
School Feeding Programs and Development: Are We Framing the Question Correctly?

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School feeding programs are politically popular interventions. They are, nevertheless, difficult to assess in terms of effectiveness since their impact is partially on education and partially on school health. They are, additionally, a means to augment consumption by vulnerable populations. The authors look at recent evidence from in-depth studies and argue that while school feeding programs can influence the education of school children and, to a lesser degree, augment nutrition for families of beneficiaries, they are best viewed as transfer programs that can provide a social safety net and help promote human capital investments. JEL codes: H, I, O

Nearly every country in the world today, whether high or low income, seeks to feed at least some of its school children through government sponsored programs. Moreover, when the financial crisis emerged in 2008, the World Bank crisis response mechanisms experienced unprecedented demand to strengthen support for school feeding programs. Yet despite this popularity there remain questions about the evidence of its effectiveness, and there is a continuing struggle to identify what makes for a successful program. For example in 2002 the United States General Accounting Office (USGAO) published a report that claimed “school feeding programs may not be cost effective when compared with alternative interventions such as providing quality teaching and offering nutritional and health packages directed at pregnant women and at mothers with their preschool children” (USGAO 2002, p. 3) and, at the same time, laid out a plan for a pilot to reassess school feeding programs. With a similar motive, in 2009 the World Bank and the World Food Programme (WFP) conducted a joint analysis with the title

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“Rethinking School Feeding,” explicitly acknowledging the need to clarify the underlying issues (Bundy and others 2009).

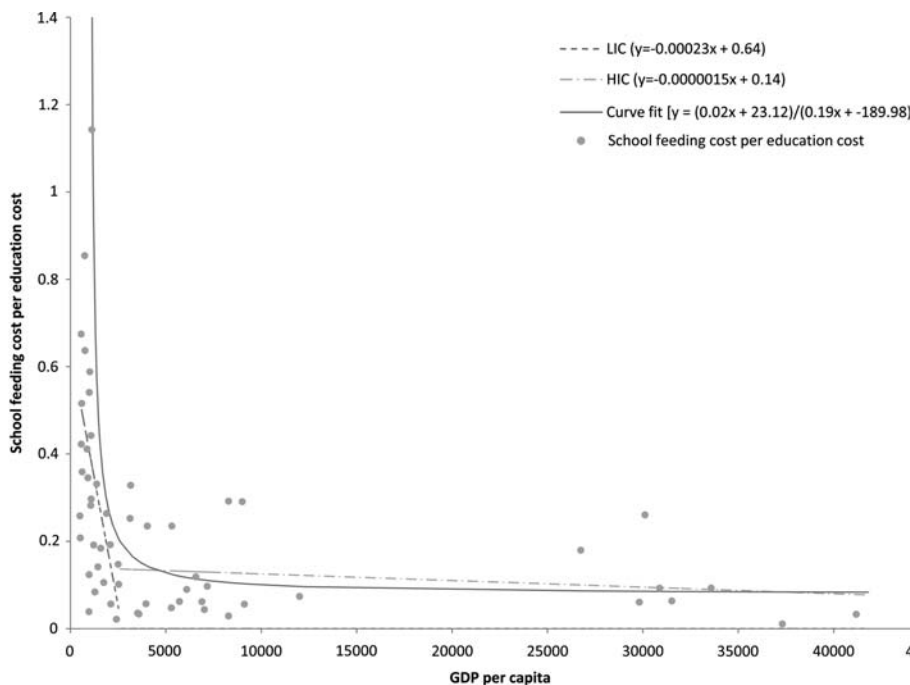
A key question relates to the specific benefits of school feeding. It is claimed, for example, that school feeding programs which provide meals at school (SFPs) or related take home rations (THRs) can improve enrollment and attendance, can address chronic hunger or micronutrient deficiencies and, by improving health or by increasing a child’s focus in the classroom, can enhance learning. Given the range of countries that employ these two categories of programs—collectively called food for education (FFE)—in one context or another, the results of studies of FFE programs are quite heterogeneous apart from any differences in research methodology (Adelman, Gilligan, and Lehrer 2008). Additionally the conclusions drawn from such studies depend, in part, on how the questions are framed.

