



# LEVERAGING SOCIAL PROTECTION PROGRAMS FOR IMPROVED NUTRITION

Summary of Evidence Prepared for the  
Global Forum on Nutrition-Sensitive Social  
Protection Programs, 2015

HAROLD ALDERMAN





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## About the Series

This report is part of the Leveraging Social Protection Programs for Improved Nutrition series.

The series was created to capture evidence and next steps related to the Global Forum on Nutrition-Sensitive Social Protection Programs held in Moscow in September 2015. The Forum convened over 150 individuals from 20 countries, and the resulting technical agenda is being explored through seminars and other engagements. More information at <http://www.securenutrition.org/>

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Summary of Evidence Prepared for the Global Forum on Nutrition-Sensitive Social Protection Programs, 2015

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(Summer 2016) Report on the Proceedings of the Global Forum on Nutrition-Sensitive Social Protection Programs, 2015

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HAROLD ALDERMAN



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This report was produced by SecureNutrition with funding from the Russian Federation. The goal of SecureNutrition is to support the efforts of World Bank Group staff to catalyze and foster nutrition-sensitive investments and activities across the key conditions that lead to poor nutrition. SecureNutrition offers a curated resource library; original events, blogs, and newsletters on multisectoral nutrition links; forum space on LinkedIn for community notices and discussion; social media and e-mail dissemination; and a hub for reaching potential partners and related networks.

# Abbreviations

ANC	antenatal care
BCC	behavioral change communication
CCT	conditional cash transfer
DfID	Department for International Development (UK)
GNP	gross domestic product
IFPRI	International Food Policy Research Institute
LNS	lipid-based nutrient supplement
RCT	randomized controlled trial
THR	take-home ration
UCT	unconditional cash transfer



# Executive Summary

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*Actions in “nutrition-sensitive” sectors will be additional critical components of any global strategy to eliminate undernutrition (Ruel and Alderman 2013).*

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The Global Forum on Nutrition-Sensitive Social Protection Programs, convened by SecureNutrition and the Russian Federation, brought together 150 donors, implementers, and country leaders to identify practical ways to link the nutrition and social protection agendas. This background paper served as a springboard for discussion at the Global Forum, and represents a synthesis of evidence from nearly 120 references with a heavy focus on program evaluations.

Other documents from the Global Forum include a compendium of 21 case studies, and a conference report that identifies key learnings and gaps in the nutrition-sensitive social protection agenda. Each of these resources will be available on <http://www.securenutrition.org> by summer of 2016.

The reach of social protection programs has grown extensively since the 1980s. Recent World Bank estimates show 64 countries running conditional cash transfers as opposed to only two in 1997 and the rapid doubling of countries in Africa implementing unconditional cash transfers—from 20 to 40 in just the last five years. In total, nearly 2 billion people were enrolled in safety net programs as of 2015.

These numbers indicate not just the reach of social protection programming but also their continued expansion over a relatively short period. Collectively, such programs show an evolution toward increasing opportunity and resilience among low-income households, striving for impacts on consumption, acquisition of human capital, participation in economic growth, and social equity.

The net result is a common platform across nearly all countries that includes a suite of well-defined instruments, up to 33 percent of low- and middle-income country development budgets, and an orientation toward targeting and reaching vulnerable households. Of particular interest in this paper is the subset of investments that look to enhance human capital through nutrition. These investments capitalize in different ways on the instruments, budgeting, and targeting not available through nutrition-specific programs alone.

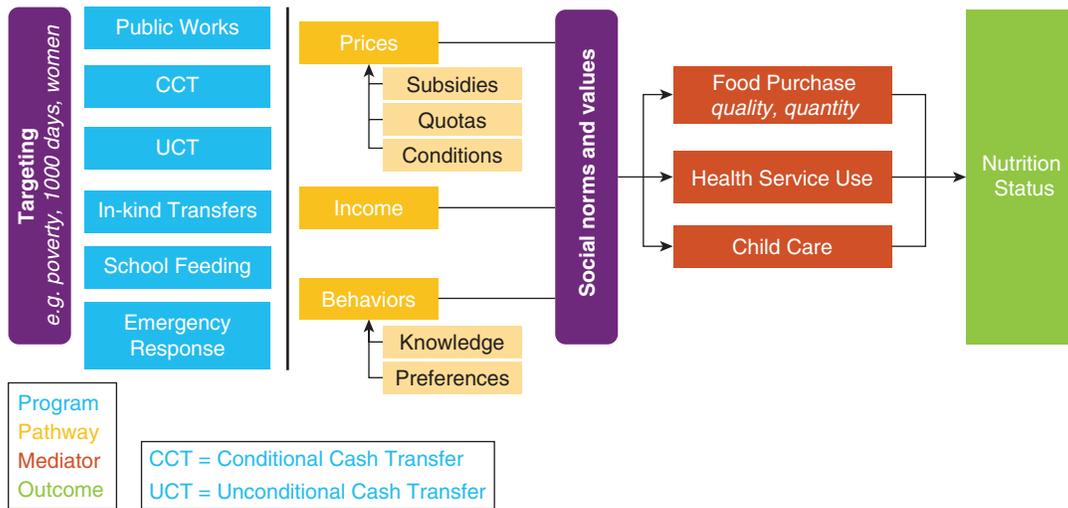
The focus on vulnerable families in particular lends social protection programs a natural nutrition-sensitive lens. Several conceptual pathways link these two sectors, including:

- Increasing income through cash transfers and labor programs
- Providing subsidies and price supports
- Addressing preferences and behaviors.

These pathways are laid out in figure 1, providing a unified view of targeting, social protection program types, intermediate steps, and general nutrition outcomes.

This paper finds that social protection transfers tend to increase household budget devoted to food—often more than other income sources—and

**FIGURE 1** Indicative Pathways from Social Protection Programs to Nutrition



Source: Harold Alderman and SecureNutrition.

highlights evidence that transfers can change diet composition and quality. At the same time, the overall effects of income on nutrition outcomes are not clear and vary by country experience and across studies. In general, it appears that both conditional and unconditional cash transfers have not delivered improvements in nutrition commensurate with their success in addressing poverty.

Price subsidies and in-kind assistance have complex interactions on both markets and on purchasing decisions. However, many governments have explicit goals to encourage food expenditures, and therefore these approaches remain attractive in such settings. Evidence reviewed in this paper indicates that subsidies on fortified foods can have positive nutritional effects, and that in-kind transfers may limit food deficits during periods of currency or price volatility.

The merits of conditional cash transfers (CCT) versus unconditional cash transfers (UCT) on nutrition are difficult to determine because few direct comparisons exist outside of the education sector. This paper does find that UCTs as well as CCTs virtually always augment household food consumption, diet diversity, and participation in preventive health care. CCTs may have a greater effect on health seeking but the quality of services implicated in conditionalities must be considered, and service use does not always translate into health or nutrition outcomes.

School feedings are widespread in-kind programs that can be viewed as conditional on school attendance, estimated to reach 375 million children annually at a cost of \$75 billion. The evidence reviewed indicates weight gain is a common outcome, with some programs seeing positive effects on household food security, sibling nutrition, and student attendance and/or learning. But many opportunities remain to increase nutrition sensitivity, such as more widespread micronutrient fortification with iron and folate and consistent links to school curricula and national messaging on diets.

Finally, behavior change and social marketing are avenues to more nutrition-sensitive programming. In the context of social protection these appear most often in transfer programs and to a lesser extent in public works programs. Evidence indicates that knowledge of proper hygiene and feeding practices does not necessarily increase alongside purchasing power, hence the rationale to *specifically* encourage or program behavioral change communication.

As SecureNutrition continues to focus on the operational links between nutrition and social protection, this paper will serve as a key reference point in conjunction with seminars on the same topic. More information and resources will be available on [www.securenutrition.org](http://www.securenutrition.org).

# The Case for Nutrition-Sensitive Social Protection

A recent review by the Maternal and Child Nutrition Study Group estimated that scaling up 10 proven effective nutrition-specific interventions<sup>1</sup> to cover 90 percent of children in the world's most malnourished countries would diminish stunting globally only by 20 percent and decrease child deaths in those countries by 15 percent—that is, program expansion could reduce all child deaths attributed to malnutrition by a third (Bhutta et al. 2013). Although this result is appreciable and appreciated, it does not go far enough. Actions in “nutrition-sensitive” sectors will be additional critical components of any global strategy to eliminate undernutrition (Ruel and Alderman 2013).

These are interventions or programs that address the underlying determinants of fetal and child nutrition—food security, adequate caregiving resources at the maternal, household, and community levels, access to health services, and a safe and hygienic environment—and that incorporate specific nutrition goals and actions. Social protection is a key element of any nutrition-sensitive investment as it is inherently nutrition-sensitive through its targeting to families at risk of malnutrition. This feature, along with the scale of social protection budgets, fosters the potential for addressing underlying determinants of malnutrition.

Taking many of these aspects into account, this paper includes an indicative conceptual pathway that links targeting, social protection program types, intermediate steps, and general nutrition outcomes (figure 1). Before elaborating this point, however, it is important to understand the social protection landscape created by country governments.

