

The Imperative of Improving Child Nutrition and the Case for Cash Transfers in Cambodia



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Introduction:

Addressing under-nutrition yields high economic returns and speeds up poverty reduction. The economic benefits from improved nutrition come, in part, from reduced infant and child mortality and from reduced costs of health care for neonates, infants, and children. The economic benefits are dominated by productivity gains from reduced stunting and from increased schooling and cognitive ability attributable to health in early childhood.

The flip side of the above is that under-nutrition is an economic burden and a drain, resulting in higher disease burden, death rates and lower productivity, each of which is associated with a cost at both micro and macro levels. It affects the timing of school entry, the number of years completed, and the learning that takes place per year of school. Years of schooling and actual achievement in school are commonly shown to lead to increased lifetime earnings. Moreover, while controlling for schooling, individuals with higher cognitive abilities are found to earn more (Behrman and others 2004). The recently adopted National Social Protection Strategy makes a bold commitment to address the challenge of under-nutrition and has this integrated explicitly within its objectives:

‘Poor and vulnerable children and mothers benefit from social safety nets to reduce poverty and food insecurity and enhance the development of human capital by improving nutrition, maternal and child health, promoting education and eliminating child labour, especially its worst forms’.

In Cambodia, despite the gains on key human development indicators, especially Maternal, Infant and Child Mortality, attainment on nutrition has lagged behind, pushing MDG 1 ‘off track’. Under-nutrition is a result of interplay of myriad factors and should be addressed through a comprehensive nutrition policy; including aspects such as feeding practices, availability of out-reach activities, water and sanitation and availability and access to macro and micro nutrients. Levels of poverty and hence consumption is an important, though not the sole, determinant of under-nutrition. Assuming absence of supply side constraints, poverty is often also a determinant of access to health, information and water and sanitation. This paper makes a case for Cash Transfers (CTs) for addressing the (economic) access issues of the poor and vulnerable communities, which largely determine the consumption levels, diversification in their food basket

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and the intake of the macro and micro nutrient as well as access to services. Cash transfers which in simple terms increase household income and consumption mitigate the poverty related access constraints and help address the multifaceted challenges of under-nutrition.

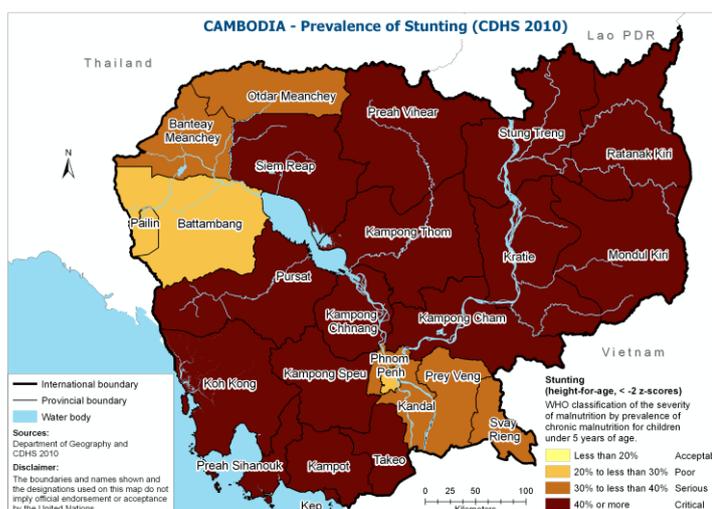
Globally, there is a growing body of evidence that cash transfers have significant positive impacts on nutritional attainments among children. This paper presents a snapshot of this evidence for the consideration of policy makers so that cash transfers as recognized in National Social Protection Strategy and in the Mid Term Review of National Strategic Development Plan are used to help the poor and vulnerable households improve their food consumption and access to health and water and sanitation facilities.

Cash transfers are a win-win for all. It is empowering for the families and also increasingly politically popular with the governments. As the governments realize that the widening chasm between rich and poor creates the potential for exclusion and conflict, they are recognizing that there are good political reasons for wanting to reduce poverty. Furthermore, there is growing evidence that more equal societies develop more rapidly (Amartya Sen,1999) and growing inequality works against development. The impact of many of the global cash transfer programmes on poverty reduction is dramatic. In many countries, 30 per cent of people would be below the poverty line, but with these cash transfers, the number falls below 10 per cent. In most of these impacts can be attained at less than 2 per cent of the GDP through a targeted programme, implemented in a phased scale-up approach.

