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Cash Transfers and Child Nutrition: What We Know and What We Need to Know

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CASH TRANSFERS AND CHILD NUTRITION: WHAT WE KNOW AND WHAT WE NEED TO KNOW

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Abstract: Childhood malnutrition remains a significant global problem with an estimated 162 million children under 5 suffering from stunted growth. Social protection interventions, in particular cash transfer programmes, have the potential to contribute to the improvement of child nutrition. This paper aims to provide a comprehensive overview of the impacts of cash transfer programmes on the immediate and underlying determinants of child nutrition, including the most recent evidence from impact evaluations across sub-Saharan Africa. It adopts the UNICEF extended model of care conceptual framework of child nutrition and highlights evidence on the main elements of the framework – food security, care and health care. The paper concludes that, while an increasing number of studies have stressed the positive role of cash transfer programmes 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 cash transfers can positively impact growth-related outcomes among children, particularly in sub-Saharan Africa. Key gaps that should be addressed in future research include cash transfer impacts on more proximate nutrition-related outcomes such as children's dietary diversity, as well as caregiver behaviours, intra-household violence, and stress, all of which have implications for child health and well-being.

Keywords: cash transfers, nutrition, health, developing countries

JEL Classification: H55, I15, I38, O15

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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 5 years suffer from stunting, a chronic condition usually resulting from continued malnutrition. In sub-Saharan Africa, an estimated 40% of children aged under 5 are estimated to be stunted, the highest rate of all global regions. 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).

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 et al., 2014). Stunting in early childhood has been linked to impaired cognitive development, reduced school achievement, lower economic productivity in adulthood and poorer maternal reproductive outcomes (Dewey & Begum, 2011). Therefore, investing in this critical period in a child's life has the potential to yield large returns.

Malnutrition is a multidimensional issue with several underlying factors including poverty and exclusion. Consequently, no single programme or project implemented in isolation will be sufficient to sustain a significant reduction in the rate of stunting.

To address poverty, economic shocks, and social vulnerability, governments have increasingly designed and implemented 'social protection' initiatives (UNICEF, 2012). Social protection agendas may include social transfers, programmes that ensure access to social services, social support and care services, and legislation and policy reform that ensure equity and non-discrimination. By increasing the resilience of poor and vulnerable households, social protection can improve the household's ability to obtain food and health care, which are key in ensuring proper nutrition for children. As a result, social protection is recognized as an important strategy to accelerate progress in improving maternal and child nutrition (Ruel et al., 2013). An increasingly popular tool to achieve this is a cash transfer (CT) programme, which delivers direct cash to households, usually targeted to poor and vulnerable groups.

Both the number and the size of CT programmes have increased considerably in the last two decades, pioneered by Mexico's PROGRESA and Brazil's Bolsa Escola (Fiszbein & Schady, 2009). Conservative estimates suggest that about one billion people currently have access to CT programmes in the developing world (Barrientos, 2013).

Since 1997, CT programmes have expanded rapidly across Latin America and South Asia and were implemented in 48 countries as of 2008 (Manley et al., 2012). In sub-Saharan Africa (SSA), at least 13 countries have initiated CT programmes in recent years including Ethiopia, Ghana, Kenya, Lesotho, Malawi, South Africa, Zambia and Zimbabwe (Transfer Project, 2014). These programmes generally aim at improving food security, health, and nutritional and educational status, particularly of children (Davis et al., 2012). In addition, a review of the World Bank identified more than 120 CT programmes operating in SSA, ranging from emergency one-time transfers to unconditional, non-contributory social pensions to conditional cash transfer programmes with human capital development objectives (Garcia & Moore, 2012). An important distinction between a majority of the CTs in Africa is that they are unconditional, compared to a majority in Latin America, which are conditional (i.e., tied to certain

behaviours such as school enrolment, health check-ups, and attendance at health information sessions).[1] The administrative burden of conditional cash transfer (CCT) programmes is therefore higher than that of unconditional cash transfers (UCT), because the programme needs to monitor household behaviour to assess their compliance with the programme's conditions.

This paper aims to provide a comprehensive overview of the impacts of CT programmes on the immediate and underlying determinants of child nutrition, including the most recent evidence from impact evaluations in SSA. It presents the current knowledge and gaps in knowledge about the impact of CT programmes on child nutrition, how and why CT programmes (may) have an impact on child nutrition, the key factors that determine the impacts and potential unintended consequences of CT programmes.

The following three questions guide the content of this paper. What are the types of impact that are known and can be expected from CT programmes on child nutrition? What are the pathways that lead to these impacts? What are factors explaining the heterogeneity of impacts of CT programmes on child nutrition?

The paper proceeds as follows. Section 2 presents and discusses a conceptual framework of child nutritional status. The aim of the section that follows, section 3, is twofold: first it uses the conceptual framework to provide an overview of the types of impacts CTs have on child nutrition, focusing on the underlying determinants, immediate determinants and outcomes. Secondly it identifies some key factors that can explain some of the heterogeneous impacts of CT on child nutrition. Section 4 synthesizes the main current knowledge on the linkages between CT and child nutrition and identifies knowledge gaps on what we still need to know. Section 5 concludes.

