

ROLL CALL: GETTING CHILDREN INTO SCHOOL



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KEY LESSONS:

- **Student participation is sensitive to the perceived costs and benefits of education.**

The costs of education are immediate and easy to observe. As a result, even small changes in costs can have important impacts on participation.

Costs are not just monetary, but also include effort and travel time to school. When school is far away, reducing travel time can help boost participation. This can be particularly important for girls and in areas where security is an issue.

The effort cost of attending school is higher for a child who is sick and lethargic. Health interventions that reduce student morbidity may be among the most effective ways of boosting school participation.

It appears to be difficult for parents to accurately perceive the quality of education their children are receiving. Improving the quality of education (as measured by gains in test scores) does not always translate into improved participation, at least in the short run.

Programs that address perception gaps or make the benefits of education more salient can change behavior at low cost. Examples include telling students about the availability of scholarships and presenting examples of future job opportunities.

- **Children, not just their parents, are important to consider when designing policies to address school attendance.**

Students' own perceived costs and benefits are important for boosting enrollment and attendance.

- **These general lessons apply equally to boys and girls.** Although more girls are out of school than boys, general programs that seek to increase schooling for all tend to help girls as much as or even more than boys.

There has been a dramatic rise in the number of children enrolled in school. From 2000 to 2015, the portion of primary school age children (6–12 years old) enrolled in school worldwide rose from 83 to 91 percent.ⁱ For those aged 12–16, enrollment rose from 55 to 65 percent between 2000 and 2014.ⁱⁱ

Despite these gains, pockets of low enrollment remain, particularly in remote or conflict-affected areas. As of 2015, 61 million children of primary school age were out of school. Additionally, over 202 million adolescents of secondary school age were out of school.ⁱⁱⁱ

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.^{iv} In Uganda, while 88 percent of primary school aged children were enrolled,^v 35 percent of those enrolled were absent during random visits.^{vi}

Evidence from a substantial body of randomized evaluations provides practical lessons on ways to increase participation in school, often at quite low cost per child. A number of general lessons stand out.

Education is an investment of time, money, and effort with many of the benefits coming far in the future. Across many different countries and contexts, the studies in this review show a clear and reasonably consistent picture: **parents' and students' investment in education is quite sensitive to the costs and perceived benefits of schooling.** Costs—whether they be school fees, school uniforms, a long walk to school, or concentrating in school when you are sick—are immediate and easy to perceive. The benefits of schooling appear to be harder to perceive or simply less salient. As a result, improvements in the quality of education may not always (at least in the short run) lead to more attendance and enrollment, while there are several examples of parents and students responding to increases in the understanding of or salience of the benefits of education. Not only do the studies in this review help us understand why many children are not in school, they generate practical implications for how to most cost-effectively increase children's attendance at school.

ⁱ The United Nations. "United Nations Millennium Development Goals: Goal 2, Achieve Universal Primary Education."

ⁱⁱ World Bank. World Development Indicators. "Net enrolment rate, secondary, both sexes (%)." World aggregate.

ⁱⁱⁱ UIS.Stat (accessed July 21, 2017), <http://data.uis.unesco.org/>

^{iv} Annual Status of Education Report, 2016.

^v Uwezo datasets. "Household data, Uganda." 2014.

^{vi} Uwezo datasets. "School data, Uganda." 2014.



PHOTO: SARAH KABAY

INCLUDED STUDIES

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This bulletin reviews 58 randomized evaluations from 28 low- and middle-income countries in Africa, Asia, and Latin America that tested programs designed to increase school enrollment and attendance from preschool through secondary school. Some programs had effects beyond participation in schools, such as increasing test scores, improving nutritional status, or transferring income to the poor. However, this bulletin focuses only on how effectively programs improved enrollment and attendance.

We do not address the question of whether increasing participation in school leads to higher earnings or other outcomes: we take it as a given that schooling is important. Rather, the objective is to draw general lessons about what types of strategies are most effective at improving student participation in school.

Papers were included in this review if they were high-quality randomized evaluations in a developing country, had school participation as an outcome, and either evaluated an intervention designed to increase school participation or provided a plausible theory of change that could address participation. Quasi-randomized studies are also referenced (in footnotes) when they helped to interpret the results from randomized evaluations. For more details, see the appendix on page 28.

TABLE 1. EVALUATIONS INCLUDED IN THIS BULLETIN

Note: Throughout this bulletin, studies are referenced (in parentheses) by the numbers designated in the appendix and the table below.

INTERVENTION TYPE	NUMBER	PROGRAM	RESEARCHERS
School travel time	1	Village-based schools in Afghanistan	Burde and Linden (2013)
	2	Subsidies for new private schools in Pakistan	Barrera-Osorio, Blakeslee, Hoover, Linden, and Raju (2017)
Subsidies and transfers	3	Secondary school scholarships in Ghana	Duflo, Dupas, and Kremer (2017)
	4	Conditional cash transfers (CCTs) and unconditional cash transfers (UCTs) in Burkina Faso	Akresh, de Walque, and Kazianga (2013)
	5	Need-based and merit-based CCTs in Cambodia	Barrera-Osorio and Filmer (2015)
	6	CCTs in China	Mo, Zhang, Yi, Luo, Rozelle, and Brinton (2012)
	7	CCTs in Chinese preschools	Wong, Luo, Zhang, and Rozelle (2012)
	8	CCTs of varying sizes delivered at different times in Colombia	Barrera-Osorio, Bertrand, Linden, and Perez-Calle (2011)
	9	CCTs in Ecuador	Schady and Araujo (2008)

INCLUDED STUDIES

INTERVENTION TYPE	NUMBER	PROGRAM	RESEARCHERS
Subsidies and transfers (<i>continued</i>)	10	CCTs in Honduras	Benedetti, Ibararán, and McEwan (2016)
	11	CCTs in Honduras	Galiani and McEwan (2013)
	12	CCTs of varying sizes and conditionality in Malawi	Baird, Chirwa, de Hoop, McIntosh, and Özler (2010, 2011, 2013)
	13	CCTs in Mexico	Schultz (2000, 2004)
	14	CCTs in Mexico	Behrman, Parker, and Todd (2009)
	15	CCTs in Mexico – Long-term follow-up	Behrman, Parker, and Todd (2011)
	16	CCTs and labeled cash transfers in Morocco	Benhassine, Devoto, Duflo, Dupas, and Pouliquen (2015)
	17	Scholarships and CCTs in Nepal	Edmonds and Shrestha (2014)
	18	CCTs in Nicaragua	Maluccio and Flores (2005)
	19	CCTs in Nicaragua – Long-term follow-up	Barham, Macours, and Maluccio (2013)
	20	CCTs in Nicaragua	Gitter and Barham (2008)
	21	CCTs in Tanzania	Evans, Hausladen, Kosec, and Reese (2014)
	22	Review of CCTs	Fiszbein, Schady, Ferreira, Grosh, Kelleher, Olinto, and Skoufias (2009)
	23	Systematic review of education interventions	Snilstveit, Stevenson, Phillips, Vojtkova, Gallagher, Schmidt, Jobse, Geelen, Pastorello, and Evers (2015)
	24	Free uniforms for sixth-graders in Kenya	Duflo, Dupas, and Kremer (2015)
	25	Free uniforms in Ecuador	Hidalgo, Onofa, Oosterbeek, and Ponce (2013)
	26	Free breakfast for primary schools in Jamaica	Powell, Walker, Change, and Grantham-McGregor (1998)
	27	Free school meals and take-home rations in Burkina Faso	Kazianga, de Walque, and Alderman (2012)
	28	Free school meals and take-home rations in Uganda	Alderman, Gilligan, and Lehrer (2012)

INCLUDED STUDIES

INTERVENTION TYPE	NUMBER	PROGRAM	RESEARCHERS
Morbidity	29	Vitamin A, iron supplements, and deworming in preschools in India	Bobonis, Miguel, and Puri-Sharma (2006)
	30	Mass school-based deworming in Kenya	Miguel and Kremer (2004, 2014)
	31	Mass school-based deworming in Kenya – Long-term follow-up	Baird, Hamory Hicks, Kremer, and Miguel (2016)
Education quality	32	Camera monitoring of teachers with incentives in India	Duflo, Hanna, and Ryan (2012)
	33	Computer-assisted curriculum in primary schools in India	Banerjee, Cole, Duflo, and Linden (2007)
	34	Remedial tutoring by “balsakhis” (community volunteers) in India	Banerjee, Cole, Duflo, and Linden (2007)
	35	Extra contract teachers and school-based management training in Kenya	Duflo, Dupas, and Kremer (2015)
	36	Performance-based pay for teachers in Pakistan	Barrera-Osorio and Raju (2017)
	37	Child and school report cards in Pakistan	Andrabi, Das, and Khwaja (2014)
	Perceived returns	38	Providing boys with information on average earnings in the Dominican Republic
39		Information on financial aid in Chile	Dinkelman and Martinez (2014)
40		Early commitment of financial aid in China	Yi, Song, Liu, Huang, Zhang, Bai, Ren, Shi, Loyalka, Chu, and Rozelle (2015)
41		Mother literacy and training materials in India	Banerji, Berry, and Shotland (2017)
42		Information and counseling in China	Loyalka, Liu, Song, Yi, Huang, Wei, Zhang, Shi, Chu, and Rozelle (2013)
43		Examples of employment opportunities for women in India	Jensen (2012)
44		Quotas for women in village councils in India	Beaman, Duflo, Pande, and Topalova (2012)

INCLUDED STUDIES

INTERVENTION TYPE	NUMBER	PROGRAM	RESEARCHERS
Increasing community involvement	45	Participatory community-based monitoring in Uganda	Barr, Mugisha, Serneels, and Zietlin (2012)
	46	School-based management training at varying administrative levels in Madagascar	Lassibille, Tan, Jesse, and Nguyen (2010)
	47	School-based management training and grants in Mexico	Gertler, Patrinos, Rodríguez-Oreggia (2012)
	48	School grants in Niger	Beasley and Huillery (2015)
	49	Information for parents, training, and remedial education in India	Banerjee, Banerji, Duflo, Glennerster, and Khemani (2010)
	50	School committee elections, joint planning meetings, grants, and training in Indonesia	Pradhan, Suryadarma, Beatty, Wong, Gaduh, Alisjahbana, and Artha (2014)
School supplies	51	School management and training in The Gambia	Blimpo, Evans, and Lahire (2015)
	52	Textbooks in Kenya	Glewwe, Kremer, and Moulin (2009)
	53	Textbooks in Sierra Leone	Sabarwal, Evans, and Marshak (2014)
	54	Laptops in Peru	Cristia, Ibararán, Cueto, Santiago, and Severín (2012)
	55	Libraries in India	Borkum, He, and Linden (2012)
	56	Infrastructure investments in Bolivia	Newman, Pradhan, Rawlings, Ridder, Coa, and Evia (2002)
Student motivation	57	Merit scholarships for girls in Kenya	Kremer, Miguel, and Thornton (2009)
	58	Performance-based incentives for students and teachers in Mexico	Behrman, Parker, Todd, and Wolpin (2015)
	59	School counseling in China	Huan, Chu, Loyalka, Tao, Shi, Qu, Yang, and Rozelle (2014)
Gender specific barriers	60	Sanitary products for girls in Nepal	Oster and Thornton (2011)

MEASUREMENT

MEASURING STUDENT PARTICIPATION

There are two standard measures of student participation: **enrollment**, the number of children who have registered with a school, and **attendance**, the number of children who are in school on a given day.

