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Can Transfer Programs Be Made More Nutrition Sensitive?

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Contents

Abstract	v
Acknowledgments	vi
1. Introduction	1
2. The Relationship of Income and Malnutrition	2
3. Transfers and Resilience	5
4. Linking Transfers and Health Services	8
5. In-Kind Transfers	11
6. Conclusion	14
Appendix: A Caveat in Regard to Obesity	15
References	16

Table

Table 2.1 Estimated elasticity of nutrition indicators relative to economic growth

2

ABSTRACT

Malnutrition can best be addressed by a combination of nutrition specific interventions and nutrition sensitive programs, including social protection. This study reviews mechanisms of transfer program in order to better design nutrition sensitive social protection. Social protection programs typically increase income as well as influence the timing and, to a degree, control of this income. Additionally, social protection programs may achieve further impact on nutrition by fostering linkages with health services or with sanitation programs, and specifically through activities that are related to nutrition education or micronutrient supplementation. This paper discusses what might be expected from such programs and reviews some of the evidence from specific transfer programs.

Transfer programs reach a billion individuals in low-income countries, often providing support that increases purchasing by 20 percent or more. Whether the mode of support is conditional or unconditional transfers, most programs increase healthcare utilization as well as food consumption. There is, however, only modest evidence that such programs lead to measurable reductions in stunting or anemia, with more encouraging results for very young children whose families receive assistance over much of the most vulnerable period in the child's growth. The review discusses possible reasons for this relative underperformance.

The paper also reviews recent evidence on the impact of cash transfers relative to in-kind support. While the differences in these modes of delivery are nuanced and context specific, in virtually every study reviewed it cost less to deliver cash, although in some situations, cash programs proved vulnerable to inflation.

The potential of transfer programs to be nutrition sensitive remains largely untapped. Better access to quality health services as well as more explicit nutrition objectives may close the gap between the potential and results.

Keywords: social protection, safety nets, transfers, nutrition, resilience

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1. INTRODUCTION

In 2013, a camel herder in northern Kenya could take her identification card, embedded with her fingerprint and photo, to designated shopkeepers and, within minutes, receive 2,700 Kenyan shillings of income support on a monthly basis. This example illustrates recent changes both in the willingness of governments and donors in low- and middle-income countries to provide support to low-income households, and in their use of technology to do so effectively. This shift has been prompted, in part, by the accumulated evidence on the contribution of transfer programs to both equity and asset creation (Das, Do, and Özler 2005; Alderman and Yemtsov 2014). Thus, in the wake of the sequence of food price and financial shocks in 2007 and 2008, between 0.75 billion and 1.0 billion people in low- and middle-income countries were recipients of cash support (DFID 2011).

With relatively minor changes in labor supply and private transfers documented in most programs, the impact on recipients' total consumption is largely determined by the targeting efficiency and the generosity of the transfer program. The public value of any increase in aggregate consumption by low-income households, however, is difficult to measure for the basic reason that while the welfare benefit from improved equity is real, it is hard to quantify. On the other hand, an extensive range of studies quantifies changes in specific investments and behaviors attributable to eligibility for transfer programs. Prominent among the outcomes studied is the impact of transfers on nutrition. Still, despite reasonable expectations—indeed, despite design features included in some programs to increase the nutritional impact—there is far less evidence from low- and middle-income settings that transfers influence the nutritional status of young children than evidence that specific underlying health-seeking behaviors have increased (Ruel and Alderman 2013; Manley, Gitter, and Slavchevska 2013).

This essay explores the interplay of transfer programs and child nutrition. Because the potential for transfer programs to influence nutrition starts with the role of income in the production of nutrition, the paper begins with this topic. Moreover, because transfer programs may be designed as a response to specific shocks or as predictable contributions to household resources, Section 3 distinguishes the goal of raising consumption over an extended period from the objective of enhancing resilience during times of crisis. But many transfer programs—particularly, but not only, conditional cash transfers (CCTs)—aim to influence the price of human capital investments and also to shift a family's resource envelope. Therefore Section 4 looks at the services that accompany transfer programs. Whether conditional or not, increasingly such transfers provide cash rather than food to households. Yet in some circumstances in-kind transfers are still preferred. Accordingly, Section 5 reviews recent evidence on this mode of delivery. The concluding section offers suggestions for enhancing the nutritional impacts of transfers programs.

2. THE RELATIONSHIP OF INCOME AND MALNUTRITION

As incomes increase—through either earnings or transfers—low-income consumers increase both the quantity and quality of the food they purchase. Moreover, they are usually able to obtain more health services as their income increases. Furthermore, at the national level as overall resources increase, governments are able to increase the services provided in addition to funding the transfer programs studied here. What, then, is the empirical record linking gross domestic product (GDP) growth or household income with malnutrition?

