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Cash Transfers and Child Nutrition: Pathways and Impacts

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Abstract

Childhood malnutrition remains a significant global problem, with an estimated 162 million children under the age of five suffering from stunted growth. This article examines the extent to which cash transfer programmes can improve child nutrition. It adopts a framework that captures and explains the pathways and determinants of child nutrition. The framework is then used to organize and discuss relevant evidence from the impact evaluation literature, focusing on impact pathways and new and emerging findings from sub-Saharan Africa to identify critical elements that determine child nutrition outcomes as well as knowledge gaps requiring further research, such as children’s dietary diversity, caregiver behaviours and stress.

Keywords

cash transfers; health; nutrition; sub-Saharan Africa

1 | INTRODUCTION

Childhood malnutrition remains a significant barrier to health and development worldwide. It is estimated that globally 162 million children under the age of five years suffer from stunting,¹ a chronic condition resulting primarily from chronic malnutrition. In sub-Saharan Africa (SSA), an estimated 40% of children under the age of five are stunted, the highest rate of all regions globally. In addition, children living in the poorest households and those living in rural areas are more likely to be stunted than their richer or urban counterparts (UNICEF, 2013).

Chronic malnutrition has severe consequences for later life. Evidence shows that up to 70% of stunting takes place before a child’s second birthday, a period commonly referred to as the first 1,000 days (Leroy, Ruel, Habicht, & Frongillo, 2014). Stunting in this ‘critical window’ has been linked to impaired cognitive development, reduced school achievement, lower economic productivity in adulthood and poorer maternal reproductive outcomes,

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¹Measured as –2 standard deviations below World Health Organization (WHO) reference populations in height-for-age z-scores.

among others (Dewey & Begum, 2011). Therefore, investment to improve nutritional status early in a child's life has the potential to yield large returns.

Chronic malnutrition is a multidimensional issue with underlying risk factors, including poverty and exclusion. Consequently, no single programme implemented in isolation will be sufficient to sustain a significant reduction in any population-level rate of stunting. However, social protection is increasingly recognized as an important strategy to accelerate progress in improving maternal and child nutrition because it addresses structural factors such as poverty and social vulnerability (Ruel, Alderman, & Maternal and Child Nutrition Study Group, 2013). In particular, cash transfer (CT) programmes, which deliver cash directly to households, have gained popularity with governments and other stakeholders.

Both the number and the size of CTs have increased considerably in the last two decades. Conservative estimates suggest that about 718 million people currently have access to CTs in the developing world (Honorati, Gentilini, & Yemtsov, 2015). By 2014, in SSA, at least 40 countries were implementing unconditional cash transfers (UCTs), up from 21 countries in 2010 (ibid.). Similarly, the number of countries globally with conditional cash transfers (CCTs) more than doubled from 2008 to 2014, rising from 27 to 64.

An important distinction of the government CTs in SSA is that programming is typically unconditional, whereas the majority of programmes in Latin America (LA) are conditional (i.e., tied to certain behaviours, such as school enrolment, health check-ups and attendance at health information sessions).² One major argument for the absence of conditions in the SSA region is the poorly developed supply side in terms of education and health, which would not be able to cope with increased demand resulting from monitoring and implementing sanctions in a CCT. In addition, the capacity for implementing CTs is considered much weaker in SSA than in LA (Schubert & Slater, 2006).

Further distinctions in programme design between these regions are driven by differences in context in terms of economic and social vulnerability. Due to the HIV/AIDS epidemic in SSA, programmes are typically targeted at households who are ultra-poor, labour-constrained and/or caring for orphans and vulnerable children. In addition, due to persistent and deep poverty combined with recurrent food crises, programmes primarily aim to ensure immediate survival and food security as well as address chronic and intergenerational transmission of poverty, while having a secondary (indirect) aim of improving health, nutrition and education, particularly of children (Davis, Gaarder, Handa, & Yablonski, 2012). These programme design distinctions have implications for impacts and impact pathways, scalability, cost and political acceptance.

The aim of this article is to examine how, and along which pathways, CTs can improve child nutrition, primarily evidenced by anthropometric measures. Our article is not a systematic review of the evidence. Rather, it is a comprehensive synthesis of evidence building on recent systematic reviews, combined with new evidence from impact evaluation studies in SSA. Relevant studies were identified through searches in electronic databases, primarily

²For example, the World Bank found that, of the 48 countries in SSA included in the study, 41 had experience only with an UCT and 18 countries had experience with a CCT (Honorati et al., 2015).

Google Scholar, as well as institutional websites from the International Food Policy Research Institute (IFPRI), the World Bank, UNICEF, the Food and Agricultural Organization of the United Nations (FAO), the Overseas Development Institute (ODI), the Registry for International Development Impact Evaluations (RIDIE) and the Transfer Project. In addition, experts in the field were consulted to identify any remaining literature. Studies were included if they used rigorous and appropriate methods (experimental or quasi-experimental, including use of the counterfactual through a comparison group) to establish causal inference about the impact of CTs on relevant outcomes.

Recent systematic reviews cover the LA programmes extensively (Fernald, Gertler, & Hidrobo, 2012; Lagarde, Haines, & Palmer, 2009; Leroy, Ruel, & Verhofstadt, 2009; Manley, Gitter, & Slavchevska, 2012; Owusu-Addo and Cross, 2014; van den Bold, Quisumbing, & Gillespie, 2013). We summarize findings from these reviews. However, the main contribution of our article to the existing literature is its focus on new and emerging evidence in SSA (UNICEF-ESARO/Transfer Project, 2015), as well as evidence on pathways of impact. To fulfil this objective, the article first adopts a conceptual framework that outlines the pathways and determinants of child nutrition. It then identifies and discusses evidence from the impact evaluation literature in order to present current knowledge and gaps in knowledge surrounding the impact of CTs on child nutrition, how and why CTs (may) have an impact on child nutrition, and the key factors determining both impacts and potential unintended consequences. The following three questions guide the content of this article: (1) What is the range of impacts that have been found of CTs on child nutrition, focusing on the SSA region? (2) What are the hypothesized impact pathways, and how strong is the evidence supporting these? and (3) What factors explain the heterogeneity of impacts across studies and countries?