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*Social protection is a key element of any nutrition-sensitive investment ... through its targeting to families at risk of malnutrition.*

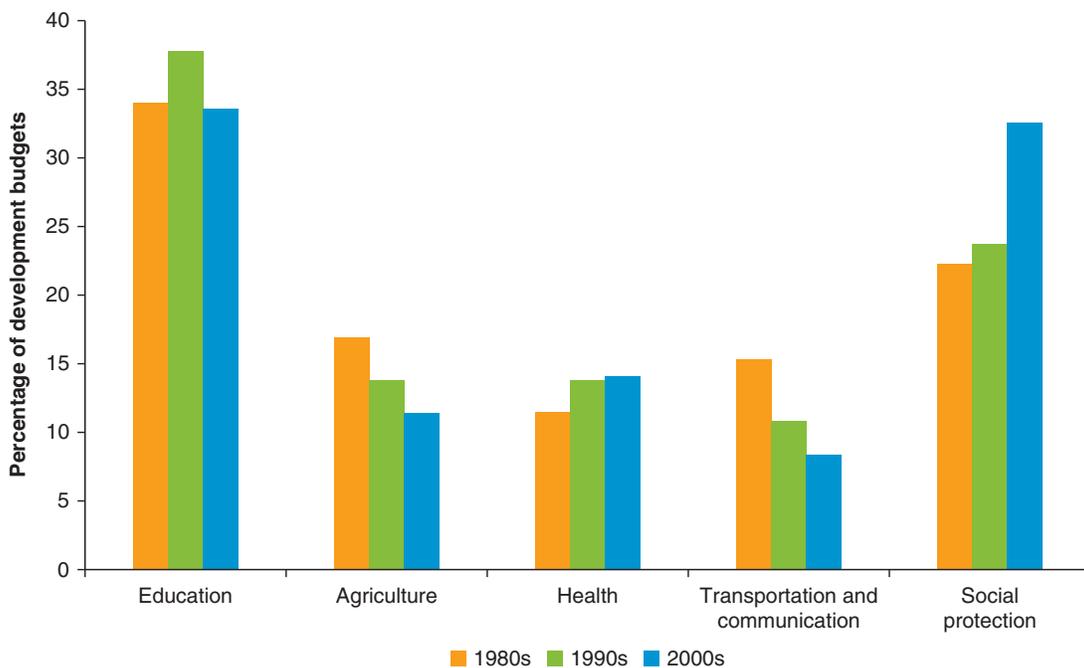
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# Dynamics of Social Protection Investments

Social protection programs are dynamic components of the budgets of most countries. As depicted in figure 2, the share of government expenditures devoted to social protection has been growing more rapidly in low- and middle-income countries than investments in other sectors. By 2015 1.9 billion people were enrolled in social safety net programs in 136 countries (World Bank n.d). Cash transfers alone have been credited as supporting between 0.75 billion and 1.0 billion people in low- and middle-income countries at the end of the first decade in this century (DFID 2011). More than a quarter of the rural poor and roughly a fifth of the poor in urban areas received some cash assistance. Two countries had introduced conditional cash programs in 1997; that number had grown to 27 by 2008 and to 64 by 2015. Many of these programs were run as pilots or otherwise localized projects. The number of countries in Africa with unconditional cash transfers doubled from 20 to 40 between 2010 and 2015 (World Bank 2015a).

The set of programs classified as social protection includes a broad category of policies and programs to increase opportunity and enhance resilience to economic and natural shocks. *Noncontributory transfers* or *safety nets*—also termed social assistance in many settings—are a subset of the larger set of expenditures under social protection (figure 3). Social protection also covers

**FIGURE 2** Shares of Development Budgets of Low- and Middle-Income Countries



Source: Author's estimates from IFPRI (2014) data for 99 low- and middle-income countries.

Note: These are shares of the development budget, which excludes military expenditures.

**FIGURE 3 Viewing Safety Nets and Social Protection as Part of a Larger Development Policy**



programs that can be classified as *social insurance*, including contributory pensions and unemployment assistance. Both of these categories can be evaluated in terms of their role in increasing current consumption of low-income households and others facing economic setbacks. In so doing they contribute to poverty reduction and improve social equity. They can also be appraised in regard to their contribution to facilitating the poor in acquiring the capital necessary to move beyond poverty and thereby participate in economic growth. A subset of these investments enhances human capital, particularly nutrition. This is the lens through which this study looks at the larger set of objectives of social protection.

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*. . . the principal motivation for most transfer programs is poverty reduction.*

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### How Much Is Spent and for Whom?

Although the focus of this paper is the relationship between social protection and nutrition, it is important to keep in mind that although often a government or donor seeks to achieve a greater impact on nutrition from these investments in social protection, the principal motivation for most transfer programs is poverty reduction. Thus, before addressing nutrition sensitivity it is useful to first review the effectiveness of transfers on poverty alleviation.

Globally, social protection spending increases at a rate faster than an economy grows. Low-income countries devote 1.5 percent of gross national product (GNP) to safety net programs, middle-income countries spend 1.6 percent of their somewhat larger economies, and high-income countries spend 1.9 percent (World Bank 2015a). While there are a range of program redundancies as well as lacunas in coverage, the net impact of such spending on poverty reduction is

appreciable. One study concludes that by 2013 between 136 million and 165 million people were lifted out of extreme poverty—defined as consumption of less than \$1.25 per person per day—with the assistance of transfer programs (Fiszbein, Kanbur and Yemtsov 2014). This finding, however, masks an important heterogeneity. With smaller shares of their smaller resources and larger numbers of poor households, low-income countries are hard pressed to achieve substantial reductions in poverty through social protection programs.

## The Poverty Gap

As indicated in tables 1 and 2, low-income countries are not able to mobilize enough resources—both in terms of cash and in the capacity to deliver assistance to the poorest families—to close the gap between existing consumption patterns and the poverty line at \$1.25 per person per day. Middle-income countries, even countries in the less prosperous subcategory of this group are, however, often capable to make progress in this area. Targeted transfers are more successful in reducing poverty than are elements of social insurance.

**TABLE 1 Impact of Social Assistance Programs (number of countries)**

Country classification	Percent reduction in poverty gap			Percent reduction in Gini index		
	0–10 percent	10.01–20 percent	>20 percent	0–3 percent	3.01–6 percent	>6 percent
Low-income countries	13	1	1	9	0	0
Lower-middle-income countries	17	7	10	26	7	0
Upper-middle-income countries	13	8	12	20	5	6
High-income countries	0	0	7	2	3	2
Total	43	16	30	56	15	8

*Source:* Tabulated from World Bank (n.d.).

*Note:* In all countries only the most current year is included. However, as the information is based on survey data there is often a lag. For example, Rwanda data are based on a 2005 survey; since that time the country has embarked on major reforms. In nine countries social assistance worsened the index of inequality (increased the Gini index): Cambodia, Liberia, Madagascar, Papua New Guinea, Rwanda, Senegal, Tajikistan, Tanzania, and Thailand.

**TABLE 2 Impact of Social Insurance Programs (number of countries)**

Country classification	Percent reduction in poverty gap			Percent reduction in Gini index		
	0–10 percent	10.01–20 percent	>20 percent	0–3 percent	3.01–6 percent	>6 percent
Low-income countries	14	6	1	9	1	1
Lower-middle-income countries	15	6	9	14	3	5
Upper-middle-income countries	7	10	15	15	2	11
High-income countries	0	0	8	0	0	8
Total	36	22	33	38	6	25

*Source:* Tabulated from World Bank (n.d.).

*Note:* In all countries only the most current year is included. However, as the information is based on survey data there is often a lag. For example, Rwanda data are based on a 2005 survey; since that time the country has embarked on major reforms. In 23 countries social insurance worsened the index of inequality (increased the Gini index): Afghanistan, Bangladesh, El Salvador, The Gambia, Guatemala, Haiti, Honduras, Liberia, Malawi, Nepal, Nicaragua, Niger, Paraguay, the Philippines, Rwanda, Senegal, Sierra Leone, the Solomon Islands, and Timor-Leste, as well as Colombia, Maldives, Mexico, and Peru among the upper-middle-income countries.

Moreover, in 23 countries, even in some comparatively well-off nations, social insurance payments are regressive. That is, pensions and unemployment insurance increase the Gini index of inequality, even though these payments also reduce poverty in many countries.

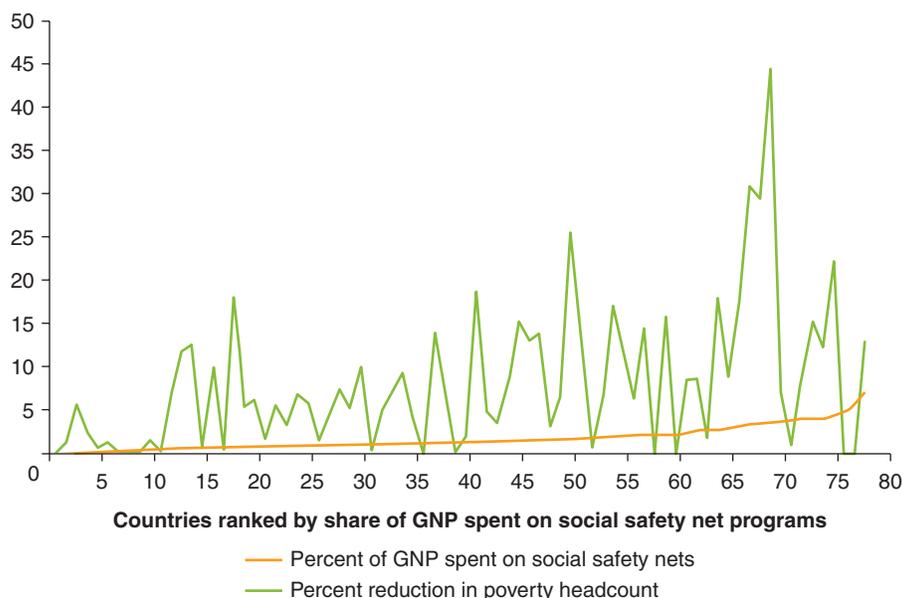
South Africa has achieved the largest proportional reduction in poverty with social assistance. Their combination of noncontributory pensions and child grants as well as the resources that an upper-middle-income country with a high priority to social assistance can bring to bear leads to more than a 70 percent reduction in the poverty gap in 2005. Countries in Eastern Europe and Central Asia also manage sizable reductions in poverty—often above 50 percent—as well as reductions in inequality through social insurance. Many of these countries are former socialist economies, but Turkey has also reduced poverty appreciably; the proportional reduction in poverty in that country rose from 48 percent in 2004 to 55 percent in 2012.