Stagnant nutritional status of children:

The inflation-adjusted food price levels in Cambodia are still 20-25% higher than price levels in January 2007 and the inflation-adjusted price of rice, the main staple, has been 30-45%² higher than January 2007. Additionally, according to an assessment coming out of Cambodian Development Research Institute³ the wages for the vulnerable population decreased between 2008 and 2010, from 8296 riel in 2008 to 7842 in 2010. In line with global evidence⁴, this implies deterioration in food consumption and hence in food and nutritional security for the population at large and especially the most vulnerable.

Globally, a review of the literature on the impact of the 2008 food price increases suggests that high food prices are likely to have had a significant impact on the incidence of poverty (Ivanic and Martin, 2008) and undernourishment (Tiwari and Zaman, 2010) throughout the developing world⁵. This likely impact of sustained high prices and a relative deterioration in the purchasing power of the poorest is evident in the latest Cambodian Demographic and Health Survey (CDHS) results. The percentage of children under five who are wasted



² These are May 2011 estimates from WFP et al; a more recent spike during the last month has been reported.
³ NSDP update MTR October 2011
⁴ Hassan Zaman Paper from Indonesia WB
⁵ ibid

Figure 1 Stunting Map of Cambodia, CDHS 2010

has increased from 8.4% to 10.9% since 2005. Given that the Integrated Food Security Phase Classification describes 10%-15% wasting⁶ as an ‘Acute Food and Livelihood Crisis’, this warrants recognition of the urgent nature of the situation. Other indicators of the food security situation in the CDHS 2010 show similar trends. For example, the level of stunting is stagnant at 40%, a decrease of just about 2% from 2005 levels. In 13 provinces the prevalence of wasting is greater than 10%, which is considered “serious” on the WHO classification of the severity of acute malnutrition.

During the last decade, development gains have pulled millions out of poverty though about a quarter remain poor and an estimated 15 % cannot afford enough food to eat. In the context of the rather low social protection environment⁷ with a small minority of the households receiving any measure of protection, the poorest continue to face continued livelihood and nutritional challenges, posing real risks to attainment of Cambodia Millennium Development Goals (CMDGs), especially CMDG1.

To its credit, the government has recognized the challenges stemming from an iniquitous growth and among many measures has adopted more comprehensive, pro-poor growth policies like greater investments in agriculture and an ambitious National Social Protection Strategy aimed at providing some basic protection to the poor and vulnerable in access to income, health, education and security.

The socio-economic impacts of under-nutrition:

Under nutrition imposes severe socio-economic burden on a nation and its people.

A vicious negative feedback loop connects under-nutrition and poor health outcomes. Under-nutrition weakens the immune system, making children more susceptible to infection and disease (Mason et al. 2003; Behrman et al. 2004). Disease, in turn, is associated with a greater risk of under-nutrition, leading to poor nutrient absorption, altered metabolism, and lack of appetite, which translates to a higher probability of inadequate nutritional intake. In a malnourished state, children suffer from impaired immunity, which then increases their likelihood of infection (Pelletier and Frongillo 2003).

Micronutrient deficiencies also contribute to poor health. Iodine deficiency disorders affect the metabolic and developmental systems in the body and can lead to irreversible mental retardation, reproductive failure, and increased child mortality. Iron deficiency (anemia) increases maternal and infant mortality, raises the likelihood of low birth weight, impairs cognitive development, and reduces work productivity (FANTA⁸ 2006). Weakening immune mechanisms and Vitamin A deficiency causes increased susceptibility to infection, especially respiratory infection, a range of eye problems (including blindness), and increased risk of childhood morbidity and mortality (West 2003). Zinc deficiency adversely affects physical growth and neurodevelopment and is associated with weak immune capacity; increased risk of diarrhea, pneumonia, and malaria; and increased severity of diarrhea (Bhatnagar and Natchu 2004; Sanghvi et al. 2007; Black et al. 2008).

An estimate from the 2008 *Lancet* series on maternal and child under-nutrition posits that nutrition related factors are responsible for approximately 35 percent of child deaths and 11 percent of the global disease burden (Black et al. 2008). And the vast majority (83 percent) of these deaths is associated with mild or moderate, rather than severe, under nutrition (Behrman 2000, 7).

⁶ Additional indicators are required to definitively classify; a full description is available at <http://www.ipcinfo.org/>

⁷ Cambodia ranks ‘a very low’ 0.18⁷ on the Social Protection Index, devised by the ADB

⁸ Food and Nutrition Technical Assistance Group, <http://www.fantaproject.org/>

Eliminating under nutrition can reduce the burden of disease and increase child survival, while reducing health care costs at both the household and national level (Mason et al 2003).