The article proceeds as follows: Section 2 presents and discusses a conceptual framework, highlighting linkages with CTs; Section 3 uses the framework to discuss the range of impacts CTs have on child nutrition, focusing on the underlying determinants, immediate determinants and outcomes and identifies key factors that can explain heterogeneous impacts of CTs; Section 4 concludes by synthesizing the current knowledge on the linkages between CTs and child nutrition and identifies knowledge gaps.

2 | CONCEPTUAL FRAMEWORK FOR CHILD NUTRITION: A ROLE FOR CASH TRANSFERS?

Several approaches have been used to hypothesize and model the linkages between CTs and child nutrition. One approach is to use the CT as starting point and conceptualize the different impacts it may have on the individual-, household- and community-levels, with one of the potential impacts being child nutritional status. Another approach is to start from the determinants of child nutrition and theorize the effects of a CT on those determinants. For this article, the second approach is more useful as it allows the identification of how CTs can affect the root causes of child nutrition and therefore the pathways of impact.

The starting point for our conceptual framework is UNICEF's extended model of care, first developed by Engle, Lhotska, and Armstrong (1997) and still widely utilized in nutrition

research. We use an adaptation of the extended framework for the model of care developed by Smith and Haddad (2002), depicted in Figure 1. For this article, child nutritional status is operationalized by standard measures such as height-for-age (HAZ), weight-for-age (WAZ) and weight-for-height (WHZ). This framework serves as a guide to determine the appropriate impact pathways and range of determinants and outcomes to be included.

The conceptual framework identifies household food security, care and a healthy environment as the underlying determinants that influence the immediate determinants of children's nutritional intake and health status (Figure 1). The combination and interaction of these two immediate determinants define the final outcome, a child's nutritional status. Household food security in this model is defined by the availability of household resources to consume sufficient food for all members in the household, either by food production, cash income or food received as gift (Smith & Haddad, 2002).³ Care in this context refers to caregiver behaviours that affect all aspects of child development including psychosocial care, feeding practices, breastfeeding, food preparation, hygiene, health-seeking behaviour and healthcare (Engle et al., 1997).⁴ Care for mothers and children is determined by caregiver control over resources and autonomy, caregiver mental and physical status (i.e., level of stress, caregiver nutritional status) and knowledge (including literacy and educational attainment), preferences and beliefs of the caregiver. The third underlying determinant is the health environment, which depends on the child's access to safe water and sanitation facilities, healthcare and shelter (Smith & Haddad, 2002).

The framework also considers a number of moderators and mediators of the relationship between CTs and child nutrition. For example, the child's dietary intake is mediated by the caregiver's feeding practices and feeding styles. The health status of a child is mediated by the health-seeking behaviour of the caregiver. Household food security is moderated by the availability and price level of food and by external shocks. Women's empowerment (most commonly operationalized as women's decision making or control over resources), influenced by underlying societal values, mediates the relationship between CTs and care for mothers and children.

In this framework, there are three main pathways through which CTs may affect the underlying determinants of child nutrition, by making additional financial resources available for 1) food security, 2) health, and 3) care.

A CT directly increases household disposable income, and consequently the resources available for household food security. If households use the cash to purchase higher quantity or quality food, or invest in food production or productive assets, household food security and household diet diversity are improved. However, food availability, food prices and economic shocks could moderate this pathway. Second, improved household food security and diet diversity could affect the child's nutritional intake if food resources are shared in a

³In a broader context, the UN framework of food security has four criteria: (1) physical availability of food, (2) economic and physical access to food, (3) food utilization, and (4) stability of the other three dimensions over time (FAO, 2008).

⁴In line with Engle et al. (1997) terminology, the term 'caregiver' is used rather than 'mother'. In most instances, it will be the mother of the child who is the primary caregiver, however fathers and other females in the households also provide care. Thus, it is necessary to broaden the focus of caregiving beyond the mother in order to include all resources for care.

child-sensitive way in the household. If, for example, all additional food resources purchased using the CT go towards adult men in the household, no impact on children's nutritional intake can be expected. However, an effect can be expected if a child's food intake is improved, in combination with appropriate feeding practices (what the child is fed) and styles (how the child is fed) and good health status, allowing the efficient absorption of micronutrients in the food.

A CT can have a direct effect on the household-level resources for health. Increased resources allow the household to make improvements to sanitation facilities in the home or make improvements to housing conditions, such as installing a concrete floor, which decreases exposure to parasites (Cattaneo, Galiani, Gertler, Martinez, & Titiunik, 2009). In addition, resources could be employed to pay for out-of-pocket expenses during curative or preventative health visits, transportation to health facilities, medical supplies and preventative medicines such as deworming tablets.⁵ So, effective use of increased resources for health can result in an improved health environment for the child.

CTs may also directly affect intra-household dynamics. If the transfer is distributed to the main caregiver, the caregiver is better able to advocate for her preferences as a result of controlling more resources. Economic models of household bargaining theorize that control of resources affects bargaining through individuals' threat points and outside options, or non-cooperative equilibriums. In these models, control of resources makes outside options and threat points more credible, and thus affects an individual's ability to exert her preferences. CTs can also decrease household poverty-related stress, which in turn may improve the caregiver's physical and mental state, and thus increase positive parenting of children. Stress is also hypothesized to be linked to perpetration of intimate partner violence (IPV), which in turn affects child health outcomes (Yount, DiGirolamo, & Ramakrishnan, 2011). Thus, overall reductions in the level of household stress may also impact caregiving behaviours and directly influence child health. Further, CTs may relieve incentives for pregnant women to engage in dangerous or rigorous work, with implications for birth outcomes.

Finally, there are potential positive interaction effects among the different pathways. For example, a combination of additional resources available for food, health and care, mediated by feeding practices, feeding styles and health-seeking behaviour on the part of the caregiver, may positively impact the child's health status and the child's nutritional intake to enhance the nutritional status of the child.

3 | CASH TRANSFERS AND CHILD NUTRITION: WHAT WE KNOW ABOUT THE TYPES OF IMPACTS AND PATHWAYS

Building on the potential pathways identified in Section 2, this section discusses evidence from quantitative peer-reviewed studies and impact evaluation reports on CTs in developing countries. The main criterion for inclusion was the use of rigorous and appropriate methods

⁵It could also have a more indirect effect on healthcare availability, if the increased resources result in increased demand for healthcare or higher quality care at the local level.

to establish causal inference.⁶ The section examines what we know in relation to the impact of CTs on the underlying determinants of nutritional status (3.1); the evidence for the effect of CTs on immediate determinants (3.2) and direct effects on nutritional status (3.3). It also attempts to identify key factors that can explain the heterogeneity of impacts across CTs (3.4) as well as some perverse incentives and unintended consequences (3.5).