Overall, with a combination of social assistance and social insurance, low-income countries manage to close 18 percent of the poverty gap, and lower-middle-income countries achieve a 36 percent reduction. Upper-middle and upper-income countries manage to close their poverty gaps by 53 percent and 79 percent, respectively (World Bank n.d.). Reducing the poverty gap, however, is not the same as reducing the number of poor, that is, headcount poverty. The former values transfers to *any* recipient below the poverty line while the latter—focusing on facilitating crossing the poverty line—emphasizes only those immediately below the line. Africa is at a particular disadvantage with regard to poverty reduction; less than 1 percent of Africans move beyond poverty as a result of transfers while more than 10 percent of the population in Eastern Europe does.<sup>2</sup> Moreover, low- and lower-middle-income countries do not reduce inequality appreciably with these programs; on average they reduce the Gini measure of income inequality only by 1.4 percent and 0.9 percent, respectively. In contrast, upper-middle and upper-income countries are more successful in reducing the measure of inequality. For the former the reduction is 7.3 percent, and for the latter it is 24.9 percent.

As illustrated in figure 4, however, there is not a close relationship between safety net spending and success in poverty reduction. The figure ranks countries in order of the share of GNP allocated to social assistance and illustrates that some countries—for example, South Africa—can make significant reduction in headcount poverty with a relatively modest allocation of national resources while others devote far more of GNP and have little to show in terms of poverty reduction. The absence of a clear relationship between spending and poverty reduction points to the importance of how resources are spent as much as how much is expended.

At all levels of national income, transfers achieve larger proportional reduction in poverty gaps in urban areas than in rural. For example, the gap is reduced by 16.9 percent in urban areas of low-income countries but only by 7.2 percent among the rural population.<sup>3</sup> The corresponding averages are 35.9 and 18.1 for lower-middle-income countries and 49.6 and 35.5 for upper-middle-income countries. In all groups of countries the per capita transfers in urban areas exceed that in rural areas. In both groups of

**FIGURE 4** Relationship of Safety Net Spending as a Share of GNP and Proportional Reduction in Poverty Headcount



Source: Calculated from data in World Bank (n.d.).  
 Note: GNP = gross domestic product.

middle-income countries the share of the poorest quintile receiving transfers in rural areas exceeds the share in urban. The opposite is the case in the poorest countries. Thus, by this criteria, poor countries are somewhat more likely to address errors of exclusion.

Two additional points are important to conclude this section. First, the relatively modest impact of transfers on poverty reduction in low-income countries is not due to poor identification of households in need. Indeed, Fiszbein, Kanbur and Yemtsov (2014) find that low-income countries are more effective at targeting than lower-middle-income countries, which are, in turn, more effective than upper-income countries.<sup>4</sup> Thus, the primary constraint to greater impact on poverty in low-income countries appears to be

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*Clearly poor countries would do better at poverty reduction if they were not poor. A more practical implication, however, is that poor countries have to be more selective in program design than their more affluent counterparts.*

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the budget that can be mobilized. This observation can be viewed as a tautology: Poor countries would do better at poverty reduction if they were not poor. A more practical implication, however, is that poor countries have to be more selective in program design than their more affluent counterparts.

Moreover, although it is instructive to assess the impact of social protection in terms of the transfers that are received by the poor as defined by the \$1.25 poverty line or in terms of the share of resources reached by the poorest quintile, neither of these benchmarks is necessarily the goal of all countries' programs. Countries may focus on a poverty line

different from the extreme poverty line used in international comparison, or coverage may be extended beyond the poorest quintile intentionally as poverty is not always confined to that quintile. Coverage may also be wider for political-economy reasons to maintain sufficiently broad program support.

# Pathways from Social Protection to Nutrition

A standard economic model of the production of health can illustrate how social protection can address the underlying determinants of malnutrition.

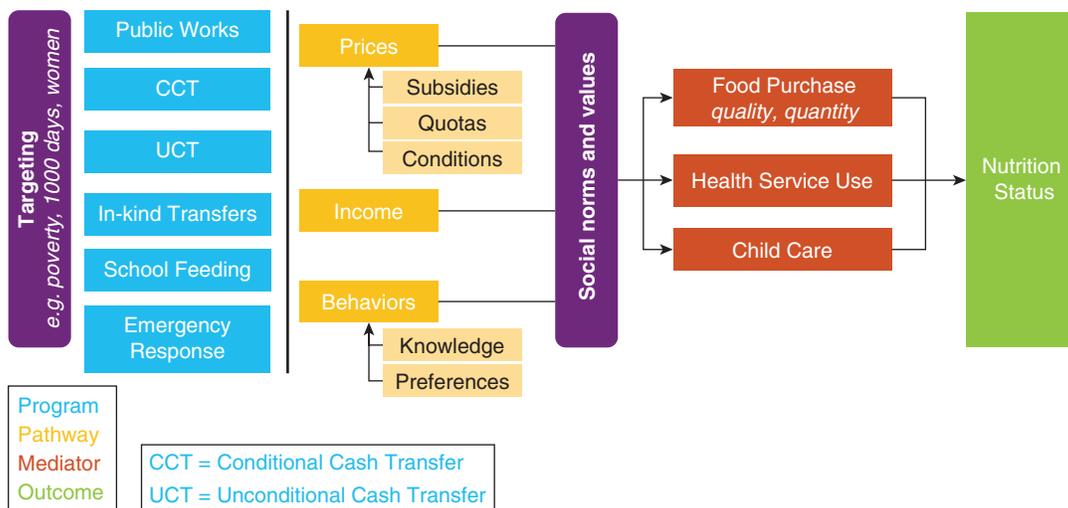
Figure 5 shows indicative pathways whereby nutritionally vulnerable populations can be targeted through social protection programs. The programs' effects on factors such as income, prices, and household behaviors change the degree to which families choose to invest in health and how they do it. Broader social norms and values will influence this decision making, as will available technology and services that promote health and the skills of households in applying them. This model is fully compatible with another useful heuristic view of nutrition that presents it as an outcome of food security, health, sanitation, and care, with the role of income and prices serving to determine the level of food and health that is obtained (appendix A).

This paper will first discuss the evidence on the impact of transfers on nutrition via the income pathway. Subsequent sections will discuss pathways mediated by price changes and by influences and behavior at the household level.

## Increasing Income

A household that receives one dollar in transfers should increase consumption plus savings by virtually the same amount. Indeed, to a fair degree this is merely an accounting exercise, and it is surprising that many impact evaluations report this as a key finding. There is a possibility, however, that the availability of

**FIGURE 5** Indicative Pathways from Social Protection Programs to Nutrition



Source: Harold Alderman and SecureNutrition.

## BOX 1 Social Protection and Obesity

The programs reviewed in this paper are designed to transfer income to low-income families and generally are expected to contribute to reductions in undernutrition by increasing purchasing power, either through increasing income or decreasing food prices. But, in fact, the poor are also at risk of overweight/obesity, and low birth weight and stunting are associated with increased body mass indices (BMI) and chronic illness. Indeed, a recent review of obesity poses the question as to whether the problem is “overweight or underheight?” (Lobstein et al. 2015).

In the short run, however, transfer programs can exacerbate overnutrition while aiming to reduce undernutrition. For example, Fernald, Gertler, and Hou (2009) found that Oportunidades, the successor to PROGRESA, led to higher BMI as well as higher blood pressure. Forde et al. (2012) found a similar risk for BMI in Colombia’s transfer program. The one study that assessed whether in-kind distribution had a different impact on obesity than cash—in this case, in a study of women in the same Mexican program studied by Cunha, de Giorgi, and Jayachandran (2011)—found that both forms of support led to increased weight gain relative to the control group with no significant difference (Leroy et al. 2013).

a transfer will reduce nontransfer income due to either changes in remittances or changes in labor allocation. Regarding the former, a number of studies document that public transfers partially crowd out private transfers (Jensen 2004; Cox, Hansen, and Jimenez 2004). Factors that influence private transfers include migration of family members as well as the timing of transitory shocks. Clearly, only elderly who receive remittances from children can have these partially crowded out by a social pension. This association can be incorporated into targeting criteria.

The converse—the possibility that an individual receiving a transfer may pass some of the assistance to other family members or to neighbors—is also potentially important for policy. In both cases, the indirect effect of transfers on the linked household may be a second-round effect of the transfer on poverty reduction if the linked household is also poor or has malnourished members. This pass-through has been an issue in the design of transfers to caregivers of orphans, who are often—albeit not always—at heightened risk of undernutrition. In principal coresidency is not necessary for a transfer to one individual to be shared with another. In practice shared custody strengthens intergenerational linkages.

For example, Duflo (2003) found that the grandchildren of recipients of South Africa’s relatively generous pension program benefit indirectly from old age pension transfers. The finding has been used to motivate social pensions as a pillar of child support. Many countries emulate the successful South African Old Age pension, but given limited budgets for low- and middle-income countries such a priority may

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*While this result clearly supports the view that women and men have different patterns of investment, it does not imply that a pension transfer is necessarily a good vehicle for improving child nutrition.*

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crowd out funds for younger children, which is an important consideration—given 1,000 days window of opportunity—if long-term health and development outcomes are a priority. Duflo found that pensions only received by women had a significant impact on the nutritional status of their grandchildren, and no impact was found for relatives of male pensioners. This result clearly supports the view that women and men have different patterns of investment, but it does not imply that a pension transfer is necessarily a good vehicle for improving child nutrition.

In fact, only 46 percent of pensioners—either male or female—lived with their grandchildren, and the positive nutritional impact was observed only if the woman’s grandchild was a girl. Thus, a child grant will have a different impact on income growth than old age pensions. An old age pension will support consumption, but a child grant will also support investment at a greater rate. South Africa has proven to be able to afford both transfer programs at meaningful levels; other countries, however, may have to confront the difficult choice of prioritization of recipient groups head-on.

