



from **EVIDENCE** to **POLICY**

January, 2012



a note series on learning what works, from the Human Development Network

Do School Feeding Programs Help Children?

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Policymakers and development organizations have embraced school feeding programs as a way to help poor children get enough to eat while giving them an incentive to be in school. The programs are not just used in developing countries—the United States began implementing school feeding programs in the 19th century and still uses them today for poor children. The popularity of these programs, which in some countries include take-home rations for households whose children attend school, make it imperative that we answer basic questions about the effectiveness of these programs. Do they boost enrollment and if so, are take-home rations as good as offering in-school meals? A proper lunch can ward off hunger, but is it enough to make up for years of nutritional deprivation? Children who aren't hungry can focus better in school—does this mean they will do better in their classes? The answers are critical if we want to create effective development programs.

The World Bank is committed to the United Nations Millennium Goals and we support research that can help countries devise policies to reach these goals, including gender equality,

child health and a primary school education for every child. As part of this, we support evaluations of programs designed to encourage children to enroll in school while helping boost their daily nutritional intake. In Burkina Faso, Lao People's Democratic Republic (Laos) and Uganda, World Bank researchers teamed up with the U.N. World Food Programme to evaluate the impact of school feeding and take-home rations programs. The evaluations found that when the food was distributed properly, as was the case in Burkina Faso and Uganda, enrollment rose and students did show some gains in learning. In Laos, where delivery of the food was hampered, gains in enrollment were difficult to quantify and there were no visible improvements in learning. Taken as a whole, the experiences of the three countries point to the possibilities and limitations of school feeding programs: when properly implemented, they can raise enrollment and possibly lead to better learning. But even then, feeding programs are unlikely to make up for the cognitive and physical lags that result from poor nutrition during pregnancy and the first two years of life.

Case Study Burkina Faso, Laos and Uganda

In Burkina Faso, students were drawn from the northern Sahel region, where the World Food Programme took over responsibility for the in-school meals and take-home rations programs in the 2005-2006 school year. Researchers evaluated the experiences of 46 new schools incorporated into the program that year. These schools were randomly assigned to one of three groups: one-third received take-home rations (restricted to girls), one-third had on-site feeding programs and one third was the control group. A baseline household survey was conducted in the summer of 2006, and results were gathered during the 2006-2007 school year, with a follow-up survey in the summer of 2007. A total of about 4,236 school-aged children (age 6-15), drawn from a random sampling of villages in the different groups, was surveyed. Educational achievement tests were also administered.

In Laos, researchers worked with four districts in the country's north, where the World Food Programme was expanding its school feeding programs. Three districts where programs were

to be implemented in 2006 were picked for the study. In one of the districts, students were eligible for on-site school feeding programs; in the second, they qualified for take-home rations; and in the third, both feeding programs were established. A neighboring district was picked as the control site.

Eligible Laotian villages were informed about the program rollout and invited to participate. Take up by district ranged from 58 percent

Did You Know...

- In Burkina Faso's Sahel region, only 25 percent of children aged 6-16 attend school.
- In Laos, remote villages often do not have schools. Parents who want to educate their children will send them to a neighboring village, where children will live in shelters built by their parents and must supply their own food.

Sources: World Bank studies; World Food Programme

to 75 percent, and researchers took community selection into account in their analysis. The evaluation relied on household data from about 4,500 households with school-aged children (at least one child aged 6-10) in rural villages in the four districts. A baseline survey was conducted in 2006 and the follow-up survey was done in 2008. Household questionnaires collected information on assets, diet, nutritional history, education history and daily activities. These were supplemented by village and school surveys. Each year researchers looked at data for all children aged 3-14 living in villages with schools. A total of 10,748 children were sampled in 2006 and 9,810 in 2008.

In Uganda, researchers evaluated a school-feeding program operated by the World Food Programme for children in Internally Displaced People camps in two districts of northern Uganda. The families had been moved to the camps because of threats of attacks

by the Lord's Resistance Army (which has since been almost completely pushed out of Uganda). Thirty-one camps were randomly selected to be in the program, and the camps were randomly assigned into one of three groups: in-school feeding, take-home rations (for girls and boys) or a control group.

A baseline survey was conducted late in 2005, before launching the feeding program in 2006, and the follow-up survey was done in early 2007. The survey covered households with children ages 6-17. Researchers also administered learning achievement tests and made unannounced attendance measures. In-school meals included a fortified snack and lunch. Take-home rations, given once a month, equaled the food that was given to students in the school meals programs and was available to students with an attendance rate of at least 85 percent.