Using country-level data from the 1970s, 1980s, and 1990s, 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. The authors observed an overall pattern of similar magnitude using household data from 12 household surveys, all of which were collected in the 1990s, although there was appreciable heterogeneity in country-specific results. More recent analysis of current cross-country data found a somewhat larger response to income change, with underweight declining by 7 percent and stunting declining by 6 percent for every 10 percent increase in GDP (Ruel and Alderman 2013; see Table 2.1).¹ These findings contrast with Ruel and Alderman's (2013) findings for income poverty, which declined at the same rate as the increase in gross national product (GNP) per capita, based on cross-country data. From one perspective, such results, as well as those of a similar study indicating that anemia declines half as fast as does stunting (Alderman and Linnemayr 2009), indicate the likely time frame for reducing malnutrition in the absence of specific interventions. Even with equitable growth, the time frame for, say, halving undernutrition is measured more in terms of a generation rather than of a few years.

Table 2.1 Estimated elasticity of nutrition indicators relative to economic growth

Dependent variable	Poverty (< \$1.25/day)	Child stunting (HAZ < -2)	Child underweight (WAZ < -2)	Low birth weight (< 2.5 kg)	Maternal low BMI (< 18.5 kg/m ²)	Maternal high BMI (≥ 25 kg/m ²)
GDP per capita (β)	-1.102***	-0.587***	-0.703***	-0.228***	-0.403**	0.7***
Standard error	0.12	0.09	0.09	0.07	-0.17	0.15
Constant	11.369***	7.901***	8.132***	4.137***	5.256***	1.18
Standard error	1.0	0.68	0.69	0.58	1.26	0.37
Number of observations	438	233	317	575	110	182
R-square	0.57	0.48	0.49	0.23	0.48	0.62

Sources: Adapted from the online appendix to Ruel and Alderman (2013). Anthropometric data for stunting, underweight, and maternal BMI are drawn from World Health Organization (2013) and MEASURE Demographic and Health Surveys (DHS). Low birth weight data are drawn from UNICEF's State of the World's Children reports and Childinfo, and from DHS.

Notes: BMI = body mass index; GDP = gross domestic product; HAZ = height-for-age z-score; WAZ = weight-for-age z-score. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. The models use country fixed-effects regressions, except the maternal low-BMI regression, which estimates regional fixed effects because of the smaller sample size. Dependent variables are all specified in logarithms. Thus, the parameters can be interpreted as elasticities. All regressions are run on a sample of countries with GDP per capita of less than \$12,500 in 2005 international dollars. The inclusion of higher-income countries substantially reduces all elasticity estimates. GDP per capita is measured in an international currency (2005 purchasing power parity dollars) to better account for international price differences. Poverty is defined according to the World Bank's \$1.25 household poverty head count, measured in 2005 international dollars.

¹ While largely outside the theme of this paper, this recent study also observed that maternal obesity increased by 7 percent for a 10 percent increase in GDP.

From another perspective, however, the results also imply that transfer programs might have a more rapid impact than GDP growth alone on the nutritional status of beneficiaries. While the magnitude of transfers varies appreciably across countries—ranging from transfers that increase total income marginally to those that boost income by as much as one-third for the poorest recipients—it is not uncommon for a program to augment consumption in low-income households by 20 percent. The expected decline in stunting from a transfer of this size—around 12 percent using the relationship between income and stunting reported above—should be measurable among recipient households in comparison with similar households in a well-designed household survey. Whether this improvement is observable on a national scale is a somewhat different issue. Evidence on program impacts often comes from pilot phases or donor-funded projects, not all of which go to scale. On the other hand, some current transfer programs have a wide coverage; transfers in Brazil and Mexico reach 25 percent of the population, and a program in Ecuador assisted 40 percent of the population (Fiszbein and Schady 2009). Ethiopia’s productive safety net—the largest transfer program in Africa south of the Sahara, with the exception of South Africa’s—covers 10 percent of the population (World Bank 2012). Using an average income elasticity of stunting of -0.6, the increment to household resources attributable to programs at this scale may reduce the national stunting rate by 1–5 percent from the period prior to implementation to the time the program is rolled out to full nationwide coverage. This is appreciable and appreciated, but possibly overshadowed by other trends and thus not easily identified.

Is transfer income used differently than other income? Based on studies of household decisions in regard to food expenditure, it is plausible that this would be the case. Evidence from cash transfers in Colombia, Ecuador, Mexico, and Nicaragua reported by Attanasio, Battistin, and Mesnard (2012) as well as from the food stamp program in the United States (Breunig and Dasgupta 2005) indicates that households commonly spend more on food and health out of transfer income than from general sources of income even when the transfers are only indirectly linked to nutrition and health. One possible explanation for this is labeling (Kooreman 1970), whereby participation in a program influences a household’s spending patterns.² Labeling is also raised as a possible reason that take-home rations in a food-for-education program in Burkina Faso had a substantially larger impact on the weight for age of younger siblings (6 to 60 months old) of girls eligible for these rations, compared with the estimated impact of an income transfer of similar value (Kazianga, de Walque, and Alderman 2014).³