Evidence on the impact of transfers on labor supply is also often misapplied and taken out of context. While economists generally consider welfare to include both the consumption of leisure and goods, governments generally are uncomfortable with increases in the former prompted by transfer programs. This discomfort may be due to political economy reasons for support for programs, which may be greater if the poor increase rather than reduce their effort. Often the concern is about withdrawal from the active labor force rather than a marginal increase in leisure by individuals working nearly full time.

Reductions in overall adult labor supply attributable to safety nets are minor (Alderman and Yemtsov 2014; Grosh et al. 2008).<sup>5</sup> The misperception that social assistance has an appreciable effect on labor earnings may reflect the fact that unemployment insurance programs sometimes do increase the duration of unemployment and of search efforts by recipients (Sanchez-Parramo 2002; van Ours and Vodopivec 2006). However, extrapolation of this evidence on social insurance to noncontributory transfer programs is not generally warranted. Social insurance programs are often relatively generous compared to social assistance. For example, social insurance programs, such as those common in Eastern Europe in transition to market economies, have provided support up to 100 percent of formal sector wages over long periods of time, years in some cases. In contrast, other transfer programs are generally less than half of a poverty line income—often far less—and thus not capable of supporting a family without additional employment.

Labor may, however, be reallocated as an indirect consequence of the targeting criteria for a safety net. De Brauw et al. (2015) note that even though Brazil’s cash transfer, Bolsa Familia, had no disincentive effects on aggregate labor supply, it did prompt a reallocation from formal sector employment to informal activities, presumably as the latter were not a focus of means testing. How this affects long-term poverty alleviation and growth depends on the relative productivity in the sectors.

To summarize the evidence of the net impact of transfers on expenditures: there may be a small and localized reduction in income due to transfers, but few reductions in income due to labor reallocation. Set against these modest potential reductions, there are often increases in income, particularly in agriculture, due to relaxing credit constraints (Sadoulet, de Janvry, and Davis 2001) and, over a longer term, increased capital investments (Hoddinott et al. 2012) and protection from disinvestments due to shocks.<sup>6</sup> Therefore, although heterogeneous effects need to be monitored, there is little worry that safety nets are generally a disincentive on earnings.

Assuming, then, an increase of overall expenditures—earned plus unearned income—proportional to the transfer, what is the expected impact of the added resources on nutrition? Society often does not value all consumption equally. Public statements on transfer programs often indicate that governments implicitly or explicitly value certain forms of household consumption by their recipients differently than they do other choices. In particular, from the perspective of nutrition-sensitive safety nets, there is an interest in promoting the consumption of high-quality food and in investments in health.

Given the plethora of household data sets to which can be applied more than 50 years of research on measuring income elasticities, the impact of a cash transfer on expenditures can be well estimated even in the absence of a formal controlled study. But the question of interest is not whether food consumption goes up; that is certain. Rather, the question of interest for food and nutrition policy is whether the increased purchases after receiving a transfer are greater than the expected increase of purchases at that income level based on general income.<sup>7</sup>

This question is often answered with a yes. That is, in many programs the availability of a food-oriented transfer—even one that provides cash but is perceived as linked to food security—nudges consumers to increase the share of their additional budget devoted to food. For example, cash transfers in Colombia, Ecuador, Mexico, and Nicaragua led to more expenditures on food and health than was observed with increases in general sources of income even when the programs were only indirectly linked to nutrition and health (Attanasio, Battistin, and Mesnard 2012). Similar findings have been noted in studies of the food stamp program in the United States (Breunig and Dasgupta 2005), indicative of how developed countries make use of nutrition-oriented social protection programs; in the United States, these include the Supplemental Nutrition Assistance Program (SNAP) and Women, Infants, and Children (WIC).

This heightened impact may be an example of labeling (Kooreman 2000) by which participation in a program influences households' spending patterns either latently or explicitly with social marketing. Other studies attribute changes in expenditure patterns to a combination of gender control—many transfer programs earmark women as recipients (Haddad, Hoddinott, and

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Alderman 1997; Duflo 2003). For example, Angelucci and Attanasio (2013) conclude that handing transfers to women likely accounts for the observed changes in food consumption.

Increases in expenditures on food are generally larger than the proportional increase in quantities of food. Most studies find that the proportional increase in calories with respect to income (calorie elasticity) to be smaller than the elasticity of total food expenditures (Behrman and Deolalikar 1987; Subramanian and Deaton 1996). A *rough* rule of thumb is that in low-income settings, food expenditure elasticities are approximately twice the calorie elasticity. The difference between these two measurements is an indication of both changes in diet composition and in quality.

However, food security is not identical to nutrition security, and neither food expenditures nor calorie elasticities are sufficient indicators of changes in inputs to nutrition mediated by income. Other factors that contribute to nutrition status, such as access to care as well as water and sanitation, may also respond to changes in household income or expenditures. Therefore, it is instructive to look at the degree to which anthropometric indicators of nutritional status respond to changes expenditures.

For example, Ruel and Alderman (2013) indicate that a 10 percent growth of GNP results in nearly a 10 percent decline in poverty but only a 5.9 percent decline in stunting, an estimate close to the 6.3 percent reported in Smith and Haddad (2015). Similar cross-country estimates indicate that severe anemia among children, defined as hemoglobin below 7 g/dL, declines at 9 percent with 10 percent income growth although the decline for mother was smaller at 6.5 percent (Alderman and Linnemayr 2009). Anemia defined as hemoglobin levels below 10.9 grams per deciliter (g/dL) declines at a slower rate; improving income by 10 percent would decrease child anemia by only 2.4 percent (and maternal anemia by 1.8 percent). These results can be triangulated using household data. Haddad et al. (2003) found that the Millennium Development Goals indicator of rates of underweight children less than five years old declined at half the rate that GDP grew based on the average of 12 household surveys, all of which were collected in the 1990s. The household data, then, show a nutritional response to income similar to the data across countries.

These and similar results have been used to argue that countries should not expect income growth alone to solve malnutrition in a generation (Alderman 2010).<sup>8</sup> New results are consistent with that conclusion; indeed, such data seem to point to reductions in stunting of 6 percent with a 10 percent increase

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in income as an upper range of expectations for the impact of transfer programs. The motivation for reappraising these estimates is based in part on interpreting country fixed effects estimates as long-run results. Smith and Haddad (2015) indicate that when they use first differences spanning only five years—compared to the average 20-year span in their overall fixed effect estimates—they estimate that a 10 percent growth in income implies only a 1.7 percent

decline in stunting. They point out that these smaller elasticities are in keeping with some other estimates in the literature and suggest that the differences reflect long- and short-term response.

Furthermore, while South Asia has had robust income growth in recent years, the region has not been able to translate that growth into reduction in stunting consistent with the estimates from data across countries. For example, India with the largest number of malnourished children in the world and a rapidly growing economy, appears to have a smaller than average improvement in nutrition with its growth. Even Bangladesh, which has one of the most rapid reductions in stunting in recent years, might have expected greater than the 20 percent reduction between 1997 and 2011, a period when income per capita roughly doubled.<sup>9</sup>

More central to this review is that studies of both conditional cash transfers (CCTs), which tie eligibility for transfers with participation in specified health and schooling activities, and unconditional cash transfers (UCTs) have not delivered improvements in nutrition commensurate with their success in addressing poverty. Despite the proven ability to transfer purchasing power to low-income families and to encourage increased utilization of health services (Ranganathan and Lagarde 2012; Haines and

Palmer 2007; Gaarder, Glassman, and Palmer 2010), on average the impact of CCTs and UCTs on anthropometric measures of nutritional status is small (Ruel and Alderman 2013; Manley, Gitter and Slavchevska 2013). Similarly, a significant reduction in anemia was found in only one of the three country programs reviewed by Leroy, Ruel, and Verhofstadt (2009). De Groot et al. (2015), using a less restrictive filter to review cash transfers than Manley, Gitter and Slavchevska or Ruel and Alderman, do find some limited success in improving nutrition with transfer programs but reach similar conclusions as to the limitations and the reasons for them as in the current review.

There are various possible reasons for the limited path from social assistance to nutritional outcomes. Foremost among them is that poverty targeting does not necessarily have a nutrition focus. Much of the research on CCTs has been from countries in Latin America where the prevalence of stunting is far less than in Africa or South Asia. Moreover, a share of social assistance is targeted to poor households with few if any young children, for example, old age pensions as well as support to school-age children.

Even when social assistance programs have a young child orientation, the transfers are not necessarily targeted to households with children in the most vulnerable 1,000 day period from conception to a child's second birthday; that is, eligibility does not always align with the time of greatest growth velocity. This may dilute the actual response and, further, mask measured results. For example, Linnemayr and Alderman (2011) find an insignificant impact of a randomized trial—albeit not a cash transfer—when children 0 to 5 years are measured but a statistically significant impact when one focuses on the younger children only.<sup>10</sup> In addition, as mentioned, estimated elasticities from

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cross-country or cross-sectional household data may obscure the time frame and provide an overly optimistic expectation for the impact of the increased household resources.

## Subsidies, Quotas, Prices, and Conditions

Until relatively recently, governments were as—or more—likely to support consumption by low-income households through price supports and in-kind transfers than through cash assistance. A range of motives coincided in this policy preference (Pinstrup-Andersen 1988). For example, subsidies and in-kind transfers can be a practical means to offset producer price subsidies and procurement policies or—as in past years—to recycle food aid.<sup>11</sup>

More central to the issue of nutrition-sensitive social protection is that despite the well-known economic argument favoring income transfers as less distortive of preferences than price subsidies or in-kind assistance, many governments actually have explicit goals of encouraging increased expenditures on food. However, to have a price subsidy influence the amount of subsidized food that is purchased, it is necessary that (1) there is no restriction on the amount purchased, or (2) any quota on subsidized allowance is greater than the amount that would have been purchased in the absence of the program.