Under nutrition is also associated with poor educational outcomes and reduced adult earnings. Numerous studies show that malnourished children tend to enter school later, repeat grades more often, and have higher dropout rates, resulting in fewer completed years of schooling compared to healthy children (Behrman et al. 2004; Grantham- McGregor et al. 2007; Pollitt et al. 1995; Martorell 1994; Alderman, Hoddinott and Kinsey 2003; Alderman et al. 2001; Alderman et al. 2003). Short height among adults (a result of childhood stunting), has been associated with reduced adult earnings in 55 countries (Grantham-McGregor et al. 2007). According to a study in Brazil, a one percent increase in adult height was found to result in a 2.4 percent increase in adult male earnings (Thomas and Strauss 1997 cited in Behrman 2000, 18). Eliminating anemia has been found contribute to a 5 to 17 percent increase in lifetime earnings, a finding that, even at the low end, represents a significant improvement for poor families and poor countries (Horton and Ross 2003 cited in World Bank 2006a).

Consequences of Malnutrition for Cambodia⁹

Child malnutrition today will have serious long-term consequences for the health of the Cambodian population and for its economic development. Inadequate growth in the first few years of life not only impacts child health and mortality; it also leads to adverse health and economic consequences for the individual's entire life and can even affect the next generation.

- Adults who were malnourished as children die younger, and have higher rates of chronic diseases such as cardiovascular disease, respiratory disease and diabetes
- Malnutrition leads to poorer cognitive development and schooling outcomes and students are more likely to repeat a grade or drop out of school. They are less able to work, less productive, and earn less as adults. Childhood anaemia alone is associated with a 2.5% drop in adult wages. International evidence shows that a '1% decrease in adult stature is associated with a 1.4% decrease in productivity'
- Cambodia loses over **US\$146 million in GDP** to vitamin and mineral deficiencies every year
- Girls who do not receive adequate nutrition in the first few years of life have children who are more likely to die, be stunted and be underweight.

This presents a heavy economic burden on Cambodia's health system in terms of child health outcomes and adult chronic disease. It also hampers Cambodia's development, robbing the country of a healthy, cognitively developed population for generations to come.

Just as the cost of under-nutrition is high, the benefits from addressing and reducing it are huge as well. Alderman and Behrman (2006) have calculated, for example, that the economic benefits from reducing the incidence of Low Birth Weight (LBW) are fairly substantial; under plausible assumptions these are approximately US\$510 per infant moved from the LBW to non-LBW category in a low-income context. The estimated gains are primarily from increases in labor productivity, partially through inducing more education. Secondary gains arise from avoiding costs associated with infant mortality and morbidity¹⁰ (see figure below). Thus any intervention that

⁹ Nutrition Fact sheet, UNICEF 2011

¹⁰ EPPI, Social Science Research Unit, Institute of Education, University of London

costs less than USD 510 per child is expected to be cost effective and accrue positive returns on investment.

Under-nutrition, like many other deprivations, is transmitted through generations. Malnourished mothers experience higher rates of morbidity and mortality and face greater risks of poor pregnancy outcomes (Figueroa and Rodriguez-Garcia 2002) including low birth weight babies. It is well documented that children born with low birth weight, due to maternal under-nutrition, or who are nutritionally stunted in the first two years of life, face a higher risk of developing obesity and are more likely to suffer from chronic non-communicable diseases in adulthood (Forsdal 1977; Barker 1992 and 1994).

Unless efforts are made to interrupt these negative feedback loops, malnourished children will continue to grow up to be shorter, less healthy, less educated, and poorer than healthy children and will be more likely to have children who are malnourished themselves. This cycle perpetuates an intergenerational transfer of poor nutrition and health, low education, and poverty (World Bank 2006a).

How to address under-nutrition:

Fortunately, interventions to address under-nutrition *can* interrupt this cycle. Indeed, according to a cross-country review of successful nutrition programs, these interventions reduced the prevalence of child malnutrition (defined as underweight) by one to two percentage points per year, a rate two to four times higher than the average trend calculated in the absence of such programs (World Bank 2006a).

Determining how best to tackle under-nutrition involves deciding what intervention mechanism(s) to employ and when to intervene. Nutritional consequences take their greatest toll from pregnancy through age two, the period during which children’s growth rates and, therefore, nutritional requirements, are highest. During this time, children are dependent on others and unable to make their needs known, so are therefore more vulnerable to poor feeding and caring practices. Additionally, with weak immune systems and living in conditions of poor hygiene and sanitation, young children are highly susceptible to infection, which can exacerbate under-nutrition. Because the damage to physical growth and cognitive development that accrues during pregnancy and these early years is largely irreversible, and because interventions after this critical period have little effect, early actions taken during the “window of opportunity” have the greatest potential for impact (Fig 2) (World Bank 2006a).