3.1 | Cash transfers and underlying determinants of child nutrition

3.1.1 | Cash transfers and food security—It is well documented that CTs directly affect overall household consumption and specifically household food consumption (Adato & Bassett, 2009). In eight programmes in SSA (Ethiopia, Kenya, Lesotho, Malawi, Mozambique, South Africa, Uganda and Zambia), food security improved as a result of receiving CTs as the majority of the transfer income was spent on food. Most beneficiary households also improved their diet diversity (Case, 2004; Handa, Seidenfeld, Tembo, Prencipe, & Peterman, 2013; Miller & Tsoka, 2008; OPM, 2013; Berhane et al., 2015; OPM, 2014; OPM, 2015; Soares & Teixeira, 2010). Evidence from LA also shows that CTs increased household consumption, in particular food consumption, and households improved their diet diversity. In Brazil, households purchased healthier and non-staple items such as fruits and vegetables, and consumption of protein-rich food increased in Colombia (Attanasio, Gomez, Heredia, & Vera-Hernandez, 2005; Olinto, Flores, Morris, & Veiga, 2003). Similar results were found for Ecuador, Mexico and Nicaragua (Fernald, Gertler, & Neufeld 2008; Leroy et al., 2008; Macours, Schady, & Vakis, 2012; Maluccio & Flores, 2005; Paxson & Schady, 2010).

3.1.2 | Cash transfers and healthcare—As shown in Figure 1, the healthcare pathway includes both health-seeking behaviour and characteristics of the health environment. Many CT evaluations analyse impacts on preventative care and health visits. In Kenya, households spent more on healthcare after two years of exposure to the Hunger and Safety Net Programme (OPM, 2013) and in Malawi, beneficiaries of the Mchinji Social CT were more likely to receive care when sick compared to non-beneficiaries (Adato & Bassett, 2009). In Ghana and Tanzania, CTs increased the likelihood of children being enrolled in health insurance schemes (Evans, Hausladen, Kosec, & Reese, 2014; Handa, Park, et al., 2013). Studies in Colombia, Honduras, Jamaica, Mexico, Nicaragua and the Philippines found positive impacts on preventative health visits and the probability that children were weighed (Attanasio, Gomez, et al., 2005; Chaudhury, Friedman, & Onishi, 2013; Levy & Ohls, 2007; Macours et al., 2012; Maluccio, 2005; Maluccio & Flores, 2005; Morris, Flores, Olinto, & Medina, 2004; Handa, Seidenfeld, Tembo, Prencipe, & Peterman, 2013).

A review of the impact of CTs on maternal and child health found significant effects on prenatal monitoring in five (Guatemala, Honduras, India, Mexico and Uruguay) of the seven countries studied (Glassman et al., 2013). Results for postnatal care, however, were insignificant in both countries reviewed (Honduras and El Salvador). Results from Mexico

⁶As with any study, our article may be limited by publication bias if findings on nutritional outcomes or intermediate outcomes are not representatively reported in published articles or reports. We minimized this bias by cross-checking the CT programme inventory in the State of Social Safety Nets 2015, as well as contacting experts in the field, to ensure no rigorous evaluation of government-run CTs which measured outcomes relevant for our purpose was excluded.

regarding frequency and quality of prenatal care are mixed (Barber & Gertler, 2008; Barber & Gertler, 2009). Other studies found a significant increase in clinic and growth-monitoring visits due to *Progresa*, though these were programme conditionalities (Adato & Bassett, 2009). In Ecuador, no effect of the *Bono de Desarrollo Humano* was found on the use of growth control visits, though a positive effect was found on parasite treatment (Paxson & Schady, 2010).

In terms of hygiene, beneficiary households of the Malawian Mchinji CT were more likely to take a bath, use soap and brush teeth on a daily basis (Miller & Tsoka, 2008). In addition, households receiving the old-age pension in South Africa were more likely to have a flush toilet and less likely to report an off-site water source (Case, 2004). Finally, households benefitting from the Palestinian CT reported fewer difficulties in paying for safe drinking water (Perezniето, Jones, Hamad, & Shaheen, 2014).

3.1.3 | Cash transfers and care practices, behaviour and mental health—The relation between CTs and care practices has not been studied extensively. However, there are studies linking care practices and other mediators, such as women's empowerment and stress, on nutritional outcomes for children. For example, the link between infant and young child feeding practices and nutritional status has been widely studied with the use of indexes, comprised of indicators of age-appropriate practices in terms of breastfeeding, refraining from bottle feeding, diet diversity and meal frequency (Arimond & Ruel, 2002). These indexes have been associated with improved nutritional status in several countries across all regions of the globe (Amugsi, Mittelmark, Lartey, Matanda, & Urke, 2014; Arimond & Ruel, 2002; Kumar, Goel, Mittal, & Misra, 2006; Lohia & Udipi, 2014; Ma et al., 2012; Ruel & Menon, 2002; Saha et al., 2008; Sawadogo et al., 2006). However, in select cases, no significant effect was found between feeding practices and nutritional status, for example in Bolivia (Ruel & Menon, 2002), Senegal (Ntab et al., 2005) and Madagascar (Moursi et al., 2008).

Diet diversity is usually one component of infant and young child feeding indices; however, its effect on nutritional status has also been studied independently. In an 11-country study, a significant effect of diet diversity on nutritional status was found for ten countries: Cambodia, Colombia, Ethiopia, Haiti, Malawi, Mali, Nepal, Peru, Rwanda and Zimbabwe (Arimond & Ruel, 2004). There was no effect in Benin.

