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More evidence on the impact of government social protection in sub-Saharan Africa: Ghana, Malawi, and Zimbabwe

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Summary

Motivation: Governments in sub-Saharan Africa (SSA) have rapidly expanded cash transfer programmes as part of their social protection strategy over the last decade. Currently 46 countries have a state-sponsored social protection programme, compared to just 25 countries in 2005, with the most common type of programme being cash transfers, representing 51% of all social protection spending in the region.

Purpose: We present evidence on the *overall* impacts of state-sponsored cash transfer programmes in SSA, using data from three impact evaluations of government programmes. All three programmes were a key component of the poverty reduction strategy of the respective governments at the time of the evaluations.

Methods and approach: We show impacts across nine broad domains including both protection, production and human development, using baseline and follow-up household surveys on Treatment and Control groups. We relate the pattern of impacts to programme design parameters to further understand the constraints faced by ultra-poor rural households.

Findings: All three programmes have strong effects on their primary objective—food security or food consumption, as well as on secondary objectives that include livelihood strengthening and children's well-being. The largest and most consistent impacts occur in Malawi, where transfer values are in line with international best practice and payments were made regularly during the study period. All programmes show a positive income multiplier, with the multiplier largest in Malawi at 2.94.

Policy implications: The overall results across three national programmes add to the growing evidence from Africa that government unconditional cash transfers have important positive effects on households, that these effects are not limited to just food security, and that programme design features influence the pattern and size of impacts. Results in this article are based on programmes that pass both criteria of implementation feasibility and political acceptability, and thus provide a more accurate reflection of what real-world cash transfer programmes can achieve in SSA.

KEYWORDS

Africa, cash transfers, poverty, social protection

1 | INTRODUCTION

Social protection as a state-sponsored policy tool has increased rapidly in sub-Saharan Africa (SSA) over the last 15 years (Beegle et al., 2018). Currently 46 countries have some type of state-sponsored social protection programme, compared to just 25 countries in 2005, with the most common type of programmes being cash transfers, representing 51% of all social protection spending in the region (World Bank, 2018). This rapid increase is due in part to a fundamental change in the discourse around the role of social protection, especially cash transfers, in a country's wider economic development strategy. While often viewed suspiciously as a "hand-out" that leads to dependency, cash transfers are slowly being recognized as a cost-effective approach to supporting a country's inclusive growth agenda (Davis et al., 2016; Handa et al., 2018b). Examples of countries that have recently scaled up cash transfers as part of their overall economic development strategy include Ghana, Kenya, Lesotho, Malawi, and Zambia.

In this article we present further evidence on the *overall* impacts of state-sponsored cash transfer programmes in SSA. This evidence comes from impact evaluations of three government programmes conducted under the auspices of the Transfer Project. All three programmes were a key component of the poverty reduction strategy of the respective governments at the time of the evaluations; in two cases, Ghana and Malawi, the programmes were scaled up and now reach over one million individuals. All three programmes are unconditional, so while the primary objective of the programmes is consumption support, households are free to choose how to spend the cash, and impacts could conceivably be found in many other domains beyond consumption. For this reason and building on an assessment of two Zambian government cash transfer programmes reported in Handa et al. (2018a), we show effects across nine broad domains including protection, production, and human development. The pattern of results across these domains provides insights into what households view as their most binding constraints and the best use of the cash to achieve their own goals. We relate the pattern of impacts to programme design parameters to further understand the constraints faced by ultra-poor rural households.

Finally, we quantify all impacts directly related to cash spending and compare them to the value of the transfer, and find a positive multiplier effect, as high as 2.94 in Malawi. These positive multiplier effects are comparable to those found in the Zambian programmes, and together provide strong evidence that ultra-poor households use unconditional cash transfers for productive purposes, and not just to maintain consumption. This in turn supports the idea, now slowly being recognized by governments and development partners, that state-sponsored unconditional cash transfers can play an important role in promoting inclusive growth in SSA. This is an important insight because SSA has the highest monetary poverty rates of any world region and, under a business as usual scenario, global poverty is predicted to become increasingly concentrated in SSA in the next few decades (Chandy et al., 2013; Ravallion, 2013).

