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How effective are cash transfers in mitigating shocks for vulnerable children? Evidence on the impact of the Lesotho CGP on multiple deprivation

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ABSTRACT

Shocks can pressure families into negative coping strategies with significant drawbacks for children's lives and development, particularly for children living in disadvantaged households who are at greater risk of falling into a poverty trap. This paper investigates if unconditional Cash Transfers can be effective in protecting children against unexpected negative life events. Using two waves of data, we found that the Lesotho Child Grant Programme (CGP) reduced the incidence and intensity of multidimensional deprivation for children living in labour-constrained female-headed households (FHH) that experienced negative economic or demographic shocks. Programme design in shock-prone contexts should seek to reinforce and widen the protective effect of the Cash Transfer for the most vulnerable.

1. Introduction

An established body of evidence emphasizes the role of shocks and vulnerability in perpetuating poverty in rural areas and agricultural communities (Dercon and Hoddinott, 2004; Giesbert and Schindler, 2012; Gloede et al., 2015). Individuals and households that experience social, economic and cultural marginalization are less able to respond to and cope with unexpected adverse events, accessing credit or savings, and rather adopt negative strategies at the cost of future income gains and children welfare (Dercon, 2005; Fisher et al., 2017). Most families will opt for sale of assets and reduction in of meals in frequency or size (Mehar et al., 2016; Paumgarten et al., 2020), but reduction in education expenditures -in favour of children's participation to off-farm labour-, as well as child marriage, and even illegal means of survival, can all be adopted by families in the face of shocks and hardship (Bandara et al., 2015; ; Nguyen et al., 2020;Trinh et al., 2020 ; Agamile and Lawson, 2021).

Social protection systems have a key role in shielding vulnerable populations from the consequences of shocks. Particularly in the occurrence of covariate shocks, such as climate shocks, when informal networks and kinship may not be available (Paumgarten et al., 2020). Cash Transfers (CTs) act as both an effective anti-poverty tool (Davis et al., 2016) and strengthening households' ability to enact ex-ante coping strategies. Providing a reliable income stream, they increase a household's capacity to return to their expected income and utility trajectories after being hit by a shock (Asfaw and Davis, 2018), as well enabling investments and taking advantage of economic opportunities (FAO, 2018).

A large body of evidence exists on how households in developing countries respond to shocks. The literature on the role of CTs in shock responses in sub-Saharan African countries has developed in recent years particularly in relation to climate shocks (Asfaw et al., 2017; Tirivayi et al., 2016; Lawlor et al., 2019; de Janvry et al., 2006), fostering a growing discussion about shock-responsive social protection, which has become central during the COVID-19 pandemic (Gentilini 2020).

We examine the role of a Cash transfer (CT) programme in protecting children in vulnerable households from different forms of shocks in Lesotho, using data from a two-year impact evaluation. We analyse the impact of the Lesotho Child Grant (CGP) on a multidimensional index of deprivation for school-aged children, and we operationalize the concept of child poverty using a rights-based approach (Gordon et al., 2003; de

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Neubourg et al., 2012). We use a measure of multidimensional deprivation to assess children's wellbeing, as it is increasingly recognized that household-based measures of monetary poverty do not necessarily capture children's experiences of deprivation in areas key to their development and well-being (Roelen and Gassmann 2008; Roelen 2018). Furthermore, evidence shows how children in rural areas are consistently more deprived than children in urban areas, even when their families are not monetarily poor (UNICEF Malawi, 2016, UNICEF Tanzania, 2016)

The CGP is a large-scale national unconditional CT programme targeted to reach the poorest households with children. Targeting relies on proxy means testing with community validation (OPM, 2014). Households eligible for the transfer are first identified through a proxy means test. The identification is subsequently validated by the community, which has first-hand knowledge of the needs of the households. This procedure allows the local community to take ownership of the programme, avoiding a top-down approach and ensuring the programme is accepted. We use two waves of survey data (2011 and 2013) from the 24-month cluster randomized controlled trial built into the evaluation of the programme to do the following;

i) provide rigorous evidence on the impact of a national government-run unconditional CT on children's multidimensional deprivation (using six indicators of child deprivation), going beyond the traditional outcomes of consumption, health and schooling.
ii) provide evidence on the effect of the CT for children living in particularly disadvantaged households, differentiating by gender of the household head, and households that are labour-constrained due to the head's illness, old age, or disability.

During the evaluation period, Lesotho was experiencing different kinds of shocks. The country faces regular climate shocks, especially because of El Niño. Along with other countries in the region, it is vulnerable to climate change because of its heavy dependency on rainfed agriculture and this is aggravated by its small territory. Mainly reliant on subsistence agriculture, Lesotho's households are particularly sensitive to variations in weather patterns and disruptions to crop yields. Food security and rural poverty are closely linked to agricultural seasonality and weather shocks. Maize, the main staple crop, is mostly imported from South Africa, and most households are net food buyers (Prifti et al., 2017). All these factors make Lesotho, and especially poor, rural households, extremely vulnerable to any crisis in staple prices.

The HIV pandemic has also significantly affected the structure of the population and of households in the country by reducing adult labor capacity and by further constraining the development of children's cognitive skills development (Smith et al., 2006) Lesotho is affected by what medical anthropologist Merrill Singer described as a "perfect epidemiological storm" (Singer, 2008): the interaction of food insecurity, HIV/AIDS and poverty creates conditions for mutual reinforcement.

This paper contributes to the literature by providing one of the first assessments of the impact of a CT programme on children's multidimensional deprivation, investigating if and how it can shield children in marginalized households from the impact of shocks. In line with the existing literature, this paper specifically refers to disadvantaged school-aged children as those living in either female-headed households (FHH) or labour-constrained households or a combination of the two (Morduch, 1995).

The paper is organized as follows: Section 2 provides a review of the relevant literature and derives the hypotheses to be tested; Sections 3 describes the programme, its evaluation design, and the data; Section 4 outlines the empirical strategy; Section 5 presents the results; and Section 6 concludes.

2. Literature review and hypothesis

2.1. Literature review and hypothesis

Cash transfers (CT) as a tool of social protection have been expanding in Africa since the early 2000s, following the expansion in the 1990s in Latin America. Similar to the Latin American experience, many of the CT programmes in sub-Saharan Africa had a rigorous evaluation component built in, with more than 10 impact evaluations of government-run programmes undertaken in the region between 2009 and 2012 (Davis et al., 2012). A growing literature provides evidence of the positive impacts of these programmes on a range of children's outcomes: from health, to learning and schooling, to nutritional outcomes (Handa et al., 2016, Pace et al., 2018, Sebastian et al., 2019, de Hoop et al., 2019, Kilburn et al., 2018; de Groot et al., 2017; Bastagli et al., 2019); access to education (Baird et al., 2014) learning and cognitive development) , as well as on economic outcomes such as food security and agricultural investment, as well as multiplier effects for local economies (see Davis et al., 2016). There is also an extensive body of literature documenting the positive impact of CTs on gender relations: CTs have been shown to increase women's control over resources in Bangladesh (Ahmed et al., 2009), and women's labour force participation in Brazil (Veras et al., 2007). In Zambia, CT increased women's ability to save and re-invest (Natali et al., 2016), and increased women's empowerment, but the effect was limited by persistent gender norms (Bonilla et al., 2017). New evidence highlights how CT can also decrease the occurrence of intimate partner violence, improving gender relations within the household (Buller et al., 2018).

The evidence on the impact of CTs and other social protection programs on multiple deprivations is growing, but still scarce. Osei and Turkson (2022) find that the Ghana Livelihood Empowerment Against Poverty, an unconditional cash transfer, sensibly reduces multidimensional poverty for children. Kilburn et al. (2020) find evidence of a positive effect of a conditional cash transfer on the multidimensional deprivation of young women and girls in South Africa, while Song and Imai (2019) find that Kenya's Hunger Safety Net Programme (HSNP) significantly reduces households' MPI, in particular reducing intensity of deprivation among the poor. Other studies include Borga and D'ambrosio (2021) who find evidence of a positive effects of social protection programs on multidimensional poverty of poor households in Ethiopia, Peru and Vietnam. Loschmann et al. (2015) analyse the effect of a shelter program on multidimensional poverty among refugees in Afghanistan and find that it reduces multidimensional poverty. Pasha (2016) also finds that the South Africa cash grants reduce both multidimensional poverty and inequality. The question of whether a CT targeted to poor rural households has the potential to address multiple child deprivations is still an open one.