If the subsidized quota is smaller than what the consumer would have purchased at unsubsidized prices, the subsidy acts only as an income transfer; the open market price, not the lower subsidized price, determines the household's decision of how much to purchase. This restricted transfer is referred to as an inframarginal support. The value to the consumer is equal to the quota multiplied the difference between the subsidized price and the open market price.

There are natural barriers to the nutritional impacts of a price subsidy. Even if there is no quota on the amount a household can purchase the income support provided via a price subsidy is based on budget share to the subsidized commodity. Commodities with relatively large shares of a household budget tend to be price inelastic; that is, they are commodities for which a lower price does not induce a major change in the commodity consumed.<sup>12</sup> When there are close substitutes for a subsidized commodity, the net impact on diet is complex. Although a lower price on a good can lead to increased consumption of that item, it may also induce a partially compensating reduction in another good. Thus, the net impact of a subsidy on total energy, protein, or vitamin consumption is indeterminate (Pitt 1983).

Lower prices on basic grains in China and India have been shown to have

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little impact on net energy consumption, in the latter case due to substitution of rice and wheat for greater amounts of coarse grains by consumers in areas where rice and wheat were not the main source of calories (Jensen and Miller 2011; Kaushal and Muchomba 2015). In contrast, a tax exemption on

maize in South Africa increased calories from that grain as well as bread and beans (Alderman and del Ninno 1999).

Until recent improvements in the technology for cash transfers became widespread (and for the targeting that is necessary in any cash-based support), price subsidies had some administrative advantages. Generalized price subsidies could in some circumstances be applied at the point of import through dual exchange rates or indirectly financed through taxes on producers by means of mandatory procurement quotas. The incidence of transfers on generalized untargeted food subsidies, however, is often regressive.<sup>13</sup> Even consumption of staples such as grains and pulses generally increase as incomes go up so that the total expenditure on subsidies is higher in upper-income groups in absolute terms even if the support is higher as a share of the expenditures of the poor. For commodities such as milk and oil, the share relative to the income of the rich may even be higher than the corresponding share for the poor. Only a few commodities—such as maize flour in South Africa or certain grades of flour in the Arab Republic of Egypt—are self-targeted such that a subsidy on that good is progressive, and these subsidies generally transfer only a small amount of purchasing power (Alderman and Lindert 1998) and thus provide little direct impact on food nutrition through an income pathway.

Often there are quotas on the amount of a commodity that can be purchased at a subsidized price. In contrast to generalized subsidies marketed extensively, quotas are often distributed through specialized shops, either government administered outlets or privately owned licensed retailers. Generally when quotas are in place there is a legal open market from which a consumer can obtain additional amounts of the food at a higher price. This two-tier market sets up an incentive for diverting grain from the quota to the higher priced open market (Alderman 1988; Mehta and Jha 2014). Although such sales are sometimes termed “back door sales,” they may occur at the wholesale or warehouse level as well as from retail outlets. Clearly, such diversion of subsidies will result in large share of the budget allocated to subsidies having no impact on the poor.

## Cash versus In-Kind Transfers

There is little conceptual difference between the marketing of subsidized goods on quota and free distribution in-kind. The motivation for either mode of delivery is often similar, and the need for government involvement in transport and storage, at least at the wholesale level, is similar. With the expansion of cash transfers, there has been a renewed interest in comparing this mode of assistance to the alternative of in-kind support in order to ascertain both the difference in consumer behavior and in the costs of different programs.

One general difference between administering cash transfers and in-kind support is that the former is less costly to deliver than food. For example, four randomized trials supported by the World Food Program found that it cost roughly \$3 per cash transfer, while the cost per food transfer of equivalent value was two to four times as large (Gentilini 2016; Margolies and Hoddinott 2015;

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Hidrobo et al. 2014). Moreover, increasing the value of the transfer would do little to change the cost per transaction—thus costs per dollar transfer declined markedly with value.<sup>14</sup> This is not the case with food. At the particular levels of transfers in the four studies, an additional 13 percent to 23 percent of households could have been reached if the food transfers were in cash instead. Additionally, Margolies and Hoddinott (2015) note that depending on the location of the dis-

tribution sites, some costs are shifted from the government to consumers for waiting and for transport.

The impact of market performance has been a perennial theme of studies of food assistance. If markets are well connected, targeted in-kind assistance is unlikely to affect the price of traded commodities, nor would additional cash put pressure on local market prices. This is an issue for producers as well as consumers; farm gate prices are less likely to be depressed with food transfers when markets are integrated.

Similarly, market integration and inexpensive transportation implies that local purchases have little impact on the revenue that a producer receives at the farm gate; in such cases prices are determined by a wider market than the local catchment. The converse is also true: tertiary markets may be sensitive to changes in local demand. For example, in a randomized trial in communities in Mexico that were too remote to be included in the national cash transfer program, PROGRESA, Cunha, de Giorgi, and Jayachandran (2011) found that cash transfers led to higher prices locally and a purchasing power loss for program participants amounting to 11 percent relative to those who received an in-kind transfer of similar value. In this case the commodities offered were largely processed food items and, perhaps, less competitively marketed in these communities than basic grains.<sup>15</sup> Other randomized trials such as that of Aker et al. (2011) have not found cash transfers to inflate grain prices.<sup>16</sup>

Studies already noted (Gentilini 2015; Margolies and Hoddinott 2015; Hidrobo et al. 2014) also collectively point to a few differences in the response of consumers with cash generally leading to greater diet diversity but not necessarily more calories consumed. These differences were highly dependent on context, including the availability of seasonal storage and the degree of market integration. Regarding the former, although in general, cash allows for greater diet diversification, in Niger during a seasonal hunger gap households receiving food resorted to fewer harmful coping strategies and had higher measures of food security and dietary diversity compared to households receiving cash. In this particular example, households receiving cash spent significantly more on purchases of bulk grains (in part to protect against seasonal price increases) and on repairing their households as well as on agricultural inputs (Hoddinott, Sandstrom, and Upton 2014).

Cunha (2014) observes that most of the 10 commodities in the in-kind distribution program in Mexico substituted for similar goods that would otherwise have been purchased. Nevertheless, the in-kind distribution increased micronutrient consumption. In this case the impact was attributed

to the extramarginal inclusion of iron and zinc fortified milk powder. However, this is likely to be a general result for any program in which a fortified commodity is provided if the alternative foods obtained from the market are not similarly enriched; in-kind distributions can be sensitive to nutrition when they are vehicles for food fortification.

Although Cunha (2014) noted that these foods cost substantially more to distribute than cash transfers—and questioned whether the benefits in terms of micronutrient intake justified these costs—it is not necessarily the case that in-kind transfers will increase costs appreciably. For example, in Gujarat, India, iron fortified flour was substituted for wheat grain in the public distribution system with marked improvement in iron intakes at an incremental cost of only \$0.48 per ton (Fiedler et al. 2012). School feeding programs also have this capacity.

Another logistical advantage of in-kind programs is that the items distributed retain their real value in the face of price fluctuations and inflation. To be sure, cash transfers can be adjusted administratively, as Brazil did when prices rose rapidly in 2008, but doing so depends on an executive decision—one that is awkward to reverse if food prices retreat. In contrast, in-kind transfers are intrinsically protected from devaluation. Sabates-Wheeler and Devereux (2010) documented the extensive temporal and spatial differences in the value of cash and in-kind public-work wages in Ethiopia between 2006 and 2008, a period of extensive food price volatility. Although the authors did not track these differences on their impact on nutrition, they did show that participants who received wages wholly or partially as food reduced their food deficits more than those who received wages in cash, despite an increase in nominal cash wages in 2008.

More specific to the issue of nutrition-sensitive interventions is that despite context specificity of in-kind transfers compared to cash in overall household purchases, the former seem to have a particular role in improving child nutrition. For example, Behrman and Hoddinott (2005) found no overall impact on nutritional status of PROGRESA when looking at program eligibility. They did observe that after controlling for unobserved heterogeneity correlated with actual access to the program's supplementary food (not all eligible children had such access), there was a significant positive and fairly substantial reduction in stunting among children 12 to 36 months old who received the supplements. The reduction was greatest among the poorest families with functionally literate women present.

Ramirez-Silva et al. (2013) also found that increased dietary intake from the food supplements in PROGRESA, rather than other aspects of improved home diets of the young children within the household, contributed to

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## BOX 2 Emergency Response and Nutrition in Indonesia

Giles and Satriawan (2015) illustrate a potential for in-kind distribution in a financial emergency. They showed that supplementary feeding provided to children 6 to 60 months old by the government of Indonesia in response to the 1998 economic crisis benefited children 12 to 24 months old but did not improve stunting for either younger or older children. This finding reflects both age-specific health risks and difference in daily food allocation. The overall effect was a reduction in the likelihood of stunting by 15 percent.

improvement in anemia. The group that received supplements also consumed more retinol and zinc. The study, however, did not analyze the reasons that one group of participants consumed the supplements and another did not. Similarly, Meller and Litschig (2014) found that a conditional *in-kind* supplement in Ecuador reduced mortality.

It is debatable whether this type of program can be considered a nutrition-sensitive safety net or a nutrition-specific intervention. Nevertheless, a range of nutrition-specific supplementation programs have been shown to affect nutritional outcomes (see, for example, Hoddinott et al. 2013).

### Emergency Settings

The core issue determining the role of in-kind distribution in a nutrition-sensitive emergency response is quite similar to the central consideration in a nonemergency setting—much revolves around how well markets are functioning. When grain can flow to areas of shortfall unhindered, famines can often be viewed as the consequence of limited purchasing power, rather than food shortages per se (Sen 1981). Still, until relatively recently, logistics as well as the availability of food aid favored in-kind distribution in response to a range of natural disasters and conflict situations. However, as with programs designed to address chronic poverty, the recent trend has been to respond to emergencies with cash assistance (Harvey 2007; Pelham, Clay, and Braunholz 2011).<sup>17</sup>

Whether cash or in-kind, the primary objective in emergency response is to provide resources to affected families, often with a broader targeting criteria than used for social assistance designed for chronically poor. Programs also seek to prevent the nonpoor from losing assets and falling into a poverty trap (Sumarto, Suryahadi, and Pritchett 2003). Nevertheless, it is also the case that short-term crises influence both mortality of children and the long-term health and economic prospects of survivors (Alderman, Hoddinott, and Kinsey 2006).