We review some recent evidence on school feeding and make the case that the strongest direct consequence of school feeding is best viewed as a form of an income transfer to assist low income households, although there is also a case to be made for a complementary role in education. As such, a primary role is to reduce current poverty with the additional benefit of promoting the accumulation of human capital by jointly influencing education and health. That is, FFE may address both equity and economic efficiency (Das, Do, and Özler 2005).

Figure 1 serves as a starting point for this discussion. The country pattern of a declining ratio of school feeding to education expenditures is analogous to Engle’s law. Food budgets (costs of SFP) increase somewhat over GNP range but other schooling expenditures increase more rapidly (figure 2). Over much of the range for middle-income and rich countries the ratio is surprisingly constant at 10 to 20 percent, but for a few countries, mostly low-income African nations, SFP cost per beneficiary is as much as is spent on the average student in basic education or nearly so.

Is the comparison to education expenditures fair? At one level it is useful in providing a comparator with another important intervention for the same age group, but the real question is whether we should view FFE as a cost to education or as a cost to some larger development goal. While it is conceivable that there is some notional tradeoff between school feeding budgets and the budget that is made available for other educational programs—or other investments in nutrition—there is little empirical evidence that tests this conjecture. Conceivably expenditures for FFE crowd out other school expenditures—for example when they are funded from a fixed Education for All Fast Track Initiative allocation. However, in the absence of research on the budgeting process they may also be considered as the core of a country’s food security budget, as in the case of the 2001 order of the Indian Supreme Court, mandating midday meals as part of fulfilling the constitutional right to food, or as a component of the Zero Hunger program of Brazil. Indeed, the current political trend is clearly to view FFE as a social intervention that transcends the education goals.

Figure 1. Ratio of per Child Cost of School Feeding in Relation to per Child Cost of Basic Education, Plotted against GDP per capita



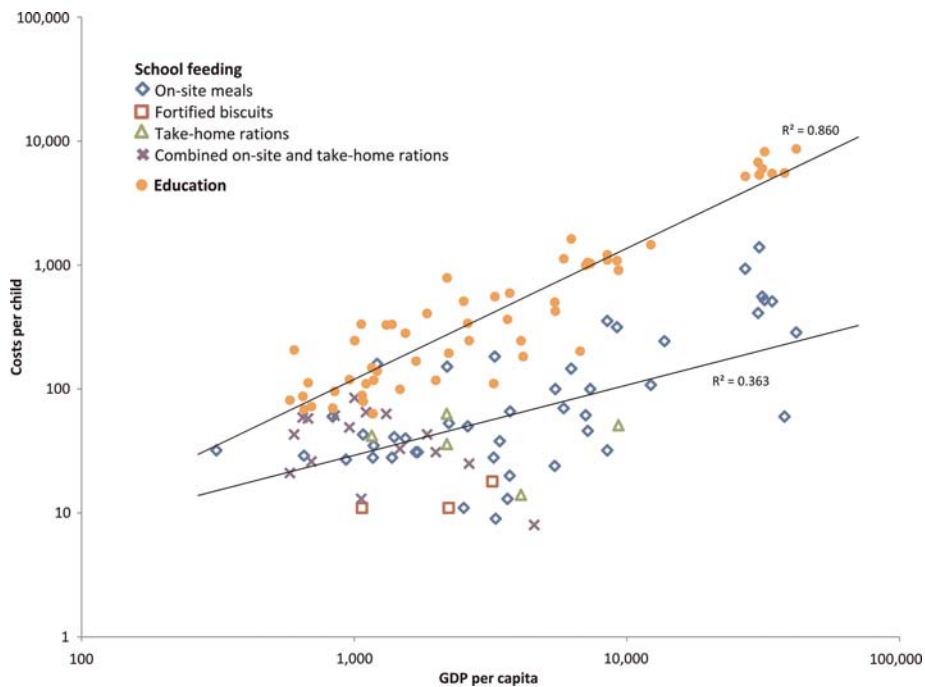
Notes: HIC is high income country, LIC is low income country.

Source: Bundy and others (2009).

If SFPs are social protection expenditures then should they not be compared to levels of other safety nets? On this criterion SFPs are similar to annual transfers per beneficiary in many conditional cash transfer (CCT) programs. Globally, SFPs cost \$40–50 a year per beneficiary (and may be several times this per family, depending on the number of children benefiting). This is roughly half of the average magnitude of transfers per household in CCTs.¹ This comparison is particularly appropriate to the degree that FFE can be viewed as conditional-in-kind transfers. However, it is not the objective of this review to compare the two programs—few, if any, direct evaluations have been undertaken—but rather to look at FFE both from the perspective of the efficiency impact on human capital investments and from its role as a transfer program.