Enrollment data are collected by researchers from school registries or from ministries of education, who in turn collect them from school registries. Some studies that assess enrollment measure how many children in a given population (village, state, etc.) are enrolled in school versus out of school. Others only survey children that are already enrolled in school at baseline and then, after the intervention, measure how many of those children enrolled at baseline left school (dropout). This dropout measure should not be interpreted as enrollment in the general population, as in many cases this would overstate how many children are actually in school. In addition, because we do not have attendance data in cases where only enrollment data were collected, the impact of the program on participation may be overestimated or underestimated.

School attendance data are collected through household surveys or through surprise visits to classrooms to count the number of children present. Most studies report attendance conditional on enrollment, i.e., the fraction of those enrolled who are present on a given day.

Some programs increase enrollment, and some increase the regularity of attendance among those already enrolled. We report both types of results.

However, to put all studies on an equal basis, our preferred measure is **unconditional attendance**: the percentage of children in a broader population that are present in school, regardless of enrollment status. Where possible, we estimate unconditional attendance by multiplying the enrollment rate in the general population by the attendance rate among those enrolled.

We estimate confidence intervals for impacts on unconditional attendance using the same process. We calculate the lower and upper bounds for both enrollment and attendance at the 95 percent level, and then multiply the two lower bounds and two upper bounds to estimate the lower and upper bounds of impacts on unconditional attendance. The error bars generated by this process are overstated because in some cases we do not have the underlying data to adjust for covariance; however, for consistency, we apply the same method to the few studies where this data is available.

When we discuss the cost-effectiveness of programs (see pages 24–26), we report results in terms of “additional years of schooling per US\$100 spent.” This metric is calculated by multiplying the average impact on participation per student by the total number of students who received the program. One additional year of schooling refers to one academic year and not twelve months of classroom instruction.

COMPARING PROGRAM IMPACTS: HOW TO READ FIGURE 1 (PAGES 8-9)

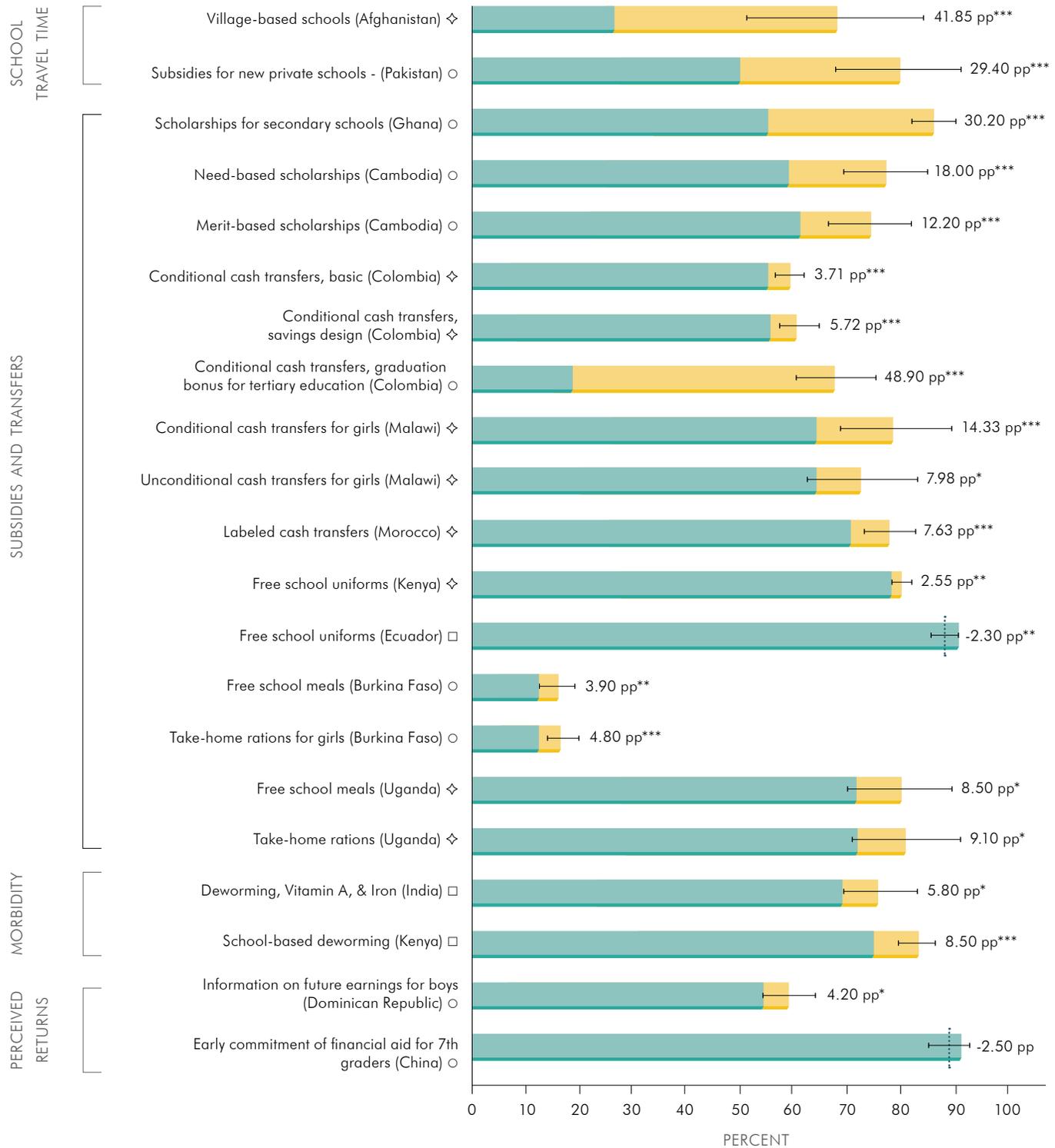
The chart on pages 8–9 shows impacts of different programs on the enrollment or attendance outcome that the study measured: enrollment in school (○), attendance in school among enrolled students (□), or attendance in school regardless of enrollment status (◇). The teal colored bars represent student participation in the comparison group. The yellow colored bars represent the impact of the program. The right end of the yellow colored bar represents participation in the treatment group after the program. For programs with negative impacts, participation in the treatment group after the program is represented by a dotted line.

Notes:

- Given the large number of CCT evaluations with similar results, in this chart we include only the evaluations focused on design changes to standard cash transfer programs.
- Statistically significant difference relative to the comparison group is noted at the 1% (***) , 5% (**), or 10% (*) level.
- In cases where standard errors were not reported, error bars are not shown.

RESULTS OVERVIEW

FIGURE 1.^{VII} IMPACT ON STUDENT PARTICIPATION



Key for Figure 1

- Comparison Group
- Positive Impact
- ⋮ Negative Impact
- Enrollment
- Attendance
- ◇ Unconditional Attendance

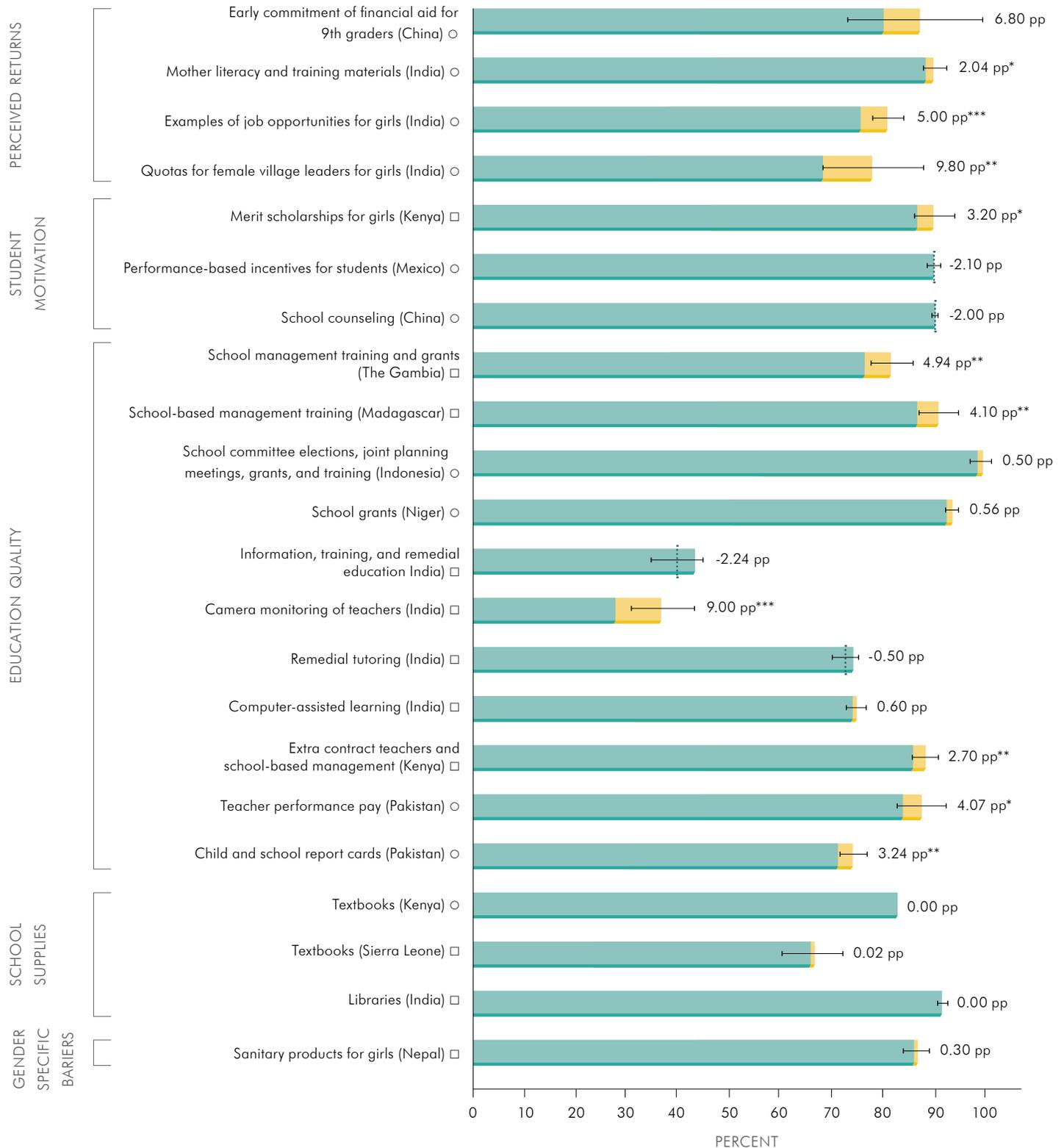
Notes: Statistically significant difference relative to the comparison group is noted at the 1% (***), 5% (**), or 10% (*) level.

Confidence intervals of impact estimates are designated at the 95 percent level.

The value at the end of each bar represents the percentage point (pp) increase or decrease in the treatment group at the end of the program (i.e., the size of the yellow bar).

RESULTS OVERVIEW

FIGURE 1.^{vii} IMPACT ON STUDENT PARTICIPATION (CONTINUED)



^{vii} Given the large number of CCT evaluations with similar results, in this chart we include only the evaluations focused on improving the design of standard cash transfer programs.

REDUCING COSTS

1. REDUCING COSTS BY SHORTENING TRAVEL TIME TO SCHOOL

Many of the areas of the world with low school enrollment are remote or affected by conflict. Sometimes the distance to school is so far that attendance is impossible. In other cases where the journey is possible, distance can deter attendance. The time, effort, and risk of a long trip to school is immediate, salient, and has to be faced every day.