2 | THE THREE PROGRAMMES

The three programmes we assess have several common design elements. They are all targeted and unconditional, payment is made in cash every two months, and they are implemented by ministries of social welfare in each country as part of their national social protection strategies—see Table 1. The profile of beneficiaries in Malawi and Zimbabwe is almost identical as both programmes have similar demographic targeting criteria related to labour constraints or high dependency ratios. In contrast, the Ghana Livelihood Empowerment Against Poverty (LEAP) programme has several demographic eligibility criteria, and the one we evaluate in this article is the so-called LEAP 1000, which is an extension of the LEAP programme that specifically targets pregnant women and households with a child under 15 months of age, and which started a few years after the initial LEAP. LEAP 1000 is administratively part of LEAP.

TABLE 1 Programme details

Country	Programme	Year programme began	Implementing ministry	Target group	Transfer size (% of baseline consumption)
(1)	(2)	(3)	(4)	(5)	(6)
Ghana	Livelihood Empowerment Against Poverty (LEAP)	2008	Ministry of Gender, Children and Social Protection	Extreme poor with elderly, disabled, or orphans or vulnerable children (OVC), or pregnant women or a child under age 15 months[1]	14
Malawi	Social Cash Transfer Programme (SCTP) [Expansion]	2009	Ministry of Gender, Children, Disability and Social Welfare	Ultra-poor (below the lower poverty line), labour constrained	18
Zimbabwe	Harmonized Social Cash Transfer (HSCT)	2011	Ministry of Public Service, Labour and Social Welfare	Food poor and labour constrained	21

[1]/ These are the eligibility criteria for the entire LEAP programme. The evaluation we report on in this article is of LEAP 1000, the window of the LEAP programme that is targeted to pregnant women and families with a child under 15 months of age.

Two key programme parameters are worth highlighting as they potentially have implications for subsequent household behavioural responses. The size of the transfer is an important factor determining both the breadth and depth of impacts. Experience from the Transfer Project across a dozen country programmes indicates that a transfer value that is at least 20% of the baseline consumption is more likely to result in larger, more transformative impacts, that is, impacts that move beyond food security and into broader consumption, savings, and productive activity (Davis & Handa, 2015). Based on this experience we would expect to see more widespread effects in Zimbabwe and Malawi and fewer, smaller effects in Ghana. One key difference between LEAP and the other two programmes is that LEAP beneficiaries are automatically eligible for a fee waiver for the Ghana National Health Insurance Scheme (NHIS). However, this linkage and enrolment is not automatic, so that beneficiaries still have to go to a designated centre with their LEAP card to enrol and obtain their NHIS card, which in practice poses a barrier for some households (Palermo et al., 2019).

The demographic composition of target households can also influence the response to the transfer. Labour-constrained households, those with fewer prime-age members, will find it harder to use the cash transfer for productive activities that require complementary labour input, or may use children for such activity, which could lead to lower school enrolment (de Hoop et al., 2020). Figure 1 highlights these demographic features by showing the age profile of beneficiaries from the baseline data from the three evaluations. The SCTP and HSCT use almost identical demographic eligibility rules to select beneficiaries,[1] and resulting households have very few prime-age members, and tend to have household heads that are elderly, and a large proportion of adolescent children who are typically grandchildren or nieces/nephews of the household head and are orphans. These are often AIDS-affected households. The Ghana LEAP 1000 window by contrast targets families with a pregnant woman or

[1]The official criteria is that households must have a dependency ratio above 3. Dependents are members aged 18 and below, aged 60 and above, or anyone with a chronic illness or physical disability.