Other studies attribute changes in expenditure patterns to a combination of gender control—many transfer programs earmark women as recipients—and social marketing. That women generally spend differently than men has been shown in a variety of settings, with the identification often coming from exogenous differences in earnings and assets or from inheritance and alimony legislation (see the recent review by Doss [2013]). Moreover, an analysis of differences in expenditure patterns following an increase in child benefits financed from wage taxes in the United Kingdom (Lundberg, Pollak, and Wales 1997) provided evidence closer to the current theme of transfer programs. Similarly, studies of food expenditures in Mexico’s CCT program PROGRESA (Programa de Educación, Salud y Alimentación) have found that recipients’ expenditures on food increased more than would be expected due to income effects alone (Attanasio and Lechene 2002; Bobonis 2009; Hoddinott and Skoufias 2004). The papers by Attanasio and Lechene (2002) and by Bobonis (2009) attributed the increased food expenditures to female control of income, a hypothesis that was explicitly tested in the studies, while the paper by Hoddinott and Skoufias (2004) found that the increased food expenditures reflected increased diet quality rather than increased calorie consumption, inferring that this was due to the nutrition education that was provided to program participants. These two interpretations are not mutually exclusive. While these analyses were based on a random assignment into the transfer program, I am not aware of any studies that have looked at nutritional outcomes (as opposed to educational outcomes) using a random assignment to male and female recipients within the same intervention.

² Labeling may affect education choices as well (Benhassine et al. 2013).

³ This result was not observed for school meals of the same value in this randomized controlled trial.

The majority of studies that use exogenously assigned eligibility for a transfer program to avoid biases that stem from the possibility that female control of resources reflects household preferences and labor choices have looked at expenditures as the outcome to be studied. Duflo (2003), however, directly measured differences in the anthropometry of the grandchildren of recipients of South Africa's relatively generous pension program. This study found that pensions received by women had a significant impact on the nutritional status of their grandchildren, an outcome that was not found for relatives of male pensioners. 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. 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.

Abstracting from any targeting errors in transfer programs, their impact on nutrition depends, in part, on the proportion of the beneficiary population that is in the nutrition's vulnerable population. This core group consists of pregnant women and children less than two years of age, often referred to as children in the first 1,000 days from conception. Because transfer programs often have equity motives as well as explicit nutrition goals—many poor households do not contain individuals who are in the vulnerable 1,000 days—there are clear trade-offs that need to be considered in allocating any transfer budget. Ruel and Alderman (2013) surmised that one reason for the limited observed impact of transfer programs on nutrition is that the measurement of nutritional impact is often over a broader group of children included in transfer programs rather than those in the most responsive age group. With heterogeneity of nutritional outcomes, this approach would likely dilute and possibly mask overall changes in the treated population that could be attributable to a transfer program.

Still, even when transfers are used to augment diet quality for the most vulnerable household members, they are unlikely to have a major impact on other inputs into improved nutrition, such as the supply and quality of health and sanitation services, which are largely public goods.⁴ Similarly, while an increase of purchasing power similar to what is provided in a transfer program may encourage health-seeking behavior, larger investments and behavioral changes are needed to reduce the exposure to pathogens in the community in which a child plays (Ngure et al. 2014; Spears 2013).

⁴ Estimates of the impact of GNP on nutrition are larger in absolute value when infrastructure is allowed to vary, compared with holding it constant (Haddad et al. 2003).

3. TRANSFERS AND RESILIENCE

There is almost a cottage industry producing studies that show the vulnerability of children to short-term crises. For example, Alderman, Hoddinott, and Kinsey (2006) showed that drought and civil unrest (independently as well as jointly) contributed to increased stunting in Zimbabwe and subsequently, this stunting led to reduced schooling. Akresh, Verwimp, and Bundervoet (2011) also showed that both drought and conflict—tested separately but not jointly—contributed to persistent stunting in Rwanda.⁵ In extreme cases, such as the massive policy-induced famine in China between 1957 and 1961, observed stunting may be an underestimate of the nutritional insult because extremely high mortality may selectively remove stunted children from subsequent measurement (Gørgens, Meng, and Vaithianathan 2012). However, Maccini and Yang (2009) showed that a rain shortfall does not have to be substantial to result in reduced linear growth and schooling. Nor are these human capital crises confined to conflict- and drought-affected economies; Cruces, Glüzmman, and López Calva (2012) found that the incidence of low birth weight increased with the economic contraction in Argentina in 2001/2002, with both GDP contraction and reduced health expenditures per capita independently explaining this outcome.

To drill down into mechanisms, it is useful to draw upon more general models of human capital, covering education and mortality as well as nutritional status. Ferreira and Schady (2009) pointed out that economic downturns influence relative prices as well as overall resources and thus induce substitution effects as well as income effects. In developed countries, substitution effects (in addition to changing fertility patterns) may paradoxically result in improved human capital outcomes during economic downturns, especially in regard to schooling, because the opportunity cost of education declines when employment contracts. Baird, Friedman, and Schady (2011), however, documented that in low-income countries mortality is countercyclical; that is, infant mortality increases when GNP declines.

One notable exception to this pattern is a study by Miller and Urdinola (2010), who reported a procyclical pattern with coffee prices in Colombia. The authors attributed this result to the cost of labor and thus of childcare, which declines when coffee prices fall and rises during a price spike.⁶ This outcome contrasts with estimates for India, in which countercyclical mortality was explained, in part, by the need for additional income sources when rainfall is inadequate; Bhalotra (2010) observed increased female labor supply and decreased time for childcare in times of stress.

