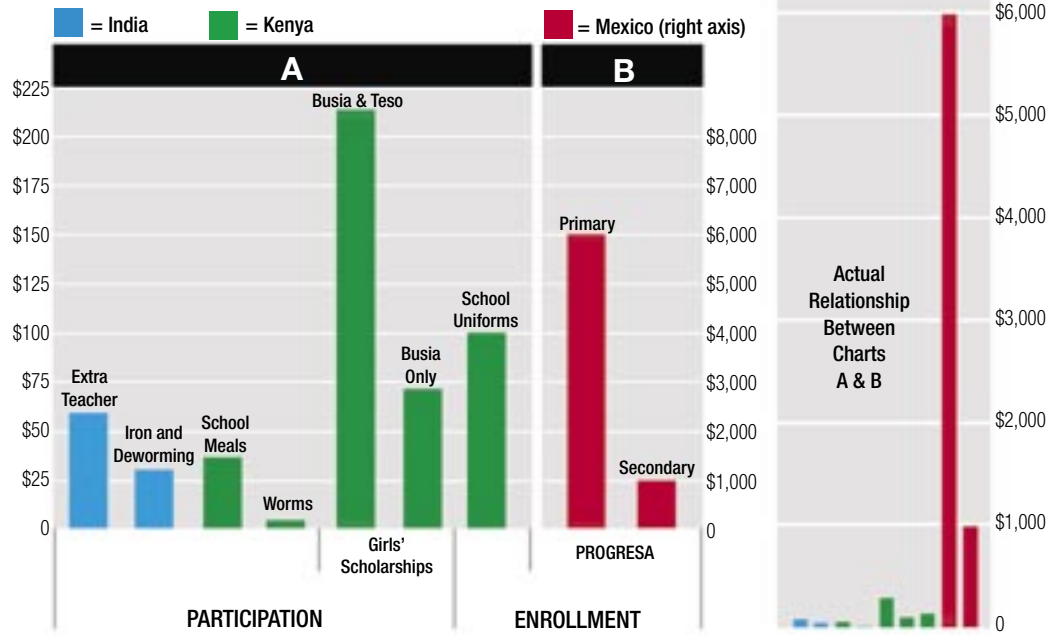
There is one clear problem with this approach: there are often strong reasons why a scheme is launched at a particular place or time, like the enthusiasm of a particular head teacher keen to try new ideas. Trying to draw direct comparisons might give a misleading picture, because it's impossible to separate the impact of the program from the effect of that head teacher.



If individuals volunteer for a scheme, they're usually more motivated than those who don't—even though they may look identical on paper. No statistical manipulation, however fancy, can correct these fundamental, but often hidden, differences between groups. All too often, the result is that programs which appear to be effective when they are run on a small scale, turn out not to work very well when they are implemented more widely.

to healthier kids, which we would value even if it did not help get more children in school. Mexico is also richer than Kenya and wages are higher, so most programs will be more expensive. Plus, it may cost more to increase attendance in countries where participation is quite high already (like Mexico) than in places where it is lower. PROGRESA researchers collected information on enrollment while most of the other studies were based on school participation (i.e. they monitored who was in school on a given day). However, children in the PROGRESA program did not receive their cash transfer unless they attended school regularly, so the difference between enrollment and participation should not be as large as it sometimes is.

Cost Per Extra Year of Education Induced



Trial, not error

The clearest way to establish how a program might work in an average village or school is to run a randomized trial. Take 100 representative schools, establish a program in half of them, phase it in later in the other 50, and compare the outcomes in both groups. Evaluation must be built into the design of the original scheme, and data must be collected on all 100 schools, which can be expensive. This is what happens if we want to know whether a drug or vaccine is effective: finding out what works in development is equally important.



Quality vs. Quantity

More lessons: more learning?

It is assumed that if children go to school more often they will learn more. But this isn't necessarily the case. Several programs which have raised participation, from providing worm medicine to free meals, show no evidence that children are learning more as a result. Perhaps only a large increase in performance would show up as significant. Or perhaps other factors—such as better teaching methods or more regular attendance of teachers—are necessary for participation to raise test scores. These issues will be discussed in future bulletins.

A question of quality

There is also a complex relationship between school quality and participation. It might seem reasonable to expect that families are more likely to bear costs like fees, uniforms or lost income for a good quality education. However, this isn't always the case. One program (run by Pratham) in poor urban schools in India shows that providing remedial education to students falling behind their peers had a dramatic impact on their test scores (Banerjee et al., 2003). Yet there was no discernible impact on participation. This is particularly surprising given that the teachers hired to provide the remedial classes were from a similar background to their students, in a deliberate attempt to put the children at ease.