To do this we look at the monitored effect of meals compared to alternatives including THRs and snacks. Ideally one would also want to know the costs per outcome. This is hindered both by the scarcity of detailed administrative costs and by the relative scarcity of studies comparing modality of delivery in the same

Figure 2. Changes in the Costs per Child of School Feeding and Primary Education with Economic Growth, per capita GDP for 58 countries



Source: Bundy and others (2009).

setting and time period. Thus, while we consider the general literature on FFE, we pay particular attention to a set of three studies undertaken by the World Bank in conjunction with the WFP. These studies used a randomized longitudinal experimental design to compare SFPs with THRs, and to compare both with a control group. The common study design used baseline and follow-up surveys with a household sample that allowed for an assessment of the ability of a program to attract new students as well as to facilitate the measurement of the spillover from the program to other household members. These three projects on which we particularly focus on are:

- A study in Uganda undertaken between 2005 and 2007 in internally displaced people's (IDP) camps in the Pader and Lira districts of Northern Uganda. While the IDP setting is somewhat unprecedented for studies, it does not necessarily rule out external validity since over half of the WFPs are in emergency situations.

- A parallel study in Burkina Faso that was conducted in four provinces in the Sahel region (Gorom, Oudalan, Soum, and Yahga) with the program delivering food in the 2006/07 school year.
- An assessment of school feeding extended to two northern provinces of Lao PDR in 2006–08.

School Feeding as a Nutrition Program

The direct impact of FFE programs on nutrition has often been measured in terms of the net increase of food consumed by the student over a 24-hour period. For this increase one needs to take into account not only the content and frequency of school meals² but also any reallocation of resources within the household. In the case of meals consumed at school, this sharing would come about from reallocation of food provided at home during other meals. This could partially offset the increment in school and, thus, achieve an indirect sharing of the meal or snack. This is often referred to as leakage, although such a phrase is misleading as it differs markedly from a more common concept of leakage—that is, it differs from mistargeting of transfers intended for the poor to wealthy households or from private diversion of public resources.

Using a random assignment of the dates of a 24-hour food recall survey, [Jacoby \(2002\)](#) ascertained that school snacks in the Philippines were completely additional resources to the students in the program. That is each additional calorie provided in school led to an identical increase to the total calories consumed by the student during the day. This is deemed a flypaper effect, as the food resources stick with the school-aged child. However, unless the snack was unknown to the rest of the household, the full capture by the student is not compatible with most household allocation models ([Haddad, Hoddinott, and Alderman 1997](#)). Even bargaining models are unlikely to produce a polar case with no sharing of resources with other household members.

While the absence of any sharing is a puzzle, Jacoby's empirical strategy is, nevertheless, solid. Moreover subsequent studies have used a similar methodology to replicate and expand upon Jacoby's result. For example [Afridi \(2010\)](#) looked at school meals in India. While the point estimates for the unit increase of total nutrient intake for each of five nutrients provided in this school meal program that was studied are less than one, these were often not significantly different from one. A coefficient of one implies that one calorie or other nutrient consumed from the school meal leads to a one calorie increase in total consumption for the day. Thus this study is consistent with Jacoby's results. In addition [Ahmed \(2004\)](#) used

an individual fixed-effect variant of Jacoby's approach in Bangladesh and found, again, virtually a one-to-one increase in total calorie intake from a snack provided in school. [Islam and Hoddinott \(2009\)](#) find some reallocation of food to other family members—and also note that reallocation from each child's school meals may be limited by the fact that in many families more than one child is a program beneficiary—but they also find that diet quality improves. This is indicated by the fact that half of the calories provided were reallocated within the household, while only 20 percent of the protein was reduced by household sharing.

But, in fact, from the standpoint of nutrition, the amount of calories that is additional in the diet of the student is not the core issue. Rather the main limitation of school feeding programs—and studies of school feeding—is that they generally do not focus on the most vulnerable period for malnutrition, which is the period spanning development *in utero* through to two years of age ([Shrimpton and others 2001](#)).³ A few recent studies have turned the flypaper studies on their head and looked at the impact of school feeding on the younger, more vulnerable, age group by including siblings of students in impact evaluations using randomized design.