In areas where few schools exist, creating new local schools is a very effective way to increase enrollment and attendance.

In Afghanistan, researchers examined the impact of the Partnership for Advancing Community Education in Afghanistan (PACE-A) program, which introduced “village-based schools” in remote areas (1). In these areas, a child’s average distance to school was three miles. Introducing a school in the village increased enrollment rates from 27 to 69 percentage points (a 156 percent increase). Similarly, in areas in Pakistan where no school existed within 1.5 kilometers, granting per-student subsidies to local entrepreneurs to establish new private schools led to an increase in enrollment of 30 percentage points for boys and girls (from a base of 50 percent) (2).

In Afghanistan, communities provided space for a school in an existing building while an international nongovernmental organization (NGO) provided educational materials (such as writing utensils, notebooks, and government textbooks) and training for teachers. These approaches were quite cost-effective. The Afghanistan program, for example, led to 1.5 additional years of schooling per US\$100 spent (see page 25 for cost effective analysis).

Reducing distance to school can be particularly helpful for girls. In Pakistan, creating local schools had the same impact on boys and girls. Additionally, providing entrepreneurs with a higher incentive to recruit girls was no more effective at increasing girls’ enrollment than promoting overall school access by providing entrepreneurs with the same per-student subsidy regardless of gender. However, the “village-based schools” program in Afghanistan improved enrollment rates among girls by 17 percentage points more than it did for boys, eliminating the gender gap.

In many countries, restrictions on girls’ mobility rise as they get older. Consistent with this, in Afghanistan the gender gap was larger initially for older girls than for younger girls. Reducing the distance to school was relatively more effective in promoting school attendance for older girls.

While these evaluations were conducted in contexts where security was a concern, the results are consistent with the findings from well-identified, non-experimental studies in more secure contexts including Burkina Faso, India, and Indonesia. In rural Burkina Faso, where most villages did not have schools, a program that built new village schools and also added resources designed to encourage girls’ education led to a 19 percentage point increase in overall enrollment. Girls’ enrollment increased by 5 percentage points more than boys’.^{viii} In India, giving bicycles to secondary school girls reduced travel time, leading to a 32 percent increase in girls’ enrollment.^{ix} In remote areas of Indonesia, building more schools reduced the distance that children traveled to school, and each additional school per 1,000 children led to an increase of 0.12–0.19 years of education.^x

2. REDUCING COSTS THROUGH SUBSIDIES AND IN-KIND TRANSFERS

School participation is sensitive to costs and incentives. Programs that pay for school fees, or provide cash or in-kind transfers, even small ones, improve enrollment and attendance. While most countries have eliminated fees for public primary schools, fees for secondary school are more common. Even when there are no fees, parents often still have to pay for uniforms, textbooks, and school supplies. Removing these costs or providing subsidies to families to send children to school are proven ways to increase enrollment and attendance. While many different programs fall under the category of reducing the costs of schooling, the relative cost-effectiveness of these different programs can vary enormously depending on the size of the subsidy and the precise design details.

^{viii} Kazianga, Harouman, Dan Levy, Leigh L. Linden, and Matt Sloan. 2013. “The Effects of ‘Girl-Friendly’ Schools: Evidence from the BRIGHT School Construction Program in Burkina Faso.” *American Economic Journal: Applied Economics* 5(3): 41–62.

^{ix} Muralidharan, Karthik, and Nishith Prakash. “Cycling to School: Increasing Secondary School Enrollment for Girls in India.” Working Paper, September 2016.

^x Duflo, Esther. 2001. “Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment.” *American Economic Review*, 91(4): 795–813.

^{xi} World Policy Center. “Is completing secondary education tuition-free?” Accessed November 1, 2016. <http://www.worldpolicycenter.org/policies/is-completing-secondary-education-tuition-free>

REDUCING COSTS

2.1. WHERE SCHOOL FEES DO EXIST, ELIMINATING THEM CAN LEAD TO LARGE INCREASES IN PARTICIPATION.

School fees are much more common in secondary school than primary: 63 percent of low-income countries and 22 percent of middle-income countries charge secondary school tuition, compared to only 6 percent of high-income countries.^{xi} These fees can be a substantial barrier to education.

In Ghana, tuition fees for senior high school amounted to about 20 percent of GDP per capita annually between 2008 and 2016. While nearly 95 percent of children were enrolled in primary school, only around 30–40 percent enrolled in senior high school. A study tested the impact of providing full secondary school scholarships to low-income, academically qualified students (3). Eight years on, girls and boys who had received a scholarship were, respectively, 29 percentage points (60 percent) and 31 percentage points (50 percent) more likely to have ever enrolled in senior high school than students who did not receive a scholarship. The percentage of girls completing senior high school rose from 42 percent (in the comparison group) to 68 percent (with scholarship); while for boys it rose from 53 percent to 79 percent. The scholarship program generated an additional 0.12 years of schooling per US\$100 spent.

2.2. CONDITIONAL CASH TRANSFERS (CCTS) HAVE BEEN WIDELY TESTED AND ARE CONSISTENTLY EFFECTIVE AT INCREASING SCHOOL PARTICIPATION.

Over thirty countries have conditional cash transfer (CCT) programs that provide households with cash if children go to school and complete regular health checkups (22, 23). Many of these large transfer programs have been assessed using randomized evaluations. Results from randomized evaluations of CCTs in Burkina Faso (4), Cambodia (5), China (6, 7), Colombia (8), Ecuador (9), Honduras (10, 11), Malawi (12), Mexico (13, 14, 15), Morocco (16), Nepal (17), Nicaragua (18, 19, 20), and Tanzania (21) have been highly consistent across countries, with all eighteen RCTs finding positive impacts on school participation. For the most part, CCTs have larger impacts on schooling where schooling levels are lower to begin with (22).

Given the general consensus that these programs increase participation, the key open policy questions center on cost-effectiveness and program design. Program costs for CCTs include the costs of determining eligibility, targeting and delivering the transfer, and monitoring. Even when made unconditional, cash transfers still have the costs of determining eligibility, targeting, and delivery. Are cash transfers a cost-effective way to increase student participation? And are there ways to improve the design of cash transfer programs to be more effective and cost-effective? We concentrate our analysis on a subset of papers for which we have cost data and that test alternative ways of designing CCTs.

FIGURE 2. RANDOMIZED EVALUATIONS OF CCTS AROUND THE WORLD



REDUCING COSTS



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In Mexico, the landmark PROGRESA program (Programa de Educación, Salud y Alimentación), now called Prospera (13), increased enrollment among poor households by 2–4 percentage points in primary schools and 11 percentage points for students entering the first year of secondary school. However, because the baseline level of enrollment was already 90 percent in primary schools, and all poor children received the transfer, the program paid a large number of families for something they were already doing. The program, while effective, was also expensive—generating only 0.01 additional years of schooling per US\$100. In Nicaragua (17), where baseline enrollment was only 71 percent, Red de Protección Social, a similar CCT program, increased enrollment by 18 percentage points (25 percent) and attendance by 17 percentage points (28 percent), generating about 0.14 additional years of schooling per US\$100 spent. A long-term follow-up study on boys that received this program found that they had completed an additional 0.5 years of schooling (18).

When analyzing the costs and benefits of CCTs, the transfers themselves arguably should be excluded from the costs of CCTs because they represent both a cost and a benefit. Indeed, transferring money to the poor is arguably the main objective of these programs. Even excluding transfers, however, CCTs still have relatively high costs per year of schooling. In part, this reflects high initial rates of enrollment and attendance and generally higher costs in Mexico and Nicaragua, where these programs were tested. It also reflects the cost of identifying

who is eligible for the program. These cost-effectiveness analyses suggest that CCTs should primarily be viewed as social assistance programs that also increase attendance, rather than the most efficient solutions to problems of school participation.

2.3. EVEN SMALL INCENTIVES, OR REMOVING SMALL COSTS, CAN HAVE LARGE IMPACTS.

While CCTs aim to transfer significant cash to poor families, if the objective is simply increasing enrollment and attendance at school, smaller incentives can be just as effective and better value.

In Cambodia, a cash transfer equivalent to just US\$20 a year, or 3.3 percent of average per capita spending, substantially increased enrollment and attendance (5). The transfer was given in two installments of US\$10 and was conditional on being enrolled in school, attending school regularly, and achieving passing grades. Unlike most CCTs, there were no health-related conditions. Two slightly different versions of the program produced similar results on participation. In one version, the transfers were given to poor students (need-based). In the other version, they were given to those who were performing well in school (merit-based). Students who received the need-based transfers were 18 percentage points (30 percent) more likely to enter sixth grade (the final year of primary school) and completed 0.34 more grades of school than their peers,

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while students who received the merit-based transfers were 12 percentage points (20 percent) more likely to enter sixth grade and completed 0.19 more grades of school.^{xii}

In Malawi, researchers tested the effects of a range of transfer amounts (12) and found that giving girls a CCT of US\$5 per month prompted a similar increase in enrollment as a CCT of US\$15 per month.^{xiii} Smaller transfers were more cost-effective, achieving 0.09 additional years of education versus 0.07 per US\$100 for larger transfers.

Providing small non-cash transfers linked to schooling can be effective and cheap. Free school uniforms and meals are transfers that are tied to education, but don't require monitoring whether a child goes to school. Both have increased enrollment and attendance.

In Kenya, school uniforms cost about US\$6 each, 1.6 percent of local average annual household income. While uniforms are not officially required, students face strong social pressure to wear them to school. Sixth grade girls who received free uniforms for two years were 3.1 percentage points (16 percent) less likely to drop out after three years than their peers who did not receive uniforms (19 percent of whom dropped out) (24). Boys who received uniforms were 2.4 percentage points (19 percent) less likely to drop out. The program generated 0.31 years of education for every US\$100 spent.

If transfers are poorly implemented, they may not affect participation. A program in Ecuador that announced free uniforms but only distributed uniforms to 63 percent of the targeted schools led to a 2 percentage point (2.5 percent) decline in attendance, possibly because some families could not suddenly fund an unexpected expense (25).

Programs that provide students with meals if they attend school have been effective at boosting participation. In Jamaica, a program that provided free breakfast to grades 2–5 improved attendance by 3.1 percentage points (4.6 percent) among previously undernourished children and 1.9 percentage points (2.6 percent) among children who were adequately nourished at the start of the program (26).

A study in Burkina Faso examined two school-based feeding programs, one that provided students with free lunch each day if a student attended school and another that gave each girl ten kilograms of cereal each month if she achieved 90 percent attendance (27). Researchers found that the programs increased enrollment by 4 and 5 percentage points, respectively, over a base of 25 percent. The programs also improved attendance among children who had already been enrolled. However, attendance among new enrollees was very low.

A similar program in Uganda provided school meals and take-home rations to primary schools in internally displaced persons camps (28).