As emergency relief is generally designed to meet the needs of households rather than to meet the dietary needs of the most vulnerable children, efforts have been made to enhance the nutritional impacts by including: (1) micro-nutrient fortification of grains and fortification of vegetable oil; (2) iodized salt in general food deliveries; and (3) specialized nutritious products for vulnerable individuals (Webb et al. 2014).

By including fortified blended foods, micronutrient powders, and lipid-based nutrient supplements (LNS)<sup>18</sup> in the package of assistance to families, such programs in effect use an emergency social protection response as a platform for a nutrition-specific intervention, in keeping with one recommendation for enhancing nutrition sensitivity (Ruel and Alderman 2013). Evidence on the effectiveness of these various additions to standard emergency response is often indirect. For example, randomized trials have been employed to assess the cost effectiveness of LNS for treatment of acute malnutrition, but much of the evidence on LNS on the prevention of malnutrition comes from seasonal shortfalls and slow onset scarcity (Webb et al. 2015; Grellety et al. 2012; Huybregts et al. 2012).

## Conditional Cash Transfers

Just as price subsidies change the cost of goods, the goal of increasing investments in human capital is often fostered by adding a requirement that the beneficiary household participate in designated health care activities to be eligible to receive program benefits (Fiszbein and Schady 2009). In effect, the requirements necessary to qualify for these CCTs change the relative price of investments while at the same time increase the overall budget envelope for recipients. This is motivated, in part, by the assumption that poor households underinvest relative to a social optimum (Das, Do, Özler 2005).

Critics of CCTs sometimes argue that poor households know what they need and if they have not made the investments it is because they are cash constrained. From this perspective, adding conditions is an unnecessary burden and one that may restrict transfers to poor households that do not have members that qualify for the educational or early nutritional requirements. This latter concern places the equity motive of the transfer in contrast to the investment goal (Alderman and Yemtsov 2014). Conditional transfers, however, may address market failures including differences in voice within the household of children or women who benefit from the investments or imperfect information on the benefits of these investments (Baird et al. 2014). Moreover, if there are positive externalities for health investments, then the socially optimal level of participation exceeds what the household would choose without additional incentives.<sup>19</sup>

The evidence indicates that CCTs virtually always augment household food consumption and dietary diversity as well as increase participation in preventive health care. How much is due to the cash transfer and how much reflects the conditions for eligibility? UCTs generally also achieve increased food consumption but may have smaller impacts on health care. However, despite the strong views in the literature about the relative values of CCTs and UCTs, direct comparisons of CCTs and UCTs are rare and those that have been conducted are generally concerned with education.

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One of the few such direct comparisons concerning health care in Burkina Faso found that CCTs—but not UCTs—increased visits to preventive health services (Akresh, De Walque and Kazianga 2012). Another comparison from Zimbabwe also found few differences other than greater registrations of births with a CCT, (Robertson et al. 2013) but did not track nutritional outcomes. In contrast, Attanasio et al. (2015) found that conditions make a large difference in health facility attendance and on child health. A full policy relevant comparison of programs should also study costs of delivery, including the resource costs (e.g., time allocation) that households need to invest to meet conditions. Thus, evidence that CCTs increase health service utilization at a higher rate than UCTs does not necessarily imply that they are a more cost-effective approach for meeting this objective. Actually, it is unlikely that UCTs have no element of soft conditions; that is, few transfers are devoid of any beliefs held by the recipient of what is expected of them in return for receiving the transfer. Thus, most UCTs have an element of what has been termed *labeling* (Kooreman 2000) or more recently, *a nudge* (Benhassine et al. 2013).

CCTs may also have a second-round impact in terms of accountability and inducing demand for improved health and nutrition services. For example,

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Barber and Gertler (2010) found an improvement in the birth weight of children born to women eligible for Oportunidades yet did not find an increase in attendance at prenatal centers. This outcome, according to the authors, stemmed entirely from an improvement in the quality of services—an improvement they attributed not to additional financial resources provided to the clinics but rather to the empowerment of the recipient women, who

demanded better services. The issue of service quality is a generic concern covering basic a range of health services for children as well as being relevant in regards to increased access to education. If, in the case of CCTs for young children, a household is required to have their offspring weighed and measured, the family benefits little if this information is not then used to inform growth promotion and counseling.

Service quality is, however, often the Achilles heel of CCT programs. One of the most common coresponsibility in CCT programs is attendance in growth monitoring *and promotion* sessions. However, it is not clear that growth *promotion* is regularly practiced at the community level. This is crucial. A comprehensive review of global experience concluded that growth monitoring has little or no effect on nutritional status in large-scale programs with weak nutrition counseling (Ashworth, Shrimpton, and Jamil 2008, 86–117). The tendency to measure results in terms of easily quantifiable weighing sessions rather than in terms of counseling sessions creates risk for incentive structures for both the households and for the training and staffing of health care personnel.

As noted, the increase service utilization observed in both CCT and UCT programs does not always translate to measured improvements in

nutritional outcomes. However, Rasella et al. (2013) linked CCT coverage in Brazil with municipal mortality data using fixed-effects regression analysis and observed that as coverage increased, under-five mortality declined. Similarly, a drop in deaths attributed to malnutrition was associated with the program's availability. The analysis also accounted for the rollout of a program to provide free community-based health care and found that the reduction in overall mortality was greatest where both programs had widespread coverage.

In a similar study using municipal data, Barham (2011) found that PROGRESA reduced infant mortality as program coverage increased; mortality declined by 17 percent in rural areas with full coverage and by 8 percent overall. Moreover, the subset of deaths attributed to nutritional deficiencies was found to decline significantly even though this trend contributed less to overall reductions in infant mortality than did the changes in intestinal infections or respiratory diseases. The study, however, did not find a statistically significant reduction in neonatal mortality.<sup>20</sup>

Tracking another nutritional outcome, Amarante et al. (2012) found a 15 percent to 17 percent reduction in low birth weight attributable to an unconditional transfer program implemented in Uruguay between April 2005 and December 2007 in response to a contraction in GNP of 10 percent. The study used administrative microdata matched to longitudinal vital statistics on the universe of births. The authors also indicated that the transfer increased household income by at least 25 percent, implying an income elasticity for low birth weight of approximately  $-0.6$ . This is nearly three times the magnitude of the elasticity for the reduction in low birth weight ( $-0.228$ ) reported in the online appendix to Ruel and Alderman (2013). The study did not report the attendant changes in purchases financed by this transfer or in health services demanded, although they ruled out the possibility that the improvement in birth weight was due to significant changes in health-seeking behavior. They flagged both reduced stress and reduced labor supply as possible contributors to the outcomes measured, implying a role of the transfer beyond that of earned income.

In addition, vouchers and CCTs have been used to promote utilization of antenatal care and improve basic obstetric care (Bhutta et al. 2014). While the principal objective of such programs is to reduce maternal and neonatal mortality, they have the potential to affect birth weight via distribution of multiple micronutrient supplementation and, in some cases, balanced protein supplementation at clinics (Bhutta et al. 2014). Institutional deliveries also can affect nutrition through the promotion of breastfeeding immediately after delivery. However, the limited research on CCTs for antenatal care and institutional delivery—mainly studying India's Janani Suraksha Yojana program (translated as safe motherhood scheme)—have focused on maternal mortality rather than birth weight or subsequent child development (Randive, Diwan, and De Costa 2013; Lim et al. 2010).

The available evidence indicates that the financial support encourages utilization of obstetric services, but such care is associated with only a modest reduction in perinatal and neonatal mortality, possibly because the quality of

facility care provided was low (Bhutta et al. 2014). Additionally, the community motivators are prompted OR moved by the number of deliveries not the full range of antenatal care.

## School Feeding Programs

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*Although impacts on enrollment and attendance are regularly noted with such programs, the nutritional sensitivity of school feeding programs is often overstated (Alderman and Bundy 2012) while the nutritional potential is often under-utilized.*

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School feeding can be viewed as a form of in-kind transfer that is conditional on school attendance. Despite the conceptual overlap with CCTs, however, school feeding programs differ in administration and targeting. Generally offered as meals or snacks but also as take home rations (THR), school feeding programs reach 375 million children annually at a cost of \$75 billion. Per child costs range from \$54 averaged over low-income countries to \$693 in more developed countries (Gelli and Daryanan 2013). Although impacts on enrollment and attendance are regularly noted with such programs, the nutritional sensitivity of school feeding programs is often

overstated (Alderman and Bundy 2012), and the nutritional potential is often under-utilized.

Meta-analyses of school feeding programs for schoolchildren aged 5 to 19 find that these programs generally increase weight gain (Kristjansson et al. 2007). This result is not an unambiguous benefit because in many countries, particularly in Latin America, school feeding programs aim to address obesity. This goal has had some level of success, particularly when integrated with appropriate curricula and with programs to promote activity (Verstraeten et al. 2012). Although improvements in stature are less common in school feeding programs, Singh, Park, and Dercon (2014) found that school feeding in India apparently reversed the impact on stunting due to a severe drought. Bóo and Canon (2013) also noted that this gain was attended by an improvement in cognitive scores that could close a quarter of the gap between low and high caste students.

Standard household models would predict that a student's food intake at home would be partially reduced to compensate or partially offset his or her access to school meals, indirectly sharing the program. Such reallocation is not universally observed (Afridi 2010), but often school meal

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*This concern may be misplaced since school feeding programs improve overall household food access and can benefit other children in food insecure settings.*

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administrators are concerned about the addition of meals to a child's diet. This concern may be misplaced because school feeding programs improve overall household food access and can benefit other children in food insecure settings. This scenario would be most likely when students are provided THRs. This form of food for education was found to improve the nutritional status of the younger siblings of students in Burkina Faso (Kazianga, de Walque and Alderman 2014).