For example, in Burkina Faso, weight for age increased by 0.38 standard deviations for children aged 12–60 months whose sisters were eligible for a THR compared to a control group ([Kazianga, de Walque, and Alderman 2009](#)). Comparable children in the treatment villages who did not have a school-aged sister and thus were not eligible for the program did not show this improvement, implying that local area affects are unlikely to account for the result. This increase was greater than could be expected from the implicit income transfer. This may reflect what is referred to as a labeling effect by which a program encourages a reallocation of household resources ([Kooreman 2000](#)). Such an increase of allocation toward food and nutrition beyond the preprogram marginal budgets has been observed for food stamps in the United States ([Breunig and Dasgupta 2005](#)) and for cash transfers in Ecuador ([Paxson and Schady 2008](#)).

In Uganda, younger siblings of beneficiaries of a SFP had a significant improvement in height for age of 0.36 standard deviations. In contrast to the Burkina Faso results a similar increase was not observed for children in families that received THRs. Also the Uganda investigation found that both THRs and SFPs contributed to a significant relative improvement in anemia prevalence of adolescent girls, an age at which anemia rates tend to increase, an outcome that was not studied in the Burkina Faso study. The mothers of young girls in the Uganda THR programs also had lower anemia rates than the control group, although the SFP did not show a similar benefit.

Since SFPs are widespread even in middle- and upper-income countries, evaluations of their nutritional impact also need to consider their potential contribution to obesity. While countries such as Brazil and Chile have redesigned

their school meal programs to address this risk (Doak 2002), others have yet to consider the problem of obesity.⁴ Often the most successful programs to address the risk of obesity combine changes in the composition of meals provided with nutrition education (Foster and others 2008).

Using school meal programs as a vehicle for education is not confined to the prevention of obesity and related chronic illness. Such programs can be a means to promote basic health services such as hand washing or deworming. While the biannual schedule advised for deworming does not coincide with the delivery of either school meals or most THRs, it is now very common to include deworming in the planning for FFE (Del Rosso 1999; Bundy and others 2006).

School meal programs can also be a vehicle for improved micronutrient status if the meals or rations are fortified or if they contribute to an increase of diet diversity. While studies often—but not universally—find benefits from the inclusion of meat in school meal programs (Whaley and others 2003), such meals are often impractical or too expensive for low income settings. In contrast, fortification generally adds very little to the costs of FFE. For example, biscuits fortified with iron and iodine were found to reduce absenteeism as well as to improve some dimensions of cognitive function relative to a similar snack without fortification (van Stuijvenberg and others 1999). As the control group also received a snack, the impact of the fortification was additional to the unmeasured impact of the provision of food at the start of the school day.

Nevertheless the logistics of fortification may be influenced by local procurement strategies. Although some foods such as wheat or maize flour can be fortified in decentralized milling, other commodities are harder to fortify. This is especially the case when multiple fortification is recommended. As a general rule, the more processed the items in a FFE program the greater the share of costs for transport and packaging. Moreover, fortification is less likely when FFE is locally procured. Currently there are few programs where local procurement is the sole source of food, so there remain opportunities for centralized fortification. As decentralized procurement increases, there may be an increased role for school fortification using prepackaged mixes. This remains an area for research.

School Feeding as an Education Program

Numerous studies show that in-school feeding has a positive impact on school enrollment or participation in areas where initial indicators of school participation are low (Jukes, Drake, and Bundy 2007; Kristjansson and others 2007; Adelman, Gilligan, and Lehrer 2008). In many cases the impact may appear modest because initial enrollment rates are high and thus cannot be substantially increased. However, impacts may also be low because the time frame of studies—

particularly randomized studies that require a control group to be phased in at a later date—often do not have adequate time to show the cumulative impact of a program (Behrman and King 2009). For example, while *overall* enrollment in the Uganda study did not increase significantly in an 18-month period, an SFP led to a significant 9 percent increase in the share of children aged 6–13 who *started* school compared to the control group (Alderman, Gilligan, and Lehrer 2010). THRs also contributed to an increase that, while not significantly different from zero, was also not significantly less than the increase attributed to SFPs. In both modalities of delivery of FFE children entered at a younger age than children in the control communities.