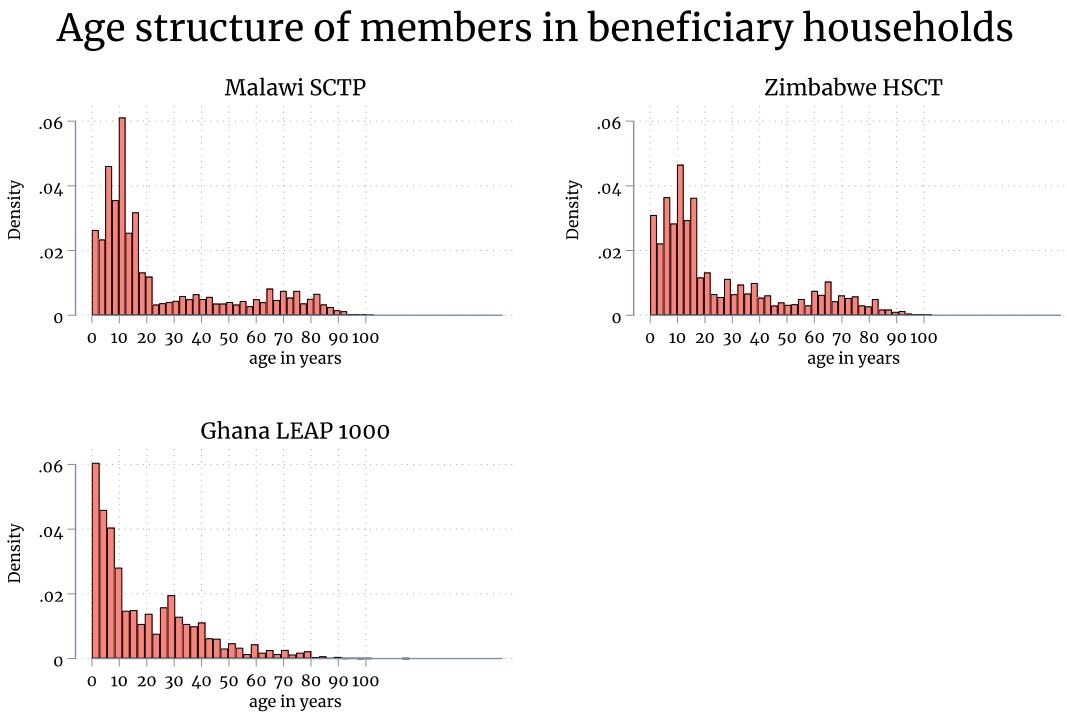

FIGURE 1 Age structure of household members in beneficiary households by country

children under 15 months, and the typical household is much younger, with many more very young children and prime-age adults.

3 | EVALUATION DESIGNS, BALANCE, AND ATTRITION

All three evaluations were conducted by an evaluation team under contract with the respective UNICEF country office and the implementing agency. The construction of a counterfactual was discussed with the implementing agency and needed to fit into the operational plans of the programme. All studies had a baseline household survey where households were blind to their eventual status in the programme, and at least one post-intervention survey. Table 2 summarizes the survey years, baseline household sample size and attrition at the final follow-up. Below we provide additional details on each design.

3.1 | Ghana LEAP 1000

In Ghana, the counterfactual was generated using a discontinuity approach. The poverty criterion for eligibility entailed falling below a strict cut-off on a proxy means poverty score. In areas where the programme was to be implemented, all potentially eligible households (those with a pregnant woman or a child under 15 months old) were administered a short questionnaire with information to estimate the poverty score. Data was sent to the programme headquarters in Accra where the poverty score was calculated. The research team were given access to the poverty score database in order to select the sample for the study. The database contained 8,058 households from 189 communities across five of the 10 expansion districts. The five districts, selected randomly