The issue of childcare may be part of the answer to the puzzle as to why negative economic shocks seem to have a larger impact in absolute terms than does an increase in income, as shown in the cross-country results of Baird, Friedman, and Schady (2011), a result that is echoed in the relative point estimates of Cruces, Glüzmman, and López Calva (2012). The issue of childcare may also be behind the fact that many studies—including those of Baird, Friedman, and Schady (2011); Akresh, Verwimp, and Bundervoet (2011); and Maccini and Yang (2009)—have found that girls are affected more than boys in times of stress. This finding differs from the results of most cross-sectional regressions, which have shown the nutritional status of girls to be generally the same as or better than that of boys in the same environment; recent analysis of 20 DHS datasets undertaken at IFPRI found that in all of the surveys the odds ratio for the probability of stunting was less than 1 for girls, and significantly so for all but two of the countries. This pattern, which implies a lower risk for girls, is apparent even in analysis of surveys from countries such as India and Bangladesh, which on the basis of other forms of gender bias (including mortality in Bhalotra's 2010 study) are occasionally incorrectly assumed to have a nationwide pattern of gender discrimination in regard to nutrition.

An additional reason that shocks may have a negative influence on health and nutrition greater in absolute value than the improvement in health from increases in income may have to do with stock-out of assets; a household cannot draw down financial assets (including credit and social exchanges)

⁵ That conflict affects health outcomes is not surprising and is regularly reported. See, for one example, Minoiu and Shemyakina (2012). It is not clear, however, that the mechanisms of impact or the policy responses of the transfer programs discussed in this paper are widely applicable to conflict situations.

⁶ Ferreira and Schady (2009) claimed that this result was so large as to be implausible.

indefinitely, but it can increase them to the degree desired with income growth. Thus, in the wake of a shock, a poor household may be forced to trade off current consumption against assets, reducing the former in order to protect the household's long-term productive capacity, while households with more assets are able to smooth consumption (Carter and Lybbert 2012; Kazianga and Udry 2006).⁷ Reducing food consumption, however, is not merely a welfare loss but also may influence current productivity and, as documented, the future earning capacity of the next generation. Thus, the absence of liquidity not only constrains consumption smoothing but forces households to forgo potential earnings in order to protect current assets, as Hoddinott (2006) argued occurred in Zimbabwe in 1994/1995. Hoddinott's (2006) underlying behavioral model is similar to that elaborated by Carter and Lybbert (2012), with the major difference being that Hoddinott disaggregates the impact of shocks over individuals within the household.

As mentioned, Cruces, Glüzmann, and López Calva (2012) found that the incidence of low birth weight increased when provincial public health expenditures declined, and this increase was at a greater rate when the economy was also in decline. However, this incidence was not associated with changes in *total* public expenditures—that is, government outlays summed over all sectors. Paxson and Schady (2005) gave a similar explanation in terms of public expenditures in their study of changes in mortality in Peru during a severe economic contraction. Moreover, Ferreira and Schady (2009) contrasted the increased mortality in Peru with the absence of severe health consequences in the wake of the 1997/1998 economic crisis in Indonesia, and they used this example to bolster the suggestion that one strategy to protect children during economic downturns is to protect public expenditures.

But for this reasonable proposition to be valid, these expenditures must be on services that can be shown to protect health; where the public health system is sparsely present or ineffective, protecting the system is unlikely to contribute to resiliency. Alternatively—or additionally—a government can protect private expenditures by introducing new safety net programs or by expanding the coverage or increasing the level of support in existing programs, the latter being administratively the easier option in the short run if such a program is available. For example, Ethiopia increased wages in its public works program in 2008 in the wake of rapidly rising food prices, and in the same year Brazil increased the cash grant in the Bolsa Família CCT in addition to increasing minimum wages. Ferreira et al. (2013) noted that the combination of these measures in Brazil, as well as general equilibrium effects on producer incomes and rural wages attributed to higher food prices, mitigated the effects of the price increases on purchasing power. This protection was largely confined to the poorest two deciles of rural residents and the poorest decile in urban areas, while middle-income consumers had the largest proportional losses in welfare.

Ferreira et al., (2013), however, did not have the data to take the analysis one step further and measure the impact of transfers on nutrition or other dimensions of child health. There are particular research obstacles to such an investigation. For example, randomized trials among shock-affected populations are largely incompatible with research ethics; moreover, comparisons between recipients and nonrecipients need to take into account the endogeneity of the heightened requirements for assistance. Yamano, Alderman, and Christiaensen (2005) addressed the problem of endogeneity by first modeling program placement as a function of rainfall shortages and then measuring the impact of food aid conditional on its allocation to the community (not the household itself). The study replicated the common finding that drought leads to a reduction in the rate of linear growth for children but also found that the food aid allocation offset this risk, largely mitigating the effects of the drought where the aid was provided.