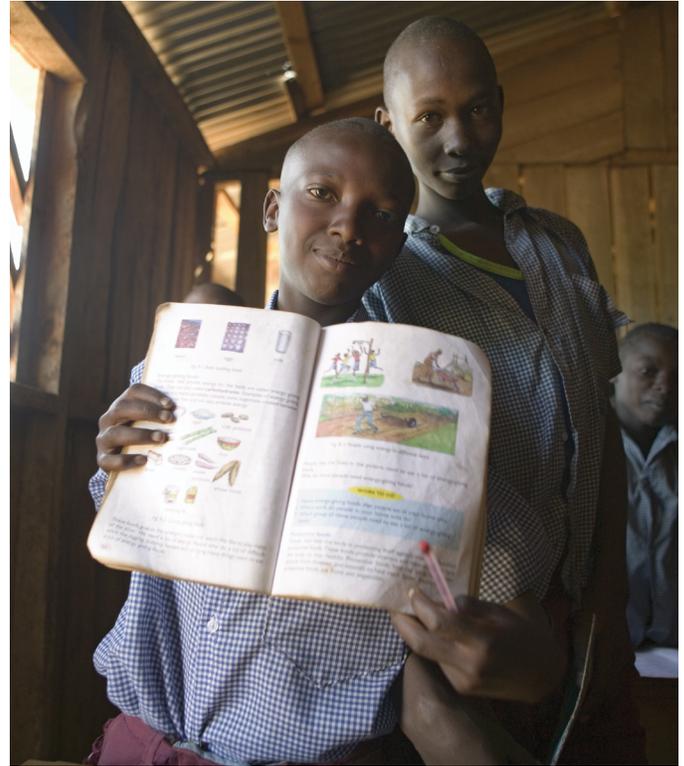


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Both school meals and take-home rations raised morning attendance by approximately 9 percentage points (12 percent) and afternoon attendance by 14–15 percentage points (31–32 percent), although neither program had an effect on overall enrollment.

2.4. CCT DESIGN DETAILS MATTER.

A new generation of evaluations have shown that small changes in the design of traditional CCT programs can make them more effective. Examples include timing the payments to coincide with deadlines for school fees, and designing the transfers to incorporate incentives for student achievement.

In Colombia, researchers examined the impact of varying when transfers to secondary school students were dispersed (8). Under the standard CCT, students received US\$15 a month if they attended school regularly. A “savings” group received US\$10 a month, with the rest reserved for a US\$50 payout dispersed when school fees for the following year were due. The lower payment during the year did not reduce attendance, and the dropout from one year to the next declined. Dropout among savings students

^{xii} In this case, “peers” refers to students in comparison schools who would have qualified for and received the scholarships if they had gone to treatment schools.

^{xiii} At the time of the evaluation, the average total transfer of US\$10 for ten months a year was equal to about 10 percent of average annual household consumption.

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was 25.7 percent, compared to 28.5 percent for students who received traditional transfers and 30.2 percent for those receiving no transfer. The savings treatment also increased enrollment in tertiary education by 9.4 percentage points (on a base of 21.9 percent), while traditional transfers had no effect on tertiary education.

In a different evaluation on CCT timing in Colombia by the same authors, some students were randomly assigned to receive US\$10 a month plus a US\$300 “graduation bonus” provided they graduated from secondary school. They received the transfer immediately if they could prove they were enrolled in higher education, or one year later if they were not. Around 68 percent of students in this group enrolled in tertiary education, compared to 18.9 percent in the comparison group that received no CCT.

Such small tweaks in program design can improve effectiveness and cost-effectiveness, though even these more efficient transfer programs cost far more per additional year of schooling than alternatives (see page 25). However, cash transfers offer other important benefits, including improved nutrition and health.

2.5. THERE ARE MIXED RESULTS ON THE IMPORTANCE OF CONDITIONALITY.

If families are more willing to invest in education when they become richer, transfer programs might be effective even if they are not made conditional on child attendance at school.

Unconditional cash transfers (UCTs) are cheaper because they save the cost of monitoring whether conditions were met. Of two studies that randomized the type of conditionality attached to transfers, one found that CCTs were more effective than UCTs at boosting attendance while the other found similar effects for labeled cash transfers and CCTs.

After two years of a transfer program in Malawi, those that received CCTs had a dropout rate of 34.6 percent compared to 40.3 percent for those receiving UCTs (12). CCTs also increased participation among girls who were not in school when the program began; previously out-of-school girls enrolled for an additional 2.35 terms over the two-year period, equivalent to nearly a year of schooling. However, because UCTs did not require school attendance, they were able to reach more marginalized girls who had dropped out of school and were less likely to come back. The transfers reduced their rates of teen pregnancy and early marriage. CCTs did not reduce pregnancy, so the conditionality’s success in promoting schooling came at a substantial social cost.

A labeled cash transfer (LCT) program in Morocco sought to reduce the downsides of conditionality while maintaining some of its attendance benefits (16). The program linked cash transfers to education in parents’ minds by having parents sign up at schools,

even though no formal conditions were applied. Attendance increased by 7.4 percentage points and was 2 percentage points higher than in schools that received a non-labeled conditional cash transfer. This study notes that families can misunderstand conditionality: many of those subject to conditionality did not realize there were conditions, and many of those not subject to conditionality believed there were conditions.

While one of the potential benefits of UCTs is reducing administrative costs associated with monitoring the conditions, this was not sufficient to make UCTs highly cost-effective from the perspective of increasing school participation. The Malawi UCT generated an additional 0.07 years of school per US\$100 spent, and the Morocco LCT led to 0.02 years of schooling per US\$100. This adds support to the conclusion that CCTs and UCTs should be considered social protection programs rather than cost-effective ways to boost school enrollment.

3. REDUCING THE BURDEN OF SCHOOL BY REDUCING CHILD MORBIDITY

All over the world, children miss school when they are sick. Conditions such as anemia and infection by parasitic worms can sap a child’s energy and increase the effort cost of attending school. In India and Kenya, mass school-based treatment for these conditions had large, positive impacts on school attendance and was very cost-effective.

Addressing anemia and worm infections increases school attendance. Over 870 million preschool- and school-age children are at risk of parasitic worm infection, and approximately 598 million preschool- and school-age children are affected by anemia. Where these conditions are prevalent, school-based deworming and iron pills can be extremely effective programs to improve attendance.

When the Indian NGO Pratham provided preschoolers with iron and vitamin A supplementation and deworming medication, weight increased among participating children by roughly 1.1 pounds, and preschool participation rates increased by 5.8 percentage points (an 8 percent increase from a baseline attendance rate of 71 percent) (29). The gains were most pronounced for the most anemic students. Combined with the fact that intestinal worms were rare among preschoolers at baseline, this suggests the program worked by reducing anemia. This result is in line with a randomized evaluation in Indonesia showing that addressing anemia in adults reduces absenteeism from work.^{xiv}

^{xiv} Thomas, Duncan, Elizabeth Frankenberg, Jed Friedman, Jean-Pierre Habicht, Mohammed Hakimi, Nicholas Ingwersen, Jaswadi, Nathan Jones, Christopher McKelvey, Gretel Pelto, Bondan Sikoki, Teresa Seeman, James P. Smith, Cecep Sumantri, Wayan Surtastini, and Siswanto Wilopo. “Causal effect of health on labor market outcomes: Experimental evidence.” Working paper, September 2006.

REDUCING COSTS



PHOTO: ALISSA FISHBANE | J-PAL/IPA

In western Kenya, a program that treated children for intestinal worms in primary schools where worm infection was high improved student attendance by 8.5 percentage points, reducing absenteeism by more than a quarter (30). A long-term follow-up found that children in treated schools were enrolled for an additional 0.29 years of schooling (31). Because deworming children also reduces worm prevalence in the environment, school-based deworming increased attendance for both treated and untreated students.

Deworming and iron pills are the most cost-effective programs to increase school participation included in this analysis (see Figure 2). Because the program in Kenya was implemented through schools, and the deworming pills cost only a few cents, it yielded 12.5 additional years of schooling for every US\$100 spent. Similarly, the program in India that provided preschool students with iron and vitamin A supplementation and deworming medication bought 2.7 years of school for every US\$100 spent. Policymakers in governments and NGOs around the world have used this evidence and scaled up school-based deworming to over 190 million children since 2009.

INCREASING PERCEIVED BENEFITS

4. IMPROVING THE QUALITY OF EDUCATION

**Improving education quality can—but does not always—
increase student attendance by increasing the perceived
benefits of education, at least in the short term.**

The quality of schooling is low in many developing countries. In India, for example, close to 20 percent of children in third grade cannot read a word.^{xv} Parents and children might, therefore, conclude that investing in sending kids to school is not worthwhile. If

school quality improves so that children in class learn more, do parents and children respond by enrolling and attending more?

Sixteen programs that successfully increased test scores and also measured student participation have been evaluated. Of these, seven were designed to directly improve participation (Table 2). An additional nine programs raised test scores through improvements in classroom quality only (i.e., the program did not directly attempt to increase participation). In four of those nine interventions, student participation responded to improved quality, while five interventions did not change participation, at least in the short run (Table 3).

TABLE 2. INTERVENTIONS AIMED DIRECTLY AT PARTICIPATION

INTERVENTION	IMPROVED LEARNING?	IMPROVED PARTICIPATION?
1: Village-based schools in Afghanistan	✓	✓
2: Subsidies for new private schools in Pakistan	✓	✓
5: Merit-based CCTs in Cambodia	✓	✓
12: CCTs of varying sizes and conditionality in Malawi	✓	✓
18: CCTs in Nicaragua (long-term follow-up)	✓	✓
31: Mass school-based deworming in Kenya (long-term follow-up)	✓	✓
57: Merit scholarships for girls in Kenya	✓	✓

TABLE 3. INTERVENTIONS AIMED AT QUALITY ONLY

INTERVENTION	IMPROVED LEARNING?	IMPROVED PARTICIPATION?
32: Camera monitoring of teachers with incentives in India	✓	✗
33: Computer-assisted curriculum in primary schools in India	✓	✗
34: Remedial tutoring in India	✓	✗
35: Contract teachers and streaming by ability in Kenya	✓	✗
35: Contract teachers in Kenya	✓	✓
35: Extra contract teachers and school-based management training in Kenya	✓	✓
37: Child and school report cards in Pakistan	✓	✓
45: Participatory community-based monitoring in Uganda	✓	✓
50: School committee elections, join planning meetings, grants, and training in Indonesia	✓	✗

INCREASING PERCEIVED BENEFITS



PHOTO: AUDE GUERRUCCI | J-PAL/IPA

One reason that quality improvements may not translate into higher participation may be that parents and students find it hard to judge the quality of education in the short run. Indeed, many of the programs that improved quality and increased student participation included an element of community monitoring or school-based management, which may have helped parents perceive the increases in quality. Whether increasing education quality on its own has a more consistent impact on student participation over a longer time period, when parents have longer to learn the benefits of improved schooling, has yet to be evaluated.

Programs that improve quality by reducing teacher absenteeism can increase students' hours in class even if student behavior does not change. In India, reducing teacher absenteeism through monitoring (48) led to schools being open more often, increasing the days of instruction a student received per month by 9 percentage points (30 percent), even though students were not more likely to attend on any given day.

5. CHANGING PERCEPTIONS

Programs that address perception gaps or make the benefits of education more salient can change behavior at low cost.

When making decisions about investing in education, parents and students must weigh the expected costs and benefits. However, costs are usually immediate while benefits can be hard to judge and are often not top-of-mind. A number of programs that reframed the costs and benefits of education increased attendance. Some were designed to address inaccurate perceptions (for example, by providing information on scholarships), while others may have worked by making the potential benefits of education more salient.

A study in the Dominican Republic showed that more than 40 percent of eighth-grade boys did not expect their future earnings to be higher if they completed secondary school (38).

Boys with low perceived returns to secondary education were also more likely to drop out. Researchers found that informing boys of the average wages earned by people in their area based on education levels raised their own perceived returns to education, and that boys who received this information completed an additional 0.20 years of schooling.

³⁸ Annual Status of Education Report, 2014.