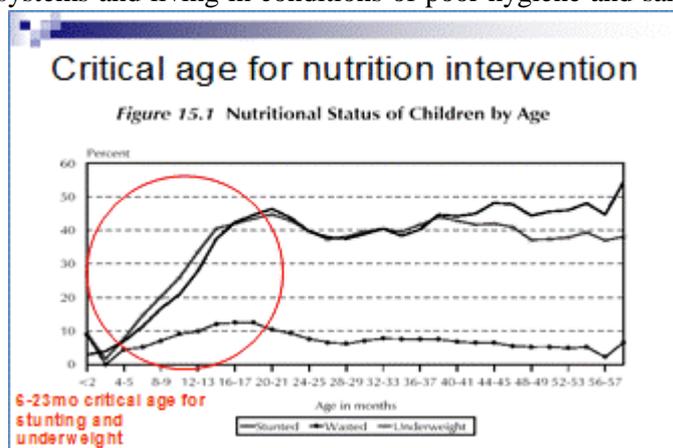


Figure 2 Window of opportunity for nutrition interventions

Essential Nutrition Actions:

1. Exclusive breastfeeding for six months
2. Adequate complementary feeding from about 6–24 months with continued Breast-feeding for at least two years
3. Appropriate nutritional care of sick and severely malnourished children
4. Adequate intake of vitamin A for women and children

5. Adequate intake of iron for women and children
6. Adequate intake of iodine by all members of the household (*Source: Archaya et al. 2004*)

There are some key proven programme interventions being increasingly used to address these challenges. First, nutrition education can contribute to improved child nutritional status by improving health-related behaviors, whether hand-washing, breastfeeding, or choices about fuel use, drinking water, or sanitation. Nutrition education can also affect children's food consumption by improving food quality or quantity. Bonvecchio et al. (2007) show that education improves the effectiveness of a nutritional supplement in the context of a CT in part by decreasing consumption of the supplement by other family members. Bhutta et al. (2008) find that education on complementary feeding improves height for age scores by 0.25, and supplements increase height for age by 0.41.

Second, nutritional status can be improved through the provision of food supplements and enhancing availability of nutritious food through supply side interventions like fortification of food items and agricultural diversification.

Finally, child nutritional status can be improved by providing households with cash transfers. This transfer can become effective depending on the amount, modality of the transfer, and which household member receives the transfer. Conditionality and co-responsibilities, depending on enforcement, can have some effects. It can contribute to nutritional status by increasing utilization of health care, or it can lead to health education. Health care utilization is effective if the quality is there.

Relevance and Efficacy of Cash Transfers

In Cambodia, social transfers including cash for vulnerable families especially those with young, vulnerable children, has been identified by the National Social Protection Strategy (NSPS) as a priority. The mid-term review of the National Strategic Development Plan (NSDP) also recommends cash transfer programmes for addressing the issues of poverty, vulnerability and malnutrition.

As nutrition has web of underlying factors, addressing poverty must be a pillar in a comprehensive strategy to prevent under-nutrition. Cash transfers are increasingly being used by the governments across the globe to help poor and vulnerable families break out of intergenerational poverty-trap and food insecurity. About 25 per cent¹¹ of Cambodians still do not have enough to meet their basic needs.

Globally it has been observed that even a small amount of cash made available to poor families on a predictable, regular basis allows families to invest better in health and education of children. It enables them to meet the opportunity cost of sending children to preschool/school and taking them for the necessary health check-ups or even allowing them to meet the emergency health costs. It allows family to withstand stress without resorting to negative coping strategies like sale of their economic/productive assets.

It is clear that adverse income shocks contribute to under-nutrition; the misfortune of being born in a year of low rainfall can leave a child stunted for life. For example, during droughts in Zimbabwe in the 1980s, infants younger than 2 years old-the period a child is most vulnerable to under-nutrition-had higher under-nutrition attributable to the weather shock. A study that followed these

¹¹ According to latest poverty estimates from the CSES as per the NSDP MTR.

children to their young adult years showed that this stunting led to fewer completed years of school, translating into a 14 percent reduction in lifetime earnings (Alderman and others 2006), as mentioned earlier.

Cambodia’s population is highly vulnerable. The high degree of vulnerability could be observed on the elasticity of poverty to consumption (percentage change on poverty due to one percentage change in consumption). For over half of the population in Cambodia poverty elasticity is above 2.0, the average for developing countries in the region¹². Therefore, for a large share of households, small changes on their wellbeing can move them in or out of poverty. Another dimension of high vulnerability is reflected by the high proportion of transient poor. The 2006 Poverty Assessment calculated that Cambodia has a sizeable proportion of households (7 percent in 2004) living within a 10 percent band above the poverty line. A study by the Cambodia Development Research Institute to track movement of living standards of 1,000 households in 9 rural villages showed that 40 – 45% of sample households were falling in and out of poverty from 2001 to 2008¹³.