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

Several approaches for developing a conceptual framework 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 level, 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 the purpose of this paper, the second approach is more useful as it allows the identification of how CTs can affect the root causes of child nutrition and therefore helps to shed light on the pathways of impact.

This section describes and discusses the different elements of the conceptual framework for child nutrition, focusing on three potential pathways through which CT may impact the underlying and immediate determinants of child nutrition status.

The starting point for the conceptual framework of child nutrition is UNICEF's extended model of care, first developed by Engle, Lhotska and Armstrong (1997) and still in use today as it provides a

[1] For example, the World Bank review found that out of the 47 countries in SSA included in the study, 21 had experience only with an unconditional cash transfer, 5 countries had experience with a conditional cash transfer only, 9 countries had experience with both and 12 countries had no known experience with any kind of cash transfer programme (Garcia & Moore, 2012).

comprehensive overview of the determinants of child nutritional status. This paper uses an adaptation of the extended framework for the model of care developed by Smith and Haddad (2002), depicted in Figure 1. For the purpose of this paper, child nutritional status is operationalized by standard measures such as height-for-age, weight-for-age and weight-for-height (WHO, 2006). In the context of the paper, this framework serves as an appropriate overview of the different pathways that impact child nutrition, and provides the necessary guidance to establish which determinants are to be reviewed.

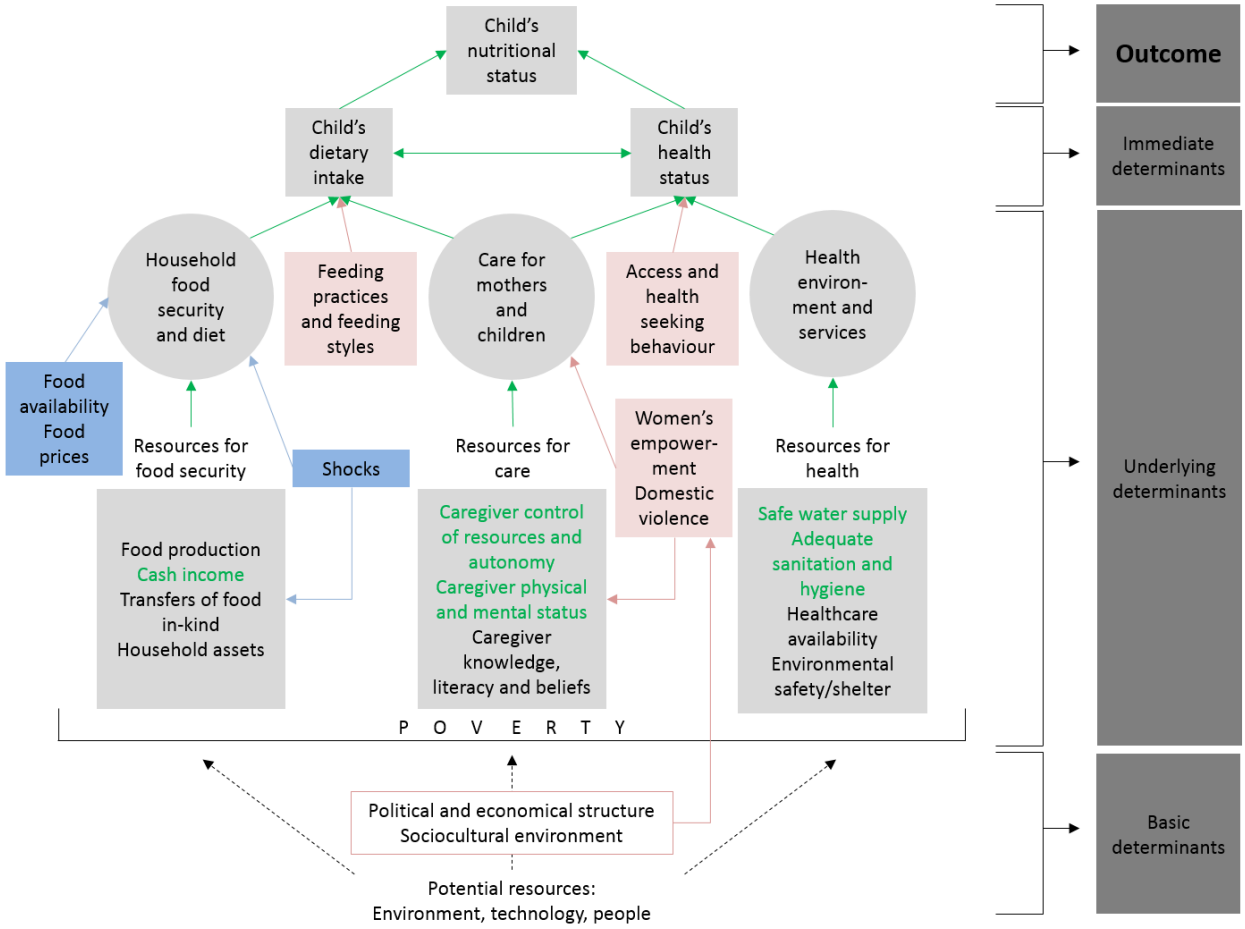
As Figure 1 shows, the conceptual framework identifies household food security, care and a healthy environment as the underlying determinants that influence children's nutritional intake and health status, which are the immediate determinants. The combination and interaction of these two immediate determinants define the child's nutritional status (outcome). 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 and Haddad, 2002).[2] Care in this context refers to caregiver behaviours that affect all aspects of child development including nutrient intake, health, and cognitive and psychosocial development (Engle et al., 1997).[3] Care for mothers and children is determined by caregiver control over resources and autonomy, caregiver mental and physical status (i.e. level of stress, maternal nutritional status) and knowledge (including literacy and educational attainment), preferences and beliefs of the caregiver. The third underlying determinant is the health environment and it depends on the child's access to safe water and sanitation facilities, health care and shelter (Smith and 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 women's control over resources) is influenced by the underlying societal values and in turn mediates the caregiver's autonomy and control over resources and care for mothers and children.