The Findings

Enrollment rates rose: In Burkina Faso, where enrollment rates hovered around 25 percent, offering in-school meals and take home rations boosted enrollment; the same effect was seen in Uganda, where enrollment rates were already above 80 percent when the feeding program was started.

The enrollment rates of both boys and girls in the Burkina Faso schools that offered on-site breakfasts and/or lunches increased by 3 to 4 percentage points. Given prior enrollment rates—which hovered around 25 percent—the increase was substantial.

Similarly, take-home rations in the Burkina Faso program—10 kg of cereal flour a month for girls who had a 90 percent attendance rate—raised enrollment. Girls' enrollment rose by five percentage points, and enrollment of boys from the same families also rose 3.3 percentage points. The gain in enrollment for boys, while not statistically significant, showed that the program did not crowd out boys and also pointed to a positive spill-over rate for boys in households where a girl's enrollment led to extra food.

In Uganda, which in 2002 had abolished primary school fees to encourage enrollment, in-school meals increased enrollment by 9 percentage points for children who were of school age and

had not been enrolled prior to the program's start. Among children who were eligible for take-home rations, the enrollment increase was not as pronounced. One reason may be that rations, unlike meals in school, were controlled and distributed by the child's caregivers, potentially limiting the benefit of the food for the child and thus lowering the child's drive to attend school. Researchers noted that children who qualified for rations did not bring meals or snacks to school, which likely indicates they were still hungry, at least during the school day.

In Uganda, where researchers also were able to look at attendance—as opposed to just enrollment—they found significant increases in attendance for girls of all ages in schools that offered on-site meals and increases in attendance rates of older boys (ages 10-17) in schools that offered take-home rations. In both cases, attendance rose by between 8 and 12 percentage points.

Educational gains were mixed: In Burkina Faso, girls enrolled in schools with a feeding program showed small increases in scores on math tests, but there was no significant impact for boys; in Uganda, boys were less likely to have to repeat a grade, but there was no noticeable effect on girls.

This note summarizes selected results from three papers: "The Impact of Food for Education Programs on School Participation in Northern Uganda," Harold Alderman, Daniel O. Gilligan and Kim Lehrer; "Impact evaluation of school feeding programs in Lao PDR," Alison Buttenheim, Harold Alderman, and Jed Friedman (Policy Research Working Paper #5518); and "Educational and Health Impact of Two School Feeding Schemes: Evidence from a Randomized Trial in Rural Burkina Faso," Harounan Kazianga, Damien de Walque and Harold Alderman (Policy Research Working Paper #4976).



In the baseline survey in Burkina Faso that included simple arithmetic questions, students got less than half of the answers correct. In the follow-up survey after one year of the school feeding programs, the proportion of correct answers increased by 9.5 percent for children who qualified for in-school meals. Girls showed an improvement of about 11 percent (for boys, the improvement was not statistically significant). The impact of take-home rations on student math test scores was also positive. Students in general showed an 8.4 percent increase in answering questions correctly, which broke down to 9.5 percent for girls and 7 percent for boys. The benefits to boys, while not statistically significant, may have resulted from spillover effects of their sisters bringing home extra food.

In Uganda, where 44 percent of children in primary school had already repeated at least one grade when the evaluation began, in-school meals did reduce the likelihood that boys 6-13 would repeat a class. Take-home rations showed smaller but similar effects. The gains were not seen for girls—researchers remain unsure why this is.

Nor did feeding program change the likelihood that a child in Uganda would progress to secondary school during the period studied (less than 30 percent of eligible Ugandan children are in secondary school). If anything, giving kids access to food kept them in primary school longer. Among students who were in sixth grade at the baseline survey, and thus had one more year left to graduate, 19 percent were still in sixth grade two years later, and 37 percent were still in seventh grade. Nor did the extra food increase the rate of enrollment in secondary school. The probability of going on to secondary school was at 8.9 percent for students who had received meals on-site; 15.6 percent for those who qualified for take-home rations; and 10.7 percent for the control group. Extending feeding programs to secondary schools might be one way to help raise enrollment.

There were some measurable nutritional gains: While children who had access to feeding programs in Burkina Faso did not show positive gains in nutri-

tional status, based on weight-for-age and height-for-age measurements, the younger siblings of students who qualified for take-home rations did show gains. And in Uganda, anemia rates among girls who had hit puberty did decline.