The impacts of CTs are also differentiated by gender. Female-headed households (FHH) in particular are different from Male-headed households (MHH) several reasons. First, FHH comprise a meaningful share of households as a result of widowhood, out-migration of the male head, and, to a lesser degree, separation and divorce, and singlehood (Brown and van de Walle, 2021) . As a result, they often have a lower labour potential. Second, FHH are found to have limited access to resources, including land, insurance and credit market, and formal employment (World Bank, 2012) due to discriminatory social norms. Third, women tend to manage day-to-day productive activities, such as subsistence agriculture and small livestock, and are therefore excluded from more remunerative activities (Kechero Yisehak, 2008). Fourth, the burden of care and house work results in women being more pressed for time and more stressed by the number of daily responsibilities (Roxburgh, 2004). Eissler et al. (2021) explore time agency in four low-income countries and find that women often have to make trade-offs in their daily activities, negotiating their multiple commitments and personal choices. This often results in lower productivity, due to mental fatigue, and diminished ability to adopt innovations (Theis et al., 2018).

In their review on the effects of the crisis on women, Sabarwal et al. (2011) found that shocks affected women differently from men – with negative consequences for children's lives. They also observe that CTs are usually better for women than workforce programmes in coping with shocks. Kumar and Quisumbing (2013) found that FHH in Ethiopia are more likely to face food price shocks, and as a consequence, they tend to cut their household food consumption. Women are also more vulnerable to climate shocks. Flatø et al. (2017) found that FHH in agriculturally dependent areas of South Africa are vulnerable to even modest variations in rainfall. The reason for this, they suggest, is that women often lack access to coping mechanisms and protective social networks, lower labour capacity and because of stigma and social exclusion, which erode their social networks and safety nets. Similarly, Paumgarten et al. (2020) finds that female-headed households have fewer coping options due to limited access to human and financial capital. The evidence suggests that effects for FHH should be stronger and/or larger. When this is not the case, programs can perpetrate and increase inequality (see for example Garikipati, 2012; Quisumbing and Pandolfelli, 2010).

The two-year evaluation of the Lesotho CGP (OPM, 2014) showed a positive impact of CTs on expenditure on schooling, clothing and footwear for children as well as on the share of school-aged children who had school uniforms and shoes. The programme had a positive impact on food security for adults and children. There was an increase in birth registration rates and a reduction in the proportion of children under 6 years old who suffered from respiratory infections in the 30 days prior to the survey. The evaluation explores also the effect of the CGP on a Child Deprivation Index based on Gordon et al. (2003), and find evidence of a positive effect on deprivation in the health and food dimension for children 0 to 5, as well as a reduction of the average number of deprivations for the same age group.

Our first hypothesis is therefore the following:

Hypothesis 1. Lesotho's CGP has the potential to shield children against the occurrence of simultaneous deprivations, differently for Female-vs Male-headed households.

The capacity of social protection systems to be responsive to shocks is of crucial importance in this context (Kardan, O'Brien, and Masasa, 2017). While all social protection is intended to be responsive in this way, there is a specific conceptualization of 'shock-responsive social protection' (SRSP), which more specifically define a system that are flexible and able to respond to covariate and multiple shocks (O'Brien et al., 2018a, b; Roelen et al., 2018). SRSP is defined as having the objective to "provide time-delimited consumption support in times of acute need and emergency" (Roelen et al., 2018b p.18). CTs have an important role in SRSP, they also support adaptive and positive coping strategies, improving households resilience.

In a prevalent rural and agricultural setting, the strategies to adapt and cope with shocks, especially weather shocks, are limited and determined by both household characteristics and the wider institutional context (Asfaw et al., 2019). By providing a steady and predictable source of income, cash transfers act as a buffer against shocks improving both ex-ante and ex-post coping strategies. Ex ante strategies are defined as actions taken before a shock hits, increasing resilience capacity, while ex-post strategies can be adaptation strategies, or absorption strategies (Abid et al., 2020). All three elements contribute to the final outcomes, and all three can be influenced by a CT. Ex *ante*, a CT can protect the household from the need to borrow and consequently from the risk of entering a debt-poverty cycle. CTs can also promote the ability of beneficiaries to save and invest in diverse activities and adopt productive innovations, as well as diversify the work supply, therefore reinforcing households' resilience and improving their ability to manage shocks. Households in the CGP sample rely on a variety of income sources, including on and off-farm employment, as well as self-employment and small enterprises. (OPM, 2014). Qualitative evidence indicates beneficiaries as the group having the most limited livelihood options, and often relying on transfers from friends, neighbours, or migrated relatives, and on casual, low paying jobs. *Ex-post*, CTs can act as collateral (provided they are predictable and dependable) when borrowing is needed (Daidone et al., 2014), and they protect the HH from adopting negative strategies to absorb shocks such as exploitative labour and child marriage, as well as reduce negative behaviours such as violence and alcohol use which are often fuelled by economic stress (Del Carpio et al., 2016; Hidrobo et al., 2016).

We thus derive our second hypothesis:

Hypothesis 2. Lesotho's CGP mitigates the adverse effects of shocks on children's multidimensional deprivations, and do so differently for Female-vs Male-headed households.

Much of the literature on households' responsiveness to shocks has focused on transitory shocks. Indeed, ill health events may reflect unexpected health shocks, but lasting conditions like chronic illnesses or disabilities may also permanently affect individuals' ability to work. The HIV/AIDS prevalence in Lesotho is estimated to be the second highest in the world (i.e. 25 per cent of adults 15–49 years according to Ministry of Health & ICF International (2016)), and one out of three Basotho children have been left orphaned as a result of the epidemic (Davis et al., 2016). The burden of caring and providing for sick relatives and orphans (Ministry of Health and ICF, 2016) due to HIV/AIDS falls disproportionally on women (30 per cent among adults) compared to men (19 per cent among adults). HIV/AIDS may foster impairments as the disease progresses, making people severely labour constrained and thus unable to continuously perform any economic activity. When individuals live in this "permanent shock's" condition, their capacity to absorb any additional shock is further weakened, making them yet more vulnerable. In the absence of formal or informal insurance the household can adopt coping strategies that may result in poverty traps, such as selling assets (Carter et al., 2007) and may also result in greater child deprivation.

In this context, CTs can act as both an insurance and empowering tool for people with disabilities and chronic health conditions and their families. Filmer (2008) found that in eight out of thirteen LMICs, disability is associated with the probability of being in the lowest quintile of the population, and that this is mostly mediated by lower educational achievements. By investigating the effect of CTs on households with members who have disabilities in South Africa, Kelly (2019) found that the transfer empowers them, giving them agency and a sense of value within the family. In Malawi the Social Cash Transfer is instrumental in improving the lives of people with HIV and AIDS (Miller and Tsoka, 2012). In Lesotho there have historically been cultural barriers that exclude people with disabilities from the society and extreme dependency on their families and society at large (Kamaleri and Eide, 2011). Our third hypothesis is therefore the following.

Hypothesis 3. The effect of the CGP on child deprivation for children experiencing shocks is differentiated by gender of household head AND it is larger if the household's head is not fit to work.

3. Data and empirical strategy

3.1. Lesotho's CGP and evaluation design

The Lesotho Child Grants Programme is an unconditional CT, the primary objective of which is to improve "the living standards of orphans and other vulnerable children (OVC) so as to reduce malnutrition, improve health status, and increase school enrolment among OVCs" (OPM, 2014 Launched as a pilot programme in April 2009 with a coverage of 10,000 beneficiary households (phase 1) in five districts, coverage was expanded at the end of 2013 (phase 2), reaching 19,800 households and providing benefits for approximately 65,000 children across 10 districts in Lesotho. The beneficiaries were selected through a combination of proxy means testing (PMT) and community validation and registered in the National Information System for Social Assistance (NISSA) (OPM, 2014). Cash was set to be disbursed quarterly with a flat transfer of maloti (M) 360 (USD 36) at baseline, and then became M 360

(USD 36) and M 750 (USD 75)[1] due to an indexing based on the number of children. The average eligible household consumption at baseline was 700M (OPM, 2012) thus the cash transfer represents a substantial increase in expenditure power The payment schedule was not followed over the study period, and the recipients got the entire amount in larger and less frequent transfers than expected.