Improved cognitive ability is one way by which school meals may influence learning. Additionally the availability of school meals may influence learning outcomes through their influence on classroom attendance. Moreover, reduced hunger may have a short-term impact on attention in the classroom, which may also mediate between school meals and learning outcomes. All three channels have been shown to contribute to school outcome in various settings (Adelman, Gilligan, and Lehrer 2008).

As with health, the impact of a school meal program hinges, in part, on the quality of the educational services; in Jamaica, classroom behavior improved in the better organized classroom and deteriorated elsewhere (Grantham-McGregor, Chang, and Walker 1998). The impact also depends on the timing; school breakfasts may have a very different impact on hunger and thus on classroom performance than do lunches.

Unlike the case of balanced protein and energy supplementation for which the benefits are most apparent in the 1,000-day window from conception to a child's second birthday, benefits of micronutrient supplementation are well documented for school age children. Numerous studies have confirmed that school meals can improve micronutrient status (Best et al. 2011). One meta-analysis concluded that iron supplementation was particularly effective in regard to intelligence tests for children between 7 and 15 years of age (the upper limit of the ages in the review) and for children who were initially anemic or iron-deficient anemic (Sachdev, Gera, and Nestel 2005). More recently, Luo et al. (2012) recorded increased math scores in a randomized trial of iron supplementation in schools in China.

Additional benefits of improved micronutrient status are likely for adolescent girls. It is increasingly apparent that reaching young women with iron and folate prior to pregnancy can have public health benefits (Bhutta et al. 2013). With girls' schooling grows, school meals offer one platform to deliver micronutrients to this age group.

Improvements in micronutrient status via school feeding may be achieved through comparatively expensive diet diversity, often involving animal products (Neumann et al. 2003). Improvements in micronutrient status can also be attained by direct fortification of a staple. Most commonly wheat flour or corn soy blend is fortified with iron, and even extruded rice is a potential vehicle for fortification (Moretti et al. 2006). In another 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 et al. 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. A trial in Uganda revealed that there may be little difference between school meals and take home rations as

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a vehicle for fortification. Both delivery mechanisms contributed to a 20 percentage points decline in anemia prevalence for treated adolescent girls relative to the control group (Adelman et al. 2015).

The underutilized nutrition potential of school feeding varies, however. Not all programs include fortification with iron, and even fewer fortify with folate, although this could be achieved even with snacks, and anemia could be addressed with concurrent supplementation programs (Luo et al. 2012). Breakfasts or even snacks may also achieve the goal of increasing attention in the classroom and may prove suitable in programs where the school day is short. Another approach to increasing the nutritional effectiveness is the use of THR or a combination of targeted THR and meals.

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*While it may be particularly suited for increasing diet diversity and inclusion of vegetables into meal programs, locally sourced school feeding is not necessarily flexible for chronically food insecure areas or to respond to seasonal shortages or local shocks.*

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Education on the prevention of obesity is included in some schools, but few link their programs to education on diets for the children that most of the students will be raising. Similarly, complementary media campaigns to reinforce nutritional messages—as has been undertaken in Ghana—can enhance the behavioral change component of school feeding.

However, nutrition is only one of the objectives of school feeding programs (Alderman and Bundy 2012). In addition to the educational objective and the contribution of school feeding to household food security, is an emphasis on increasing incomes for local farmers. This goal is dependent on market structure (Sumberg and Sabates-Wheeler 2011) and needs assessment at scale. While it may be particularly suited for increasing diet diversity and inclusion of vegetables into meal programs, locally sourced school feeding is not necessarily flexible for chronically food insecure areas or to respond to seasonal shortages or local shocks. It also imposes challenges for food fortification—often undertaken at centralized processing—although micronutrient mixes can be added to meal preparation even with locally sourced commodities.

## Preferences and Behavior

Many of the elements of a CCT that could be linked to improved nutritional outcomes are not direct results of the conditions themselves—and thus can be achieved by a nutrition-sensitive UCT as well. This transfer would include the labeling achieved via social mobilization and by addressing more entrenched norms and values, as part of behavioral change communication (BCC). Although participation in communication events is occasionally a condition for eligibility, as it is in Oportunidades, BCC can be linked to other transfers as well. For example, the public works program in Djibouti, which prioritizes women, also includes regular BCC sessions on nutrition.

The potential for linking BCC and transfers was shown in a trial that compared cash and in-kind transfers as well as each transfer modality combined

with BCC.<sup>21</sup> The BCC covered: (1) overall importance of nutrition and diet diversity for health; (2) handwashing/hygiene for improving nutrition and health; (3) micronutrients: diversifying diets, vitamin A; (4) micronutrients: diversifying diets, iron, iodine, and zinc; (5) feeding young children: breastfeeding (6) feeding young children: complementary feeding; and (7) maternal nutrition. Cash alone did not lead to improvements in anthropometry, but the combination of cash and BCC had a significant impact on height for age as well as on nutritional knowledge and behaviors.<sup>22</sup>

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In a very different context, Ruel (2001) maintains that increases in the availability of nutritious foods—including through increased home production—has limited impact on nutrition without concurrent nutritional messaging. This was shown in one of the earliest randomized controlled trials (RCTs) exploring the joint impact of food pricing and BCC on nutrition (Garcia and Pinstrup-Andersen 1987). The trial found that the positive and significant impact of a subsidy on rice and cooking oil on household food expenditures and preschool weight gain in the Philippines was enhanced when nutrition education was also included.

The role of behavior change may also be illustrated by yet another form of transfers linked to an underlying risk factor of malnutrition: open defecation (Spears 2013). A study of supply vouchers plus behavioral change communication also in Bangladesh found this approach had a greater impact on latrine ownership or utilization than either motivation campaign alone or a supply-side intervention at the market level (Guiteras, Levinsohn, and Mobarak 2015). In addition, there was a spillover effect; nonsubsidized households also responded to the decisions of their neighbors.<sup>23</sup> The study, however, did not explore subsidies alone as previous research indicated that this was not a valid strategy.

While arguably demand-side interventions to encourage utilization of health service (as in fee waivers and price supports) are not strictly social protection activities, one conclusion of the Spears study is pertinent to a broader social protection portfolio. The researcher concluded that due to the spillover effects, smaller subsidies targeted to multiple households in a network can generate more investment than large subsidies deployed to a few in an uncoordinated manner.

An emerging field of study examines the efficiency at which households use information to combine inputs for health production as well as other decisions. This field of behavioral economics looks at how stress affects decision making, and it has accumulated a body of evidence on the barrier that stress places on economic choices (World Bank 2015b). There is less evidence on the degree to which safety nets can alleviate this form of a poverty trap and foster more practical decisions by reducing stress.

A few studies, however, offer insights on the interaction of social assistance and stress. For example, women receiving transfers in Mexico were found to

have lower cortisol (Fernald and Gunnar 2009), and cash transfers in Malawi and Kenya were found to reduce psychological stress (Baird, de Hoop, and Özler 2013; Haushofer and Shapiro 2013). The long-term impact of this conceivable pathway is yet to be traced.

While still in the realm of a hypothesis, it is plausible that reducing stress can improve nutrition. For example, maternal depression is associated with malnutrition (Patel et al. 2004); it is also considered a factor in child cognitive and socioemotional development (Wachs, Black, and Engle 2009; Walker et al. 2011). The association is as strong in high-income countries as it is in low-income Asia, likely reflecting reduced maternal sensitivity to her child's needs, an issue more about care than food access. Although there are few interventions that focus on reversing the pernicious effect of this risk on child growth per se, a few trials show that there are effective means to improve birth outcomes through community mobilization (Tripathy et al. 2010). The main outcome tracked in this particular study was neonatal mortality, but depression was also significantly reduced. Prost et al. (2013) indicate that this approach, using women's groups to improve maternal and child health has been effective in a range of settings. Whether similar results can be achieved at scale and within the context of social protection assistance and behavioral change is an area worth inquiry.

# Conclusions

Given the scale and coverage of safety nets in many countries with a high burden of malnutrition, there is a vast potential for such programs to contribute to improvements in health and development, a potential that is not yet fully realized. To reach this potential, social protection programs need to:

- Target activities to the most nutritionally vulnerable populations.
- Include educational activities within social protection interventions to increase household awareness of health and nutrition caregiving and health-seeking behaviors.
- Enhance the quality of nutrition services (e.g., growth promotion and interventions for improved diet quality) into social protection interventions—particularly transfer programs.
- Use school feeding programs as vehicles for micronutrient supplementation and deworming, including links with nutrition education.
- Scale up in times of crisis to reduce the long-term negative impacts of external financial, price, and weather shocks.

The ability of a household to purchase or grow adequate nutritious food on a regular basis is at the heart of food security. Increased coverage of low-income families in social protection programs addresses this underlying determinant of nutrition. Although beneficiaries of safety nets regularly allocate a substantial share of the funds they receive to food—often at higher rates than they do from other income sources—the impact of safety nets on undernutrition is often less than desired. In part, this result shows that food security is only one determinant of good nutrition. Moreover, the poverty alleviation goals of many programs are broader than nutrition objectives; families with children in the most vulnerable ages are only one target population among many.

Many countries choose to spread safety nets widely; budget limitations then imply that these nets are also shallow. As shown by many studies of early child development, the returns on human capital investments are greatest among youngest children, consistent with the 1,000-day focus in nutrition (Alderman, Behrman and Glewwe 2015). This evidence could assist in the policy choice of how much of the national social protection budget to allocate for different age categories.