In this framework, there are three main pathways through which CTs, by making additional financial resources available in a household, may impact the underlying determinants of child nutrition: resources for 1) food security, 2) health, and 3) care. In Figure 1 the colour green represents the pathways through which a CT programme may affect nutritional outcomes for children, while pink represents a potential mediating effect and blue represents a potential moderating effect.

[2] In a broader context, the UN framework of food security embodies four dimensions: 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).
[3] In line with Engle et al.'s (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, but also fathers and other females in the households provide care. Thus it is necessary to broaden the focus of caregiving beyond the mother in order to include all resources for care.

Figure 1, Conceptual framework of the determinants that affect child nutritional status



NOTES: Green indicates a pathway through which a CT can potentially affect nutritional outcomes. Pink indicates a potential mediator effect and blue indicates a potential moderator effect.

We now consider how these pathways may be affected by CTs.

2.1 Improved child nutrition through increased resources for food security

A CT programme directly increases household disposable income and consequently the resources available for household food security. If households use the cash to purchase a greater quantity or better quality of food, or invest in food production or productive assets, household food security and household diet diversity is improved. However, food availability, food prices and economic shocks could moderate this pathway. Next, improved household food security and diet diversity could affect the child's nutritional intake if food resources are shared in a child-sensitive way in the household. If, for example, all additional food resources purchased with cash from the transfer go towards adult men in the household, no impact on children's nutritional intake can be expected. If a child's food intake is improved, in combination with appropriate feeding practices and styles, and good health status which allows the child to efficiently absorb micronutrients in the food, an effect on the child's nutritional status can be expected.

2.2 Improved child nutrition through increased resources for health

A CT programme 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 improve the household dwelling, such as installing a concrete floor, which is proven to decrease exposure to parasites. In addition, resources could be employed to pay for out-of-pocket expenses during curative or preventive health visits, transportation to health facilities, medical supplies and preventive medicines such as deworming tablets.[4] Effective use of these increased resources for health therefore results in an improved health environment for the child.

2.3 Improved child nutrition through increased resources for care

A CT programme could have a direct effect on intra-household dynamics. If the transfer is distributed to the main caregiver, by controlling more resources the caregiver is better able to advocate for her preferences. 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 impact household poverty-related stress, which in turn may positively impact caregiver's physical and mental state. Improved mental health of the caregiver can result in more positive parenting behaviour towards children. Stress is also hypothesized to be linked to perpetration of intimate partner violence, which in turn affects child health outcomes, so 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, which has implications for birth outcomes. As a result of these increased resources for care, care for mothers and children may improve.

A combination of additional resources available for food, health and care, mediated by, for instance, feeding practices (what the child is fed), feeding styles (how the child is fed) and health seeking behaviour of the caregiver, may positively impact the child's health status and the child's nutritional intake to determine the nutritional status of the child.

This section has discussed the different elements of conceptual framework for child nutrition, and three potential pathways through which CTs may impact the underlying and immediate determinants of child nutrition status. The next section takes a closer look at the evidence supporting or rejecting the pathways described above. First, literature is presented that examine the impact of CTs on the underlying determinants of nutritional status. Then, the evidence for the effect of CTs on immediate determinants and direct effects on nutritional status are discussed.

[4] It could also have a more indirect effect on health care availability if the increased resources result in increased demand for health care or higher quality care at the local level.

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 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 CT interventions (3.4) as well as some perverse incentives and unintended consequences (3.5).

3.1 Cash transfers and underlying determinants of child nutrition

Section 2 identified three main underlying determinants of child nutrition: resources for food security; resources for health and resources for care. Evidence for each underlying determinant is discussed and presented in the following paragraphs.

3.1.1 Cash transfers and food security

It is well documented that CT programmes directly affect household consumption and food consumption (e.g. Adato and Basset, 2009). In all of the African countries and programmes reviewed, household consumption increased and the majority of the additional income from the transfer was spent on food. Most households also improved their diet diversity (Kenya: OPM, 2012; Malawi: Miller et al., 2008; South Africa: Case, 2004; Zambia: AIR, 2013).

Evidence from Latin America also shows that CT programmes increased the 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 in Colombia, consumption of protein-rich food increased (Olinto et al., 2003; Attanasio et al., 2005a). Similar results were found for Ecuador, Mexico and Nicaragua (Ecuador: Paxson & Schady, 2007; Mexico: Fernald, Gertler & Neufeld, 2008; Leroy et al., 2008; Nicaragua: Macours et al., 2012; Maluccio & Flores, 2005).