Results from Burkina Faso are similar: both school meals and take home rations increased new enrollment of girls by about 5 to 6 percent. Even fortified biscuits provided as snacks may impact on enrollment; Ahmed (2004) reports a 14 percent difference in enrollment in Bangladesh using a matched (non-experimental) cross-sectional analysis of communities with and without such a program.

The gender specific impacts reported from Burkina Faso are in keeping with a common expectation that FFE will have greater impacts on girls than boys (Dréze and Kingdon 2001; Gelli, Meir, and Espejo 2007). Indeed THRs are often targeted only to girls, as was the case in Burkina Faso. However, not all studies of enrollment have a difference by gender; the enrollment impacts in Uganda were gender neutral. This may reflect the fact that, unlike Burkina Faso, there was no gender difference in primary enrollment rates at baseline.

Studies of FFE regularly report increased attendance, often using school based samples and thus these studies generally present results conditional on enrollment. Most studies show a positive impact although the results are often nuanced. For example in Uganda there was no effect on self-reported attendance. However, there were higher rates of attendance based on results of four randomly timed spot visits for both SFPs and THRs. The increase in morning attendance compared to controls was around 9 percent in both programs, although the increase was mainly for boys in THR and for girls when the intervention was SFP. The impact on afternoon attendance was somewhat larger than it was on morning attendance but there was no difference by gender or by program type in the afternoon.

The Burkina Faso study also indicated heterogeneity on attendance with respect to household size. Attendance, recorded close to the planting season, increased in both THR and SFP when the household had spare labor (three or more children in addition to the student) but decreased when there was no other child or only one sibling. This decrease may be due to the program attracting children with higher opportunity costs into the schools.

Vermeersch and Kremer (2005) also indicate a significant increase of attendance when school meals were offered to a randomized sample of children in

Western Kenya. The 30 percent increase is relatively large, but this may reflect the fact that their sample was of preschool children in which initial school participation was much lower than it is in basic education; only a third of their sample participated in preschool at baseline. As preschools generally have lower enrollment than primary schools—and where enrollments are more skewed to relatively well off children—this example may point to an area where SFPs may be particularly efficacious.

Vermeersch and Kremer also found that the school meal program led to an increase in scores on written and oral tests of performance, relative to the school curriculum, after two years participation in school. While the school meal program improved performance this was only noted in schools where the teachers had greater than average experience. The absence of a more general improvement was attributed, in part, to an increase in class size and in the reduced time for teaching necessitated by food preparation.

Improved performance as measured by tests of achievement is often reported for FFE, although there is a fair amount of variance as to which ages and which skills are most affected (Jukes, Drake, and Bundy 2007; Adelman, Gilligan, and Lehrer 2008). For example, in the recent study on Uganda, both SFP and THR had significant impacts on math test scores of children aged 11–14, but there was no impact on the test of literacy and only THR had a significant impact on Primary Leaving Exam scores.

Improvements in test scores may either reflect total time in the classroom, the possibility that FFE increases the amount of learning per day of schooling, or both. A few studies have attempted to investigate this second avenue of increased receptivity to instructions by looking at the tie between hunger and classroom performance using an experimental design. Available results, however, are not conclusive regarding long-term consequences, perhaps, in part, because controlled studies are hampered by difficulties in running experiments for an appreciable duration as well as the difficulty of encouraging parents to conform to the protocols of research design and the inability to use a placebo. Moreover, as shown in Grantham-McGregor, Chang, and Walker (1998), while feeding children may improve attention, its impact on learning depends on the classroom organization. The impact also depends on the timing; school lunches may have a very different impact on classroom performance.

Additional evidence on the impact of FFE may come from comparisons of measures of cognitive ability such as scores on Raven matrices, forward digit span (this is a test of working memory that asks a child to repeat strings of numbers of different lengths), or backwards digit span (which also assesses executive function since this involves manipulating information). While results on such tests from Kenya (Whaley and others 2003) as well as Uganda contribute to the evidence base that FFE can influence cognitive ability, this pathway to improved outcomes

may be less direct than that mediated by attention or attendance since it depends on the quality of education that is available. This is commonly observed with other school health interventions as well. For example malaria reduction in school age children in Kenya resulted in a decline in the prevalence of anemia and a concomitant enhancement in performance on cognitive tests, but no measurable improvement in education outcomes due to the lack of quality education inputs (Clarke and others 2008). This finding helps emphasize that FFE programs can only be effective in education terms if combined with quality education programs.