TABLE 2 Evaluation designs

Programme	Identification of counterfactual	Years of data collection	Baseline sample size	Endline household attrition (%)
(1)	(2)	(3)	(4)	(5)
Ghana LEAP 1000	Regression discontinuity	2015, 2017	2,497	6.6
Malawi SCTP	Randomized controlled trial	2013, 2014, 2015	3,531	6.5
Zimbabwe HSCT	Ward level matching	2013, 2014, 2017	3,063	16.2

from the 10, were Yendi, Karaga, and East Mamprusi in the Northern Region, and Bongo and Garu Tempane in the Upper East Region. Power calculations indicated the required sample size was 2,500 households in order to detect a difference of at least 0.20 standard deviations (SD) in the key objectives of the programme (child height-for-age and household food consumption). After removing households in communities containing fewer than three households (a total of 22 households), the remaining households were sorted in order of the poverty score and the closest 1,250 households above and below the cut-off were selected for the sample. Of these households, 45% fell below the threshold, and the distribution of households around the cut-off was particularly dense so that all households selected into the sample were within 2% of the value of the cut-off score. The final sample size of households in the baseline survey was 2,497.

The baseline report is available at the Transfer Project website and provides a full assessment of the success of the identification strategy (Carolina Population Centre, 2016). The distribution of the poverty score is smooth around the threshold. We performed balance tests on over 200 indicators including all potential outcome variables and found less than 5% were statistically different. Tables A1 and A2 in the Online Supplementary Material (OSM) shows these balance tests for all the outcome variables used in this article, plus the control variables we use in our empirical model. The estimation sample is the 2,331 households that are found in both waves of data (a 6.6% attrition rate) as this is our eventual analytical sample and the balance tests control for the poverty score. Among household-level variables there is one statistically significant difference, 8% of household heads are female in the comparison arm versus 9% in the treated arm, a 0.04SD difference. Among child-level outcomes there is likewise one statistically significant difference for whether or not a child had a pair of shoes, the effect size is 0.14SD. These results indicate that the balance observed at baseline between the two arms was maintained in the panel of households, that is, there was no differential attrition.

3.2 | Malawi Social Cash Transfer Programme (SCTP)

The design of this evaluation was a longitudinal randomized control trial with a baseline in 2013 and two post-treatment surveys in 2014 and 2015. The study districts, Salima and Mangochi, were selected for the study in order to integrate with the expansion plans of the Ministry of Gender, Children, Disability and Social Welfare (MoGCDSW) as these districts were scheduled for scale-up in early 2013 and the MoGCDSW could use this opportunity to conduct a baseline. The research team worked with the Ministry to randomly select two Traditional Authorities (TAs) in each district (Maganga and Ndindi TAs in Salima, Jalasi, and M'bwana Nyambi TAs in Mangochi) to enter into the study. Targeting was conducted by the Ministry in all village clusters (VCs) in these TAs. The study team visited these households in July 2013 to administer a household survey. After this baseline survey, VCs were randomly assigned to treatment or delayed-entry control status in a lottery that was held publicly at the District Commissioner's Office. The final sample for the study was 3,531 SCTP-eligible households located in 29 VCs across the four TAs in the two districts at baseline, of which 14 VCs (1,678 households) were assigned to treatment (T) and 15 VCs (1,853 households) to the delayed-entry group (C).

The fidelity of the study design was assessed by the research team and full results are available in the baseline evaluation report on the Transfer Project website (Carolina Population Center, 2014). As in the Ghana and Zimbabwe studies, baseline balance was tested on over 200 indicators including all main outcomes and balance confirmed (see Appendix F of the baseline report). In the OSM Tables A3 and A4 we provide balance tests for all the household and child-level outcomes used in this article as well as the control variables used in the empirical specification. These balance tests, using baseline values, are conducted on the panel of households in the baseline and endline survey waves, N=3303, which implies an attrition of 6.5%. There is no statistically significant difference in these tables, indicating that there is no differential attrition and baseline balance in the full sample was maintained at the endline.