Responsive feeding is a care practice that has been examined less in the literature. This concept is not yet well defined, but usually includes elements such as ensuring that the feeding context is pleasant for the child, positively interacting with the child during the feeding episode and adapting the feeding method to the child's developmental status (Black & Aboud, 2011; Engle, 2002). Responsive feeding behaviour has been linked to higher food intake for children in Bangladesh (Aboud & Akhter, 2011) and improved cognitive development of children in India (Vazir et al., 2013). Furthermore, two studies in Ghana have reported a positive association between responsive feeding practices and nutritional status of children (Nti & Lartey, 2008; Ruel, Levin, Armar-Klemesu, Maxwell, & Morris, 1999). However, the aforementioned study in India found no effect of responsive feeding behaviour on child nutritional outcomes. Furthermore, a review of this topic concluded that

few studies found a positive relationship between responsive feeding and reduced undernutrition, with the exception of indicators for positive caregiver communication during feeding (Bentley, Wasser, & Creed-Kanashiro, 2011). Ultimately, because of lack of standardization in measurement, results are difficult to compare across studies and settings.

In terms of psychosocial care, maternal warmth, love and affection, sensitivity to children's needs and attachment between caregiver and child have been linked to improved children's nutritional status (WHO, 2004).

One pressing question is whether CTs can affect caregiver behaviour if no supplementary educational campaigns or training are offered. Unfortunately, very few studies look at the impact of CTs on the specific caregiver behaviours discussed here. One exception is Zambia, where the Child Grant Programme had a significant impact on infant and young child feeding practices, as measured by the minimum age-appropriate meal frequency for children 6–23 months old (Handa, Seidenfeld, et al., 2013).

The mental health of the caregiver, in particular stress, is an important factor in the conceptual framework. Since CTs often target resource-constrained households, research in several SSA countries has found that transfers make recipients happier and increase measures of hopefulness about the future (Davis & Handa, 2014). Furthermore, in Kenya, findings from the *GiveDirectly* UCT evaluation showed that the psychological well-being of beneficiary households improved (happiness, life satisfaction, stress and depression). In addition, larger transfers and transfers given to women significantly lowered cortisol levels (a stress-related biomarker) for both men and women, although levels of cortisol did not differ overall between the pooled treatment and control groups (Haushofer & Shapiro, 2013). In Ethiopia, no effect on mental health was found as a result of the Social Cash Transfer in Tigray (Berhane et al., 2015).⁷

3.1.4 | Mediators of care practices: Women's empowerment and intimate partner violence—Previous research has suggested a positive relationship between women's empowerment and improved nutritional status (van den Bold, Quisumbing, & Gillespie, 2013). However, evidence on the impact of CTs on women's empowerment is mixed: qualitative evidence is generally positive, while quantitative evidence is more diverse (ibid.). This may be partially linked to the difficulty in measuring the concept of empowerment through quantitative survey indicators. For example, qualitative evidence from Mexico showed positive impacts on several dimensions of women's empowerment, such as women's control over resources, public speaking, education, mobility, decision-making power and self-esteem (Adato, de la Brière, Mindek, & Quisumbing, 2000; Latapi & de la Rocha, 2004). However, quantitative evidence on CCTs is mixed, showing small impacts or only among selective groups (Attanasio & Lechene, 2002; de Brauw, Gilligan, Hoddinott, & Roy, 2014; Handa, Peterman, Davis, & Stampini, 2009), no impacts (Hidrobo, Hoddinott, Margolies, Moreira, & Peterman, 2012), or negative impacts (Gitter & Barham, 2008). Recent quantitative research on UCTs in Ecuador, Kenya, Uganda and Yemen also

⁷Mental health was measured using the WHO Self-Reported Questionnaire (SRQ-20), which has been validated in Ethiopia.

point towards mixed results (Hidrobo & Fernald, 2013; OPM, 2013; Peterman, Schwab, Roy, Hidrobo, & Gilligan, 2015; Schady & Rosero, 2008).

IPV can also affect child nutritional outcomes in various ways. Globally, one in three women aged 15 and over experiences physical or sexual IPV in her lifetime (Devries et al., 2013). Women's exposure to IPV during pregnancy is associated with decreased birth weight (Aizer, 2011; Shah & Shah, 2010) and pre-term delivery (ibid.). In children, exposure to maternal experience of IPV has been linked to several health and nutritional outcomes, including severe acute malnutrition (Rico, Fenn, Abramsky, & Watts, 2011; Salazar, Högberg, Valladares, & Persson, 2012), under two mortality (Åsling-Monemi, Pena, Ellsberg, & Persson, 2003) and decreased growth and stunting (Salazar, Högberg, Valladares, & Persson, 2012; Sobkoviak, Yount, & Halim, 2012). Yount et al. (2011) posit that children's exposure to violence in the home may affect early childhood growth and nutrition through biological and behavioural pathways, and their review of the literature demonstrates that the strongest evidence concerns the effects of prenatal IPV on low-birth weight, which is a strong predictor for subsequent growth.

Only a handful of studies look at the impact of CTs on IPV. In Mexico, physical IPV decreased in the short run (2–6 years) as a result of *Oportunidades*, however effects disappeared after more than five years (Bobonis, Castro, & Morales, 2015; Bobonis, González-Brenes, & Castro, 2013). Peru's CCT, *Juntos*, also decreased physical and emotional IPV in the short run (Perova, 2010). A study in Ecuador found that the *Bono de Desarrollo Humano*, a national UCT, decreased psychological violence for women with higher than primary school education, but for women with lower education, the effect depended on the relative level of education in comparison to that of her partner, and there was an increase in emotional IPV in households where the woman's education was equal to or higher than her partner's (Hidrobo & Fernald, 2013). In contrast, another study in Ecuador of a cash, voucher and food pilot project concluded that the transfers reduced controlling behaviours and physical and/or sexual IPV, regardless of the type of transfer (Hidrobo, Peterman, & Heise, 2016).

3.2 | Cash transfers and immediate determinants of child nutrition

3.2.1 | Cash transfers and child dietary intake—Only a few studies have specifically addressed the impact of a CT on children's nutritional intake, as opposed to household-level diet diversity. An evaluation of four social protection programmes in Bangladesh showed a significant increase in household food expenditure, but not on the caloric intake of children under five years old (Ahmed, Quisumbing, Nasreen, Hoddinott, & Bryan, 2009). Another study in Bangladesh found no significant impact of the Primary Education Stipend on the food expenditures and per capita caloric intake of children (Baulch, 2011), although this programme is not explicitly aimed at improving the nutrition of young children. In Nicaragua, the number of days that children consumed more nutritious food increased as a result of the conditional *Atención a Crisis* programme (Macours et al., 2012), and in the Philippines the *Pantawid* CCT led to an increase in high-protein food intake, such as eggs and fish (Chaudhury, Friedman, & Onishi, 2013). Finally, in an evaluation of a Ugandan food versus cash transfer scheme, the cash component increased

children's intake of starches, meat, eggs and dairy products, while the food transfer had no significant impact on dietary intake (Gilligan & Roy, 2013).