3.1.2 Cash transfers and health care

As shown in Figure 1, the health care pathway includes health seeking behaviour and the health environment. Many studies evaluating CT programmes report on the impact on preventive care and health visits. In Kenya, households spent more on health care after two years of exposure to the Hunger and Safety Net Programme (OPM, 2012) and in Malawi, beneficiaries of the Mchinji Social Cash Transfer were more likely to receive care when sick compared to non-beneficiaries (Adato & Bassett, 2009). Studies on programmes in Colombia, Honduras, Jamaica, Mexico, , Nicaragua found positive results for preventive health visits and the probability that children were weighed (Levy & Ohls, 2007; Morris et al., 2004; Macours et al., 2012; Maluccio & Flores, 2005; Maluccio, 2005; Attanasio et al., 2005a).

In terms of hygiene, beneficiary households of the Malawian Mchinji Social Cash Transfer were more likely to take a bath, use soap and brush teeth on a daily basis (Miller et al., 2008). Households with a pensioner 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). Households benefitting from the Palestinian CT reported fewer difficulties in paying for safe drinking water than comparison households (ODI, 2013).

Results from Mexico showed no significant effect on the number of times that women sought prenatal care (Barber & Gertler, 2008), while another study from the same authors found a significant effect on the number of prenatal procedures (Barber & Gertler, 2009). In addition, other studies on PROGRESA find a significant increase in clinic visits and growth monitoring visits though of course these were part of programme conditionality (Adato & Bassett, 2009). In Ecuador, no effect was found on the use of growth control visits, but a positive effect on the probability of receiving parasite treatment (Paxson & Schady, 2007). For Zambia's Child Grant Programme, there was a negative effect on the probability of seeking care for ARI (AIR, 2013).

A review of the impact of CT programmes on maternal and child health found a significant effect 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).

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 to nutritional outcomes for children. The concept of care as a determinant of child nutritional status has first been proposed by Engle et al. (1996). Care in this context was defined as "(…) the provision in the household and the community of time, attention and support to meet the physical, mental, and social needs of the growing child and other household members" (Engle et al., 1996, p. 1). More specifically, care behaviours include psychosocial care, feeding practices, breastfeeding, food preparation, hygiene, health seeking and health care. This sub-section also addresses other evidence of CTs on women's empowerment and stress as key mediators in care behaviours.

The link between infant and young child feeding practices and nutritional status has been widely studied. Most studies use 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 infant and young child feeding indexes have been associated with improved nutritional status in several countries across all regions of the globe (Ghana: Amugsi et al., 2014; Ethiopia: Arimond & Ruel, 2002; India: Kumer et al., 2006 and Lohia & Udipi, 2014; China: Ma et al., 2012; Colombia, Guatemala, Nicaragua and Peru: Ruel & Menon, 2002; Bangladesh: Saha et al., 2008; Burkina Faso: Sawado et al., 2006). No significant effect was found between feeding practices and nutritional status in Bolivia (Ruel & Menon, 2002), Senegal (Ntab et al., 2005) and Madagascar (Moursi et al., 2008).

Diet diversity is usually one component of an infant and young child feeding index, but 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 10 countries (Cambodia, Colombia, Ethiopia, Haiti,

Malawi, Mali, Nepal, Peru, Rwanda and Zimbabwe – Arimond & Ruel, 2004). Only in Benin was no significant effect found.

Responsive feeding is a care practice that is less often investigated. 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, 2001). Responsive feeding behaviour of caregivers has been linked to more intake of food for children in Bangladesh (Aboud & Akther, 2011) and improved cognitive development of children in India (Vazit et al., 2013).

Furthermore, two studies in Ghana have reported a positive association between better responsive feeding practices and nutritional status of children (Nti & Lartley, 2008; Ruel et al., 1999). However, the study in India found no strong effect of responsive feeding behaviour on child nutritional outcomes and a review of this topic concluded that only a few studies found a positive relationship between responsive feeding and reduced undernutrition, except for positive caregiver communication during feeding (Bentley et al., 2011). Results are difficult to compare though, due to the variety of definitions used for responsive feeding.

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).

A pressing question is if social protection in general, and CT programmes specifically, can affect caregiver behaviour if no condition is imposed or if no supplementary educational campaigns are offered. Unfortunately, very few studies look at the impact of CT programmes on the specific caregiver behaviours discussed here. In Zambia, the Child Grant Programme, a UCT, 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 (AIR, 2013). Furthermore, evaluations of CT programmes in sub-Saharan Africa have found impacts on outcomes unrelated to food expenditures and food security (e.g. Kenya, Zambia and Malawi), and this is probably due to the unconditional nature of the transfer, indicating the ability of unconditional programmes to impact a wider range of outcomes. It is important, however, to understand the pathways through which this behaviour change can occur in order to inform the design and implementation of CT programmes.

Mental health of the caregiver, in particular stress, is an important factor in the conceptual framework. Since CT programmes deliver cash to resource-constrained households, research in several African countries has found that cash transfers make people happier and give people hope (Transfer Project, 2014). Furthermore, in Kenya, findings from the GiveDirectly UCT evaluation showed that the psychological well-being of beneficiary households improved. Large transfers and transfers to women lowered cortisol levels for both men and women significantly, although levels of cortisol did not differ overall between the treatment and control groups (Haushofer & Shapiro, 2013).