The study was conducted across five of the ten Lesotho districts (Berea, Leribe, Mafeteng, Maseru and Qacha's Nek). In each of the five districts two Community Councils (CC) were selected for CGP coverage for a total of 10 CCs, which contained a total of 96 Electoral Divisions (EDs). The sample for the impact evaluation was selected through a multi-stage stratified random cluster design. The 96 EDs were coupled in 48 pairs in the same CC on the basis of common observed characteristics and 40 pairs were randomly chosen to be part of the study. Within each of the 80 selected EDs, 2 villages were randomly chosen and, for each of them, 10 random eligible households were selected for interview. EDs were assigned to either the treatment or control group through public lottery events only after the baseline data collection (OPM, 2014).

Baseline and follow-up panel surveys collected information for a sample of CGP-eligible and non-eligible households in treatment and control communities. The baseline survey fieldwork took place between June and August 2011 and comprised around 3000 households. The follow-up survey fieldwork took place in 2013 at the same time of the year to avoid seasonal bias. A total of 3102 households were surveyed; 1531 programme eligible households (766 treatment and 765 control) to be used for the impact evaluation analysis, with the remaining 1571 programme-ineligible households to be used for targeting analysis and spill over effects. In addition to the household survey, two other questionnaires were implemented: the community and business enterprise questionnaires. The OPM (2014) official impact evaluation report confirms that the randomization process was successful, and that the rate of actual treatment among the enrolled beneficiaries was as high as 96%. The test of balance between control and treatment at baseline shows that there are not statistically significance differences in household characteristics, poverty, assets, and community-level characteristics.

3.2. Balance, attrition and outcome variables

In the present paper we focus on children of school age as the unit of analysis. The analysis is conducted at individual level selecting a cohort of eligible children aged from 4 to 15 years at baseline (and 6–17 years at follow-up) and living in households eligible for the treatment. We restricted the size of sample to those children appearing in both baseline and follow up. Our final sample is composed of 2563 eligible children (1194 treated and 1369 control) that were successfully interviewed at follow-up (Table 1). The attrition rate is about 11% (in Appendix A we report detailed attrition analysis). As attrition can cause biased estimates through selection bias and changing the sample composition, we compute and use analytical weight to correct for selective non-response.

There is now an extensive literature on multidimensional child poverty, starting from the pioneer study of Gordon et al. (2003), which paved the way to country-level studies of child poverty (Roelen et al., 2010; Chzhen et al., 2016; Chzhen and Ferrone, 2017; Lekobane and Roelen, 2020) and the development of a series of approaches to measure multidimensional child poverty (Carraro and Ferrone, 2020) including

Table 1
Children Sample sizes and attrition rates, by treatment group.

	Treated	Control	Total Eligible for CGP
Baseline Children aged 4–15 years old	1392	1473	2865
Baseline Attriters aged 4–15 years old	198 (14% Attrition)	104 (7% Attrition)	302 (11% Attrition)
Baseline Children Surveyed at Endline	1194	1369	2563

the two dominant ones, *ie.*, UNICEF's Multiple Overlapping Deprivation Analysis (MODA) (de Neubourg et al., 2012) and the Multidimensional Poverty Index (MPI) (Alkire and Foster, 2011). The last ten years have seen an ongoing debate on opportunities and challenges of the different methods (Hjelm et al., 2016; Carraro and Chzhen, 2019). In this work we adopt an approach more similar to MODA. Our intention is to exploit the child specific deprivation questions of the survey, allowing us to capture unequal intra-household distribution of resources among children. Second, it allows to calibrate indicators by age to reflect different needs of children as they grow up, following the life cycle approach.

To define our depended variables, we start by selecting six dimensions of child deprivation at individual (Health, Education, Child Labour) and household level (Nutrition/Food Security, Water, Living Standards) (see Table 2). Two dimensions out of six (Water, Living Standards) are the result of the combination of two indicators using the union approach, following the MODA approach (i.e. an individual is deprived in a dimension if he/she is deprived in at least one indicator within the dimension) while the remaining four dimensions are defined solely by one indicator (Table 2). For each dimension (indicator) we determine a cut-off line (i.e. first cut-off) and build a binary variable indicating whether the child is deprived in that dimension ($d = 1$) or not ($d = 0$). Dimensions are then summed using equal weights and counted.

We define two sets of outcome variables: the incidence of deprivation (HC), which is defined as a binary variable that equal 1 if a child is deprived in two or more, three or more, four or more dimensions. The Average Intensity of deprivation (A) captures "how deprived are the deprived" by measuring the depth or intensity of simultaneous deprivations for those children classified as multidimensionally deprived at each cut-off ($k = 2$, $k = 3$, $k = 4$). It is defined as the ratio between the number of deprivations divided the total dimensions considered.

Table 3 examines balance in the outcomes for children observed at baseline. About half of the children is deprived in two or more dimensions at the same time, 16–18 percent in three or more, and three percent in four or more. Given that the sample is restricted to eligible children aged between 4 and 15 years old, similarly to (Sebastian et al.,

Table 2
Dimensions, indicators, age groups.

Dimension	Indicators	Age groups
Health	1. Child is deprived (=1) if his/her health status is rated as poor or fair.	4–17
Education	1. Child is deprived (=1) if not enrolled in school or preschool.	4–11
	Child is deprived (=1) if lags at least one year behind.	12–17
Nutrition/Food security	1. Child is deprived (=1) if any child aged 0–17 living in his/her household had to eat fewer meals.	HH level
Water	1. Child is deprived (=1) if the household has not access to an improved water source according to WHO standards[a].	HH level
	2. Child is deprived (=1) if the distance to water is > 60 min	HH level
Living standards	1. Child is deprived (=1) if house walls are of non-resistant material[b].	HH level
	2. Child is deprived (=1) if house floor is of natural material[c].	HH level
Child labour	1. Child is deprived (=1) if he/she has done any work or > 5 h of domestic chores in last 7 days.	5–12
	Child is deprived (=1) if he/she has done >14 h of work or > 5 h of domestic chores in last 7 days.	12–14
	Child is deprived (=1) if he/she has done >43 h of work in last 7 days.	15–17

[a] Unimproved water source is defined as: uncovered spring, river, other not specified. Improved: piped water on premises, piped community water, catchment's tank, public well, private well, covered spring, borehole.

[b] Non-resistant materials include: Cane/tree trunks, sod, stone/mud, plywood, cardboard, refused wood.

[c] Natural materials include: earth/sand, dung, wood planks, palm/bamboo.

Table 3
Children outcome variables summary statistics at baseline.

	Treated		Control		
	mean	N	mean	N	p-val diff
Multiple deprivation headcount and intensity					
HC2: Deprived in 2+ dimensions	0.52	1369	0.59	1194	0.00
HC3: Deprived in 3+ dimensions	0.18	1369	0.16	1194	0.49
HC4: Deprived in 4+ dimensions	0.03	1369	0.03	1194	0.46
Intensity of deprivation 1+ dimensions	0.26	1263	0.26	1127	0.18
Intensity of deprivation 2+ dimensions	0.34	711	0.33	710	0.01
Intensity of deprivation 3+ dimensions	0.45	240	0.45	197	0.50
Share of children experiencing …					
Health Depr. (1 = YES)	0.11	1357	0.08	1186	0.03
Education Depr. (1 = YES)	0.18	1369	0.19	1194	0.37
Nutrition/Food Security Depr. (1 = YES)	0.71	1369	0.78	1194	0.01
Water Depr. (1 = YES)	0.19	1361	0.16	1190	0.07
Living Standards Depr (1 = YES)	0.42	1369	0.45	1194	0.21
Child Labour Depr. (1 = YES)	0.07	1369	0.06	1194	0.56

2019) we expect some discrepancies to arise between treatment and control arms despite the randomized nature of the original study design. The *t*-test for differences shows that 2 out of 6 outcome variables are not balanced at baseline, namely HC2 and relative intensity of deprivation. Such a difference seems to be driven by few small but significant differences registered between treatment and control clusters for three out of six single deprivations (Health, Nutrition/Food Security, Water).

We also performed a full balance test at child level (see Table A1 in appendix). To investigate potential differences at baseline between treated and control groups, We find only a few pre-treatment differences across demographic, geographical and socio-economic characteristics between the two groups of children. We include them as regressors in the difference-in-difference analysis thereby limiting potential bias in the estimates.