Giles and Satriawan (2010) also addressed program placement, as well as duration, in their study of supplementary feeding provided to children 6 to 60 months old by the government of Indonesia as a specific response measure in the wake of the 1998 economic crisis in that country. They noted benefits for children 12–24 months old but did not observe a similar impact on stunting for either younger or older children, reflecting 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. The examples in Ethiopia and

⁷ This model of poverty traps and differences in intertemporal choices has not, to my knowledge, been applied to leisure or to time allocation for childcare. However, it may offer insights relevant to the work of Bhalotra (2010).

Indonesia, both in response to relatively slow-onset disasters (relative to, say, a typhoon), are examples of in-kind transfers, an issue that is explored further below.

Also relevant to the role of transfer programs in protecting health in the wake of a financial shock in Uruguay is a study by Amarante et al. (2012). This research found a 15–17 percent reduction in low birth weight attributable to an unconditional transfer program implemented between April 2005 and December 2007 on an emergency basis 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 in the neighborhood of -0.6. This is nearly three times the magnitude of the elasticity for the reduction in low birth weight (-0.228) reported in Table 2.1. Amarante et al. (2012) 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.

An important policy issue related to transfers and shocks is the potential for catch-up growth. Although in general, stunting at age two has consequences that persist over a lifetime—with some risk of increased obesity when programs attempt to increase growth on a small frame after that age—there is some debate as to whether this generality holds when conditions that contributed to the stunting are removed. Singh, Park, and Dercon (2014), for example, found that school feeding in India apparently reversed the impact on stunting of a severe drought. Few studies, however, have similar results that point to safety net programs that can negate the impact of undernutrition on physical growth, although targeted stimulation programs may offset the consequences for cognitive development (Ruel and Alderman 2013).

4. LINKING TRANSFERS AND HEALTH SERVICES

Transfer programs are frequently aimed at increasing investments in human capital. This goal is often fostered by adding a requirement that the beneficiary household participate in schooling or designated healthcare activities (Fiszbein and Schady 2009). In effect, such requirements change the relative price of investments in addition to increasing the budget envelope. These requirements are motivated, in part, by the assumption that poor households underinvest relative to a social optimum (Das, Do, and Özler 2005). The evidence from careful studies of CCTs indicates that these programs virtually always augment household food consumption and dietary diversity besides increasing participation in preventive healthcare.⁸ Some trials of CCTs have also found improved anthropometry (Maluccio and Flores 2005; Behrman and Hoddinott 2005). However, on average the impact of CCTs on anthropometric measures of nutritional status is small (Ruel and Alderman 2013; Manley, Gitter, and Slavchevska 2013).⁹ Similarly, a significant improvement in anemia was found in only one of the three country programs in which that outcome was studied (Leroy, Ruel, and Verhofstadt 2009).

This pattern of limited observed impact on nutritional outcomes is partially explained by the nature of the studies, some of which include in their focus individuals outside the first 1,000 days, who are not expected to be as responsive to nutrition interventions as younger individuals. Additionally, nutritional impacts are cumulative, and some studies risk a bias toward limited impact if they cover too short a time frame (King and Behrman 2009). Moreover, with the exception of recent preliminary results from the Philippines—which have not yet been included in any meta-analysis—all published studies of the impact of CCT programs on nutritional outcomes have explored interventions in Latin America rather than Africa or Asia,¹⁰ where malnutrition rates are in general much higher. The recent evidence from the Philippines comes from two related studies of the Pantawid Pamilya program, which covered more than 3 million people by 2012. These studies used both a randomized trial and a regression discontinuity design to assess the impact of the program on health and education, and found reductions of 10–16 percentage points in stunting in the two samples (Chaudhury, Friedman, and Onishi 2012; Onishi et al. 2013).

Yet another reason hypothesized for the observed increase in health service participation with limited corresponding improvement in outcomes is the quality of services received (Gaarder, Glassman, and Todd 2010). Conversely, one study (Barber and Gertler 2010) found an improvement in the birth weight of children born to women eligible for Oportunidades (a successor to PROGRESA in Mexico) 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 insignificant pooled results of the impact of CCT programs in Latin America on nutrition also masks program heterogeneity. For example, Fernald, Gertler, and Neufeld (2009) saw larger impact of PROGRESA on children who were in the program 18 months longer than a comparison group of participants. In another study of PROGRESA, Behrman and Hoddinott (2005) found no overall impact on nutritional status when looking at program eligibility but 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

⁸ Unconditional cash transfers (UCTs) generally also achieve increased food consumption but may have smaller impacts on healthcare. 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 are more likely to be concerned with education. One such comparison found that only CCTs increased visits to preventive health services in Burkina Faso (Akresh, de Walque, and Kazianga 2012). Note that a full policy-relevant comparison of programs should also study costs of delivery, including the resource costs to households of meeting the conditions, including time allocation.

⁹ Manley, Gitter, and Slavchevska (2013) included UCTs in their meta-analysis, so their conclusions are not restricted to CCTs.