3.2.2 | Cash transfers and child health status—A number of studies have reported the direct impacts of CTs on children's health status. In Zambia and Colombia, reductions in the prevalence of diarrhoea were found (Attanasio, Battistin, et al., 2005; Handa, Seidenfeld, et al., 2013). However, in Colombia, the results did not hold for children older than 48 months. Evidence from Lesotho, Malawi, Mexico, Tanzania and South Africa also indicates positive impacts on the health status of children, with children in CT households less likely to be ill than comparison children (Case, 2004; Evans, Hausladen, Kosec, & Reese, 2014; Gertler, 2004; Miller & Tsoka, 2008; OPM, 2014). However, studies in Mexico and Kenya found no significant impact on the number of sick days, or proportion ill or injured as a result of CT programmes (Fernald et al., 2008; OPM, 2013), and, in Nicaragua, the decrease in number of sick days did not hold after two years (Macours et al., 2012). Evaluations of the Palestinian CT found a significant lower prevalence of ARI in beneficiary households compared to a control group (Pereznieto et al., 2014) and fewer reported illnesses, but a higher rate of chronic illnesses (Hackstein, Miller, & Mahdi, 2013). The Ghana LEAP programme had adverse effects and slightly increased morbidity rates among children under five years old (Handa, Park, et al., 2013).

With respect to vaccination rates, results are mixed. In Brazil, the *Bolsa Familia* increased the proportion of children who received vaccinations on time (de Brauw, Gilligan, Hoddinott, Moreira, & Roy, 2012), but an earlier evaluation using only the first wave of data found no effect on child immunizations (Soares et al., 2010). The *Apni Beti Apna Dhan* programme in India resulted in an increased number of vaccinations in the short run (four years), but not in the long run (12 years) (Sinha & Yoong, 2009). Studies from Honduras and Colombia showed positive effects on timing of vaccinations (Attanasio, Gomez, et al., 2005; Morris, Flores, et al., 2004). The Nicaraguan *Red de Protection Social*, Jamaican PATH and Philippine *Pantawid* programmes showed no significant impacts on vaccination uptake among beneficiaries (Chaudhury et al., 2013; Levy & Ohls, 2007; Maluccio & Flores, 2005). In addition, a social experiment in Zimbabwe, aimed at assessing differential impacts between a CCT and UCT, found no significant improvement on vaccination coverage among either treatment arm (Robertson et al., 2013).

Examining stress as a pathway for poor health is important, as low socioeconomic status (SES) is linked with increased rates of morbidity and mortality (Adler, Boyce, Chesney, Folkman, & Syme, 1993; Elo, Martikainen, & Smith, 2006). Poverty is a chronic stressor, and it has been hypothesized that individuals of lower SES face more stressful events in their lives and also have fewer social and material resources to deal with stress (Baum, Garofalo, & Yali, 1999; Pearlin, Schieman, Fazio, & Meersman, 2005). The chronic stress of poverty in early childhood can induce significant biological changes with lasting impacts on health (Danese & McEwen, 2012), and thus, CTs which alleviate poverty have the potential for broad, long-term impacts on health. One study assessed the impact of Mexico's *Oportunidades* on children's cortisol levels, showing that beneficiary children had lower salivary cortisol levels compared to the children in control groups, and the effect was larger for children of mothers with high depressive symptoms (Fernald & Gunnar, 2009).

3.3 | Cash transfers and child nutrition outcomes

This section explicitly focuses on evidence related to the direct impact of CTs on child nutrition status, measured as HAZ, WAZ or, in some cases, WHZ. There have been six recent reviews on the impacts of CTs on child nutritional status, which we summarize in Table 1. Two key findings emerge: 1) the focus has been primarily on CCTs in LA, with very little representation from SSA, except for studies from South Africa, and 2) none of the reviews find conclusive evidence of a positive impact on child nutritional status, and in fact several authors point out that the pathways of impact are not clearly understood. The one meta-analysis evaluating 15 programmes in ten countries demonstrated a minor but statistically insignificant impact on child anthropometry (Manley et al., 2012), echoing the lack of conclusive results across all reviews.

Building on the evidence in Table 1, we consider additional literature focusing on SSA. In the studies we considered, a positive impact on child nutritional outcomes was found across several countries (Brazil, Colombia, Ecuador, Mexico, Philippines, South Africa, Sri Lanka and Zambia). The old-age pension in South Africa was associated with increased HAZ in girls under two years old (Duflo, 2003) and children in general (Case, 2004). In addition, longer exposure to the Child Support Grant during the first 36 months of life (66% versus 1%), increased children's HAZ with 0.25 standard deviations (SD) (Agüero, Carter, & Woolard, 2007). After two years of operation, the Zambian Child Grant Programme was associated with an increase of 0.196 WHZ among children between the ages of three and five (Handa, Seidenfeld, et al., 2013). In Sri Lanka, the effect of *Samurdhi* on children under five years of age exposed to the programme since birth ranged from 0.4–0.5 SD in terms of HAZ with larger effects for children under the age of three (Himaz, 2008). Mexico's *Progresá* has been evaluated extensively, and most studies find positive, significant effects on child height in the range of 1.0–1.5 centimetres, depending on the duration of exposure to the programme and child age (Behrman & Hoddinott, 2005; Fernald et al., 2009; Gertler, 2004; Leroy, et al., 2008; Rivera, Sotres-Alvarez, Habicht, Shamah, & Villalpando, 2004). After one year, the Colombian *Familias en Acción* was associated with increased growth of about 0.5 cm among 12-month-old boys, but not for children older than 24 months (Attanasio, Battistin, et al., 2005; Attanasio, Gomez, et al., 2005). A study of Ecuador's *Bono Solidario* found that the transfer had a small but statistically significant effect on children's height and weight (León & Younger, 2007). *Pantawid* in the Philippines decreased the rate of severe stunting among children 6–36 months old by 10 percentage points, although no effect was found on other anthropometric indicators (Chaudhury et al., 2013). The results from Brazil are mixed. One analysis of an early CT, *Bolsa Alimentação*, found a negative impact on child weight and height after six months of exposure (Morris, Olinto, Flores, Nilson, & Figueiro, 2004). However, this result was countered by a study in 2005, finding a small but positive effect on weight gain (Hoddinott, 2010). Results for the more recent *Bolsa Família* have also been mixed, finding both negative and positive impacts across indicators (de Brauw et al., 2012; Paes-Sousa et al., 2011; Soares et al., 2010).