3.3. Shocks and independent variables

The survey provides comprehensive information on experience of self-reported shocks from each household within the past 12 months. Since this information is collected at the household level, we assume that children living in the same household are all equally experiencing the reported shock. There is no information on the intensity of the shock. The aggregate number of shocks each child experiences at baseline on average amounts to 0.78. We grouped shocks into a few broadly comparable categories, i.e., demographic, health, economic or agricultural shocks.

We analyse shocks according to these four broad kinds which are built from even more detailed categories (Fig. 1). We summarize shocks of household members abandoning the household or divorcing, experiencing a death of another household member a teenage pregnancy as demographic shocks. Economic shocks are the aggregate of financial distresses which the household experiences, e.g., increase in food or input prices[2], failure or bankruptcy of business, job loss by the household member. As the majority of households are at least partly engaged in agricultural activities, crop and livestock shocks account for most of the shocks reported, the incidence of crop failure in particular is reported to be exceptionally high. Finally, due to the high prevalence of HIV, there is a substantive incidence of health shocks, reported here as serious injury or illness of one household member.

Table 4 shows sample averages at baseline for the our sample, by gender of household head and *t*-test statistics for cross-gender differences. Children almost equally split into female- and male-headed households, a third lives with an elderly household head, a third with chronically ill household head, 10 per cent lives in a household whose head is disabled.. It is clear from the data presented that FHH and MHH are different on a number of key characteristics: women head of household are older, FHH have less land, more orphans in the household, more likely to chronically ill or disabled …

In Table 5 we compare the outcome variables and shocks based on household head's physical status. The proportion of children experiencing two or more deprivations simultaneously is significantly higher among those living in households whose head is labour-constrained.

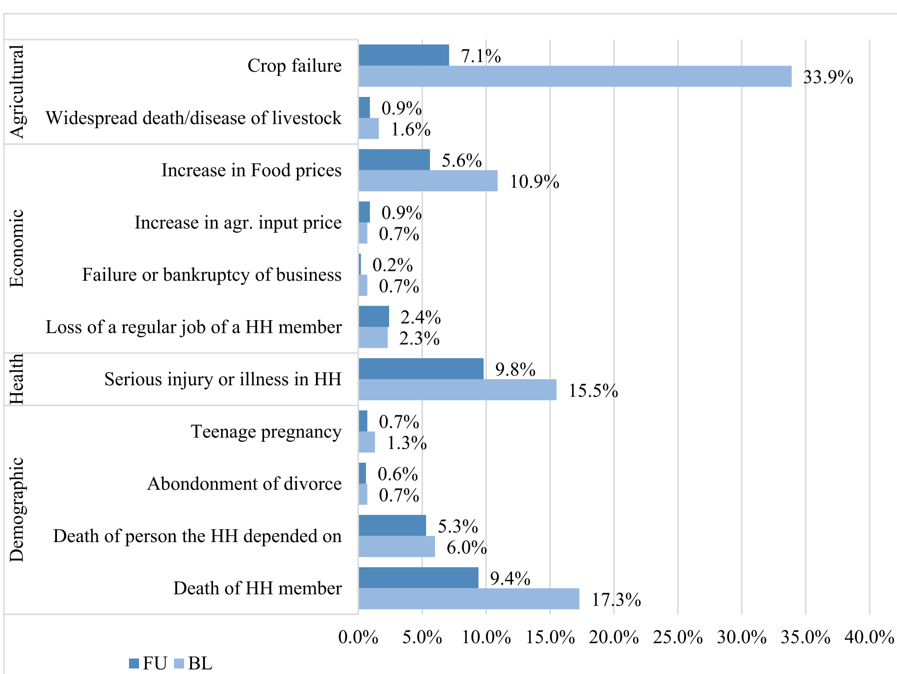

Fig. 1. Shocks categories and frequency at baseline and follow-up.
Source: Authors' elaboration

Table 4
Baseline independent variables at child level, by sex of the household head.

	Full sample (n = 2537)	MHH (n = 1214)	FHH (n = 1323)	p-val diff
Independent variables				
Child's age	9.52	9.33	9.69	0.01
Child's sex (1 = Girl)	0.49	0.50	0.47	0.12
HH Size	6.68	6.93	6.44	0.00
Age of the household head	53.26	50.09	56.18	0.00
# siblings 0–5 yo	0.96	1.01	0.93	0.04
# siblings 6–12 yo	1.68	1.74	1.62	0.01
# siblings 13–17 yo	1.00	0.96	1.03	0.03
# Members 18–59 yo	1.16	1.38	0.96	0.00
# Males >60 yo	0.16	0.32	0.01	0.00
# Females >60 yo	0.30	0.13	0.46	0.00
# Orphans	1.71	0.98	2.39	0.00
Highest Education level in the HH	7.72	7.59	7.84	0.01
Ln Operated Land	0.99	1.30	0.71	0.00
Leribe district	0.22	0.19	0.26	0.00
Berea district	0.27	0.26	0.29	0.13
Mafeteng district	0.24	0.26	0.22	0.01
Qacha's Nek district	0.05	0.07	0.04	0.01
Maize Price	3.95	3.99	3.91	0.08
Wheat Price	5.90	5.91	5.90	0.76
Shocks				
Any	0.59	0.58	0.60	0.16
# Shock	0.78	0.74	0.81	0.04
Demographic Shock	0.20	0.15	0.24	0.00
Health Shock	0.13	0.12	0.14	0.19
Economic Shock	0.11	0.12	0.10	0.15
Agricultural Shock	0.26	0.30	0.23	0.00
Breakdown variables				
Head is disabled	0.57	0.50	0.64	0.00
Head is chronically ill	0.31	0.26	0.35	0.00
Head is elder	0.37	0.30	0.44	0.00

Note: Balance tests at baseline are reported in Table A1 in Appendix and in Oxford Policy Management (2014).

Children living in households whose head is ill, disabled or elderly are generally more subject to shocks, being generally more likely to experience multiple, demographic and economic shocks.

3.4. Empirical strategy

This paper investigates the theoretical hypothesis that the CT can buffer against idiosyncratic or covariate shocks, and that this effect can differ depending on the gender of the household head and on whether the household head is fit to work.

To answer to our first hypothesis, we start showing the intent to treat effect on the treated (ITT) of the CGP on children's multiple deprivations, and the we extend the baseline model interacting the gender variable with the DiD component of the model using the following twoequations:

$$y_{iht} = \alpha_0 + \alpha_1 Treat_h * Post_t + \alpha_2 Post_t + \alpha_3 Treat_h + \theta \mathbf{X}_{iht} + \pi Z_{ht,2011} + \rho Q_{ct} + \varepsilon_{iht} \tag{1a}$$

$$y_{iht} = \beta_0 + \beta_1 Treat_h * Post_t * FHH_i + \beta_2 Treat_h * Post_t + \vartheta \mathbf{W}_{iht} + \theta \mathbf{X}_{iht} + \pi Z_{ht,2011} + \rho Q_{ct} + \varepsilon_{iht} \tag{1b}$$

where the dependent variable y is either a dummy variable accounting for the incidence (HC) or a continuous variable for the Intensity (A) of multiple deprivations (at each defined cut-off) for child i living in household h, in community c, t is the survey year (t = 2011 or 2013). $Treat_h$ is a dummy variable set to 1 if the household is a CT beneficiary, and $Post_t$ is an indicator denoting the follow-up period, the interaction between the two represents the Diff-in-Diff coefficient.

Equation (1b) differs from specification (1a) by the inclusion of an interaction term between the Diff-in-Diff coefficient and a dummy taking value '1' if the child is living in a female-headed household. The coefficient β_1 will return the heterogenous impact of the programme on the outcome variables (children in treated FHH with respect to children in treated MHH), the coefficient β_2 represents the impact of the programme for the children living in MHH, while the $\beta_1 + \beta_2$ coefficient is the impact for children living in treated FHH with respect to control FHH.

The differences between the treatment and control groups can be mitigated by conditioning on observables, hence we denote by $\mathbf{X_{iht}}$ a vector of individual control variables, which include age of the child, gender of the child, and whether the child is the son/daughter of the head. Similarly, $Z_{ht,2011}$ and Q_{ct} are, respectively, household level covariates evaluated at baseline, to avoid bias caused by the inclusion of a covariate that was affected by the treatment, and community controls. Household covariates include age of head, education of head, household size and household composition, by age group and sex, community variables comprise wheat and maize price indicators, and dummies for districts. Standard errors are clustered at the community level. Children with missing data in at least one dimension are dropped from the analysis. equation (1b) is complemented by $\mathbf{W_{iht}}$ representing a vector of standard combinations between $Treat_h, Post_t, FHH_h$ variables

To test our second hypothesis, we estimate the differential effect of

Table 5
Baseline average values for outcomes and shock variables, by head of household's physical status.