3.3 | Zimbabwe HSCT

As with the other two studies, the study design in Zimbabwe also had to be integrated into the scale-up plans of the ministry, and similar to Malawi the phased roll out of the HSCT allowed us to use households in wards (local administrative units comprising a group of villages) scheduled to enter the programme at a later date as a comparison group. At the time of the study the ministry was about to enter into phase two of their expansion, and this opened up the opportunity to collect baseline information on future beneficiaries. Since the ward was the lowest administrative unit of the programme, the decision was made with the ministry and development partners in Zimbabwe to match wards entering the programme in phase two with nearby wards that would enter the programme in a future phase. The government was not prepared to randomly assign wards to early and late entry because the phase out plan had been previously negotiated with development partners and was politically sensitive in that it ensured that several important ethnic groups were treated equally in the roll out plan.

Once the intervention wards were identified, our national research partner Ruzivo Trust led a detailed analysis of all wards in treatment areas and neighbouring non-treatment areas. Each ward was assigned a point score based on five characteristics: forest cover, nearness to main roads, resistance to shocks, nearness to business centres, and water sources. Wards in treatment areas were ranked from highest point score (most vulnerable) to lowest and paired within one of three strata. Then, for each treatment ward pair with a given score, a comparison ward with the same score in the same stratum was selected to serve as the "matched" comparison ward. If no comparison ward existed with the exact same score, the ward with the closest point score was selected. If more than one comparison ward existed with the same score, then one ward of the two was picked randomly. Power calculations based on the expected number of households per ward indicated that a total of 60 intervention and 30 comparison wards were necessary for the study.[2]

The Department of Social Services of the Ministry of Labour and Social Services conducted programme targeting in the selected study wards, both treatment and comparison, as per standard programme operation guidelines. Therefore, all households in comparison wards in the study sample were eligible households that would have received the transfer if the programme was operating in their ward, or who would receive benefits once the programme reached their area. Since eligibility criteria are the same across the country and there is universal programme take-up, these households thus serve as an excellent counterfactual for treatment households. The distinction between this design and a randomized control trial is that wards were not randomly assigned to treatment or control status. In a large-scale national programme such as this one, randomization of roll out is often not feasible since programme roll out is determined by both technical (e.g. poverty) and political considerations. However, if the eligibility criteria are applied uniformly, targeting is supply driven, and take-up is universal, then

[2]Sample size calculations were based on the power to detect a meaningful change in the height-for-age z-score of children under the age of 60 months, the indicator for which the largest effective sample size was required.

the only threat to internal validity is the geographical differences across wards. Our stratified matched design was chosen to minimize geographical differences.

The baseline evaluation report provides a full assessment of baseline equivalence across households in treatment and comparison wards and as with the other two studies, is also available at the Transfer Project website (American Institutes for Research, 2013).The identification process appeared to have worked in terms of creating equivalent groups at baseline. OSM Tables A5 and A6 show balance tests for all outcomes used in this paper as well as control variables used in the estimation. These tables are based on the 2,567 households that appeared in both the baseline and endline surveys, a 16.2% attrition rate. There does seem to be some differential attrition in the study sample, eight of the 36 household-level variables are statistically different from each other at baseline, as are two of the seven child-level indicators. The largest differences at 0.21SD are for school enrolment and owning an ox-plough. Note that differences below 0.25SD are considered small and do not necessarily imply selection (What Works Clearing House, n.d.). Nevertheless, in our estimates below we use difference-in-differences (DD) to account for baseline differences in the outcomes.

3.4 | Research ethic

All three studies received ethics approval in the country of the study as well as at the University of North Carolina at Chapel Hill. The Zimbabwe study also received ethics approval from the American Institutes for Research in Washington DC, as they were the prime contractor for the baseline and first follow-up surveys. All approval letters are available upon request.