Several studies have found no significant impact of CTs on child nutritional status, for example in Kenya (OPM, 2013), Ethiopia (Berhane et al., 2015), Tanzania (Evans, Hausladen, Kosec, & Reese, 2014), Uganda (OPM, 2015), Bangladesh (Ahmed,

Quisumbing, Nasreen, Hodinott, & Bryan, 2009), Ecuador (Paxson & Schady, 2010) and Nicaragua (Maluccio, 2005). Others have found mixed results: in Malawi there was no significant impact of the Mchinji CT Programme on WAZ. However, the evaluation found a significant reduction in the prevalence of underweight children after one year (Miller & Tsoka, 2008). The Food Subsidy Programme in Mozambique resulted in a 30% reduction in wasting, but no effect was found on other nutritional indicators (Soares & Teixeira, 2010). In Bangladesh, the effect of the Primary Education Stipend on nutritional status was only significant in areas that had not benefitted from a food transfer project prior to the CT (Baulch, 2011). India's *Apni Beti Apna Dhan*, targeted at new-born girls, resulted in increased WAZ after four years, but not in the long run after more than ten years (Sinha & Yoong, 2009). Effects faded in Nicaragua as well, with a significant impact on HAZ after one year, but not after three years (Macours et al., 2012).

3.4 | Heterogeneity of impacts of CT programmes on child nutrition

Within the studies discussed above, a number of factors have been identified that may help explain some of the heterogeneous impacts of CTs on child nutrition.

Size of the transfer: A number of studies have argued that the size of the transfer matters. For CCTs, it is likely that the larger the transfer amount, the greater the probability that beneficiaries comply with the conditions (Lagarde et al., 2009). One study in Mexico found that a doubling of CTs, as measured by the cumulative amount of transfers received since becoming beneficiaries of the programme, significantly increased children's linear growth (Fernald et al., 2008). In addition, based on a review of five CCTs in LA, Leroy, Ruel, and Verhofstadt (2009) conclude that, in countries where the size of the transfer is larger (15% to 25% of total monthly household expenditures), the effect of transfer size on children's nutritional status is greater. Manley, Gitter, and Slavchevska (2012) are more cautious and conclude that larger transfer size reduces the variation of the effects, but it is not necessarily clear from their review that larger transfer sizes automatically increase effect sizes. Evidence from the Transfer Project across SSA suggests that transfers that are at least 20% of baseline household expenditures are more likely to have widespread impacts (Davis & Handa, 2015).

Age of children: Several studies have found larger effects for younger children. This is consistent with the literature, which shows that most of the impairments in growth occur in the first two years of life (the first 1,000 days) and that interventions aimed at this age group are most effective (Leroy, Ruel, & Verhofstadt, 2009). The targeting of young children has also been proposed under the Lancet Series on Maternal and Child Undernutrition, which estimates that focusing interventions, including CTs, on pregnant women and young infants, could reduce the malnutrition and disease burden by 25% in the short term (Bhutta et al., 2008).

Targeting of transfer: Transfers usually have higher impacts among poor and at-risk populations. Lagarde et al. (2009) argue that it is likely that the success of CTs has depended on effective mechanisms to target and monitor beneficiaries, as well as to transfer the money in a timely fashion. This sentiment is echoed by other authors, who point out that CTs provide inputs that directly address determinants of child nutrition and are targeted at

populations who suffer the highest burden of nutrition deficiencies (Bassett, 2008; Leroy, Ruel, & Verhofstadt, 2009). In addition, Manley et al. (2012) find that people in areas with high morbidity rates and poor access to health services are more likely to benefit from a transfer.

Supply side: The access and quality of services (for example, food markets and healthcare facilities) are important factors that potentially influence the success of a CT. If the main reason for poor uptake of health services is linked to financial barriers, CTs may be effective in overcoming this barrier. However, if the main reason for poor uptake is related to access and quality of the health services, CTs may not have the desired effect. This is the case, for example, for Mexico's *Progresa*, which had little impact on vaccination rates as these were already high at baseline (Lagarde et al., 2009). It is often assumed that supply side conditions are sufficient or will catch up with demand once a programme starts, especially when the supply side is involved in complying with conditions, but this is not always the case (Gaarder, Glassman, & Todd, 2010). Evidence from Zambia indicates that CTs have the ability to improve outcomes related to maternal care (skilled attendance at birth and contraceptive use), affecting new-born and child health, but only in communities which have access to health services (Handa, Palermo, Prencipe, Peterman, & Zambia CGP Evaluation Team, 2015; Handa, Peterman, Seidenfeld, & Tembo, 2016). These findings underscore the fact that demand-side interventions such as CTs often require supply-side investments as well, particularly around provision of health services. A combination of demand and supply side interventions may therefore be the best recipe for success (Manley et al., 2012).

Duration of programme participation: There is some weak evidence that duration of CTs increases the effects on nutritional status (Manley et al., 2012). In particular, evidence from Mexico and South Africa suggests that children who were exposed to the CT for longer have better nutrition outcomes (Agiiero et al., 2007; Fernald et al., 2009).

3.5 | Perverse incentives and unintended consequences

In general, few studies have looked at potentially negative consequences of CTs (Leroy, Ruel, & Verhofstadt, 2009). For CCTs, negative consequences can include an increase in women's time burden due to the need to comply with the conditions of the programme, which was found to be the case with *Progresa*, although women did not necessarily perceive this to be problematic (Parker & Skoufias, 2008). Additionally, it has been argued that Mexico's *Progresa* has reinforced traditional gender norms in the sense that women should be the primary caretaker of the children in the household and are mainly responsible for their health and development (Molyneux, 2006). Another unintended consequence is the potential change in intra-household dynamics. The majority of CTs put cash in the hands of women, and while the few existing studies that have examined the impacts of CTs on IPV have generally shown a protective effect, as previously discussed, there is the potential for an increased risk of IPV, either as a backlash to women's empowerment or to extract resources from the women.