Gender Equality



Mind the gap..

MANY OF THE PROGRAMS

discussed above had more of an impact on girls than boys (including PROGRESA and deworming in India), with the gender gap narrowing as a result.

This could be because fewer girls attend school to start, so it's easier to increase attendance from a lower base. Of course, if there are very strong cultural barriers to girls' education, then programs not specifically aimed at girls might not have much effect. However, we find no evidence of this in these studies (although it should be noted that the programs discussed above were not in areas with the largest disparities between male and female participation, i.e. where the cultural barriers may be particularly strong).

Some programs are designed to deliberately target girls. One randomized study of a program in rural India (Banerjee et al., 2001) in an area with very low female literacy (around 1 percent) might help explain whether having more women teachers leads to more girls attending schools, as some studies (like Lokshin and Sawada, 2001, and Rugh, 2000) have suggested, or whether it is just that regions that are more open to female education happen to have more women teachers AND more girls attending school, without one causing the other. An Indian NGO, Seva Mandir,

ran a scheme in the tribal areas of Rajasthan which provided additional teachers to non-formal, single-teacher schools. Where possible, these were women. This not only helped to increase the number of days the school was open, but also helped to make school more attractive to girls. In 21 randomly selected schools out of 42, the scheme increased daily attendance of girls by 50 percent from a baseline of about 4. Boys' attendance wasn't affected.

Providing scholarships for girls to attend secondary school is another promising idea. One program in 60 schools in rural Kenya promised girls aged 12 to 18 that their school fees would be paid, plus a \$38 grant given to them over two years to support their family, if they scored well on academic exams. The result: higher test scores and more girls attending school, both leading up to the exam and after the scholarship was awarded (Kremer et al., 2004). Surprisingly, the attendance of boys, as well as girls who didn't do well on the exam, and who had little chance of winning the scholarship, went up too. So did their test scores.

However, an unfortunate lightning strike that hit a school participating in the scholarship program created considerable suspicion among many parents and students (with some students in Teso district refusing to accept the scholarship). The authors believe this explains why the program was much more effective in Busia than in Teso and Busia combined (see chart). Among girls in Busia, participation rose 5 percent while there was no significant impact on attendance in Teso.

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Studies mentioned in this bulletin

Banerjee, Abhijit, Suraj Jacob and Michael Kremer, with Jenny Lanjouw and Peter Lanjouw (2001), "Promoting School Participation in Rural Rajasthan: Results from Some Prospective Trials," Mimeo, Massachusetts Institute of Technology.

Banerjee, Abhijit, Shawn Cole, Esther Duflo and Leigh Linden (2003), "Remedying Education: Evidence from Two Randomized Experiments in India," Mimeo, Massachusetts Institute of Technology.

Bobonis, Gustavo, Edward Miguel and Charu Sharma (2004), "Iron Deficiency Anemia and School Participation," Poverty Action Lab Working Paper No. 7.

Drèze, Jean and Geeta Gandhi Kingdon (2001), "School Participation in Rural India," *Review of Development Economics* 5 (1), 1-24.

Kremer, Michael (2003), "Randomized Evaluations of Education Programs in Developing Countries: Some Lessons," *American Economic Review* 93 (2), 102-106.

Kremer, Michael, Sylvie Moulin and Robert Namunyu (2003), "Decentralization: A Cautionary Tale," Mimeo, Harvard University, April 2003.

Kremer, Michael, Edward Miguel and Rebecca Thornton (2004), "Incentives to Learn," NBER Working Paper #10971, Cambridge, MA.

Lokshin, Michael and Yasayuki Sawada (2001), "Household Schooling Decisions in Rural Pakistan," World Bank Policy Research Working Paper 2541.

Miguel, Edward and Michael Kremer (2004), "Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities," *Econometrica* 72 (1), 159-217.

Rugh, A. (2000), "Starting Now: Strategies for Helping Girls Complete Primary," Academy of Educational Development, Washington, DC.

Schultz, Paul T. (2004), "School Subsidies for the Poor: Evaluating the Mexican Progresa Poverty Program," *Journal of Development Economics* 74 (1), 199-250. Special Issue, June.

Vermeersch, Christel and Michael Kremer (2005), "School Meals, Educational Achievement and School Competition: Evidence from a Randomized Evaluation," Mimeo, Harvard University.

Most of these studies are available on the
Poverty Action Lab website:

<http://www.povertyactionlab.org>.