INCREASING PERCEIVED BENEFITS



PHOTO: VIPIN AWATRAMANI | J-PAL/IPA

Because information was delivered through one-on-one discussions and required an extensive survey of local wages, the Dominican Republic program was relatively expensive, generating 0.24 additional years of schooling per US\$100 spent. However, if operated at scale, allowing the cost of the survey to be spread among more beneficiaries, the program could achieve 2.6 additional years of schooling per US\$100 spent. (See page 26 for the discussion on CEA at scale in the Cost-Effectiveness section.)

An intervention that provided information about how to access financial aid for further education increased student attendance in the short run, and changed which high schools students attended. In Chile, a program called Abre la Caja created a short, 15-minute video about different financial aid packages for higher education and how to access them (39). Students who were shown the video, either in school or at home, were 8.8 percentage points (14 percent) less likely to be absent from school at least once in the month after the intervention. By showing children and parents ways they could access tertiary education, the video motivated them to invest more in secondary education.

The video also informed students of the academic requirements for getting into college and receiving financial assistance. The program targeted eighth-grade students, four years before they needed to apply for financial aid for college but near the time when they made decisions about where to attend high school.

Among students whose current school terminated after eighth grade (requiring them to choose a new school for high school), students who were exposed to the video were 6.3 percentage points (10 percent) more likely than the comparison group to enroll in a college preparatory high school rather than a vocational school.

Where financial constraints are not the main barrier to continuing in school, information on scholarships may have less input. In China, admission to high school is highly competitive and providing seventh and ninth graders with information about scholarships for high school did not increase enrollment (40). The authors suggest that this is at least in part because by the time of high school admissions, the competitive system had already screened out lower-performing students and promoted higher-performing students.

Educating parents may improve parents' understanding of the benefits of schooling, or increase the salience of these benefits, and help them get involved in their children's education. A study testing three interventions for mothers in India—literacy and math training, a series of materials and activities to promote enhanced involvement in their children's education at home, or a combination of the two—found that the literacy training combined with materials had a small positive impact, raising the probability of the child attending school by 2 percentage points (2.3 percent) (41).

INCREASING PERCEIVED BENEFITS



PHOTO: CLAIRE BERNARD | J-PAL/IPA

In areas where parents and children do not underestimate the benefits of education, providing information may not be effective at increasing student attendance. In China, about two-thirds of children living in poor, rural regions begin high school. Researchers compared the effects of a program that provided seventh-grade students with information on the returns to secondary school to one that combined information with comprehensive career counseling (42). They found that information alone had no effect on whether students dropped out, began high school, or the type of high school they attended. This suggests that in this context, either parents and children did not underestimate the benefits, or there were more significant barriers to attending school.

Examples can be powerful in changing perceptions. In India, researchers tested the impact of sending recruiters to hold information sessions for women that included information about jobs in the business process outsourcing (BPO) industry, the compensation levels, necessary qualifications, and how to apply (43). While this represented only one possible future career, the impact of this exposure was large. Women in villages where recruiters held information sessions expressed a greater interest in working throughout their lives—even after marriage and childbirth—indicating shifting aspirations toward work as a longer-term career. Another program in India that established a quota system for female village leaders also caused changes in

girls' aspirations (44). The presence of a female leader in their village significantly increased parents' education- and occupation-related aspirations for their daughters, and female adolescents were more likely to want to delay marriage, to work outside the home, and to take a job that required education.

Examples of future career opportunities for women and of female leaders led parents and students to invest more in their education. In villages that received BPO information sessions, girls aged 6 to 17 were 5 percentage points (7 percent) more likely to be enrolled in school. The share of young women aged 18 to 24 enrolled in private, fee-based vocational or training programs rose from 0.5 percent in comparison villages to 3.3 percent. Villages where the village leader position was reserved for a woman saw no gender gap in enrollment between boys and girls, compared to a 6 percentage point gap in enrollment in comparison villages.

6. INVOLVING COMMUNITIES IN SCHOOL MANAGEMENT

Greater involvement of communities in school management has mixed results on participation.

Getting communities more involved in the management of their local schools might be a way to motivate them to send children to school more regularly. Community-based monitoring programs typically have a focus on both participation and learning. These interventions might change parents' perceptions of the benefits of education by increasing the information available to them, or they might improve school quality by strengthening accountability systems, thereby increasing the real benefits of attending school.

However, programs designed to increase community involvement in schools are difficult to make effective. When community monitoring and school-based management programs are effective, they often improve both learning and participation. When they are not effective, they usually improve neither.

Out of the seven studies testing community monitoring or school-based management interventions included in this review, three programs improved both participation and learning (Uganda (45), Madagascar (46), and Mexico (47)) and two programs improved neither (Niger (48), India (49)). A program in Indonesia (50) improved learning but had no impact on dropout, which was already very low. A program in The Gambia (51) improved participation but had no impact on learning, which the authors suggest could be due to particularly low levels of teacher quality and adult literacy within the school management committees.

INCREASING PERCEIVED BENEFITS



PHOTO: ROBERTONENCINI | SHUTTERSTOCK.COM

7. ADDING SCHOOL SUPPLIES

Increased spending on inputs, such as adding computers to classes, does not appear to increase participation through increased perceived benefits.

If parents and children struggle to accurately assess school quality, they might take more inputs (such as computers, textbooks, or teachers) to mean a higher quality of education, and thus participate more. Students might want to go to school more if there are new books and computers. However, an examination of studies that evaluated increasing a range of inputs found no consistent impact on attendance.

Programs in Kenya (52) and Sierra Leone (53) provided textbooks to primary schools and found no impact on student dropout, grade repetition, or daily attendance. Researchers in Sierra Leone note that students did not necessarily have greater access to textbooks because many schools stored the textbooks instead of distributing them to students. An evaluation of the One Laptop per Child program in Peru provided laptops to students in low-income areas for use at home and at school (54). While the program increased access to technology, enrollment and attendance were unaffected.

Rather than educational materials, a program in India provided infrastructure inputs in the form of in-school and traveling libraries (55). While baseline attendance was high to begin with (around 90 percent), the provision of libraries did not increase student attendance further. An infrastructure program in Bolivia repaired existing schools, built new schools, increased the availability of bathrooms, and provided desks, blackboards, and playgrounds (56). Researchers found little impact on enrollment, attendance, or dropout rates.

Not all inputs that might attract additional participation have been evaluated, so this is an area in which more evaluations may be useful.

8. INCREASING STUDENT MOTIVATION

Students' perceived costs and benefits are important for boosting enrollment and attendance.

Policy discussions about school enrollment and attendance often focus on parents' decisions, but students' perceived costs and benefits can also be important. Many of the effective programs covered in this bulletin likely work in part because they motivate students, and students have some influence on their own enrollment and attendance. Providing information on the higher wages that those with more years of education earn could help motivate children as well as their parents. The same is true for free school meals and the prospect of winning a merit scholarship.

One of the clearest pieces of evidence that student motivation is important for participation comes from an evaluation of the impact of CCTs on students not eligible for the transfers. While siblings of students who received the transfer in Mexico were less likely to go to school (presumably because parents decided to focus their investment on the child who was eligible for the transfer), their classmates were more likely to go to school despite not receiving a transfer.^{xvi} The authors suggest that this is because it is less fun playing hooky from school when your friends are in school.

A program in Kenya sought to enlist student motivation to improve education outcomes. It offered merit-based scholarships worth US\$19.20 per year for two years to sixth-grade girls who scored in the top 15 percent on district-wide exams (57). This program increased attendance in the year prior to the final awards by 3.2 percentage points for girls, a one-quarter reduction in absenteeism given baseline attendance rates of 87 percent. The impacts were not confined to girls who were already doing well (i.e. most likely to win the scholarship). Attendance of teachers also improved, leading to some positive learning spillovers for the classroom as a whole.

However, a program in Mexico that provided performance-based financial incentives to students successfully improved math scores but had no impact on dropout, possibly because several other programs were already providing attendance incentives (58). In China, where admission to academic high school is very competitive, a school counseling intervention sought to increase motivation and reduce dropout among junior high students by reducing their learning anxiety (59). In the short term, counseling reduced dropout by 2 percentage points (25 percent), but these impacts had disappeared one year later.

^{xvi} Bobonis, Gustavo, and Frederico Finan. 2009. "Neighborhood peer effects in secondary school enrollment decisions." *The Review of Economics and Statistics* 91(4): 695-716.

GENDER



PHOTO: FRANCISCA DE IRUARRIZAGA | J-PAL/IPA

9. TARGETING GENDER-SPECIFIC BARRIERS

These general lessons apply equally to boys and girls.

Since more girls are out of school than boys, it is important to examine the gender implications of these different strategies. Do general education programs help girls equally, or does increasing girls' participation require a gender-targeted approach?

Policymakers have cited gender-specific cultural barriers, such as restriction on girls' mobility during menstruation, as a limitation on girls' educational attainment. As we discuss above, mobility issues can mean girls' attendance is more sensitive to distance to school than boys. There is less high-quality evidence on other gender-specific barriers such as menstruation as a barrier. A program in Nepal sought to improve girls' attendance by providing seventh- and eighth-grade girls with sanitary products (60). The evaluation found that, on average, menstruation was not a key barrier: girls only missed 0.35 days of school out of a 180-day school year due to their period. Although girls reported liking the product, it had no impact on closing this small attendance gap.

Disaggregating results of studies included in this bulletin by gender shows that most programs that improved school participation overall were at least as effective—if not more

effective—for girls as they were for boys. For example, in Nicaragua and Colombia, boys had significantly lower attendance rates at baseline than girls, and in these cases, impacts of CCT programs for boys were larger than for girls. In other words, through the studies cited in this bulletin, programs aimed at increasing participation tended to help the most disadvantaged gender best.