Another perspective of the impact of FFE on learning is provided by Ahmed and Arends-Kuenning (2006). They find a decrease of scores on the government test administered in the fourth grade in a THR program in Bangladesh. They attribute this to peer effects; not only did the targeted program bring in new students with lower than average scores, the scores for nontargeted students declined. However, the study ruled out the possibility that this was due to more crowded classrooms.

School Feeding as a Safety Net

If FFE is viewed as a transfer program, one criterion for assessing effectiveness is targeting efficiency. In general, SFPs are not targeted within schools—although some programs have sliding scales of payments for meals. Thus targeting will mainly reflect the choice of schools to be included, often on a geographic basis. Lindert, Skoufias, and Shapiro (2010) indicate that FFE programs in Latin America are generally progressively targeted. However, they noted that in Guatemala the poorest quintile received less assistance than the middle class, perhaps reflecting exclusion of schools in more remote areas.

THRs often have an additional layer of targeting in that the individuals within a school may not all be eligible. As with much of the targeting literature, results are mixed. One of the more detailed studies of targeting of FFE showed pro-poor targeting within schools but little evidence that the geographic targeting was pro-poor or designed to increase allocations to those schools where targeting was more effectively carried out (Galasso and Ravallion 2005).

THRs are often targeted by gender, reflecting both the evidence that girl's schooling frequently lags behind boys schooling and the expectation that girls schooling is more responsive to supply-side interventions (de Janvry and Sadoulet 2006). While gender-based targeting is administratively simple to implement, over recent years the number of settings where gender discrimination occurs in basic schooling has been substantially reduced (Grant and Behrman 2010). Thus in many communities gender-based targeting may be less effective at reducing unequal school participation than income or asset targeting.

Exclusion of poorer schools, however, is not always a case of these schools being excluded from program eligibility; in Laos the probability that a school would take up FFE assistance that was offered was negatively associated with the education of the community or with current enrollment rates, as well as the altitude of the community (Buttenheim, Freidman, and Alderman 2011). The percent of villages that had schools and were offered FFE and took up the offer ranged from 58 to 75 percent in the three districts that were included in the program. Even when the school participated in the program, meals were not regularly provided; the two districts that had SFPs reported that meals were provided between 47 and 58 percent of the days when the school was in session. This latter issue of irregular supply of meals is one that has challenged school feeding in remote areas for years (Levinger 1986). Irregular supply not only dilutes the impact but may have a negative impact to the degree that the unrealized expectation of a school meal crowds out meals or snacks that a parent might have otherwise provided.

In Laos, the cost of transport and storage was often cited by schools as a reason for not taking up the program. Elsewhere it may be the preparation of meals that influences the cost and accounts for irregularity of delivery. Data on costs are, however, often not reported and, in any case, estimates of costs are heterogeneous due to both differences in accounting as well as differences in programs. Galloway and others (2009) report the costs for four programs in Africa as ranging between \$28 and \$63 per child per year with nonfood costs ranging between 26 and 49 percent of the total.⁵ Comparing across modalities is similarly subject to the difficulty in standardizing programs. Gelli and others (2011) come up with an estimate of \$48 on average for FFE costs (exclusive of in-school costs) using data from 72 WFP projects with snacks costing only half of meal programs. Thus biscuits were found to be more cost effective for distribution of micronutrients, although SFPs were on average more cost effective in terms of calories provided than biscuits. Likely this would also be the case in terms of implicit transfers, although the calculation comparing biscuits with school meals was not provided.

THRs cost more than twice the average cost of meal programs. However, THRs in the review by Gelli, Al-Shaiba, and Espejo (2009) also provided twice as much food as SFPs, so the transfer benefits were correspondingly higher. The most expensive THR in this review still devoted less than 20 percent of all costs to indirect costs including transport.⁶ If one considers the cost of calories provided to the recipient family, THRs are generally more effective than SFPs; only under the criteria of calories provided to school children alone (that is, considering all other transfers to be outside the benefits of the program) do SFPs appear to be more cost effective as a transfer than THRs.

The impact of FFE on a household budget is not identical with the unit cost of the food. That is, food that cost the program a dollar might be valued differently by the household. In more remote areas a FFE program may be able to bring in food at a cost lower than the household would otherwise pay (at some disadvantage to local producers). More commonly the local cost of comparable foods to the beneficiaries will be less than the cost to the program, leading to a transfer value somewhat less than the budgetary outlay. This, of course, is not an issue for cash transfers.