¹⁰ A range of studies of CCT programs from Africa and Asia do show, however, that these programs influence decisions on healthcare as well as schooling.

stunting among children 12–36 months old who received the supplements. The reduction was greatest among the poorest families with functionally literate women present. An analysis of the improvement in anemia from PROGRESA¹¹ that aimed to uncover the impact pathway attributed the improvement to increased dietary intake from the food supplements rather than other aspects of improved home diets of the young children within the household (Ramírez-Silva et al. 2013). This analysis was not confined to iron intakes; 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.

Ultimately, it may be argued that, similar to the various studies that attempt to unpack the causal chain to better nutrition, increased weights and heights themselves are part of an expanded pathway toward reduced mortality and better cognitive abilities of the survivors. In this regard, two recent studies showing that CCTs reduced mortality in Latin America are important. In one, 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 healthcare 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.¹²

The most detailed study of indicators of cognitive development in a CCT program—albeit one in which the actual monitoring of health-seeking behaviors as a condition of participation was minimal—showed that young Nicaraguan children eligible for the emergency program Atención a Crisis had improved measures of child development two years after the program ended (Macours, Schady, and Vakis 2012). The authors presented evidence supporting the view that this improvement was not merely due to the income effect, although they could not link the outcome to any specific program element. Fernald and Hidrobo (2011) also showed improved cognitive development in a transfer program in Ecuador. Both the Ecuador and Nicaragua programs, however, did not show improvements in height for age. Thus, the transfer programs may have an impact on the subsequent economic outcomes for the children of families currently receiving benefits even if this is not apparently mediated via a nutritional pathway.¹³

Turning the causal pathway around, there may be a link from cognitive states to improved nutrition mediated through transfer programs. There is new evidence that poverty raises stress levels in a manner that reduces an individual's cognitive functioning and, in effect, leads to a negative feedback loop (Mani et al. 2013). This mechanism may be due to a tying up of mental resources or attention (Shah, Mullainathan, and Shafir 2012) or to increased cortisol levels associated with stress (Chemin, de Laat, and Haushofer 2013). In either case, chronically poor individuals would be more susceptible to the effects of a crisis. This dimension of cognitive capacity and poverty has just begun to be studied in detail. A few studies have indicated that transfer programs can reduce symptoms of stress. For example, Fernald and Gunner (2009) observed lower cortisol in women with high depressive symptoms after they participated in Oportunidades; and Baird, de Hoop, and Ozler (2013) found that cash transfers in Malawi reduced psychological stress, which accounted for a sizable portion of the overall program impact on schooling

¹¹ The study was funded by Oportunidades, but the data used for the study were collected under the earlier PROGRESA program.

¹² This was tentatively attributed to underreporting, although plausibly it could reflect the fact that CCTs have a smaller effect on behaviors that influence neonatal mortality than on those associated with subsequent health risks.

¹³ A cost-effectiveness analysis in terms of nutritional outcomes, then, might lead to different conclusions than a multidimensional benefit-cost assessment.

and consumption.¹⁴ While this nascent field has not yet traced this psychological link as part of the causal pathway from transfer programs to evidence on nutritional outcomes, there is an association between depression and stunting (Surkan et al. 2009), and thus it is plausible that transfers may prevent malnutrition in economically stressful environments by reducing attendant psychological stress. Interdisciplinary research on depression and health may find this a profitable area for investigation.

¹⁴ They also noted an increase in stress among nonparticipants, possibly reflecting increased inequality.

5. IN-KIND TRANSFERS

Until relatively recently, governments were more likely to support consumption by low-income households through price supports and in-kind transfers than through cash assistance. Despite the well-known economic arguments favoring income transfers as less distortive of preferences than price subsidies or in-kind assistance, price supports were favored in many circumstances due to logistical advantages. Moreover, food assistance was advocated, in part, due to a distrust of markets as well as an explicit goal of shifting consumption patterns (Pinstrup-Andersen 1988). Political concerns and the availability of food aid (itself a dimension of the political concerns) also contributed to the predominance of in-kind support programs. As mentioned in the introduction, however, cash transfers have recently taken center stage. Where, if at all, might there be exceptions to the advantages of cash support?

One domain in which in-kind assistance still predominates is disaster relief, particularly in response to sudden-onset emergencies such as earthquakes and hurricanes, because these emergencies often disrupt normal market channels. Such situations may render the logistical advantages of cash transfers less advantageous, although cash vouchers were a component of the post-tsunami response in 2004 (Harvey 2007). Although food aid deliveries overall have declined from 15 million metric tons in 1999 to 5.4 million metric tons in 2009, emergency deliveries remained more or less constant, so that they now comprise more than two-thirds of total food aid (Barrett, Binder, and Steets 2012). Two related trends are apparent: the World Food Programme now provides 70 percent of global food aid flow including assistance purchased locally or regionally. Such purchases have also risen, becoming close to half the total flow.