The main sources of vulnerability in Cambodia that can push these households into poverty and worsen the living conditions of those already poor can be grouped into five categories: situations of emergency and crisis (i.e. economic crises and natural disasters); human development constraints; seasonal unemployment and income insecurity; health shocks; and other specific vulnerabilities affecting particular groups like PLWHA¹⁴.

Seasonal unemployment and income insecurity are a source of vulnerability for the poor and particularly for the food-insecure households with poor and borderline food consumption, equaling about 1.7 million individuals. According to the 2009 Global Hunger Index, Cambodia remains within “alarming” levels of food and nutrition insecurity. Most food-insecure households live in rural areas, are landless (estimated at 15 percent of the rural population) or land poor (47 percent of the rural population) and have more children and more elderly to be nourished. The period from August to November, representing the “food security gap” remains particularly severe for poor households, as demand for agricultural labour is low and households’ rice stocks start running out.

Poor rural households are predominantly dependent on their own limited food production and irregular,

low-paid casual wage labour. It is here that the

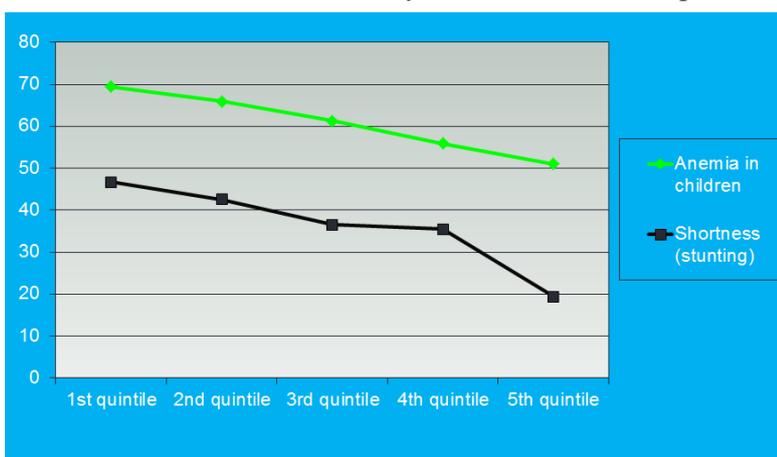


Figure 3 Poverty as a determinant of under-nutrition, CDHS 2005

highest levels of under-nutrition are observed (Fig 3). Children from the poor households are more stunted, more anemic and more like to die before reaching the fifth birthday.

¹² ibid

¹³ WB Cambodia

¹⁴ NSPS background note, WB

Again there is high correlation between poverty and access to health services which is a key determinant of nutrition outcomes for children (Figure 4).

Cash transfers help address the above mentioned uncertainty of the livelihoods and income and the overall chronic and transitory vulnerability of poor households. The scarcity of cash and time for households influences health care choices, as does the availability of health providers and of information.

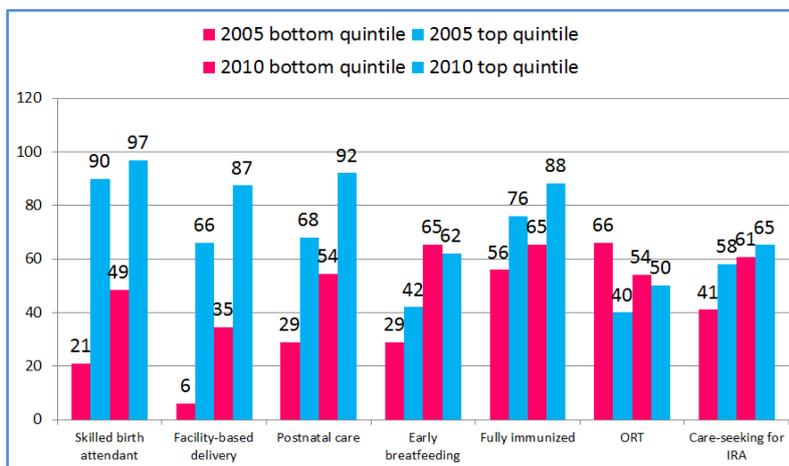


Figure 4 Poverty dimension of access to health services and care practices

The household may see little opportunity to spend more time in preventive health actions; in the absence of credit for the costs of investing in children, they may find few resources for such measures. Making services affordable and more accessible clearly addresses these obstacles but may not be sufficient in view of the competing priorities for the limited cash and time available to the caregiver. And it is here that cash transfers can make maximum impact by giving predictable income that allow households to protect their consumption and investment and discourages them from harmful coping mechanisms like sale of productive assets or withdrawal of children from school to cope with sudden, chronic and creeping disasters.