4 | METHODOLOGY AND MEASURES

4.1 | Methodology

Our core estimation approach is a DD model with the addition of a small set of baseline covariates using baseline and the last follow-up survey wave in each country:

$$Y_{i,t} = \alpha + \beta_T T_i + \beta_{R2}(R2) + \beta_{TR2}\left(T_i * R2\right) + \gamma X_i + \varepsilon_{i,t} \quad (1)$$

In this framework $Y_{i,t}$ is the outcome for the household/child i at time t. T_i is a dummy equal to one if an observation is in the treatment group, R2 is a dummy equal to one if an observation is from the follow-up round, and β_{TR2} captures the intent-to-treat (ITT) effect and is our coefficient of interest; X is a set of pre-treatment demographic controls and ε is the error term. Regressions are estimated using ordinary least squares (OLS) with robust standard errors clustered at the primary sampling unit (community, village cluster and ward respectively). We focus the analysis on the household panel, that is, households that appear in the baseline and follow-up waves. While differential attrition is not a major concern as explained above, there is overall or general attrition in both Malawi and Zimbabwe—the panel sample as a whole is slightly different from the baseline sample suggesting that the impact estimates may not be representative of all programme beneficiaries. This is an issue of external validity rather than internal validity. In the evaluation reports themselves we reweight the samples to make the estimates representative of all programme beneficiaries, while in this article we report unweighted estimates as our focus is on internal validity and comparisons across countries. The additional covariates employed in the regressions are shown in Tables A1–A3 in the OSM and include the age, sex, education level, and marital status of the household head and household demographic composition, all measured at baseline. We also included stratifying variables where relevant, and for child outcomes we also included the age and sex of the child.

The DD approach assumes parallel trends in the intervention and comparison groups. We do not have multiple pre-treatment data points to explicitly test for differences in trends between treatment arms. In Ghana and Malawi comparison communities are from the same districts as treatment ones, while in Zimbabwe wards are geographically close and matched on agro-ecological characteristics. We have analysed trends in community/village/ward level prices and incidence of covariate shocks during the study period and these showed no statistically significant differences between treatment and comparison arms.

4.2 | Measures, pre-analysis considerations and multiple tests

Tables 3 and 4 describe the outcomes used in this article to understand the behavioural effects of the three unconditional cash transfer programmes. All three programmes have food security/consumption as their primary stated objective. Secondary objectives relate to livelihood strengthening through either asset accumulation, strengthening of existing livelihood streams (typically farming) or diversification, and children's human capital accumulation (schooling). LEAP 1000, because it focuses on families with a child under the age of 15 months, is also concerned with child nutritional status. All three programmes are part of national poverty reduction strategies and have stated objectives and corresponding budgets that have been through a political process in each country. The studies were commissioned through a competitive tendering process, and technical proposals submitted through this competition specified the research design, statistical methodology, and key indicators to be used for the evaluation. The final indicator lists were further refined at inception workshops with programme managers and development partners to ensure they aligned with each programme's results frameworks and overarching objectives. Consequently, while it is now expected that independent investigator-led experiments develop a pre-analysis plan to guard against cherry-picking results, the conditions under which these three studies were conceived, designed, and implemented are quite different from investigator-led experiments. Indeed, the entire process from the political discussions leading to the establishment of the programmes themselves, to the competitive tender of technical proposals to the engagement of programme implementers and development partners at each key decision point of the evaluations serve the purpose of the pre-analysis plan in investigator-led experiments in that they ensure that the study parameters respond to the ex-ante stated objective of the evaluations.

We have grouped indicators into nine domains (eight in Zimbabwe) as shown in Tables 3 and 4, of which six are household level and the remainder child level. The domains of Subjective Well-being and Finance and Debt are not strictly part of the stated objectives of the three programmes, but we report on them here to provide comparisons with the Zambia results as well as the six-country assessment of the graduation model (Banerjee et al., 2015). Within Income and Revenue, the value of harvest and engagement in non-farm enterprise represent livelihood strengthening/diversification, within the assets domain livestock ownership is the lead indicator for the programme. Food security is measured slightly differently across the three studies because we chose to align measures with existing national survey instruments to respond to country-level needs for comparing programme beneficiaries with national populations. Consumption expenditure aggregates are modelled after national expenditure surveys in the respective countries, the Integrated Household Survey in Malawi, the Ghana Living Standards Survey, and the Zimbabwe Income and Expenditure Survey. All consumption modules entail over 250 individual items of differing reference periods depending on the expected frequency of purchase (longer reference periods for lumpy items), and include the value of donations and own production, the latter being especially important for staple foods. Values are deflated to the baseline using official consumer price indexes.