In Burkina Faso, prior to the program, children showed severe nutritional problems. This did not change after the program. But younger siblings—who are generally at a more nutritionally vulnerable age—did benefit from the take-home rations, as measured by weight-for-age. So when people worry about leakage—or how much of the take home ration actually goes to the student—it turns out that sharing the rations has a benefit when families use the food for younger siblings as well. In Uganda, anemia among girls aged 10-13 who qualified for the feeding program was lower than among girls in the control group—by 20 percentage points. The drop in anemia underscores the risks of anemia among girls once they hit puberty and one way to reduce it.

School feeding programs are relatively easy to administer—assuming the food gets to the school. In Laos, severe distribution problems hampered the program's administration.

The program in Laos was similar to that in Uganda and Burkina Faso: one group of schools offered an in-school snack to children attending classes; another group of schools gave rations of canned fish and rice to boys and girls who attended at least 80 percent of the time. But in Laos, villages also had to create a feeding committee, build storage facilities, provide the labor to prepare the food and, in some cases, travel to the distribution centers to get the food.

Partly because of the requirements to qualify, and the state of local infrastructure in general, there were numerous problems getting villages to join and then keeping the program going. Village participation within the three districts ranged from a high of 75 percent to a low of 58 percent, pointing to the difficulty of meeting the requirements for participation. Village leaders often cited the distance to the food distributions points as the main reason for not joining; a second reason was the lack of volunteers in the village to help. Even participating districts faced difficulties implementing the program. Overall, schools in the district that provided in-school snacks did so only 58 percent of the possible days, while schools that provided both meals and rations did so only 49 percent of possible times.

Results were mixed. The district that provided take-home rations showed a 7 percent boost in enrollment; in the district with on-site feeding programs, the enrollment boost was 5 per-

cent, but there was no comparable increase in the district that offered both school meals and take-home rations. This makes it hard to ascribe the gains to the school feeding program. Nor was there a corresponding improvement in nutritional status, such as the drop in anemia in Uganda or the better weight-for-age results in Burkina Faso. The evaluation in Laos was clearly hampered by the program's low implementation rates.

The cost of school feeding programs, which can double the cost of educating a child, needs to be viewed in the context of how it helps children: Overall, feeding programs help students by cutting their hunger. The promise of food encourages them to come to school and, once in school and fed, they

are better able to concentrate on their education. That may be enough.

On average, feeding programs cost around \$28 to \$63 per child per year, which is around the cost of educating a child in some developing countries. When compared with deworming, free school uniforms or teacher incentives, feeding programs may not be the most cost effective way for policymakers to raise enrollment or boost test scores. But when viewed as a social transfer—as another way to help poor families feed their children and get them to school—feeding programs can be very useful. And that's before taking into account higher enrollments and, in some cases, better health, such as the lower anemia rates for girls in Uganda who were in the feeding programs.

Conclusion Making policy from evidence

School feeding programs are usually accompanied by a big wish-list: they are viewed as a way to help boost enrollment, encourage better attendance, improve the ability of children to learn and close the gender gap in schooling. After all, hungry children have a harder time concentrating on school; parents may be more inclined to enroll their daughters (and sons) if there's a promise of a package of food for the whole household. And better-fed students may benefit from the extra nutrition, helping them not only catch up after years of deficiency, but also do better in school.

In practice, the gains are often more modest—but arguably, just as important. Research by the World Bank and other groups has shown that the first three years of life are the critical time for

cementing a child's nutritional status. After that, it is very difficult to catch up, even if you give grade-school children specially-fortified snacks. And learning is linked to so many things, from the number of books to the size of the classroom and its facilities, that even extra food may not help students enough that they show measurable gains. But one thing is for sure, in countries where underweight children are the norm and stunting is common, helping a household feed all its members is itself a valuable activity, regardless of whether or not they are in school.

The lack of measurable gains in Laos also underscored something very important—school feeding programs are only as good as the distribution systems that get the food to the village and then into the hands of students.

The Human Development Network, part of the World Bank Group, supports and disseminates research evaluating the impact of development projects to help alleviate poverty. **The goal is to collect and build empirical evidence that can help governments and development organizations design and implement the most appropriate and effective policies for better educational, health and job opportunities for people in developing countries.** For more information about who we are and what we do, go to: <http://www.worldbank.org/hdchiefeconomist>

The Evidence to Policy note series is produced with the generous support of the Spanish Impact Evaluation Fund (SIEF)



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