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 et al., 2013). The qualitative evidence on the impact of CT programmes on women's empowerment is generally positive, while quantitative evidence generates a more heterogeneous picture (van den Bold et al., 2013), possibly linked to the difficulty in measuring the concept of empowerment through a survey. Quantitative findings from studies on CCT programmes, especially in Latin America, 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 et al., 2000; Latapi & de la Rocha, 2003, 2004). However, the existing evidence on CTs and women's empowerment is generally mixed: studies have found no impact on indicators related to women's empowerment (Ecuador: Hidrobo et al., 2012); only small or partial impacts (Mexico: Attanasio & Lechene, 2002; Handa et al., 2009); and negative impacts, for example in rural Brazil and Nicaragua (de Brauw et al., 2013; Gitter & Barham, 2008). In addition, one study found that complying with the conditionalities of a CCT increased women's time burden, although women did not necessarily perceive this to be problematic (Parker & Skoufias, 2000). Evidence on the impact of UCT on women's empowerment is limited, partly because the UCT programmes tend to be more recent and the evidence is still being generated, or in some cases, UCT programmes have not been rigorously evaluated. Quantitative research in Ecuador and Kenya points toward mixed results (Hidrobo & Fernald, 2013; OPM & IDS, 2012; Schady & Rosero, 2007).

Intimate partner violence (IPV) is experienced by one in three ever-partnered women globally (Devries et al., 2013). IPV can affect child nutritional outcomes in various ways. Women's exposure to IPV during pregnancy is associated with decreased birth weight (Aizer, 2011; Shah & Shah, 2010), and pre-term delivery (Shah & Shah, 2010). In children, exposure to maternal experience of IPV has been linked to several health and nutritional outcomes, including developmental delays (Gilbert et al., 2013), asthma (Subramanian et al., 2007; Suglia et al., 2009), elevated total cortisol output (Bair-Merritt et al., 2011; Davies et al.. 2008), under-immunization (Bair-Merritt et al.. 2006), severe acute malnutrition (Rico et al.. 2010; Salazar et al.. 2012), under two mortality (Aisling-Monemi et al.. 2003), decreased growth and stunting (Salazar et al., 2012; Sobkoviak et al., 2012), recent acute respiratory infection (Silverman et al., 2009) and diarrhoea (Silverman et al., 2009; Karamagi et al., 2007). In addition, 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 domestic violence on low-birth weight, which is a strong predictor for subsequent growth.

Only a handful of studies look at the impact of CT programmes on violence in the household. In Mexico, physical violence decreased in the short run (2–6 years) as a result of *Oportunidades*, but effects disappeared after more than five years (Bobonis and Castro, 2010). Peru's CCT, *Juntos*, also decreased physical and emotional violence in the short run (Perova, 2010). A study in Ecuador found that *Bono de Desarollo 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 compared to her partner and there was an increase in emotional

violence in households where the woman's education is equal to or more than her partner's (Hidrobo & Fernald, 2013). In contrast, another study in Ecuador on a Cash & Voucher pilot project concluded that the transfers reduced controlling behaviours and multiple forms of IPV including moderate physical and any physical or sexual violence (Hidrobo, Peterman & Heise, 2014). There is also some weak evidence from Kenya, suggesting a reduction in domestic violence as a result of the *GiveDirectly* UCT, but the effects were not significant at conventional levels (Haushofer & Shapiro, 2013).

3.2 Cash transfers and immediate determinants of child nutrition

CT programmes may also have direct impacts on the immediate determinants of child nutrition, namely the child's dietary intake and health status.

3.2.1 Cash transfers and child dietary intake

Only a few studies in our review have specifically addressed the impact of a CT programme on children's nutritional intake, as opposed to household level diet diversity. Two studies are from Bangladesh and one from Nicaragua.

An evaluation of four social protection programmes in Bangladesh revealed that the programmes significantly increased household food expenditure, but not the caloric intake of children under five years old (Ahmed et al., 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, 2010) although this programme is not explicitly aimed at improving young child nutrition. In Nicaragua, the number of days children consumed more nutritious food increased as a result of the *Atención a Crisis* programme (Macours et al., 2012).

3.2.2 Cash transfers and child health status

A number of studies have reported the impacts on children's health status as a result of a CT programme. In Zambia and Colombia, a reduction in the prevalence of diarrhoea was found (AIR, 2013; Attanasio et al., 2005a). However, for Colombia, the results did not hold for children older than 48 months. Evidence from Malawi, Mexico and South Africa also suggest a positive impact on the health status of children, with children benefitting from a CT programme less likely to be ill than comparison children (Gertler, 2004; Miller et al., 2008; Case, 2004). Another study in Mexico, however, found no significant impact on the number of sick days (Fernald, Gertler & Neufeld, 2008). In Kenya, no change in children's health status was reported as a result of the Hunger and Safety Net Programme (OPM, 2012) and in Nicaragua, the number of sick days decreased in the first two years of the *Atención a Crisis* programme, but did not hold after another two years (Macours et al., 2012).