All indicators are defined so that higher values are positive outcomes. Following our earlier work in Zambia reported in Handa et al. (2018) as well as Banerjee et al. (2015), we convert all variables into z-scores by subtracting the comparison group mean (at each wave) and dividing by the comparison group standard deviation (at each wave); this implies that at each wave the comparison group has a mean of 0 and standard deviation of 1. We then create an overall index for each domain based on the equally weighted average of the z-score of each indicator in

TABLE 3 Household-level domain and indicator definitions

	Baseline			Endline		
Domains and Indicators	**SCTP**	**HSCT**	**LEAP**	**SCTP**	**HSCT**	**LEAP**
Consumption						
Total consumption expenditures per capita	x	x	x	x	x	x
Food consumption expenditures per capita	x	x	x	x	x	x
Non-food consumption expenditures per capita	x	x	x	x	x	x
Food security						
Does not (or rarely) worry about food	x	x	x	x	x	x
Able to eat preferred food most of the time		x			x	
Does not (or rarely) eat food he/she does not want to eat due to lack of resources		x			x	
Does not (or rarely) eat smaller meal than needed		x			x	
Does not (or rarely) eat fewer meals because there is not enough food		x			x	
Never (or rarely) no food to eat because of lack of resources		x			x	
Does not (or rarely) go to sleep hungry		x			x	
Does not (or rarely) go a whole day/night without eating		x			x	
Does not (or rarely) eat a limited variety of food due to lack of resources		x			x	
Number of meals per day in the household	x		x	x		x
Assets						
Livestock index	x	x	x	x	x	x
Productive assets	x	x		x	x	
Domestic assets				x		
Finance/debt						
Any savings	x		x	x	x	x
Amount saved	x		x	x	x	x
Reduction in the total outstanding debt	x	x	x	x	x	x
Income & revenue						
Value of harvest	x	x		x	x	
Expenditure on agricultural inputs		x	x		x	x
Operating a non-farm enterprise (NFE)	x	x	x	x	x	x
Revenues from NFEs	x	x	x	x	x	x
Revenues from livestock by-products		x			x	
Subjective well-being						
In most ways my life is close to ideal	x	x		x	x	
The conditions in my life are excellent	x	x		x	x	
Satisfied with my life	x	x	x	x	x	x
Have gotten the important things I want in life	x	x		x	x	

(Continues)

TABLE 3 (Continued)

Domains and Indicators	Baseline			Endline		
	SCTP	HSCT	LEAP	SCTP	HSCT	LEAP
If I could live my life over, I would change almost nothing	x	x		x	x	
I feel positive about my future	x	x		x	x	
I generally feel happy	x	x		x	x	
I am satisfied with my health	x			x		
Happy with my life			x			x
Total number 21 27 14 22 28 14						

x signifies that the measure is available in that survey wave and country.

TABLE 4 Child-level domain and indicator definitions

Domains and Indicators	Baseline			Endline		
	SCTP	HSCT	LEAP	SCTP	HSCT	LEAP
Material needs (aged 5–17 years)						
Has a pair of shoes	x	x	x	x	x	x
Has at least two sets of clothes	x	x	x	x	x	x
Has a blanket (either shared or owned)	x	x		x	x	
Schooling (aged 5–17 years)						
Attends school	x	x	x	x	x	x
Anthropometric (aged 0–5 years)						
Not stunted	x		x	x		x
Not wasted	x		x	x		x
Not underweight	x		x	x		x

x signifies that the measure is available in that survey wave and country.

the domain. The specific indicators that compose each domain vary across countries because of the need to tailor each evaluation to the country context, and the aforementioned need to align survey items to existing national survey instruments.