	Head is ill			Head is disabled			Head is elderly		
	= 0	= 1		= 0	= 1		= 0	= 1	
	(n = 1765)	(n = 798)		(n = 2272)	(n = 291)		(n = 1497)	(n = 1066)	
	Mean	Mean	p-val	Mean	Mean	p-val	Mean	Mean	p-val
Outcome variables									
HC2: Deprived in 2+ dimensions	0.53	0.56	0.01	0.53	0.61	0.00	0.56	0.51	0.00
HC3: Deprived in 3+ dimensions	0.17	0.18	0.32	0.17	0.21	0.02	0.18	0.16	0.27
HC4: Deprived in 4+ dimensions	0.03	0.03	0.17	0.03	0.03	0.63	0.03	0.03	0.18
Intensity of depr. 1+ dimensions	0.26	0.26	0.11	0.26	0.27	0.01	0.26	0.25	0.17
Intensity of depr. 2+ dimensions	0.34	0.34	0.68	0.34	0.34	0.58	0.34	0.34	0.25
Intensity of depr. 3+ dimensions	0.45	0.46	0.23	0.46	0.45	0.49	0.45	0.46	0.07
Shocks									
# Shocks (1–4 scale)	0.58	0.82	0.00	0.64	0.71	0.04	0.62	0.68	0.01
Any	0.46	0.62	0.00	0.50	0.56	0.00	0.48	0.53	0.00
Demographic	0.17	0.22	0.00	0.18	0.23	0.00	0.17	0.21	0.00
Health	0.07	0.19	0.00	0.11	0.10	0.49	0.10	0.12	0.16
Economic	0.09	0.11	0.01	0.09	0.13	0.02	0.11	0.08	0.01
Agricultural	0.16	0.21	0.00	0.18	0.16	0.40	0.16	0.19	0.01

the CGP for children living in FHH vs MHH, using the following pooled linear probability model regression which accounts for shocked households:

$$y_{iht} = \beta_0 + \beta_1 Treat_h * Post_t * FHH_i * Shock_h + \beta_2 Treat_h * Post_t * Shock_h + \vartheta \mathbf{W}_{iht} + \theta \mathbf{X}_{iht} + \pi Z_{ht,2011} + \rho Q_{ct} + \varepsilon_{iht} \quad (2)$$

Equation (2) incorporates a multiple interaction between the Diff-in-Diff coefficient, the FHH_h indicator and $Shock_h$ variable, which refers to the self-reported shocks defined earlier. The last two are set to 1 if the sampled child lives respectively in a FHH and if he/she experienced a specified shock. The vector $\mathbf{W_{iht}}$ represents standard combinations between $Treat_h, Post_t, FHH_h, Shock_h$ variables.

To test our final hypothesis, we break down the sample into pairs of subsamples based on whether a child lives in a household where the head is labour-constrained $(LC_h = 1)$ or not $(LC_h = 0)$ (Equation (3)). Specifically, we run the linear model for three distinct subgroups: (i) the head is disabled (vs. able bodied), (ii) the head is an elder (≥65 years old) (vs. young, <65 years old), (iii) the head is chronically ill (vs. not chronically ill).

$$(y_{iht} | LC_h = 1) = \beta_0 + \beta_1 Treat_h * Post_t * FHH_h * Shock_h + \beta_2 Treat_h * Post_t * Shock_h + \vartheta \mathbf{W}_{iht} + \theta \mathbf{X}_{iht} + \pi Z_{ht,2011} + \rho Q_{ct} + \delta_i + \varepsilon_{iht} \quad (3)$$

4. Results

4.1. CGP impacts on multiple deprivation and its heterogeneous effects across female-vs male-headed households

Table 6 reports the results from Equation (1a) on the impact of CGP on MD incidence and intensity. Overall, we do not observe any significant impact on the incidence and intensity of multiple deprivations. Our first hypothesis was that: *(1) Lesotho CGP has the potential to shield children against the occurrence of simultaneous deprivations,* Equation (1b). We find that there is no impact on the average probability of a child being deprived in multiple dimensions, nor on the intensity of deprivation. We do find some heterogeneous impacts by gender of the household's head, as defined in equation (1b), on the intensity of deprivation, and the probability of being deprived in a high number of dimensions, for children in FHH. As shown in Table 7, the ($\beta_1+\beta_2$) coefficient is negative and statistically significant at $p < 0.1$. This demonstrates that the CT decreases MD incidence (−2.5 pp) for children with high levels of deprivation (k = 4) living in treated FHH. When looking at the intensity of deprivations, we observe a weak but statistically significant gender-differentiated impact in favour of children living in treated FHH with respect to their peers living in treated MHH: the CGP caused a reduction by 2.9 percentage points (at k = 2) and 4.7 percentage points at k = 4. Further, as seen in columns 4 and 5, CGP significantly contributed to a reduction in the intensity of deprivation for those children living in treated FHH with respect to their peers in control areas. Lesotho's CGP shows a potential to improve the condition of children, especially the most deprived, however the size of the effects is small and it is driven by children in FHH.

Table 6
Impacts of CGP on MD Incidence and Intensity, pooled OLS.[3]

	(1)	(2)	(3)	(4)	(5)	(6)
	HC 2+	HC 3+	HC 4+	A1	A2	A3
DiD = β_1	−0.006	−0.030	−0.013	−0.009	−0.008	0.003
	[-0.13]	[-0.89]	[-1.09]	[-0.93]	[-0.94]	[0.24]
Other controls						
Demographic	YES	YES	YES	YES	YES	YES
Community level	YES	YES	YES	YES	YES	YES
Districts	YES	YES	YES	YES	YES	YES
Observations	5065	5065	5065	4652	2726	870
R^2	0.030	0.019	0.007	0.016	0.030	0.076

t statistics in brackets * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors clustered at the community level. HC: Headcount Ratio of deprived children in n or more dimensions. A: intensity of deprivation in n or more dimensions.

4.2. Heterogenous impacts by gender of HH head among children living in shocked households

In Table 8 and Table 9 we investigate if and how the programme mitigates the impacts of shocks. The most relevant results are shown in panel C where we test our hypothesis on the most vulnerable children (k = 4), for whom we find a differential impact depending on the gender of the household head, although at p < 0.1, for those children living in FHH experiencing a demographic shock with respect to their treated MHH counterparts (Table 8, panel C) (see Table 9 panel C for the intesity).

In Table 8 we fail to detect a differentiated impact of the programme for treated-shocked FHH versus treated-shocked MHH ($\beta_1+\beta_2$), but we show how successfully the CGP reduces the risk of simultaneous deprivations in the case of a perceived economic shock, for children living in treated-shocked FHH with respect to control-shocked FHH. There is a decrease by 6.5 percentage point ($p < 0.1$) in the likelihood of being multidimensionally deprived for children in treated-shocked FHH with respect to control-shocked. This means that when there is a self-reported economic shock to the household, receiving the cash possibly helps to mitigate cuts in expenditure in the domains of nutrition, health, education or other living standards among other potential channels. Previous research on the Lesotho CGP has indeed shown that beneficiaries do increase their consumption and production more than the control group (Daidone et al., 2014; Taylor et al., 2014; Dewbre et al., 2015).

4.3. Heterogenous impacts by labour constrained status

We test here if the CGP is effective in shielding children living in FHH where the head is suffering from a permanent disease against the burden of additional exogenous transitory negative events. Figs. 2–4 distinguish the impact of CT on multidimensional deprivations outcomes by shock and gender of the head within the sub-samples of labour-constrained vs not-labour constrained households. We plot the β_1 value with related significance from Equation (3), which is the coefficient for the interaction between the DiD term, the indicator for FHH and the shock ($Treat_h * Post_t * FHH_h * Shock_h$), and isolates the CGP impact for children living in FHH hit by a shock.