There are several additional examples of perverse incentives resulting from the conditions of CCTs. As mentioned before, a study of Brazil's *Boisa Alimentação* found that children in

beneficiary households gained less weight than comparison children and this result was attributed to the fear of mothers that they would be excluded from the programme once their children started to grow well (Morris, Olinto, et al., 2004). In Honduras, the *Programa de Asignación Familiar* may have led to increases in fertility in the short term (Stecklov et al., 2007), although others argue that overall fertility rates decreased and the size of the transfer was perceived as too small an incentive for increased fertility (IFPRI, 2003). More importantly, evidence from several countries in LA and SSA has demonstrated no perverse impacts of CTs on fertility (Handa, Palermo, et al., 2015; Stecklov, Winters, Todd, & Regalia, 2007; Todd, Winters, & Stecklov, 2012), and instead has shown a reduction in first pregnancy rates in Kenya (Handa et al., 2015) and longer birth spacing in South Africa (Rosenberg et al., 2015).

Other unintended effects of CTs potentially include a reduction in adult labour supply or remittances which might reduce household income, leading to fewer resources for food and healthcare of young children. However, most evidence shows that adults do not reduce the number of hours worked when becoming beneficiary of a CT. Only in Nicaragua, a reduction in the hours worked for adult men was found, but no reduction for women (Fiszbein et al., 2009). In SSA on the other hand, there is strong evidence that CTs propel a substitution away from casual labour to own-farm or own-business work (Davis & Handa, 2014). Most of the CCT studies reviewed by Fiszbein et al. (2009) show no crowding-out effect, while evidence from SSA shows that CTs in fact have a ‘crowding-in’ effect as households are able to re-engage in social networks and other informal organizations (FAO, 2015). In terms of other negative spillover effects, most of the evidence from CCTs suggests no negative impact on local prices and wages (Fiszbein et al., 2009) while in SSA, evidence suggests very strong local economy effects of UCTs and no inflationary consequences (FAO, 2015).

4 | CONCLUSION: WHAT DO WE KNOW AND WHAT DO WE NEED TO KNOW ABOUT CASH TRANSFERS AND CHILD NUTRITION?

This article has examined the extent to which CTs can affect child nutrition by adopting the extended model of care conceptual framework of child nutrition. Evidence supporting or rejecting its main elements has been assessed. Table 2 summarizes the findings and presents the current state of knowledge and knowledge gaps. The asterisks in the Table provide an indication of the number of studies on the particular issues in order to identify areas that have been understudied. First, there is strong evidence that CTs have a positive effect on the resources for food security. Households use the transfer to buy larger quantities and higher quality of food (i.e., more nutritious and diverse) and, in many cases, household food security indicators improve.

Second, in terms of resources for health, the evidence points in general to positive impacts. CTs (especially CCTs) increase preventive healthcare visits and antenatal care-seeking in most cases. There are also positive effects on better hygiene and on the probability of using improved sanitation or water sources.

Third, the concept of resources for care in relation to CTs is generally understudied. The broader literature suggests that there is a clear relation between nutritional outcomes, caregiver feeding behaviours and practices and psychosocial care. There is, however, very little evidence of the impact of CTs on these caregiver behaviours. On the other hand, there is promising evidence that CTs improve the mental health of beneficiaries, including reducing levels of stress, yet the number of studies investigating this link is limited. Furthermore, studies suggest that CTs may decrease IPV, which has implications for improved health among mothers and children. Women's empowerment has been studied extensively in relation to CTs, but while qualitative evidence points to a positive effect, the quantitative evidence presents a more mixed picture. This is, in part, due to the lack of consensus on how to measure women's empowerment with quantitative indicators.

Fourth, we identified evidence of impacts of CTs on the two immediate determinants of child nutritional status, dietary intake and health status. The few studies that look specifically at children's dietary intake found no increase in caloric intake of young children, while three studies found an increase in the number of days children consumed more nutritious food. In terms of children's health status, the evidence is mixed and the pathways are unclear. Some studies have found a significant reduction in common children's illnesses, such as diarrhoea and ARI, while in other cases no significant or negative effects were found. Similar mixed findings appear for vaccination coverage. The only study that investigated children's levels of a stress-related biomarker found a significant reduction due to the CT.

Fifth, the evidence of direct impact of CTs on children's nutritional status is mixed (see Table 2). This article has pointed to a number of factors that can explain the heterogeneous effects, including transfer size and duration, targeting precision and parallel supply-side investments. Overall, the evidence points to a lack of knowledge on the impact pathways, a gap recognized by authors reviewing the link between CTs and child nutritional status. Furthermore, additional research is needed from SSA, as many of the results come from LA.

In summary, while an increasing number of studies have highlighted the positive role of CTs in increasing resources for food, health and care, the evidence to date on the immediate determinants of child nutrition is mixed with respect to whether CTs can positively impact growth-related outcomes among children. Key gaps should be addressed in future research, including examination of CT impacts on proximate outcomes such as children's dietary diversity, as well as caregiver behaviours, IPV, and caregiver stress/mental health, all of which have implications for child health and well-being.