Given the heterogeneity of costs for FFE as well as the range of objectives, only a rough comparison can be offered with the costs of CCTs. As indicated in [Caldes, Coady, and Maluccio \(2006\)](#) CCTs may devote up to 60 percent of costs to identifying beneficiaries in initial years, although this upfront cost is not repeated annually. In contrast, SFPs incur only minimal costs for geographic targeting. The THR programs that use poverty targeting, however, would have associated costs for this screening. It can be assumed that these costs would differ little from a CCT covering the same community. SFPs also do not incur costs for monitoring conditions; the meal is delivered if and only if the child is present. Again since THRs are generally based on attendance there might be costs for verifying compliance. However, as most programs are administered at the school level, the data collection and transmission costs are not generally extensive. Thus the main difference in costs of cash and food programs are, as expected, the difference in the physical transport and handling of commodities.

One study (in Bangladesh) compared school meals to cash support with enrollment, as well as food budgets as a tracked outcome, finding that the former had a larger impact on enrollment. However, the increase in enrollment attributed to school meals relative to cash (36 percent) was virtually the same as the difference in the size of the transfer (41 percent). The main difference in outcomes of the two modes of delivery was that only the food transfer increased household food consumption. The majority of households—80 percent—indicated that they preferred cash to food for the oft recognized flexibility that cash provided. That study, however, did not use an experimental design and, indeed, did not compare programs undertaken in the same year. Thus there is remaining scope to improve programmatic knowledge relevant both to school programs as well as to the broader knowledge of cash programs.

Another criterion to assess FFE as a safety net is its ability to respond to crises. These programs have been relatively easy to scale up in emergencies. For example they were widely used in Africa in the wake of the 2007–08 food price spike; Burundi, the Central African Republic, Ghana, Liberia, and Togo all established or expanded their SFPs ([Wodon and Zaman 2010](#)). While Africa relied more heavily on in-kind transfers (as opposed to cash) in response to the food price spike than other regions, the expansion of school feeding during this global crisis was not confined to that region. In one notable example, the Philippines employed

expanded school feeding as part of a multipronged program to protect its poor from a precipitous rise in the price of rice (World Bank 2010, box 2.4). Thus, despite concerns over capacity mentioned above, FFE has proven flexible in response to crises.

A key change in the context of FFE programs over the last four to five years has been the move away from food aid. This reflects many interacting factors in the global economy, including rising commodity prices, increased demand for agricultural products for nontraditional purposes (such as fuel and alcohol production), and trends in agricultural subsidies. Whatever the reasons, today there is a tendency to favor the local purchase of food for FFE programs. This has increased focus on procurement and quality. In particular, there is a movement towards so-called home grown school feeding in general, with the emphasis on food procured in the communities around the school, thus enhancing both the rural economy and food quality.⁷ Where local prices are below import parity prices (or where FFE assistance has requirements that put the cost of food above import parity prices) such programs can reduce the cost of school feeding. Their impact on farmers' incomes or on the prices that local food purchasers face depends on market integration and, thus, will vary according to local conditions. FFE programs in Osun State in Nigeria and in Côte d'Ivoire have, however, demonstrated the sustainability of such programs. Further research is required to confirm their apparently major contribution to local economies.

Conclusion

Do the results reviewed here imply that FFE is among the best investments in nutrition? Despite new evidence indicating favorable externalities to siblings of students, and the clear benefit in addressing hunger in schoolchildren, the fair answer to this question is no. While FFE can provide iron and other key micronutrients, these programs are not designed to address the most critical nutritional constraints in low income settings, simply because they are not targeted at the most vulnerable period in child development, which is between conception and two years of age.

Do the results imply that FFE is the best way to use funds for education? Again, the quick answer is likely no. However, in this case, the answer is more nuanced. FFE is not a substitute for a well-organized education system and teacher performance. However, there is extensive evidence that FFE can complement a good education program. So although FFE may not be the best education response it may be an important element in achieving an effective education system. In Addis Ababa, in February, 2010, the 9th Annual Meeting of the High Level Group on Education for All recognized this contribution in including school feeding in their

call for “Education for All Partners to intensify efforts to support initiatives targeted at the most marginalized, such as cash transfers, school health and school feeding, scholarships and gender-specific interventions” (Bundy 2011). Most clearly this comes from demand-side encouragement of schooling in settings where universal basic schooling is not yet achieved and, perhaps, where preschool programs reach low income households. FFE may also have a particular role in programs that are attempting to expand schooling to cover a longer day. These programs may enhance learning per time invested in school but, as mentioned, such a desired impact is not inevitable.