Fig. 2 indicates that cash generates a reduction in the probability of experiencing multiple deprivations for those children who live in a disabled FHH hit by a demographic shock (significant at cut-off k = 3) or by an economic shock (significant at all cut-offs). For children living in an able-bodied FHH we do not find evidence that cash has any shock-mitigating effect, therefore the overall negative effect found in the previous section seems to be driven by labour-constrained households. We see a similar trend in Fig. 3, fo children living with an older head of household, with stronger impacts again for those children subject to demographic and economic shocks at k = 2 and k = 3. The cash transfer does not appear to be shock-mitigating for those children living in households affected by chronic illnesses. We find only a negative and statistically significant impact at cutoff k = 3 for those being impacted by a demographic shock (Fig. 4). This may be due to the fact that chronic illnesses, if requiring ongoing treatment and expenditures, can drain the additional resource provided by the CT, making it more difficult to cope with additional shocks.

5. Discussion and conclusion

In this paper we investigate whether the Lesotho CGP 1) decreases child deprivation, differently for children in Female vs Male-headed households; 2) mitigates the negative effects of self-reported shocks on

Table 7
Heterogeneous impacts of CGP on MD incidence and intensity by sex of household head, pooled OLS.

	(1)	(2)	(3)	(4)	(5)	(6)
	HC 2+	HC 3+	HC 4+	A1	A2	A3
DiD = β_2	−0.051 [-0.80]	−0.008 [-0.17]	0.000 [0.01]	0.006 [0.43]	0.006 [0.51]	0.027* [1.72]
Differential for FHH = β_1	0.084 [1.05]	−0.043 [-0.79]	−0.025 [-1.31]	−0.029* [-1.93]	−0.025 [-1.55]	−0.047* [-1.98]
DiD * FHH = β_1+β_2	0.034	−0.051	−0.025*	−0.023*	−0.019*	−0.020
	[0.60]	[-1.25]	[-1.83]	[-1.85]	[-1.68]	[-0.96]
Other controls						
Demographic	YES	YES	YES	YES	YES	YES
Community level	YES	YES	YES	YES	YES	YES
Districts	YES	YES	YES	YES	YES	YES
N	5065	5065	5065	4652	2726	870
R^2	0.035	0.020	0.007	0.019	0.036	0.099

t statistics in brackets * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors clustered at the community level. All regressions include demographic and community characteristics.

Table 8
Heterogeneous impacts of CGP on MD incidence by experience of shocks and sex of household head.

Panel A: HC2+	(1) Any	(2) Demo	(3) Econ	(4) Health	(6) Agr
DiD*Shock = β_2	−0.106	0.178	−0.003	0.063	−0.419***
	[-0.93]	[1.06]	[-0.01]	[0.38]	[-2.82]
Differential for shocked FHH = β_1	−0.004	−0.323	−0.202	−0.103	0.537**
	[-0.03]	[-1.43]	[-0.66]	[-0.45]	[2.14]
DiD*Shock*FHH = β_1+β_2	−0.110	−0.146	−0.205	−0.040	0.117
	[-0.991]	[-1.029]	[-0.979]	[-0.231]	[0.585]
Other controls					
Demographics	YES	YES	YES	YES	YES
Community level	YES	YES	YES	YES	YES
Districts	YES	YES	YES	YES	YES
N	5039	5039	5039	5039	5039
r2	0.040	0.039	0.040	0.039	0.041
Panel B: HC3+	Any	Demo	Econ	Health	Agr
DiD*Shock = β_2	−0.035	0.182	0.017	−0.169	−0.015
	[-0.40]	[1.28]	[0.11]	[-1.22]	[-0.12]
Differential for shocked FHH = β_1	−0.006	−0.268	−0.141	0.260	0.025
	[-0.05]	[-1.35]	[-0.68]	[1.48]	[0.15]
DiD*Shock*FHH = β_1+β_2	−0.040	−0.086	−0.125	0.091	0.010
	[-0.492]	[-0.717]	[-1.031]	[0.789]	[0.096]
Other controls					
Demographics	YES	YES	YES	YES	YES
Community level	YES	YES	YES	YES	YES
Districts	YES	YES	YES	YES	YES
N	5039	5039	5039	5039	5039
R^2					
Panel C: HC4+	Any	Demo	Econ	Health	Agr
DiD*Shock = β_2	−0.001	0.052	0.006	−0.020	−0.007
	[-0.03]	[0.87]	[0.21]	[-0.22]	[-0.12]
Differential for shocked FHH = β_1	−0.023	−0.126*	−0.071	0.052	0.034
	[-0.46]	[-1.73]	[-1.53]	[0.50]	[0.52]
DiD*Shock*FHH = β_1+β_2	−0.025	−0.074*	−0.065*	0.033	0.028
	[-0.803]	[-1.878]	[-1.827]	[0.601]	[0.774]
Other controls					
Demographics	YES	YES	YES	YES	YES
Community level	YES	YES	YES	YES	YES
Districts	YES	YES	YES	YES	YES
N	5039	5039	5039	5039	5039
R^2	0.011	0.012	0.008	0.011	0.009

t statistics in brackets * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors clustered at the community level. All regressions include demographic and community characteristics.

Table 9
Heterogeneous impacts of CGP on MD intensity by experience of shocks and sex of household head.

Panel A: A1+	(1) Any	(2) Demo	(3) Econ	(4) Health	(6) Agr
DiD*Shock = β_2	−0.013	0.077	−0.006	−0.034	−0.048
	[-0.45]	[1.64]	[-0.11]	[-0.76]	[-1.13]
Differential for shocked FHH = β_1	0.002	−0.106*	−0.051	0.062	0.075
	[0.05]	[-1.70]	[-0.70]	[1.17]	[1.18]
DiD*Shock*FHH = β_1+β_2	−0.012	−0.029	−0.058	0.028	0.026
	[-0.428]	[-0.782]	[-1.245]	[0.756]	[0.593]
Other controls					
Demographics	YES	YES	YES	YES	YES
Community level	YES	YES	YES	YES	YES
Districts	YES	YES	YES	YES	YES
N	4652	4652	4652	4652	4652
R^2	0.035	0.033	0.032	0.032	0.035
Panel B: A2+	Any	Demo	Econ	Health	Agr
DiD*Shock = β_2	0.003	0.051	0.001	−0.050	0.036
	[0.13]	[1.20]	[0.04]	[-1.24]	[0.99]
Differential for shocked FHH = β_1	−0.009	−0.077	−0.029	0.083	−0.031
	[-0.25]	[-1.49]	[-0.61]	[1.54]	[-0.68]
DiD*Shock*FHH = β_1+β_2	−0.006	−0.026	−0.027	0.033	0.005
	[-0.251]	[-0.798]	[-0.896]	[0.987]	[0.185]
Other controls					
Demographics	YES	YES	YES	YES	YES
Community level	YES	YES	YES	YES	YES
Districts	YES	YES	YES	YES	YES
N	2713	2713	2713	2713	2713
R^2	0.029	0.030	0.020	0.023	0.027
Panel C: A3+	Any	Demo	Econ	Health	Agr
DiD*Shock = β_2	0.003	−0.004	0.006	0.018	−0.003
	[0.13]	[-0.09]	[0.26]	[0.39]	[-0.07]
Differential for shocked FHH = β_1	−0.026	−0.040	−0.081**	−0.012	0.041
	[-0.68]	[-0.82]	[-2.36]	[-0.21]	[0.79]
DiD*Shock*FHH = β_1+β_2	−0.023	−0.044*	−0.075***	0.005	0.039
	[-0.910]	[-1.711]	[-3.036]	[0.134]	[1.104]
Other controls					
Demographics	YES	YES	YES	YES	YES
Community level	YES	YES	YES	YES	YES
Districts	YES	YES	YES	YES	YES
N	869	869	869	869	869
R^2	0.043	0.047	0.046	0.044	0.040

t statistics in brackets * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors clustered at the community level. All regressions include demographic and community characteristics.