Prioritization of beneficiaries in accord with nutritional needs is one feature of a nutrition-sensitive social protection program, and another is recognition that increased food purchases address only part of the set of constraints to good nutrition. A family can purchase food if they have funds, but they cannot as readily purchase proper sanitation; nor do the funds received from a transfer program guarantee easy access to quality health care. The most effective transfer programs, then, are those that address both the demand for public health services as well invest in the supply and quality of such services.

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Similarly, programs can recognize that demand for health services in addition to nutritious food is influenced by preferences as well as by disposable income. Knowledge of proper hygiene and of appropriate feeding practices contribute to good nutrition yet do not automatically improve with increased purchasing power. Accompanying transfer programs with community-based behavioral change and social marketing can enhance the impact of transfers. Indeed, one indication of the quality of health ser-

vices is their ability to counsel households that are at risk of under—or over—nutrition or both.

There are encouraging examples of social protection programs that have begun with strong emphasis on service quality and BCC—or added these benefits during scale up. For example, Peru reformed its Juntos CCT program to stress training and service provision, particularly for children less than 36 months. Recent results from that program point to a significant improvement in the height of boys enrolled in the program (Andersen et al. 2015).<sup>24</sup>

CCTs and UCTs are not the only safety net programs that can be designed to be nutrition-sensitive. Public works, for example, are an important component of many social protection strategies because they can create community assets such as roads and improved watersheds while addressing chronic—and occasionally acute—poverty. They are often neutral in regard to considerations of nutrition, but this need not always be the case. For example, Djibouti has scaled up a nutrition-sensitive public works program in which participation of women in community BCC is a prerequisite for a household member to be eligible for participation in public works. Moreover, these activities are designed to be light so that pregnant and lactating women can take up the opportunity for employment.

Similarly, Ethiopia has added an explicit nutrition objective to its mature productive safety nets program. The public works program now promotes soft conditionalities that include utilization of community-based nutrition and BCC for improved infant and young child feeding practices as well as antenatal care (ANC) services, primarily targeted to children under two years and pregnant women.

# Notes

1. Interventions or programs that address the *immediate determinants* of fetal and child nutrition and development—adequate food and nutrient intake, feeding, caregiving, and parenting practices, and low burden of infectious diseases. (Ruel and Alderman 2013).
2. This estimate, from Fiszbein, Kanbur, and Yemtsov (2014), includes social insurance as well as noncontributory transfers. Some of the data employed in this study differ—and are generally more sanguine—than that in World Bank (n.d.).
3. Calculated from World Bank (n.d.). The set of countries with a rural-urban breakdown differ slightly from the full set, so averages are not strictly comparable.
4. Fiszbein, Kanbur, and Yemtsov (2014) however, refers to this finding in terms of cost-benefit ratios. This is a misleading choice of terminology as it differs from the concept that is conventionally implied by benefit-cost ratios.
5. In some contexts transfers may actually increase labor supply. Several studies from South Africa find that workers in households receiving social grants look for work more intensely and find employment more successfully than do workers in comparably poor households that do not receive the grants (Samson and Williams 2007; Ardington, Case, and Hosegood 2009). The grants appear to help finance the migration and job search of family members who then provide remittances.
6. For a review of the impact of transfers on income generation and investment, see Alderman and Yemtsov (2014).
7. Similarly, it is not an open policy question as to the tendency of households to use a portion of their increased income on alcohol or tobacco; there is no convincing evidence that transfer income influences the propensity to spend on such purchases, the occasional anecdote notwithstanding (Evans and Popova 2014).
8. An additional reason for not relying solely on income growth as the main pillar of a national nutrition strategy is that obesity rates increase at 7 percent for every 10 percent increase in national income.
9. Moreover, a recent study finds that increases in household wealth accounts for only a quarter of the improvement in this period (Headey et al. 2015).
10. King and Behrman (2009) also point out that because nutritional status is cumulative, short-term impact measurement may underestimate impacts. For example Fernald, Gertler and Neufeld (2009) found larger impacts of PROGRESA on children who participated in the program for 18 additional months compared to a control group.
11. Additionally, governments often did not trust markets, claiming hoarding as a contribution to price increases. This view—along with a view that one-dimensional equity in food access trumped overall equity in resources—contributed to wartime rationing, which can be viewed as an ancestor to some food distribution systems that still prevail.
12. The converse is also the case: a price increase of an inelastic commodity would not lead to a large change in the amount purchased, but would lead to a reduction in real income, which is one reason why governments often seek to stabilize commodity price movements.
13. Whether a subsidy is regressive or proportionally larger as a share of expenditures for low-income consumers is a function of the income elasticity and is relatively easy to determine in a household survey.
14. Aker (2014) compares cash and vouchers in the Democratic Republic of the Congo and also finds cash less costly to implement than vouchers. In addition, vouchers imposed costs on the consumers in terms of the inflexibility for redemption.

15. Moreover, the value (in local terms) and the frequency of delivery differed between the two program modes.
16. This result has a bearing on the design of local sourcing as discussed in the context of homegrown school feeding.
17. Fenn et al. (2015) also present evidence on the use of cash in emergencies. However, the emergency addressed is a predictable seasonal food shortage. Although there is an obvious need for programs designed to address such periodic food security issues, the role of social protection in these circumstances is likely very different than in sudden onset disasters.
18. These products have ample shelf life and can be specially formulated for nutritionally at-risk children (Chaparro and Dewey 2010).
19. Additionally, governments may find greater political support when conditions are a design feature. Moreover, some beneficiaries may prefer conditions either because coresponsibilities are a matter of perceived dignity or because the conditions provide parents an element of monitoring of their children's behavior (Bursztyn and Coffman 2012).
20. This was tentatively attributed to underreporting, although plausibly it could reflect that CCTs have a smaller effect on behaviors that influence neonatal mortality than on those associated with subsequent health risks.
21. Preliminary results from an on-going trial undertaken by Akhtar Ahmad, John Hoddinott, Wahid Quabili, Shalini Roy, and Esha Sraboni. Personal communication cited with permission of the research team.
22. The improvement in the in-kind plus BCC arm was not significantly different from zero. A side result of this study was that each arm expressed a preference for the modality of transfer that they were receiving.
23. This would be in addition to the positive externalities that comes for a cleaner environment as latrine use increases.
24. This study has not yet been included in the various meta-analyses of CCTs.

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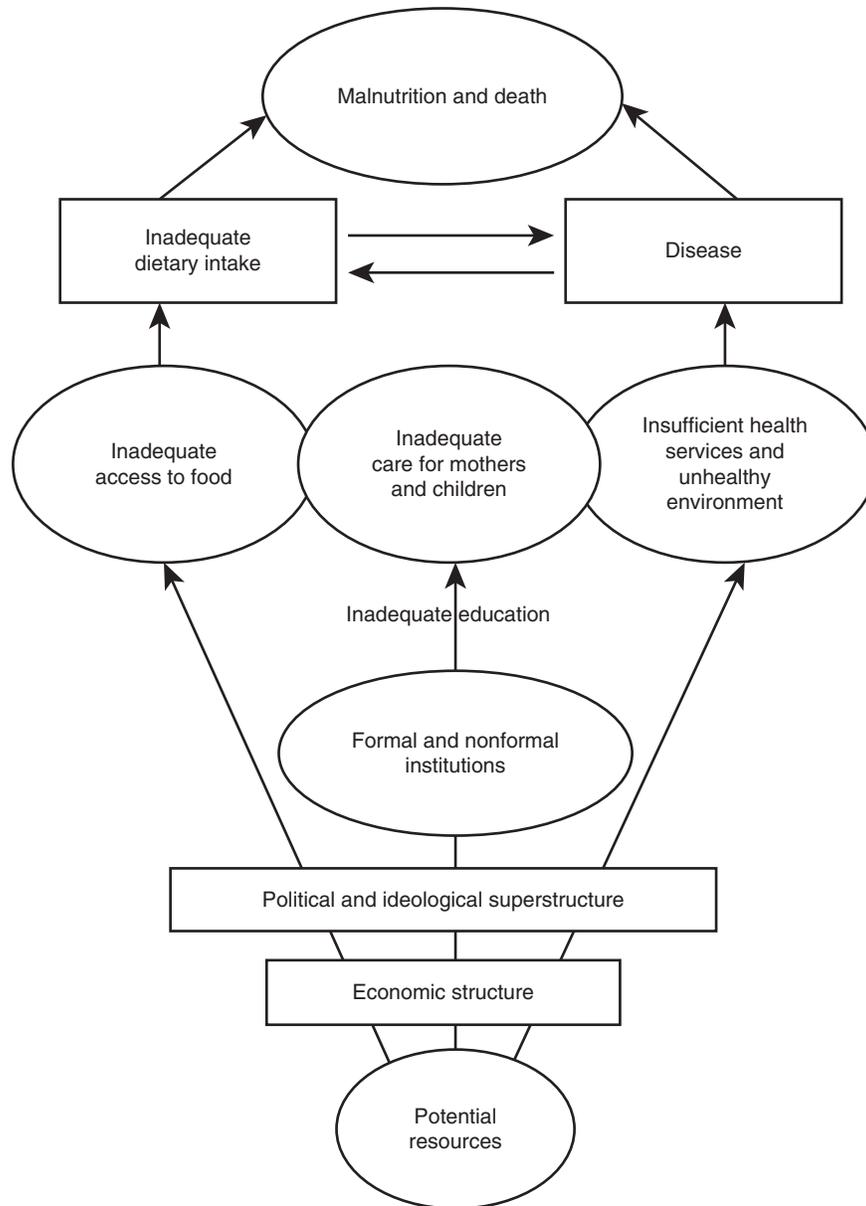
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# Appendix

**FIGURE A.1 UNICEF Framework for Malnutrition**



*Source:* UNICEF. 1990. *Strategy for Improved Nutrition of Children and Women in Developing Countries.* Policy Review Paper E/ICEF/1990/1.6. UNICEF, New York, NY.

*Note:* UNICEF = United Nations Children's Fund.



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