Do the results imply that FFE is a plausible candidate for a social protection investment on a par with CCTs? Here the fair answer appears to be: quite likely. FFE can increase human capital investments while also providing support to poor households. Thus they serve as a support to current poverty reduction while making the need for future transfers and assistance less likely. The dual objectives of raising current consumption while promoting investments, however, make it difficult to compare outcomes of either CCTs or FFE with direct investments. The value of transfers does not easily aggregate with outputs in a benefit cost assessment. For one thing such a summation requires a quantification of the weight society puts on consumption of the poor relative to that of the average citizen. Absent this calculation, a direct comparison of demand-side interventions for education or direct investments in health with a FFE transfer does not put both categories of expenditures on the same metric. A benefit–cost analysis or a cost effectiveness comparison within a sector generally assumes away the value of the transfer or ignores the benefits outside the sector being considered. However, if the question is phrased as “Can FFE give a government additional value over other forms of transfers?” the answer is clearer: the investment component of FFE has a positive value that can be quantified and which adds to the social value of the transfer to low income households.

Targeting of programs, then, has to balance the dual objectives of equity and efficiency. The former case suggests efforts to include poor households whether or not there is a risk of nonattendance in school while, in the latter case, the prioritization is for the relatively smaller cohort of children who do not participate in education opportunities, including preschool programs where they are available. Improved targeting, however, may find a convergence of equity and efficiency; to the degree that there is heterogeneity of impacts it is likely to show greater improvement in health and schooling among the poorest (Bundy 2011).

There is yet no clear dominance of types of programs in regards to these impacts. For example, while the automatic link of SFPs to attendance might lead one to expect a larger impact of meals compared to THRs, this has not been found in the few direct comparisons of these two modalities. Similarly, as with CCT programs, it is not clear that an increase in the value of a transfer leads to a

proportional increase in the impact on students; a few studies of the impact of school snacks show substantial impact on enrollment comparable to similar studies (undertaken in other settings) of meals.

Ultimately, then, the relative priority of FFE programs hinges on the costs of delivery and on sustainability. THRs, with their potential for targeting, may be a promising part of such a package. Other program modifications to reduce costs, such as local sourcing of inputs and the use of vouchers in lieu of the direct provision of meals, may further the objectives of FFE at lower costs, but at this time innovations are supported more by qualitative reviews than by empirical studies. Still, given the political energy behind FFE, there is likely to be substantial value in understanding where best to place FFE in the range of instruments to reduce the intergenerational transmission of poverty.

Notes

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1. Estimated from Fiszbein and Schady (2009), table 2.

2. While some THRs may be delivered throughout the year, SFPs are rarely available when the school is not in session. As such the contribution of SFPs to the diet averaged over a year is often between a half and two-thirds of the daily contribution when the school is open. It is often far less since many SFPs are plagued by irregular availability even on days when schools are in session. Absenteeism—for example during peak agricultural seasons—further reduces the contribution of SFPs to food consumption.

3. Until recently very few studies considered the indirect contribution of FFE to nutrition of young children. For example a recent comprehensive meta-analysis of medical and nutritional literature covering various dimensions of school feeding (Kristjansson and others 2007) does not address the impact on siblings, although it does find an impact on the weights of direct beneficiaries.

4. Chile provides more calories to schools with greater poverty incidence. While regression discontinuity analysis does not show that this has an impact on school performance among the poorest students (McEwan 2010)—few of whom are malnourished by international standards—there is yet no analysis of the impact on obesity.

5. This range partially reflects accounting procedures. Also Lesotho purchases food locally and thus has the highest food costs but no external transport and handling.

6. Excluding this program in the average costs also brought the estimated average down by more than a third.

7. 'Home grown' refers to local procurement. It is not linked to school gardens which are virtually never of adequate scale to address the requirements of SFPs and are detrimental to the objectives of education in general (Bundy and others 2009).

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The word *processed* describes informally reproduced works that may not be commonly available through libraries.

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