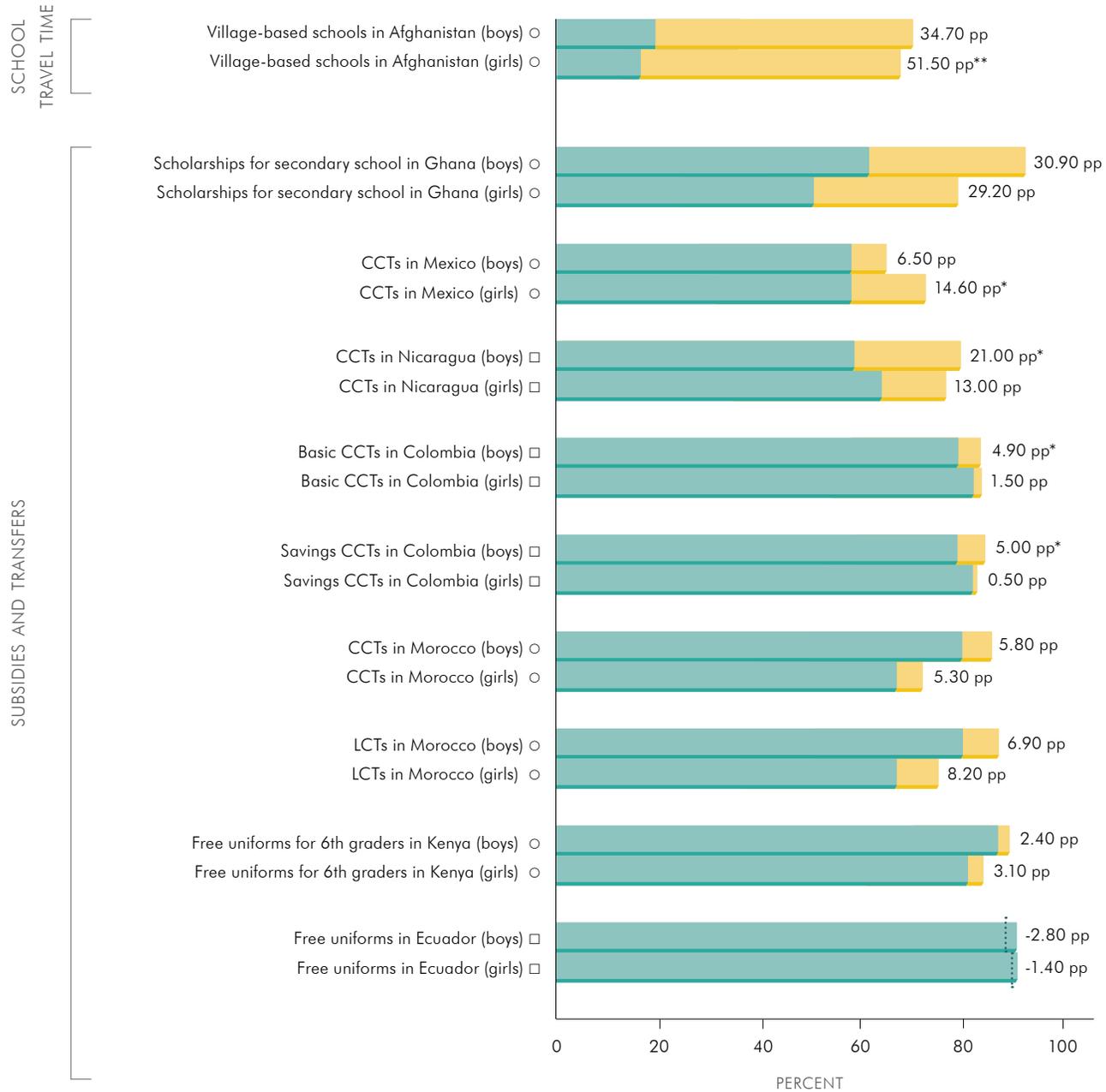
DIFFERENTIAL IMPACTS BY GENDER HOW TO READ FIGURE 3 (PAGES 22-23)

The chart on pages 22–23 shows short-term impacts of different programs disaggregated by gender. Impacts are measured in enrollment in school (○), attendance in school among enrolled students (□), or attendance in school regardless of enrollment status (◇).

The teal colored bars represent student participation in the comparison group. The yellow colored bars represent the additional impact of the program. The right end of the yellow colored bar represents participation in the treatment group after the program. For programs with negative impacts, participation in the treatment group after the program is represented by a dotted line.

GENDER

FIGURE 3. IMPROVING STUDENT PARTICIPATION: DIFFERENTIAL IMPACTS BY GENDER



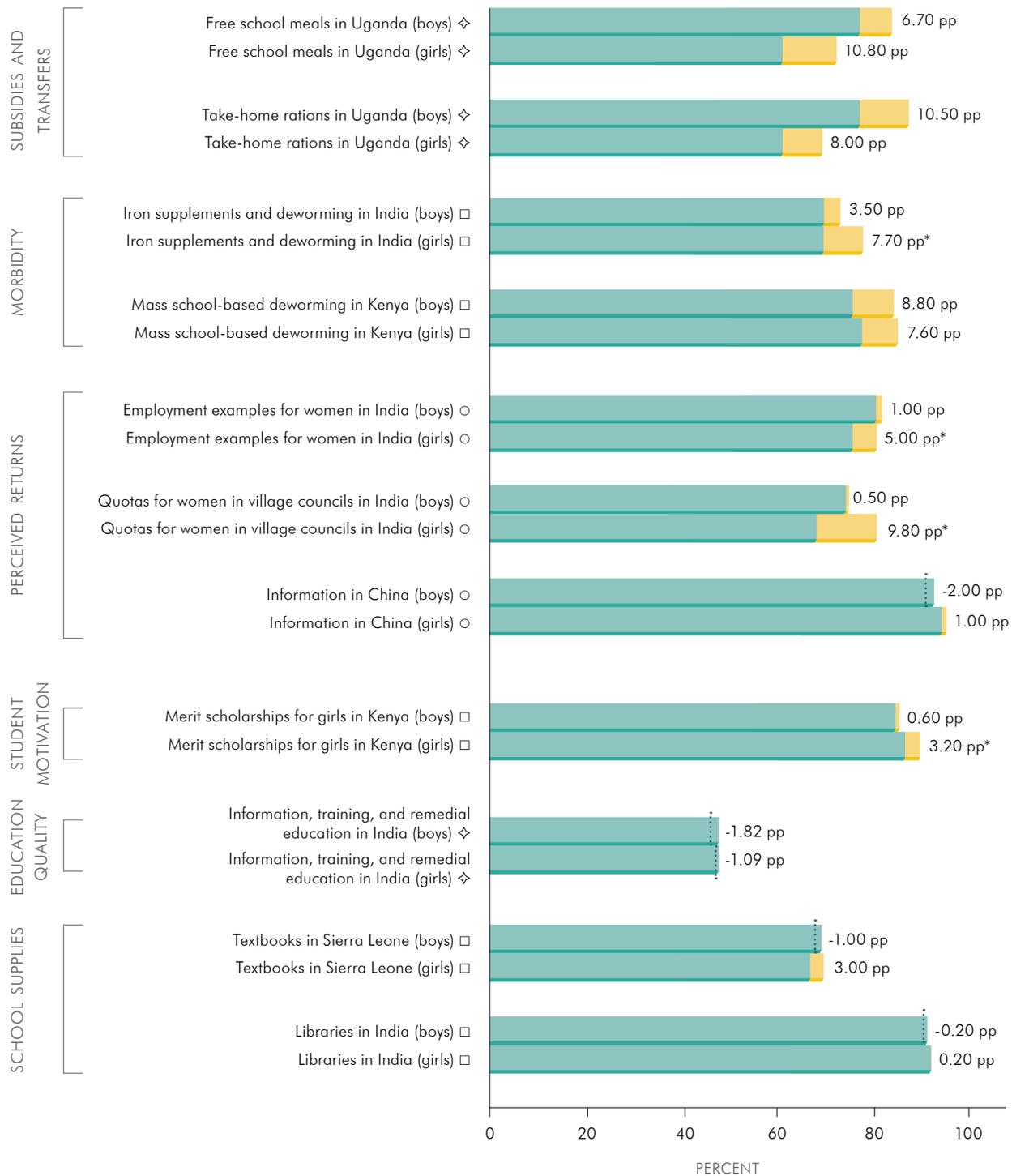
Key for Figure 3

- Comparison Group
- Positive Impact
- ⊖ Enrollment
- Attendance
- ⋮ Negative Impact
- ◇ Unconditional Attendance

Note: Statistically significant difference (at the 10% level or below) in impacts between genders are designated by a star (*)
 The value at the end of each bar represents the percentage point (pp) increase or decrease in the treatment group at the end of the program (i.e., the size of the yellow bar).

GENDER

FIGURE 3. IMPROVING STUDENT PARTICIPATION: DIFFERENTIAL IMPACTS BY GENDER (CONTINUED)



COST-EFFECTIVENESS

Some programs may be effective at increasing schooling but may also be expensive. Therefore, where authors have provided J-PAL with cost data, we compare the cost-effectiveness of the programs (Figure 4). Cost-effectiveness analysis (CEA) calculates the amount of “effect” a program achieves for a given cost. In this case, we use additional years of schooling achieved per US\$100. Additional schooling can come through increased enrollment or through already-enrolled children attending more frequently.

In health, there are well-recognized thresholds for what counts as cost-effective.^{xvii} No such recognized benchmark exists for student participation. A potentially useful comparator is the average cost of providing education per child per year. Thus, for example, the Dominican government spends US\$988 per child per year providing schooling, or 0.10 years of schooling for every US\$100 spent.^{xviii} Providing information on the returns to education in the Dominican Republic provides an additional 0.24 years of schooling for US\$100, making it more expensive than the average cost of education in the Dominican Republic. One challenge with this approach is that countries spend radically different amounts per child per year: the Mexican government spends US\$1,462 (equivalent to 0.07 years of schooling for \$100) while India spends just US\$130 per student per year (0.77 years per US\$100). However, we may not want to value the education of a child in India less than the education of a child in Mexico. In addition, costs per child are likely to rise as we work to get the hardest-to-reach children into school.

An alternative approach is to compare the costs of an additional year of schooling to the potential benefits. While there are many caveats to estimates of the benefits of schooling, a consensus is that an additional year of education in developing countries is correlated with a rise in income of about 8–10 percentage points (we use 9).^{xix} For someone earning US\$1.90 a day (the threshold of extreme poverty), that represents US\$62 more a year. Even taking into account the loss of earnings from staying in school another year, over a forty-year work life that adds up to US\$609 in net present value. Under these assumptions, a program that produces 0.16 years of education for less than US\$100 returns more benefits than it costs. For those above the extreme poverty threshold, the returns would be even higher, and the cost-effectiveness threshold lower. It is important to keep in mind, however, that these calculations are based on the assumption that more regular attendance at school leads to higher wages in the same way that staying enrolled for an additional year appears to.

USING COST-EFFECTIVENESS ANALYSIS TO COMPARE PROGRAMS

Cost-effectiveness analysis (CEA) summarizes complex programs in terms of a ratio of impacts to costs. It allows us to compare programs that seek to achieve the same goal, yet are evaluated in different countries and years. While we provide relative rankings, CEA does not, by itself, provide sufficient information to determine any policy or investment decisions. For example, the relative rankings may be different if relative input costs vary by country (for example,^{xx} the cost of teachers’ salaries versus computers). However, CEA can serve as a useful starting point in the decision-making process, including by highlighting the types of programs that tend to be the most cost-effective and by establishing cost-effectiveness benchmarks. Detailed data are available on J-PAL’s website and readers are encouraged to input relevant local costs and undertake sensitivity analysis.

To calculate cost-effectiveness, it is necessary to make several assumptions. J-PAL’s cost-effectiveness analyses focus on the perspective of policymakers considering which program to implement (Dhaliwal et. al, 2013). This determines the selection of discount rates, exchange rates etc. Evaluation costs are excluded from “program costs.” The assumptions, full cost-effectiveness calculations, as well as background information on each of the studies in this bulletin, are available on the J-PAL website.

When interpreting cost-effectiveness, it is important to bear in mind that some programs, particularly CCTs, achieve other objectives than improving student participation. Programs will also tend to be more expensive in richer countries, not least because attendance rates tend to be higher to begin with. Additionally, it may be relatively harder to achieve impacts on participation in secondary school than in primary because older children typically have opportunities to earn higher wages outside of school.

^{xvii} An intervention that costs less than US\$100 per Disability Adjusted Life Year (DALY) saved is considered extremely cost-effective. Because richer countries have more to spend on health, anything costing less than local GDP per capita per DALYS saved is also considered cost-effective.