The idea of using CTs to boost demand for services is rooted in traditional economic theory: the assumption that individuals make rational decisions to maximize their own wellbeing taking into consideration benefits and costs associated with each decision. Decisions are made when perceived benefits outweigh perceived costs. When resource-constrained households receive cash, their cost-benefit considerations change, affecting their decision-making calculus.

Under the right conditions, CTs are able to play a pivotal role in improving nutritional status by spurring participation by groups at high risk of under-nutrition in activities and services that contribute to better nutritional outcomes, and by improving the accessibility and quality of these services where supply is low and/or quality is poor. The underlying assumption is that CTs can complement, rather than replace, other nutrition interventions and should be considered one of a menu of options that can address under-nutrition. When CTs are used for nutrition objectives, they should be well coordinated with the existing priorities guiding a country's nutrition policy. Table 1 shows how nutrition interventions have been built in some of the CTs globally (World Bank 2008)¹⁵.

¹⁵ Can Conditional Cash Transfer Programs Play a Greater Role in Reducing Child Under nutrition? Lucy Bassett S P Discussion Paper, October 2008, World bank

Country	Program	Health Check-ups	Growth Monitoring*	Education Workshops	Micronutrient Supplementation
Argentina	Programa Familias	✓ children & pregnant women			
Brazil	Bolsa Alimentação	✓ children 0-15 & pregnant women	✓	✓	
	Bolsa Familia	✓ children 0-6 & pregnant women	✓		
Chile	Subsidio Unitario Familiar	✓ children 0-6			
Colombia	Familias en Acción	✓ children 0-6	✓	✓ encouraged, but not required	
Dominican Republic	Solidaridad	✓ children 0-5	✓		
Ecuador	Bono de Desarrollo Humano	✓ children 0-5	✓		
El Salvador	Red Solidaria	✓ children 0-5 & pregnant women	✓	✓	
Honduras	PRAF II	✓ children & pregnant women	✓		
Indonesia	Program Keluarga Harapan	✓ children 0-6 & pregnant women			
Jamaica	PATH	✓ children 0-6 & pregnant women			
Kenya	Cash Transfer for OVC	✓ children 0-5	✓		✓ (vitamin A)
Mexico	Oportunidades	✓ children & adults	✓	✓	✓ (iron & papilla nutritional supplement)
Nicaragua	Red de Protección Social	✓ children 0-5	✓	✓	✓ (iron)
Panama	Red de Oportunidades	✓ children 0-5			
Paraguay	Tekopora Program	✓ children 0-14 & pregnant women	✓		
Peru	Juntos	✓ children 0-5 & pregnant women	planned	✓ (hhs with children 6-36 mos)	
Philippines	Ahon Pamilyang Pilipino	✓ children 0-5 & pregnant women			
Turkey	Social Risk Mitigation Project	✓ children 0-6 & pregnant women			
Uganda	Cash Transfer pilot	✓ infants			

* Indicates growth monitoring either with or without counseling.

Table 1 Integration of nutrition interventions in the CT programmes

According to a modeling study carried out jointly by three leading research agencies¹⁶ that involved a programme impact model and synthesized evidence regarding the pathways through which CTs may improve child nutrition, it was found that cash transfer programmes significantly improve child anthropometry like weight and height. The programmes seemed to have positive impact on several of the outcomes in the pathways to improved nutrition as shown in the Figure 5 below¹⁷

¹⁶ Center for Evaluation Research and Surveys, National Institute of Public Health, Cuernavaca, Morelos, Mexico; International Food Policy Research Institute (IFPRI), Washington, DC,