In terms of vaccination rates, results are mixed. In Brazil, the *Bolsa Familia* increased the proportion of children who received vaccinations on time (de Brauw et al., 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, but not in the long run (Sinha & Yoong, 2009). Studies from Honduras and Colombia showed some positive effects on the timing of vaccinations (Morris et al., 2004; Attanasio et al., 2005b). The Nicaraguan *Red*

de Protección Social and Jamaican PATH programmes did not increase vaccination uptake among beneficiary children (Maluccio & Flores, 2005; Levy & Ohls, 2007). In addition, a social experiment in Zimbabwe, aimed at assessing differential impacts between a CCT and UCT, found no significant improvement on vaccination coverage (Robertson et al., 2008).

Evaluations of the Palestinian CT found a significant lower prevalence of acute respiratory infection (ARI) in beneficiary households compared to a control group (ODI, 2013) and fewer reported illnesses, but a higher rate of chronic illnesses (Hackstein et al., 2013).

Furthermore, 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 et al., 1993; Elo et al., 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 with which to deal with stress (Baum et al., 1999; Pearlin et al., 2005). Chronic stress has been linked to physiological dysregulation, pathogen burden, inflammation, hormone response, and cell-mediated immunity. The chronic stress of poverty in early childhood can induce significant biological changes with lasting impacts on health (Danese & McEwan, 2012), so social protection programmes 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, a stress-related biomarker. Results showed that children in households benefitting from the programme 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

Sections 3.1 and 3.2 have examined evidence on how CTs increase resources for food, health and care and how CTs may have an impact on children's dietary intake and health status. Section 3.3 explicitly focuses on evidence related to the direct impact of CT on child nutrition status, measured as height-for-age (HAZ), weight-for-age (WAZ) or in some cases weight-for-height (WHZ).

There have been a number of literature reviews in recent years on the impacts of CT programmes on child nutritional status (e.g. Fernald et al., 2012; Glassman et al., 2013; Hoddinott, 2010; Lagarde et al., 2009; Leroy et al., 2009; Owusu-Addo & Cross, 2014; van den Bold et al., 2013). None of these reviews find conclusive evidence of a positive impact on child nutritional status and several authors point out that the pathways of impact are not clearly understood. A meta-analysis evaluating 15 programmes in 10 countries demonstrated a minor but not statistically significant impact on child anthropometry (Manley et al., 2012).

In our review, a positive impact on child nutritional outcomes was found in several countries (Brazil, Colombia, Mexico, South Africa, Sri Lanka and Zambia, , ,). The old-age pension in South Africa was associated with increased height-for-age (HAZ) in young girls (Duflo, 2000) and children in general (Case, 2004). In addition, longer exposure to the South African Child Support Grant during the first 36 months of life (66% versus 1%), increased children's HAZ-scores with 0.25 standard deviations (SD) (Aguëro et al., 2009). After two years of operation, the Zambian Child Grant Programme was

associated with an increase of 0.196 WHZ-score among children aged 3 to 5 years (AIR, 2013). In Sri Lanka, the effect of *Samurdhi* on children under five years exposed to the programme since birth ranged from 0.4 – 0.5 SD in terms of HAZ-score with larger effects for children under three years (Himaz, 2008). Mexico's PROGRESA programme has been evaluated by several authors and most 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, 2001; Fernald, Gertler & Neufeld, 2009; Gertler, 2004; Leroy et al., 2008; Rivera et al., 2008). After one year, the Colombian *Familias en Acción* programme was associated with increased growth of about 0.5 cm among 12 month-old boys, but not for children older than 24 months (Attanasio et al., 2005a; Attanasio et al., 2005b).

The results of Brazil's CT programmes are mixed. One analysis of an early CT programme *Bolsa Alimentação* found a negative impact on child weight and height after six months of exposure (Morris et al., 2004), but this result was countered by a study in 2005, finding a small but positive effect on weight gain (reported in Hoddinott, 2010). Results for the more recent *Bolsa Familia* programme have also been mixed. The initial evaluation using one wave of data found a negative effect on HAZ-score (-0.183) after about two years of the programme (reported in Soares et al., 2010) but using two waves of data, another study found positive effects of the programme on WHZ-scores in the range of 0.25 SD (de Brauw et al., 2012). Finally, using a different, cross-sectional database, Paes-Sousa et al. (2011) report a 26% increased probability of normal height-for-age and weight-for-age.

Further, several studies have found no significant impact of CTs on child nutritional status in Kenya (OPM, 2013), Bangladesh (Ahmed et al., 2009), Ecuador (Paxson & Schady, 2007) and Nicaragua (Maluccio, 2005). Others found mixed results. For example, in Malawi there was no significant impact of the Mchinji Social Cash Transfer programme on WAZ-scores, but the evaluation found a significant reduction in the prevalence of underweight after one year (Miller et al., 2008). 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 programme (Baulch, 2010). India's *Apni Beti Apna Dhan*, a programme targeted at new-born girls, resulted in increased WAZ-scores in the short run after four years, but not in the long run after more than ten years (Sinha & Yoong, 2009). A similar result was found for Nicaragua (Macours et al., 2012). Finally, a study on *Bono Solidario*, an UCT in Ecuador, found that although the transfer seemed to improve children's nutritional status, this impact was no different to an ordinary household income effect on height and weight (Leon & Younger, 2007).