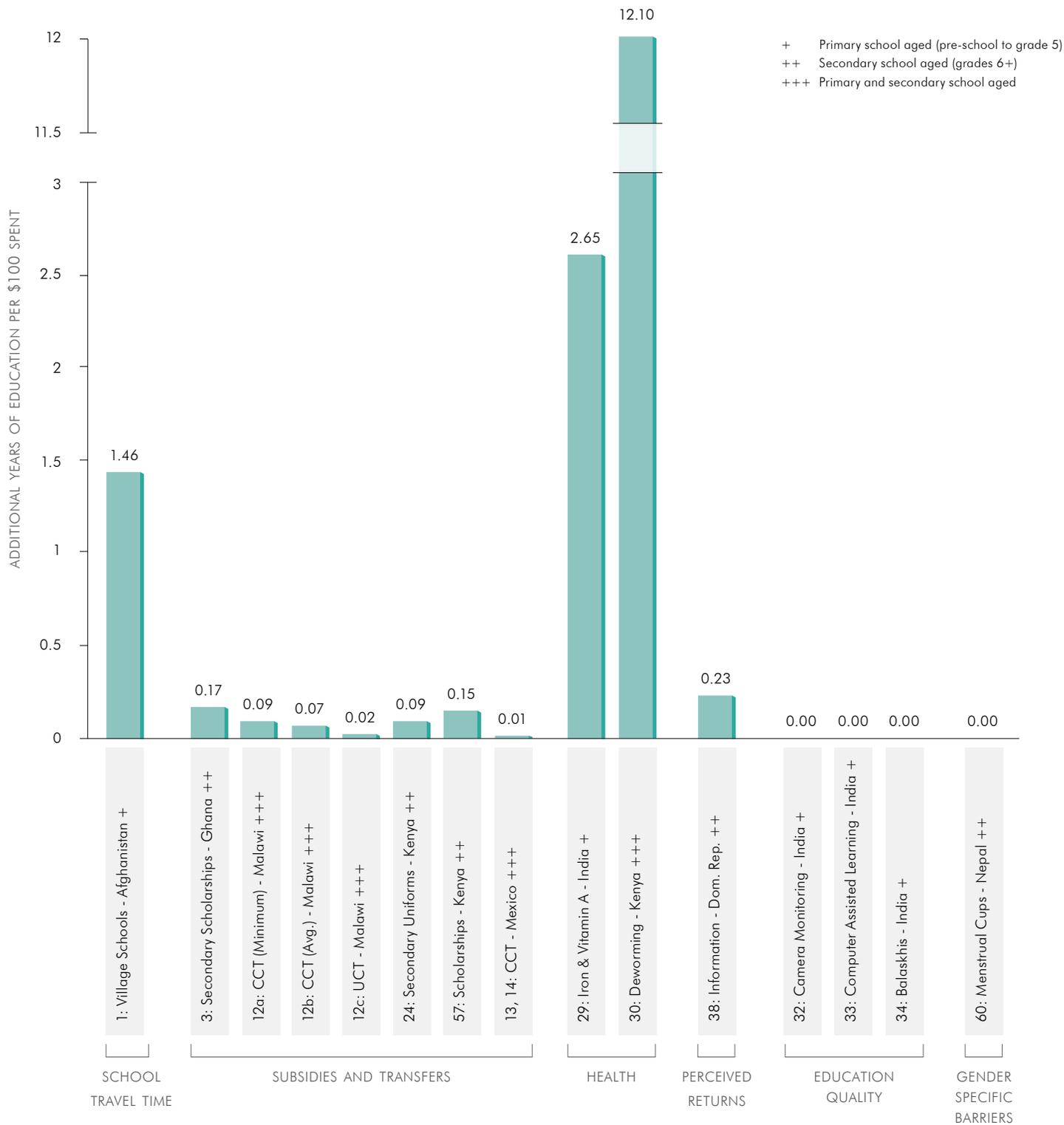
^{xviii} UNESCO Institute for Statistics, “Government expenditure per primary student in constant US \$.”

^{xix} Montenegro, Claudio E., and Harry Anthony Patrinos. “Returns to Schooling around the World.” Background paper for the World Development Report, 2013.

^{xx} For more, see World Bank Policy Research Working Paper 7027, “Cost-Effectiveness Measurement in Development Accounting for Local Costs and Noisy Impacts” by David K. Evans and Anna Popova.

COST-EFFECTIVENESS

FIGURE 4. COST-EFFECTIVENESS OF PROGRAMS TO IMPROVE STUDENT PARTICIPATION (ADDITIONAL YEARS OF EDUCATION PER US\$100 SPENT)



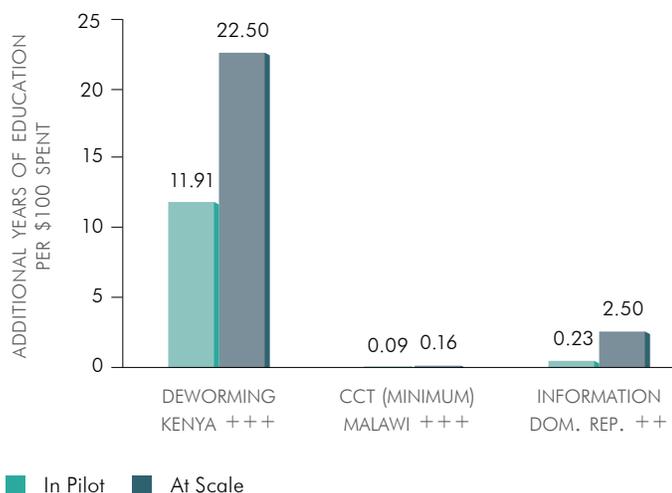
The most cost-effective programs included in this bulletin address health problems (such as intestinal worms and chronic anemia) and reduce the distance to school through the creation of low cost schools in areas where few schools exist. On average, reducing

the cost of school, cash transfers and other incentives are not as cost-effective as other approaches. Again, when comparing cost-effectiveness, it is important to recognize that CCTs also provide benefits other than school attendance.

COST-EFFECTIVENESS

Performing the same analysis using “at scale” costs changed the exact cost-effectiveness estimate for some programs, but not which programs are found to be more cost-effective overall. Projecting cost-effectiveness at scale is not straightforward: larger programs could be cheaper, if fixed costs are spread over a larger pool of beneficiaries, or more expensive, due to the additional difficulties of administering a program over a wide area. It is possible to estimate the at-scale costs, and use these to estimate cost-effectiveness at scale (Figure 5). For instance, the CCT program evaluated in Malawi had expensive administration costs that were spread over a small sample group. When the program’s cost-effectiveness is calculated using projected costs for an at-scale program, the cost-effectiveness jumps from 0.09 years to 0.17 years of additional education per US\$100 spent. Impacts may also change when a program is implemented at scale. For example, the deworming program was implemented in a relatively small area with very high worm load. When the program is scaled to areas with lower worm load, the impacts may change. These changes in impact due to scale are hard to estimate. Here, we simply examine the sensitivity to likely changes at costs at scale. We find that the order of cost-effectiveness stays the same: both informational campaigns and school-based deworming are still extremely cost-effective, while CCTs are not significantly cheaper per year of education induced.

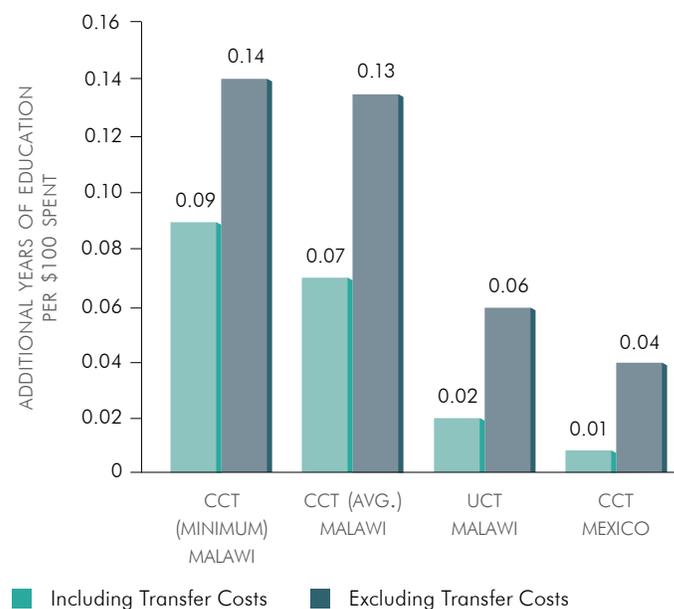
FIGURE 5. COST-EFFECTIVENESS OF PROGRAMS, IN PILOT AND AT SCALE



- + Primary school aged (pre-school to grade 5)
- ++ Secondary school aged (grades 6+)
- +++ Primary and secondary school aged

Even excluding the costs of the transfers themselves, CCTs are still not particularly cost-effective as a way to increase children’s time in school. Governments running CCT programs have to find the cash to cover the transfer, but because the value is merely transferred from one party to another, it could be argued that the transfer is not a cost to society as a whole. (An alternative way to see this is that the transfer is a cost but also a benefit of equal size). For this reason, it can also be useful to look at the cost-effectiveness of these programs excluding the costs of transfers (Figure 6). Even when the cost of cash transfers were not considered, CCTs in Malawi (19), Mexico (17), Morocco (22), and Nicaragua (18) were still far less cost-effective at increasing student attendance and enrollment than other tested programs, though they may still be very successful at affecting other outcomes.

FIGURE 6. COST-EFFECTIVENESS OF CASH TRANSFER PROGRAMS WITH AND WITHOUT COST OF TRANSFERS



PRACTICAL IMPLICATIONS OF THIS RESEARCH

Policy makers concerned about schooling should focus not only on school enrollment, but also on how frequently enrolled children are attending school. While enrollment rates in primary and secondary education have risen sharply, many children attend school irregularly. Available data suggest that at the primary school level in many countries, more days of schooling are lost to enrolled children not attending regularly than to children not being enrolled in school. Enrollment becomes a relatively larger problem at older ages.

A large body of randomized evaluations testing different strategies for promoting student participation, as well as cost-effectiveness data, can help policy makers seeking to increase enrollment and address intermittent attendance. Which strategy is best to pursue will depend on local conditions and challenges. In areas where there are few schools, requiring children to travel outside their local community to attend school, finding ways to provide low-cost local school options is likely a priority. Similarly, in places with high parasitic worm load or very high rates of anemia, programs that cheaply address these issues should be investigated for feasibility. These are specific strategies that make sense where these specific needs are present.

Many of the other programs discussed in this bulletin address the real and perceived costs and benefits of education. Across very different settings, many studies have shown that school participation is sensitive to changes in these real and perceived costs and benefits. But precisely how these policies are designed and implemented can have important implications for their effectiveness and particularly their cost-effectiveness. A number of more general takeaways about these perceived costs and benefits emerge from across this body of work:

- **Conditional and unconditional cash transfers can increase school enrollment and attendance, but are expensive to implement. CCTs and UCTs have been consistently shown to increase attendance at school.** However, they are expensive, even if we don't consider the transfers themselves as a cost. CCTs and UCTs should primarily be seen as social protection programs that also increase attendance.
- **If CCTs and UCTs are being implemented for social protection reasons, restructuring payments may improve their effectiveness.** Different ways of structuring payments can help families save for lumpy expenditures, such as school fees, and motivate both parents and children to improve education attainment and outcomes.
- **Eliminating small costs can have substantial impacts on school participation.** If the main policy goal is to increase attendance at school, rather than social protection, eliminating small costs associated with school (school fees, report card fees, payments for school uniforms) or small subsidies may be more cost-effective than large transfers.