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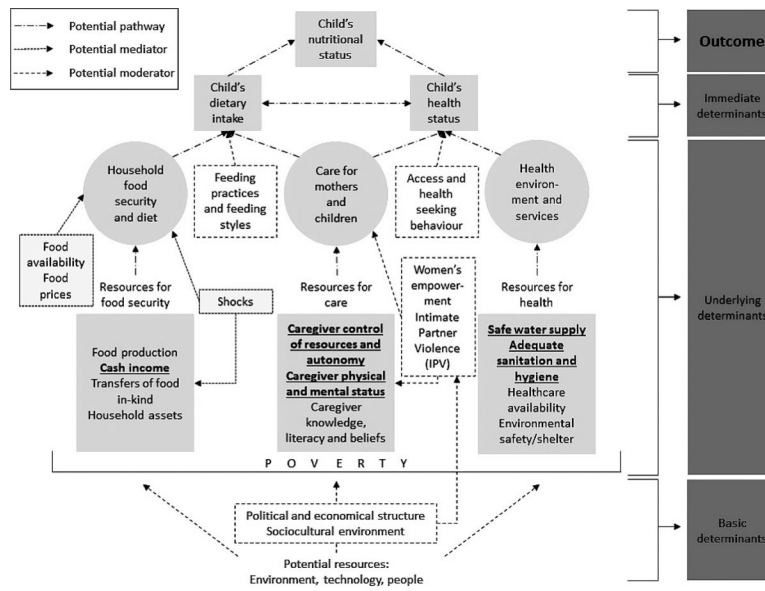


FIGURE 1. Conceptual framework of the determinants that affect child nutritional status Source: Authors' adaptation from Smith and Haddad (2002)

Table 1
Summary of key parameters and findings of recent reviews (2009–2015) linking cash transfers to child nutrition outcomes

Authors (year)	Type of review	Years covered	Inclusion criteria	Number of studies included	Regions (countries)	Summary of child nutrition impacts
(1) Fernald et al. (2012)*	(2) Systematic	(3) 2000–2012	(4) <ul style="list-style-type: none"> • CCTs and UCTs • Quantitative studies • Experimental or quasi-experimental design 	(5) 37	(6) LA (6) SSA (2)	(7) <ul style="list-style-type: none"> • Small but positive impacts of CCTs on height/HAZ for full population and/or in particular subpopulations; Evidence for UCTs is inconclusive. • Mixed evidence on impacts of CCTs on weight, with the majority of studies finding no significant impacts or impacts only in subpopulations. • Positive impacts on children's growth (CCTs increase height by ~1cm among children <4 years old), however 2 studies found no impact or a decrease in HAZ-scores.
Lagarde et al. (2009)*	Systematic	2000–2006	<ul style="list-style-type: none"> • CCTs • Quantitative studies • Experimental, quasi-experimental, before-and-after studies 	6	LA (4)	<ul style="list-style-type: none"> • Positive impacts of CCTs on linear growth in 3 out of 5 countries. • No impact of CCTs on any nutritional indicator in 2 countries.
Leroy et al. (2009)*	Systematic	2003–2008	<ul style="list-style-type: none"> • CCTs • Quantitative studies • Experimental or quasi-experimental design 	7	LA (5)	<ul style="list-style-type: none"> • Positive impacts of CCTs on linear growth in 3 out of 5 countries. • No impact of CCTs on any nutritional indicator in 2 countries.
Manley et al. (2012)*	Meta-analysis	1995–2012	<ul style="list-style-type: none"> • CCTs and UCTs • Experimental or quasi-experimental design • Contain original numerical impact estimates on children's HAZ and/or WHZ 	24	LA (6) SA (3) SSA (1)	<ul style="list-style-type: none"> • Positive but insignificant impacts on HAZ (0.04 SD, not significantly different from zero). • The impacts of UCTs and CCTs on HAZ are roughly comparable.
Owusu-Addo & Cross (2014)*	Systematic	2000–2013	<ul style="list-style-type: none"> • CCTs • Quantitative studies • Experimental, quasi-experimental, before-and-after studies 	16	LA (5) SSA (1)	<ul style="list-style-type: none"> • Positive impacts in 4 out of 5 CCTs on nutritional outcomes of height, weight and stunting for children <5 years.
van den Bold et al. (2013)*	Evidence	1990–2012	<ul style="list-style-type: none"> • CCTs and UCTs • Quantitative, qualitative and mixed-methods studies • Experimental or quasi-experimental design 	~15	LA (5) SSA (1)	<ul style="list-style-type: none"> • Positive but insignificant impacts of CCTs on anthropometry. Stronger impacts are found primarily among younger and poorer populations, or those exposed for a longer duration. • Positive impacts of UCTs on child HAZ, however limited evidence base.

Notes:

* indicates peer-reviewed publications, rather than a working paper or draft. Reviews typically examine child nutrition outcomes among samples of children <5 years of age, however some deviate from this population, as noted in text. Column 5 indicates the number of studies which examine the link between cash transfers and nutritional indicators, however the full review may include a larger set of studies. Nutritional indicators studied are typically HAZ, WHZ or WAZ. LA = Latin America, SA = South America, SSA = sub-Saharan Africa; CCT = conditional cash transfer, UCT = unconditional cash transfer; HAZ = height-for-age z-score, WHZ = weight-for-height z-score, WAZ = weight-for-age z-score.

TABLE 2

Summary of impacts of cash transfers on child nutritional status, and on immediate determinants and underlying determinants of child nutritional status

	Positive	Mixed	None	Knowledge gap
Impact on outcome				
Child nutritional status		✓****		Pathways of impact or non-impact are unclear
Impact on immediate determinants				
Child dietary intake			✓*	Only a few studies look specifically at children's dietary intake, as most studies assess the household-level changes
Health status		✓****		Pathways of impact or non-impact are unclear
Impact on underlying determinants				
1) Food security				
Household consumption	✓**			Most of the evidence at household level, rather than individual level
Household diet diversity	✓**			Most of the evidence at household level, rather than individual level
Household food security	✓**			Most of the evidence at household level, rather than individual level
2) Healthcare				
Preventive care visits	✓ ^a **			Evidence is concentrated in programmes with health conditions
Water, sanitation and hygiene			✓*	Positive evidence, but only limited number of studies available
Caregiver physical health	✓ ^a **			Evidence concentrated on antenatal care
3) Care practices				
Feeding practices			✓*	Not enough evidence and no consensus on measurement of indicators
Psychosocial care			✓*	Not enough evidence to draw conclusions
Caregiver empowerment	✓ ^b ***	✓ ^c ***		Qualitative evidence points to positive impacts, while quantitative evidence shows a mixed picture. No consensus on measurement of empowerment
Intimate partner violence			✓*	Lack of impact studies, only 4 so far.
Caregiver stress/ mental health			✓*	Subjective scales used, but lack of evidence with stress-related biomarkers

Notes:

**** > 20 studies,

*** 11–20 studies,

** 6–10 studies and

* 1–5 studies

^aPositive impacts largely driven by CCTs with conditions on health visits

^bBased on qualitative evidence

^cBased on quantitative evidence