Disaster relief usually takes the form of general assistance to the family. As indicated in the discussion of Yamano, Alderman, and Christiaensen (2005) above, emergency support to the household may be sufficient to prevent deterioration of nutritional status in crises. However, the impact may be diluted not only because the food is often shared among all household members but also because assistance is not designed to meet the dietary needs of the most vulnerable children. Thus, nutritional impacts of emergency deliveries can be enhanced by including lipid-based nutrient supplements (LNS) in the package of assistance to families; these products have ample shelf life and can be specially formulated for nutritionally at-risk children (Chaparro and Dewey 2010). One recent trial that added LNS to general food distribution in an emergency situation in the Democratic Republic of the Congo found improvement in linear growth and hemoglobin but not in wasting (Huybregts et al. 2012). Another trial in Niger with a similar formulation and also in the context of general household rations found reduced wasting but no impact on linear growth (Grellety et al. 2012). More crucial, however, may be the reduction in mortality that was observed, combined with the fact that many of the observed deaths were of children who had not exhibited signs of wasting. While many of the current issues in regard to LNS for emergency or other contexts are biological (Dewey and Arimond 2012)—such as the potential stimulation to growth from milk powders—other topics highlighted in these recent studies have to do with program administration and targeting procedures, themes that closely overlap with economics.

One 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 in 2008. However, 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. While the authors did not track these differences to 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.

An infusion of cash into a remote community may also put pressure on local food prices. In a randomized trial in Mexico, Cunha, De Giorgi, and Jayachandran (2011) found that cash transfers led to higher prices locally and thus a purchasing power loss for program participants amounting to 11 percent relative to those who received an in-kind transfer of similar value. It is not clear, however, how generalizable these results are because the study was conducted in remote villages. Indeed, their inaccessibility was the main reason these communities were not included in PROGRESA. Moreover, the commodities offered were largely processed food items and, perhaps, less competitively marketed in these communities than basic grains.¹⁵ Other randomized trials such as that of Aker et al. (2011) have not found cash transfers to inflate food prices. More generally, the impact of an infusion of cash on local prices is expected to be modest where markets function well. Similarly, whether food aid depresses producer prices depends critically on the degree of market integration.

Cunha (2012) noted that the in-kind distribution program in Mexico was largely inframarginal. The commodities received in-kind substituted for others that would otherwise have been purchased. Nevertheless, the in-kind distribution increased micronutrient consumption—likely a general result in any program in which a fortified commodity is provided if the alternative foods obtained from the market are not similarly enriched. Cunha (2012), however, also 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.

A series of randomized experiments designed to assist the World Food Programme in understanding modalities of assistance sheds further light on the relative impacts of cash and in-kind programs and also verifies that cash transfers can be substantially less expensive to administer than food assistance. For example, Hidrobo et al. (2012) compared cash, vouchers, and in-kind food assistance in Ecuador. Each program arm delivered the equivalent of US\$40 in assistance per household monthly, with all participants also receiving nutrition education. As expected, each program increased food expenditures relative to the control group, with no statistical difference among the arms. Food transfers, however, had a larger impact on calorie consumption than did cash, and the voucher program had a larger impact on dietary diversity than either of the other treatments.¹⁶ On the other hand, a related trial in Niger, comparing cash and food, found that the latter increased dietary diversity more than did cash, possibly because cash was used for large seasonal purchases of grain (Hoddinott, Sandström, and Upton 2013). While the Niger experiment included pulses and oil as well as grain, a similar program in Yemen (Schwab 2013) provided only flour and oil, and found that the cash arm of the trial led to greater dietary diversity while the in-kind program increased calorie consumption more than the cash assistance did.

A similar experiment (though not part of the World Food Programme set of trials) compared cash and vouchers in the Democratic Republic of the Congo (Aker 2013). While there were differences in terms of expenditure spatters—for example, the group that received cash saved more of the transfers—there were no differences in dietary diversity or food security between the two groups. This was explained in part by the fact that resale was possible for voucher households. However, cash transfers were clearly less costly to deliver and administer.

These four studies tracked changes in consumption but did not document impacts on health or child development. A randomized controlled trial in Uganda, however, did compare the provision of cash and food (valued at US\$12 over a six-week period) to families with children in preschool programs (Gilligan and Roy, 2013). The children aged three to five years in the group that received cash showed improved performance on a set of measures of cognitive development relative to the control group, while those receiving food did not. This result was attributed to a combination of improved diet quality (mainly meat and dairy) and a substantial increase in attendance at preschool as well as higher payments to the staff of these centers, which likely improved motivation. Despite the short period of observation, the group that received cash also saw a reduction in anemia. This was not observed in the food treatment arm

¹⁵ Moreover, the value (in local terms) and the frequency of delivery differed between the two program modes.

¹⁶ In each arm, the majority of households indicated a preference for the modality in which they were participating.

even though the corn-soy blend that this group received was fortified with 99 percent of iron requirements for young children.