- **Programs that address perception gaps can change behavior at low cost.** When parents and children underestimate the benefits of education or overestimate the costs, addressing these perception gaps can be a cheap and effective way to promote schooling. However, this strategy only makes sense where misperceptions exist.
- **Even when misperceptions do not exist, the benefits of education can seem distant.** Making these benefits highly salient has been shown to increase participation in school. While not every education promotion program is effective at changing perceptions, a series of studies has shown the promise of quite cheap interventions aimed at making the benefits of education salient.
- **Changes in education quality can be difficult to perceive and may not affect participation.** While small changes in the costs of education are very apparent to parents and students, changes in the benefits of education are not always as apparent. Programs that increased the quality of education and led to learning improvements did not consistently stimulate children to go to school more frequently.
- **Adding school supplies and infrastructure does not appear to increase enrollment or attendance.** Increased spending on inputs, such as adding computers to classes, does not by itself appear to change perceived benefits of education and does not increase participation.

Although more girls are out of school than boys, general programs that seek to increase schooling for all tend to help girls as much as—or even more than—boys. In the few cases when general programs helped boys more than girls, boys had started with lower attendance rates than girls. In other words, most programs helped the most disadvantaged gender most.

APPENDIX: INCLUDED STUDIES



PHOTO: OSCAR POCASANGRE | J-PAL/IPA

This bulletin draws from education papers that examined school participation as an outcome. Papers were considered for inclusion if they evaluated an intervention that was designed to increase school participation or provided a plausible theory of change that could address participation (i.e., we dropped papers that sought to improve test scores, even if they measured participation, when they failed to improve learning).

From this pool, papers were considered for inclusion if they were randomized evaluations that measured participation and met the search criteria laid out in Glewwe and Muralidharan (2016). Under this criteria, two databases, EconLit and ERIC, were searched for participation studies. Papers published between 1990 and 2014 were considered for inclusion. Working papers found in the following series were also included if they were written between 2010 and 2014:

- National Bureau of Economic Research (NBER)
- World Bank Policy Research
- Institute for the Study of Labor (IZA)
- Center for Economic and Policy Research (CEPR)
- Rural Education Action Project (REAP)
- Oxford University’s Young Lives Study
- Abdul Latif Jameel Poverty Action Lab database

To update this body of literature, we applied the above search criteria to participation studies found in a number of recent systematic reviews.^{xxi} We also searched the J-PAL database for participation studies up through 2016. Quasi-randomized studies are referenced (in footnotes) when they helped to interpret results from randomized evaluations.

^{xxi} Snilstveit, Birte, Jennifer Stevenson, Daniel Phillips, Martina Vojtkova, Emma Gallagher, Tanja Schmidt, Hannah Jobse, Maisie Geelen, Maria Grazia Pastorello, and John Eyers. 2015. “Interventions for improving learning outcomes and access to education in low- and middle- income countries: a systematic review.” *3ie Systematic Review* 24. London: International Initiative for Impact Evaluation (3ie).

Evans, David K., and Anna Popova. 2016. “What really works to improve learning in developing countries? An analysis of divergent findings in systematic reviews.” *World Bank Research Observer* 31 (2): 242-270.

APPENDIX: INCLUDED STUDIES

For ease of reference, we have listed studies by the order in which they are referenced in the bulletin (grouped by intervention type), rather than alphabetically.

REDUCING COSTS BY SHORTENING TRAVEL TIME TO SCHOOL

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- 2 Barrera-Osorio, Felipe, David S. Blakeslee, Matthew Hoover, Leigh L. Linden, Dhushyanth Raju, and Stephen P. Ryan. "Delivering Education to the Underserved Through a Public-Private Partnership Program in Pakistan." NBER Working Paper #23870, September 2017.

REDUCING COSTS THROUGH SUBSIDIES AND IN-KIND TRANSFERS

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- 14 Behrman, Jere R., Susan W. Parker, and Petra E. Todd. 2009. "Schooling impacts of conditional cash transfers on young children: evidence from Mexico." *Economic Development and Cultural Change* 57 (3): 439-477.
- 15 Behrman, Jere R., Susan W. Parker, and Petra E. Todd. 2011. "Do conditional cash transfers for schooling generate lasting benefits? A five-year follow up of PROGRESA/Oportunidades." *Journal of Human Resources* 46 (1): 93-122.
- 16 Benhassine, Najy, Florencia Devoto, Esther Duflo, Pascaline Dupas, and Victor Pouliquen. 2015. "Turning a Shove into a Nudge? A "Labeled Cash Transfer" for Education." *American Economic Journal: Economic Policy* 7 (3): 86-125.
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- 23 Snilstveit, Birte, Jennifer Stevenson, Daniel Phillips, Martina Vojtkova, Emma Gallagher, Tanja Schmidt, Hannah Jobse, Maisie Geelen, Maria Grazia Pastorello, and John Evers. 2015. "Interventions for improving learning outcomes and access to education in low- and middle- income countries: a systematic review." *3ie Systematic Review* 24. London: International Initiative for Impact Evaluation (3ie).
- 24 Duflo, Esther, Pascaline Dupas and Michael Kremer. 2015. "Education, HIV and Early Fertility: Experimental Evidence from Kenya." *American Economic Review* 105 (9): 2757-2797.

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- Miguel, Edward and Michael Kremer. 2014. "Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities, Guide to Replication of Miguel and Kremer (2004)." *UC Berkeley: Center for Effective Global Action*.
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- 47 Gertler, Paul, Harry Patrinos, and Eduardo Rodríguez-Oreggia. "Parental Empowerment in Mexico: Randomized Experiment of the "Apoyos a la Gestión Escolar (AGE)" in Rural Primary Schools in Mexico." Washington, DC: The World Bank. Preliminary draft, August 2012.
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- 49 Banerjee, Abhijit, Rukmini Banerji, Esther Duflo, Rachel Glennerster, and Stuti Khemani. 2010. "Pitfalls of participatory programs: evidence from a randomized evaluation in education in India." *American Economic Journal: Economic Policy* 2 (1), 1–30.
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- 51 Blimpo, Moussa P., David K. Evans, and Nathalie Lahire. "Parental Human Capital and Effective School Management: Evidence from The Gambia." World Bank Policy Research Working Paper 7238, April 2015.

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- 52 Glewwe, Paul, Michael Kremer, and Sylvie Moulin. 2009. "Many children left behind? Textbooks and test scores in Kenya." *American Economic Journal: Applied Economics* 1 (1), 112–135.
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INCREASING STUDENT MOTIVATION

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ADDITIONAL SYSTEMATIC REVIEWS

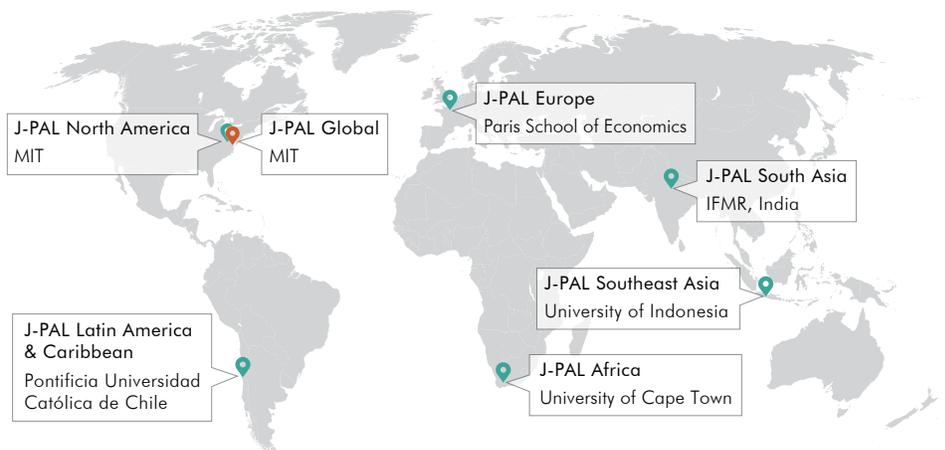
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Evans, David K., and Anna Popova. 2016. "What really works to improve learning in developing countries? An analysis of divergent findings in systematic reviews." *World Bank Research Observer* 31 (2): 242-270.

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The Abdul Latif Jameel Poverty Action Lab (J-PAL) is a network of affiliated professors around the world who are united by their use of randomized evaluations to answer questions critical to poverty alleviation. J-PAL's mission is to reduce poverty by ensuring that policy is informed by scientific evidence.

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PRACTICAL IMPLICATIONS OF THIS RESEARCH

Note: These key takeaways are repeated here from page 27 for ease of reference.

Policymakers concerned about schooling should focus not only on school enrollment, but also on how frequently enrolled children are attending school. While enrollment rates in primary and secondary education have risen sharply, many children attend school irregularly. Available data suggest that at the primary school level in many countries, more days of schooling are lost to enrolled children not attending regularly than to children not being enrolled in school. Enrollment becomes a relatively larger problem at older ages.

A large body of randomized evaluations testing different strategies for promoting student participation, as well as cost-effectiveness data, can help policymakers seeking to increase enrollment and address intermittent attendance. Which strategy is best to pursue will depend on local conditions and challenges. In areas where there are few schools, requiring children to travel outside their local community to attend school, finding ways to provide low-cost local school options is likely a priority. Similarly, in places with high parasitic worm load or very high rates of anemia, programs that cheaply address these issues should be investigated for feasibility. These are specific strategies that make sense where these specific needs are present.

Many of the other programs discussed in this bulletin address the real and perceived costs and benefits of education. Across very different settings, many studies have shown that school participation is sensitive to changes in these real and perceived costs and benefits. But precisely how these policies are designed and implemented can have important implications for their effectiveness and particularly their cost-effectiveness. A number of more general takeaways about these perceived costs and benefits emerge from across this body of work:

- **Conditional and unconditional cash transfers can increase school enrollment and attendance, but are expensive to implement. CCTs and UCTs have been consistently shown to increase attendance at school.** However, they are expensive, even if we don't consider the transfers themselves as a cost. CCTs and UCTs should primarily be seen as social protection programs that also increase attendance.
- **Even when misperceptions do not exist, the benefits of education can seem distant.** Making these benefits highly salient has been shown to increase participation in school. While not every education promotion program is effective at changing perceptions, a series of studies has shown the promise of quite cheap interventions aimed at making the benefits of education salient.
- **If CCTs and UCTs are being implemented for social protection reasons, restructuring payments may improve their effectiveness.** Different ways of structuring payments can help families save for lumpy expenditures, such as school fees, and motivate both parents and children to improve education attainment and outcomes.
- **Changes in education quality can be difficult to perceive and may not affect participation.** While small changes in the costs of education are very apparent to parents and students, changes in the benefits of education are not always as apparent. Programs that increased the quality of education and led to learning improvements did not consistently stimulate children to go to school more frequently.
- **Eliminating small costs can have substantial impacts on school participation.** If the main policy goal is to increase attendance at school, rather than social protection, eliminating small costs associated with school (school fees, report card fees, payments for school uniforms) or small subsidies may be more cost-effective than large transfers.
- **Adding school supplies and infrastructure does not appear to increase enrollment or attendance.** Increased spending on inputs, such as adding computers to classes, does not by itself appear to change perceived benefits of education and does not increase participation.
- **Programs that address perception gaps can change behavior at low cost.** When parents and children underestimate the benefits of education or overestimate the costs, addressing these perception gaps can be a cheap and effective way to promote schooling. However, this strategy only makes sense where misperceptions exist.

Although more girls are out of school than boys, general programs that seek to increase schooling for all tend to help girls as much as—or even more than—boys. In the few cases when general programs helped boys more than girls, boys had started with lower attendance rates than girls. In other words, most programs helped the most disadvantaged gender most.

Bulletin Authors: Rachel Glennerster, Meghan Mahoney, Meagan Neal, Luke Strathmann, Caitlin Tulloch | **Reviewers:** Karthik Muralidharan, Phil Oreopoulos
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