¹⁷ Journal of Development Effectiveness, Vol. 1, No. 2, June 2009

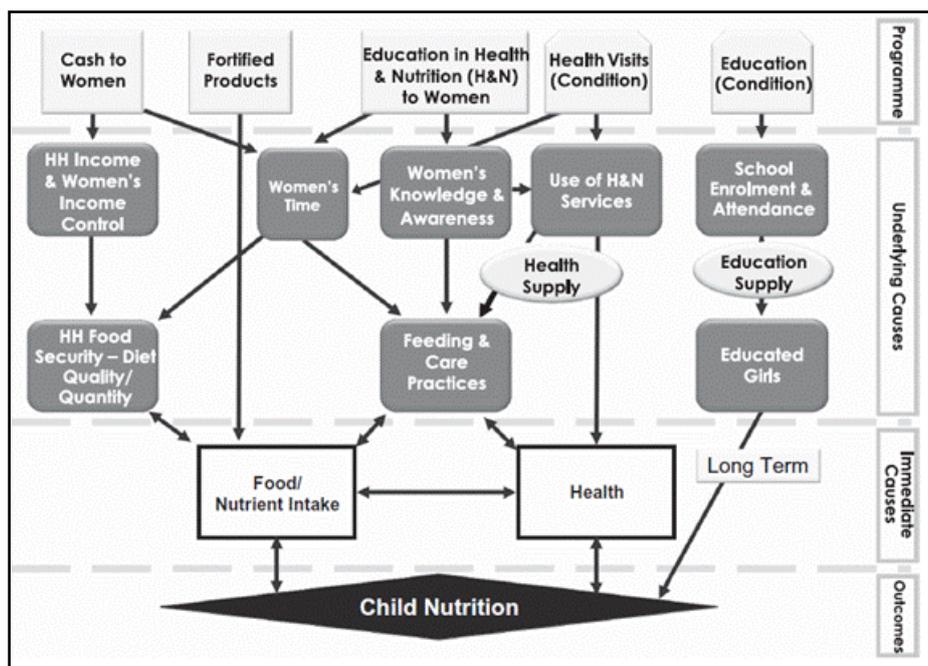


Figure 5: Mechanisms by which CT programmes might affect nutritional status

In line with the above (Fig 5) pathways of influence, global evidence provides a consistent body of a positive impact of CT programmes on child anthropometry. Effects are generally larger for height compared to weight indicators; for children exposed to CT programmes at younger ages; and in countries where the size of the transfer is larger (for example, Mexico, Nicaragua, and Colombia—where transfers represent 15 to 25 per cent of total household expenditures). The larger impact found among younger children

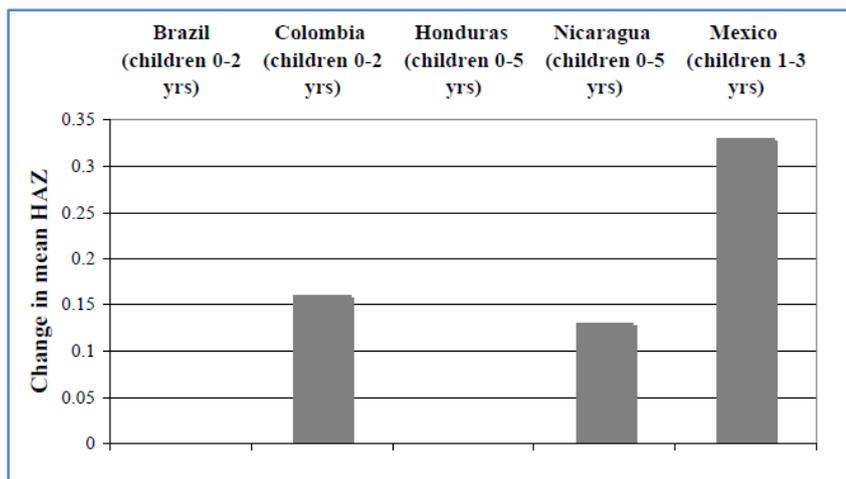


Figure 6 CCT Impacts on Mean Height-for-Age Z-score (multiple age ranges)

showing that interventions to improve growth are more efficacious when they reach children during their first two years of age rather than later, and the younger within this critical age range, the greater the impact (Lutter et al. 1990, Allen 1994, Schroeder et al. 1995, Rivera and Habicht 1996, Rivera and Habicht 2002). (Fig 6)

Results suggesting greater impacts with larger cash transfers are in line with the analysis of the Mexico data, which shows a 10-percentage point drop in stunting with the doubling of the cumulative transfers received by households over time (Fernald et al. 2008). Overall, the review

confirms that the documented impacts of CT programmes on child anthropometry are highly plausible.

Improved nutritional status may be the result of higher-quality diets resulting from increased household income, enhanced knowledge among mothers attending nutrition education meetings, better micronutrient and caloric intake due to nutritional supplements, or a combination of all of these as shown in the Pathway to Nutrition in the figure above (Lagarde et al. 2007). While it would be invaluable to have data to disentangle these individual effects- requiring the comparison of multiple treatment arms (GMP, nutrition education, supplement, etc.) vs. a control-currently the only option to is to draw tentative lessons from the above mentioned program experiences.

The CT programmes reviewed had a positive impact on several of the outcomes hypothesized to be part of the pathways (J.L. Leroy et al). For instance, most programmes showed considerable poverty alleviation effects and significant gains in household income and food security. In several countries, greater benefits on per capita caloric availability were found among poorer households, where childhood under-nutrition is most prevalent. Several programmes also improved household diet quality as seen by increased consumption of micronutrient-rich foods, such as animal source foods, dairy products and fruits and vegetables. Positive effects on women's control over resources were found in the two countries where it was assessed (Mexico and Nicaragua); similarly, maternal health knowledge and practices increased among programme beneficiaries in Mexico, the CT programmes also had a consistent positive impact on the use of health services, especially for preventive services and on school enrolment.