3.4 Heterogeneity of impacts of cash transfer programmes on child nutrition

Based on this review, a number of factors have been identified that may help explain some of the heterogeneous impacts of CT programmes on child nutrition.

Size of the transfer: A number of studies have argued that the size of the transfer matters. For CCT, it is likely that the larger the transfer amount, the greater the probability that beneficiaries comply with the conditions (Lagarde et al., 2009). As reported above, one study in Mexico reported that a doubling of cash transfers significantly increased children's linear growth (Fernald et al., 2008). In addition,

based on a review of five CT programmes in Latin America, Leroy et al. (2009) conclude that in countries where the size of the transfer is larger, the effect of the programme on children's nutritional status is also greater. Examples of countries with large transfers include Colombia, Mexico and Nicaragua, where transfers represent about 15 to 25 per cent of total household expenditures. Manley et al. (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 sub-Saharan Africa suggests that transfers that are at least 20% of baseline household expenditures are more likely to have impacts on outcomes of interest (Davis & Handa, 2015).

Younger children: A number of 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 efficacious (Leroy et al., 2009). The targeting of young children has also been proposed under the Lancet Series on Maternal and Child Undernutrition, which estimates that by focusing interventions, including cash transfers, on pregnant women and young infants, malnutrition and disease burden could be reduced by 25% in the short term (Bhutta et al., 2008).

Targeting of transfer: This review of the evidence also revealed that transfers usually have higher impacts among poor and at-risk populations. Lagarde et al. (2009) argue that it is likely that the success of CT programmes has relied 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 CT programmes provide inputs that directly address determinants of child nutrition and that CT programmes are targeted at populations who are in most need and suffer the highest burden of nutrition deficiencies (Leroy et al., 2009; Basset, 2008). 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: As shown in the conceptual framework, the access and quality of services (e.g. food markets, health care facilities) are important factors that potentially influence the success of a CT programme. If the main reason for poor uptake of health services is linked to financial barriers, CT programmes may be effective in overcoming this barrier. However, if the main reason of poor uptake is related to access and quality of the health services, cash transfers may not have the desired effect. This is for example the case of Mexico's PROGRESA which had little impact on vaccination rates because they were already high when the CT programme started (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 et al., 2012). Evidence from Zambia indicates that cash transfers have the ability to improve outcomes related to maternal care (e.g., skilled attendance at birth and contraceptive use) which subsequently have positive impacts on new-born and child health, but only in treatment communities which have access to health services (Handa et al., 2015a; Handa et al. 2015b). These findings are important and underscore that demand-side interventions such as cash transfers are effective, but often require supply-side investments as well, particular 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: Based on other reviews, there is some weak evidence that duration of CT programmes 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 programme longer, have better nutrition outcomes (Fernald et al., 2009; Aguëro et al., 2009).

3.5 Perverse incentives and unintended consequences

In general, few studies have looked at potentially negative consequences of CT programmes (Leroy et al., 2009). For CCT, negative consequences can include an increase in women's time burden due to the need to comply with the conditions of the programme. This happened in Mexico, although qualitative evidence suggested that women did not perceive this to be problematic (van de Bold et al., 2013). Additionally, it has been argued that Mexico's PROGRESA has re-traditionalized 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 intrahousehold dynamics. Most of the CT programmes 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, there is a risk of increased domestic violence, either as a backlash to women's empowerment or to extract resources from the women. For example, Hidrobo and Fernald (2012) found that a UCT increased exposure to emotional violence for women with lower than primary education whose education is equal to or more than her partner's.

There are a few examples of perverse incentives resulting from the conditions of CCT programmes. As mentioned before, a study on Brazil's *Bolsa 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 et al., 2004). In Honduras, a study found that 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 as an incentive for increased fertility (IFPRI, 2003). More importantly, evidence from other countries in Latin America and the SSA region to date has demonstrated no impacts of cash transfer programmes on fertility in five countries (Stecklov et al., 2007; Todd et al., 2011; Stecklov & Winters, 2011; Handa et al., 2015a) and in Zambia, in beneficiary households with access to health facilities that supplied contraceptives, contraceptive use increased as compared to control households in the same period (Handa et al., 2015a).

Other potential unintended effects of CT programmes include a reduction in adult labour supply, reduction in remittances and negative spillover effects. For adult labour supply, most of the evidence shows that adults do not reduce the number of hours worked when becoming beneficiary of a CT programme. Only in Nicaragua, a reduction in the hours worked for adult men was found, but no reduction for women (Fiszbein & Schady, 2009). In sub-Saharan Africa on the other hand, there is

strong evidence that cash transfers propel a substitution away from casual labour to own-farm or own-business work (Transfer Project 2014). Further, in only one country (Nicaragua) is there evidence that cash transfers resulted in crowding out other income transfers. However, most of the CCT studies reviewed by Fiszbein & Schady (2009) show no crowding-out effect, while evidence from SSA show that cash transfers 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 negative spillover effects, most of the evidence from CCTs suggests no negative impact on local prices and wages (Fiszbein & Schady, 2009) while in Africa evidence from the Transfer Project suggests very strong local economy effects of transfers and no inflationary impacts.