These studies were not designed to assess whether nutrition education enhances the impact of in-kind or cash distributions. In contrast, one of the earliest randomized controlled trials exploring the joint impact of food pricing and education on nutrition (Garcia and Pinstrip-Andersen 1987) 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.¹⁷

In-kind distribution of food or food subsidies does not always lead to marked improvements in dietary intake. One randomized experiment with subsidized rations in China found no increase in nutrient intakes (Jensen and Miller 2011). In this case, the rations were capped at 750 grams of grain per individual and were valued between US\$0.02 and US\$0.06 a day per person, depending on the random assignment. With typical household consumption in this poor urban population reported as lying between US\$0.41 and US\$0.82 per day, the ration was worth at most 15 percent of consumption, and generally far less. Similarly, the subsidy was at most a 30 percent reduction of the price of the staple grain. The participants in this particular experiment exhibited a unique reduction in grain consumption with lower prices. However, even with a more commonly observed increase of consumption with lower prices, the impact of a price subsidy is often modest. This may be because the value of the transfer is small due to the limitations imposed by the ration quotas. Moreover, the price response will be limited when the ration is inframarginal. Additionally, when one considers a full range of cross-price effects, the net increase of nutrients consumed with a subsidy on a single commodity is often less than the change in intake of the subsidized good alone (Pinstrip-Andersen, Ruiz de Londoño, and Hoover 1976; Pitt 1983; Alderman and del Ninno 1999). Thus, unlike situations in which global or localized shocks lead to broad spikes in a number of food commodities, a subsidy on a single commodity is unlikely to translate into observable changes in nutritional outcomes. Clearly, a full subsidy—that is, free distribution—would have a greater impact, as might a subsidy accompanied by nutrition education.

¹⁷ In a different context, Ruel (2001) also argued that increasing the availability of nutritious foods—including through increased home production—has limited impact on nutrition without concurrent nutritional messaging.

6. CONCLUSION

Many of the world's poor benefit from direct cash transfer programs. These clearly increase overall consumption and welfare. Moreover, the bulk of evidence shows that both conditional and unconditional transfers increase utilization of healthcare service (with mixed results as to the added value of conditions). Nevertheless, meta-analysis shows little impact of such programs on stunting or anemia. This may reflect the fact that many evaluations have covered children outside of the most vulnerable—and most responsive—age brackets. Additionally, since impacts on stunting are cumulative over a period of years, some studies have been too short to assess the full impact of a sustained program. Moreover, to date, the majority of impact evaluations for transfer programs have been in Latin America; these results may not be fully valid for programs in Africa or Asia, where malnutrition rates are higher and where the underlying conditions of malnutrition reflect more extreme poverty. This situation suggests not only obvious research gaps but also a potential for improved nutrition should programs be more finely tuned to focus resources on the population most at risk for malnutrition.

Still, the main challenge for enhanced impact of transfer programs that are formally or informally linked to healthcare services or to nutritional education remains the same as the challenge for improving the quality of health services delivered in other contexts, including issues of worker training and incentives. But from the standpoint of the demand for these services, the role of cash provision interacts with the time constraints of the caregiver, an issue that is widely acknowledged but, nevertheless, difficult to address. The need to more fully acknowledge these time costs when designing programs is underscored when one considers that programs aimed at improving nutrition are potentially synergistic with programs to improve caregiving for child stimulation (Ruel and Alderman 2013).

As the ability to deliver cash in an accountable manner has improved, the role of in-kind transfers has diminished. Still, there are settings where cash is less effective, because either markets are not functioning adequately or programs are not sufficiently flexible to accommodate major swings in food prices. It is not clear, however, whether reported examples of isolated markets are widely representative, and the food-versus-cash debate remains nuanced; as is often the case, context matters. Moreover, some cash transfer and emergency relief programs have had enhanced nutritional impacts, attributed to the inclusion of child-specific rations, particularly lipid-based supplements. Thus, there remains a research agenda focused on when to include in-kind transfers, which ones, and at what cost. Moreover, if these programs are to address the acute crises that particularly harm young children, they need to be designed to scale up rapidly and, given the need to hold resources available for long-term investments, also to scale back when appropriate.

APPENDIX: A CAVEAT IN REGARD TO OBESITY

The programs reviewed in this paper are designed to transfer income to low-income families. They are intended to address both equity and poverty traps, including underinvestment in both health and education. But in fact, the poor are also at risk of overnutrition, in part because low birth weight and stunting are associated with increased body mass index (BMI) and chronic illness (Alderman 2012). In fact, in the short run, transfer programs can exacerbate overnutrition while aiming to reduce undernutrition.

For example, Fernald, Gertler, and Hou (2008) found that Oportunidades led to higher BMI as well as higher blood pressure, and Forde et al. (2012) found a similar risk for BMI in Colombia's transfer program. Following up from the results of Fernald, Gertler, and Hou (2008), Leroy et al. (2013) compared the impact of cash and food distribution on the obesity of women in the same Mexican program studied by Cunha, De Giorgi, and Jayachandran (2011). Both forms of support led to increased weight gain relative to the control group. The point estimate of the transfer was larger for recipients of food relative to those who received cash. The difference, however, was not statistically significant. The study also found that women with higher body mass at the start of the two-year program had the largest increase in weight. Indeed, those with a BMI of less than 25 showed no gain during the study. Thus, while this program has been able to increase dietary diversity, and thereby the consumption of micronutrients (Leroy et al. 2010), there are both gains and risks associated with the intervention. Leroy et al. (2013) also reported that a nutrition education component was included with the food distribution. However, the implementation was flawed and no impact was noted.

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