Overall, the CT programmes are seen to have positive impacts on most of the key underlying and immediate determinants of child nutrition assessed-poverty; food security and diet quality; women's knowledge, awareness, and control over resources; use of health and education services; and diet and health – all of which are along the impact pathways by which CTs are hypothesized to improve nutrition (Figure 5 above).

CT impacts on nutrition fall within the range of several other nutrition interventions. Still, given the fact that they include an income transfer, *and* require participation in specific activities, it is reasonable to think that CTs that are designed to focus on nutrition and well implemented could have an even greater effect on under-nutrition.

Notwithstanding the enormous potential of CT programmes to contribute to reducing childhood under-nutrition, this potential has yet to be unleashed: the programmes are far from eliminating linear growth retardation and their impact on micronutrient nutrition is disappointingly small. In order to contribute more fully to eradicating childhood under-nutrition, CT programmes will need to be strengthened in several ways. First, the design of the nutrition and health package will need to be carefully revisited to tailor to the specific needs of the targeted population. Formative research should be used to carefully assess the key childhood health and nutrition problems, to determine the current child feeding, health seeking and care practices, and to identify the main constraints (and facilitators) to the adoption of optimal practices. This information should be used to design an effective nutrition and health package to incorporate in a country's CT programme. A second key aspect is the targeting of the programme and of its health and nutrition components. CT programmes usually target families with school-age children, pregnant or lactating women, and/or children less than five years of age. It is now well recognized that the window of opportunity for improving nutrition is pregnancy and the first two years of the child's life (Shekar et al. 2006). Programmes should therefore put special emphasis on ensuring that the health and nutrition intervention package effectively reaches these groups. A third aspect that needs attention is the quality of the services, especially the nutrition and health education and its effectiveness at increasing maternal knowledge and at eliciting behavior change.

The delivery and quality of the programmes' health and nutrition services needs to be closely monitored and, where needed, improved. CT programmes also offer a unique opportunity to specifically address micronutrient nutrition using interventions of known efficacy. There are several options available to tackle micronutrient malnutrition, including fortified foods such as the products used in Mexico, and newer strategies such as micronutrient sprinkles (currently being tested in Mexico) (Neufeld 2007) and lipid-based fortified products that provide both macro and micronutrients (de Pee and Bloem 2009). These micronutrient interventions should be embedded in the overall behavior change and communications strategy aimed at improving child feeding and maternal health seeking and caring practices (J.L. Leroy et al).

Besides the above nutrition (and economic) impacts, CT's fit nicely into the mainstream discourse on poverty reduction by addressing key themes such as targeting, participation, multi-sectoralism and women's empowerment (Britto 2004). Evidence has shown that CTs are generally well targeted to the poorest households, with CT benefits to the poorest quintile 3 to 30 times as large as those to the richest quintile (Schady 2006a). The participatory nature of CTs varies from country to country, but many programs make use of a community committee, which collaborates with central and municipal planning groups.

Widespread support for CTs, among countries and donors alike, is also an important factor when considering the promise of CTs as a tool to reduce under-nutrition. If designed and implemented appropriately-using the improvement of nutritional status as a specific objective, designing program components to affect this outcome directly, and placing these efforts in the context of a coordinated nutrition policy - CTs could produce greater impacts on nutrition, as well as education and health outcomes.

Conclusion

CT programmes can provide an excellent entry point for improving child nutrition for a number of reasons. First, they provide inputs that address several of the immediate and underlying determinants of child nutrition. Second, they are targeted at and are effectively reaching poor populations who suffer the highest burdens of nutrition deficiencies. Third, the coverage of CT programmes is usually high, and in some cases reaching national scale. Finally, these programmes have received widespread support from politicians as well as donors and are perceived as a major breakthrough in poverty alleviation programmes.

Though CT programmes provide a potentially powerful delivery mechanism for improving child nutrition, in order to reach their full potential, the programmes will need to have clearer nutrition objectives, a better defined set of nutrition actions, an implementation and integration plan grounded in a strong programmatic experience and nutrition pathways analysis and an effective monitoring and evaluation system. These also need strong cross-sector collaboration, especially among health, WASH, social affairs, to achieve the integrated nutritional impacts.

Research has highlighted the fact that there are very few "one size fits all" solutions. What works in one country may not work in another. Small programmatic changes can lead to large differences in observed outcomes. Thus the design of CT programmes for Cambodia needs to be backed by comprehensive, sound contextual analysis and should be part of an overall national nutrition strategy that addresses other key determinants of under and malnutrition.

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