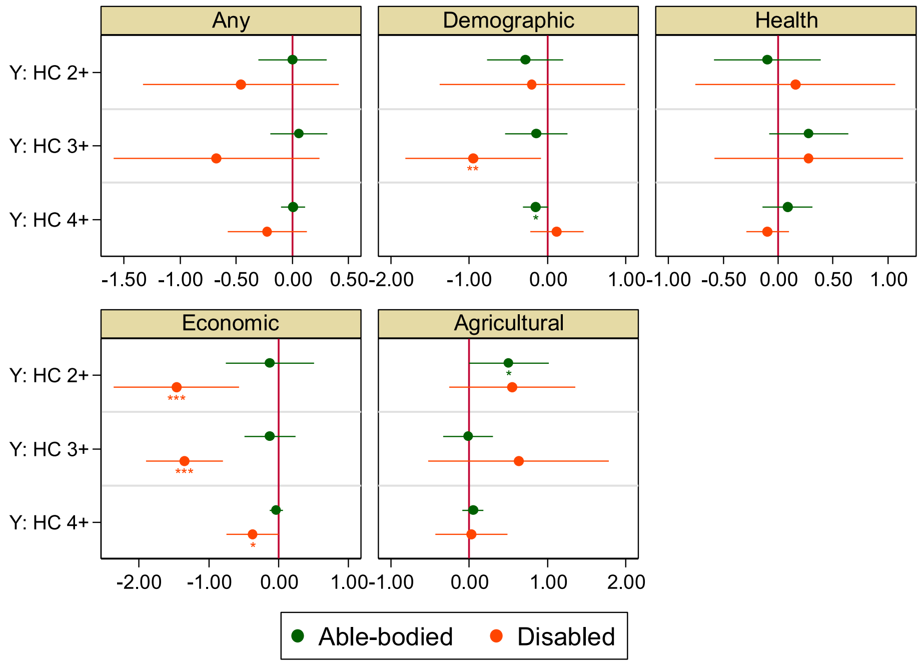

Fig. 2. Heterogeneous impacts of CGP on MDCP by shock, disabled vs able-bodied female head.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors clustered at the community level. All regressions include demographic and community characteristics.

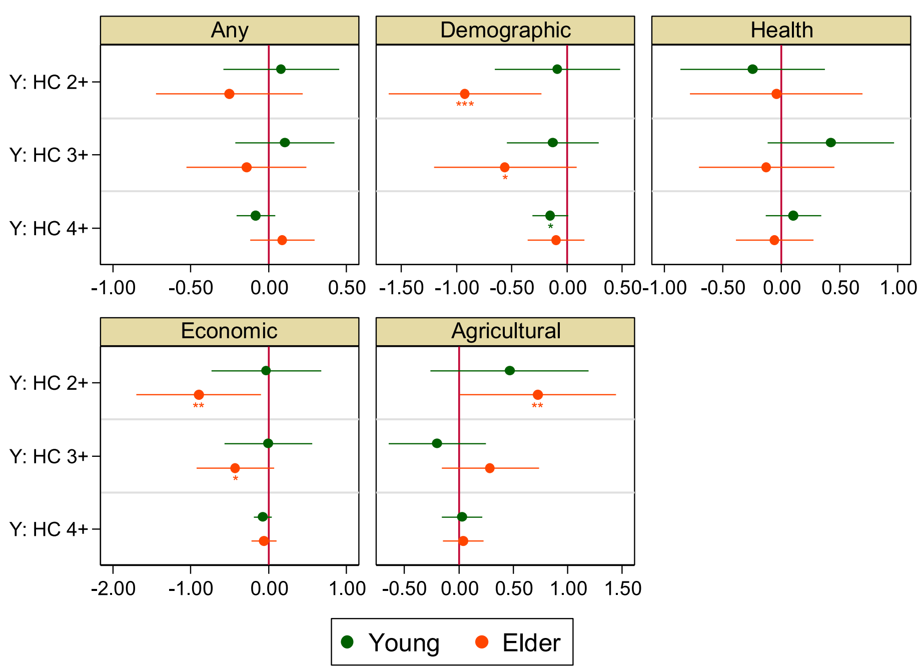

Fig. 3. Heterogeneous impacts of CGP on MDCP by shock, young vs elderly female head.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors clustered at the community level. All regressions include demographic and community characteristics.

child deprivation 3) is more effective for children already living in disadvantaged households.

The analysis reveals that Lesotho's CGP has some, albeit small, effect in reducing child deprivation for the most deprived children in female-headed households. The CGP also shows some potential effect to mitigate deprivation after a shock, particularly in the most vulnerable households which are those who are labour-constrained: children in treated households have a lower probability of being deprived at different cut-offs of multidimensional deprivation, and are, on average, less deprived. We find that the CGP mitigates demographic and economic shocks particularly for those living in FHH whose head is elder or disabled.

Overall, however, the CGP fails to deliver broad benefits in terms of child deprivation. This is not unexpected: multidimensional poverty is harder to impact, since the programme should be able to lift several constraints at once, and since many deprivations depend on more structural and contextual factors. In terms of children outcomes, the CGP has been shown to perform fairly well, and both quantitative and qualitative evidence point to the transfer being used primarily towards children. However, this was not sufficient to fully address multiple

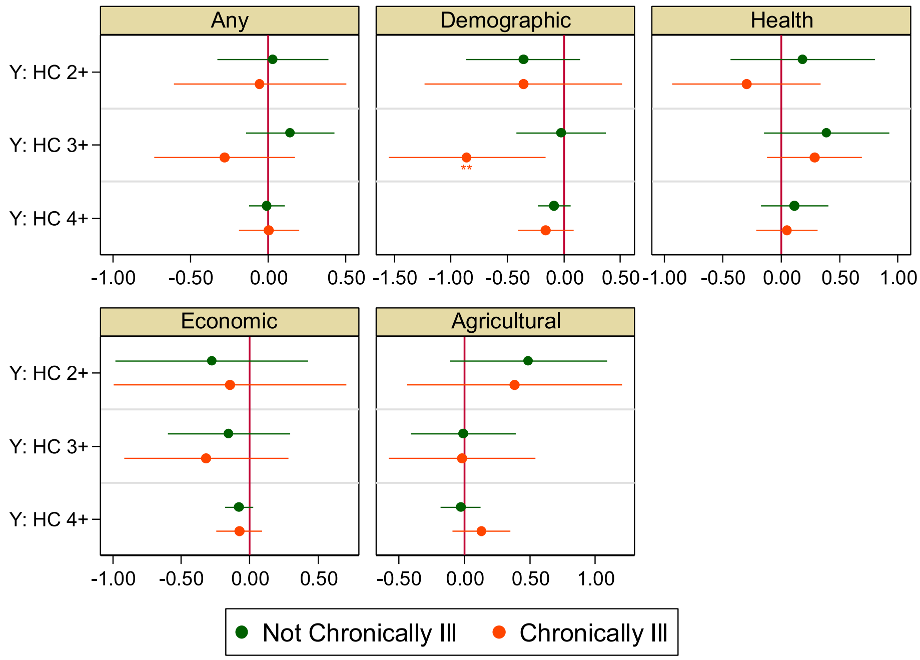

Fig. 4. Heterogeneous impacts of CGP on MDCP by shock, chronically ill vs non-chronically ill female head.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Standard errors clustered at the community level. All regressions include demographic and community characteristics.

deprivation. In a child-sensitive social protection perspective (UNICEF, 2009; Roelen et al., 2017), the CGP fall short of addressing children needs in a more comprehensive way, such as with a 'Cash plus' intervention. Additionally, as extensively explained by Fisher et al. (2017) in their qualitative analysis on beneficiary perspectives, CT, although helpful, did not stop Lesotho's households being negatively affected by shocks. Some of the qualitative evidence points towards the transfer having a crowding out factor towards other transfers, including remittances (OPM, 2014). While not generalizable, this may be part of the reason that the transfer was less effective than expected. The program also encountered several implementation problems which very likely reduced its effectiveness. Nonetheless, we find evidence of that for female-headed and labour-constrained households, the protective effect of the CGP is stronger than for male-headed and non-constrained households, confirming the hypothesis that social protection is a crucial tool for vulnerable households.

This study has however several limitations. First, while we focus on an array of shocks, some of them could be endogenous to the state of vulnerability of the household. We resolve this partially by interacting the shocks with the treatment variable, which is clearly exogenous; however, findings should be interpreted with some caution. Second, self-reported shocks have themselves a limit, in that their effect on the household is already incorporated in the reporting (i.e. an event that did not affect the household would not be reported as a shock). Measures of community shocks are included as controls in the specifications, but are not used as main definitions for the two reason: 1) there are fewer types of shocks, and some, such as the price shocks, are already capture by the vector of prices, and 2) the perception of the gravity of a shock is an important part of the coping or adaptive strategy adopted (or not) by a household, which is a relevant factor for children's outcomes. A further extension of this work could incorporate validation from external sources such as objective measures of weather shocks, which are free of respondent bias and can capture reality at a finer scale (Asfaw et al., 2017), but data is not currently available.