4. WHAT DO WE KNOW AND WHAT DO WE NEED TO KNOW ABOUT CASH TRANSFERS AND CHILD NUTRITION?

The previous sections have examined a wide variety of evidence on the different elements of the conceptual framework (Figure 1) and have also identified factors that may account for heterogeneous impacts and unintended consequences. This section synthesizes the information generated by this review, provides an overview of which impacts in the conceptual model are supported by the evidence, and identifies important knowledge gaps that need to be addressed.

4.1 Cash transfers and child nutrition: what we know

First, there is strong evidence that CT programmes have a positive effect on the resources for food security. Households use the transfer to buy larger quantities of and higher quality (i.e., more nutritious and diverse) food, and in many cases, household food security indicators improve.

Second, in terms of resources for health, the evidence in general points to positive impacts. CT programmes (especially CCT) increased preventive health care 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 CT programmes is generally understudied. The broader literature suggests that there is a clear relation between nutritional outcomes and caregiver feeding behaviours and practices. Also caregiver psychosocial care has been linked to children's nutritional status. There is however very little evidence of the impact of CT programmes on these caregiver behaviours. On the other hand there is strong evidence that CT programmes improve the mental health of beneficiaries, including reducing levels of stress. Furthermore, studies suggest that CT programmes may decrease domestic violence, which has implications for improved health among mothers and children.

Fourth, this review identified evidence of impacts of CT programmes on the two immediate determinants of child nutritional status, dietary intake and health status. The few studies that directly look at children's dietary intake (as opposed to household diet diversity or other household measures) found no increase in caloric intake of young children, while one study found an increase in the number of days children consumed more nutritious food. This could point to unequal distribution of marginal

increases in food resources in the household, especially when household level measures of diet diversity improve as a result of a CT programme. In terms of children's health status, the evidence is mixed. Some studies have found a significant reduction in common children's illnesses, such as diarrhoea and ARI, while in other cases, no significant 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 programme.

Fifth, the evidence of direct impact of CT programmes on children's nutritional status is mixed. In most cases, the pathways of impact are not analysed and it is therefore unclear why some CT programmes have a significant impact on nutritional outcomes, while others do not.

4.2 What we need to know

This paper has reviewed the most up-to-date evidence of the impact of CT programmes on children's nutritional outcomes and its determinants. Despite the existing evidence, some knowledge gaps remain. Table 1 summarizes the findings from this review and presents the knowledge gaps. The asterisks in the table indicate the number of studies on the particular issues to identify areas that have been understudied.

As reported in Table 1, the impacts of CTs on child nutritional status, provides a mixed picture. It is often unclear why there is or is not an impact of a CT programme on child nutritional status. This paper has pointed to a number of factors that can explain the heterogeneous effects we have seen in the evidence. In general CT programmes with a larger transfer and a long duration, targeted at young children in low-income households, with additional supply-side interventions may have the greatest likelihood of success.

Overall, the evidence points to a lack of knowledge on the pathways of impact or non-impact. In fact, many authors reviewing the evidence of CT programmes in relation to nutritional status call for more attention to the pathways of impact (Fernald et al., 2012; Glassman et al., 2013; Hoddinott, 2010; Lagarde et al., 2009; Leroy et al., 2009; Owusu-Addo & Cross, 2014; van den Bold et al., 2013). Furthermore, additional research is needed from the SSA region, as much of the non-impact results come from Latin America.

The impacts on the two immediate determinants of child nutritional status, child dietary intake and health status, are also inconclusive, although impacts on health status point in the right direction. Child dietary intake is often overlooked, as most studies focus on the household level impacts of CT programmes. Only three studies reported in this paper specifically evaluated the impacts on individual children. For health status, the pathways of impact are again unclear. Some studies have found positive impacts on the reduction of common diseases, while others find no effects. It is unclear which underlying mechanisms cause these mixed results.

Table 1, Summary of impacts of CT programmes 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 three studies looked 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) Health care				
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

[a] Positive impacts largely driven by conditional CT programmes with conditions on health visits

[b] Based on qualitative evidence

[c] Based on quantitative evidence

In terms of underlying determinants, this review has shown that there is strong evidence that CT programmes have an impact on food consumption, food security, household diet diversity, the uptake of preventive health services and caregiver physical health, although for the latter, most evidence is based on conditional programmes. There is very little evidence related to care practices and there are knowledge gaps in terms of how CT programmes affect feeding practices, psychosocial care, intimate partner violence and caregiver mental health and stress. Women's empowerment has been studied extensively in relation to CT programmes, 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 using surveys.

5. CONCLUSION

This paper has provided an overview on the current state of what we know and what we need to know on the linkages between CTs and child nutrition. It has done so by adopting the extended model of care conceptual framework of child nutrition and classifying evidence into the main elements of the framework.

In sum, the paper concludes that, while an increasing number of studies have highlighted the positive role of CT programmes 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 cash transfers can positively impact growth-related outcomes among children, particularly in sub-Saharan Africa. Key gaps that should be addressed in future research include CT impacts on more proximate nutrition-related outcomes such as children's dietary diversity, as well as caregiver behaviours, intra-household violence, and stress, all of which have implications for child health and well-being.

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