From our findings we can derive some conclusions and policy recommendations. (1) Cash transfers alone cannot act as a panacea: there is a need for integrated programmes, in particular to address the needs of children which cannot be addressed by an increase in expenditure power, especially in context with partial or non-functioning markets. In this sense, the addition to the CGP of the SPRINGS (Sustainable Poverty Reduction through Government Service Support) component seeks to improve the resilience and food security of households, improving their access to credit and to productive activities such as gardening. The evidence shows promising results on a range of outcomes at individual, household, and community levels (Pace et al., 2021; FAO2018b). However, this type of complementary programmes that focus mostly on the productive aspect of security may not be the best suited to address child deprivation: a truly child-sensitive approach should be adopted in order to improve children's outcomes (2) In a context characterized by widespread poverty and vulnerability, CTs can easily be drained by ordinary expenses, diverting expenditures from productive or human capital investments leaving disadvantaged households even more vulnerable in the face of shocks. The design of social protection programmes should integrate mechanisms to support these households though further support mechanism, such as subsidized credit or insurance (3) Not all shocks are equal: the CGP is able to provide a buffer against idiosyncratic shocks, such as demographic and economic shocks however it is less able to respond to covariate shocks, such as weather shocks that impact agricultural production. A truly SRSP system could help integrate income in the face of covariate shocks, preserving the productive investments or savings enabled by the 'ordinary' CT. Finally, (4) while most CT already focus on 'labour-constrained' households, the reason for their constraint can play a major role in the effectiveness of the programme. Understanding the role of different types of hindrances on child well-being is necessary to inform better design of programmes.

Author statement

Alessandro Carraro: Conceptualization, Formal analysis, Data curation, Writing- Original draft preparation **Lucia Ferrone:** Conceptualization, Methodology, Writing- Original draft preparation, Writing - Review & Editing.

Data availability

The authors do not have permission to share data.

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Appendix A. Balance tests and Attrition

This section reports attrition and balance checks for the whole set of variables included in the analysis, including outcomes and controls. Table A1 presents the baseline means and tests of equality between "panel" children (i.e. those children interviewed both at baseline and endline) and "attrited" children (i.e. those children interviewed only at baseline and not tracked at endline) for treatment group (columns (1)–(3)) and control group (columns (4)–(6)). Test of equality between "panel" children (treatment vs control means) are reported in columns (7)–(8). Tests of equality between "attriters" (treatment vs control means) are shown in columns (9)–(10).

The characteristics of children who attrit (n = 198) and stay (n = 1194) in the sample are generally similar in the treatment (columns (1)–(3)) group, as only three out of fourteen household level variables are found to be statistically different at 5% significance. In the control group (columns (4)–(6)) five out of fourteen variables among demographics differ between attriters (n = 104) and panel (n = 1369). The attriters in the control (n = 104) differ from treated (n = 198) for the following two variables: FHH and number of siblings 6–12. To reduce any bias, in the empirical analysis we included both among the controls.

Table A1
Means and attrition analysis among all eligible children (paneled and attrited) aged 4 to 15 at baseline by program status (n = 2865)

	Treatment			Control			Panel T vs C		Attrited T vs C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Panel	Attrited	P-value	Panel	Attrited	P-value	Diff	P-value	Diff	P-value
			Col (1)–(2)			Col (4)–(5)	Col (1)–(4)	Col (1)–(4)	Col (2)–(5)	Col (2)–(5)
HC2: Deprived in 2+ dimensions	0.52	0.57	0.35	0.59	0.59	0.92	−0.08	0.00	−0.03	0.66
HC3: Deprived in 3+ dimensions	0.18	0.16	0.76	0.16	0.19	0.35	0.01	0.49	−0.03	0.53
HC4: Deprived in 4+ dimensions	0.03	0.04	0.63	0.03	0.03	0.67	0.00	0.46	0.01	0.71
Intensity of deprivation 1+ dimensions	0.26	0.26	0.89	0.26	0.27	0.53	0.26	0.27	0.46	0.18
Intensity of deprivation 2+ dimensions	0.34	0.34	0.60	0.33	0.34	0.26	0.01	0.01	0.00	0.77
Intensity of deprivation 3+ dimensions	0.45	0.46	0.62	0.45	0.45	0.70	0.00	0.50	0.01	0.70
Health Deprivation (1 = YES)	0.11	0.08	0.35	0.08	0.15	0.00	0.03	0.03	−0.07	0.07
Education Depr. (1 = YES)	0.18	0.28	0.01	0.19	0.18	0.70	−0.01	0.37	0.10	0.05
Nutrition Depr. (1 = YES)	0.71	0.66	0.28	0.78	0.81	0.42	−0.07	0.00	−0.14	0.01
Water Depr. (1 = YES)	0.19	0.22	0.42	0.16	0.14	0.47	0.03	0.07	0.08	0.08
Living Standards Depr (1 = YES)	0.42	0.45	0.54	0.45	0.44	0.87	−0.02	0.21	0.01	0.86
Child Labour Depr. (1 = YES)	0.07	0.05	0.41	0.06	0.07	0.92	0.01	0.56	−0.02	0.53
Controls										
Age	9.47	9.98	0.15	9.57	10.03	0.08	−0.09	0.51	−0.07	0.88
Child Sex (1 = M; 2 = F)	1.48	1.54	0.23	1.50	1.52	0.69	−0.02	0.25	0.02	0.74
HH Size	6.89	6.36	0.06	6.43	5.90	0.00	0.46	0.00	0.46	0.11
Female Headed Household (1 = YES)	0.51	0.36	0.00	0.53	0.62	0.01	−0.01	0.50	−0.26	0.00
Age Head	53.68	48.42	0.00	52.78	50.70	0.06	0.90	0.11	−2.26	0.24
#Siblings 0–5	1.01	0.93	0.46	0.92	0.83	0.24	0.09	0.02	0.11	0.29
#Siblings 6–12	1.71	1.67	0.74	1.64	1.40	0.00	0.07	0.09	0.28	0.04
#Siblings 13–17	1.03	1.00	0.76	0.97	1.09	0.06	0.06	0.08	−0.09	0.38
#Members 18–59	1.21	1.19	0.85	1.11	1.00	0.16	0.11	0.01	0.19	0.13
#Males >60	0.16	0.12	0.24	0.15	0.08	0.01	0.01	0.53	0.03	0.33
#Female >60	0.30	0.23	0.12	0.30	0.30	0.98	0.00	0.79	−0.07	0.21
# Orphans	1.75	1.66	0.61	1.67	1.85	0.14	0.09	0.19	−0.17	0.38
Highest Education level in the HH	7.69	7.17	0.03	7.75	7.38	0.03	−0.06	0.54	−0.22	0.43
Ln Operated Land	1.04	0.75	0.06	0.94	0.85	0.58	0.10	0.16	−0.10	0.66
Districts and community level variables										
Leribe	0.23	0.21	0.73	0.22	0.23	0.75	0.00	0.79	−0.02	0.67
Berea	0.26	0.24	0.68	0.29	0.24	0.11	−0.03	0.06	0.00	0.97
Mafeteng	0.25	0.27	0.64	0.23	0.37	0.00	0.02	0.22	−0.10	0.09
Qacha's Nek	0.05	0.15	0.00	0.06	0.09	0.07	0.00	0.63	0.06	0.10
Maize Price	3.90	4.08	0.10	4.01	3.76	0.02	−0.11	0.03	0.31	0.03
Wheat Price	6.02	5.74	0.11	5.77	5.59	0.06	0.24	0.00	0.14	0.40
Breakdown variables										
Head Chronically ill	0.33	0.34	0.85	0.29	0.37	0.02	0.03	0.06	−0.03	0.56
Head Not Fit to Work	0.58	0.49	0.09	0.56	0.54	0.56	0.01	0.51	−0.05	0.43
Head Elder	0.38	0.31	0.14	0.37	0.35	0.72	0.01	0.47	−0.05	0.41

1 The CGP has been indexed at baseline to number of children as follows: (1) households with 1–2 children M 360 (USD 36) quarterly; (2) households with 3–4 children M 600 (USD 60) quarterly; and (3) households with 5 and more children M 750 (USD 75) quarterly (OPM, 2014).
2 As reported by Prifti et al. (2017) in Lesotho the households are mostly net buyers, therefore they are more likely to be affected by food price surges.
3 Because intensity of deprivation is calculated only for children deprived at the chosen cut-off, the number of observations decreases at each cut-off.

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