The construction of domain indexes addresses the concern of multiple hypothesis testing, as we effectively collapse our indicators into nine and treat these as our lead indicators. In the OSM we also report results that adjust the p-values for the overall domain indexes using the Šidák–Bonferroni approach (Abdi, 2007), and comment in the text when these alter statistical significance. In general, by showing results across all major domains the reader is provided with a complete and transparent snapshot of the overall impacts of each programme. The nature of the intervention, an unconditional cash transfer with no strings attached, allows each household to spend money in accordance with their own priorities and constraints. This makes it difficult to narrow down the set of outcomes based on theory beyond the immediate need for food security. It also implies that the effects of the programme can be spread out across many different outcomes, rendering each individual effect statistically zero. Tying outcomes to the lead indicators/domains in the programme results framework provides an organizing structure for measuring and presenting results, while building domain indexes using multiple items addresses the fact that effects could be spread thinly across different outcomes within a domain due to the nature of the intervention.

5 | MAIN RESULTS

5.1 | Implementation

The study team tracked the disbursement of cash to treated households during the study period in all three countries. Implementation in Malawi and Ghana was timely and consistent, with payments made every two months as scheduled during the study period. In Zimbabwe, payments started in October 2013, four months after baseline data collection ended, and were made consistently through October 2015. In the following year just one payment was subsequently made (April 2016), followed by a double and triple payment in October and December 2016. In 2017 prior to the endline survey in July, the first payment of the year was missed and resulted in a double payment in April and a regular payment in June. Ultimately eligible households received the total sum of cash that they were due over the study period, but with two significant payment gaps between October 2015 and 2016, followed by a relative normalization of payment regularity in the year of the endline survey itself. It is difficult to predict the effects of this payment schedule on behaviour. Lumpy payments would tend to generate lumpy spending, either purchase of livestock or other assets and repayment of debt. The payment immediately prior to the endline survey was a regular payment, while the one prior to that in April was a double payment. The bulk of consumption consists of food (see subsection 5.2) which is reported with a seven day reference period in the survey, while spending on assets has a one year reference period, which includes the double and triple payments in October and December 2016.

5.2 | Relative poverty of study population

All programmes include a poverty criterion in their eligibility rules, with a more stringent cut-off in Malawi (ultra-poor) and Zimbabwe (food poor) compared to Ghana where households falling below the poverty line are eligible. Though poverty rates among programme participants are highest in Ghana and Zimbabwe, median consumption is significantly lower in Malawi at just USD 0.34 per person per day, over half that of participants in the other two countries. Net national income figures from the World Development Indicators database, which refer to 2016, show that Ghana is three times richer than Malawi, and Zimbabwe twice as rich. The food share is a useful way to characterize and compare the well-being of households across space and Table 5 suggests that the HSCT participants might be slightly better off than participants in the other two countries, consistent with their median daily consumption. Nevertheless, even the Zimbabwean households have a per person median daily consumption that is less than half the USD 1.90 per day poverty line used by the World Bank to monitor global changes in poverty, which underscores the severe deprivation faced by these households across all countries.

5.3 | Main results on domain indices

Figures 2, 3, and 4 show results for the three countries across all the domain indices available. These are ITT DD effects, follow-up time periods are 24-months in Ghana, 30-months in Malawi, and 48-months in Zimbabwe. An

TABLE 5 Poverty and consumption in the target population

	Ghana LEAP	Malawi SCTP	Zimbabwe HSCT
Below national poverty line (%)	91	85	97
Median daily consumption per person (USD)	0.79	0.34	0.85
Food share (%)	78	76	62

Statistics calculated from baseline evaluation data.

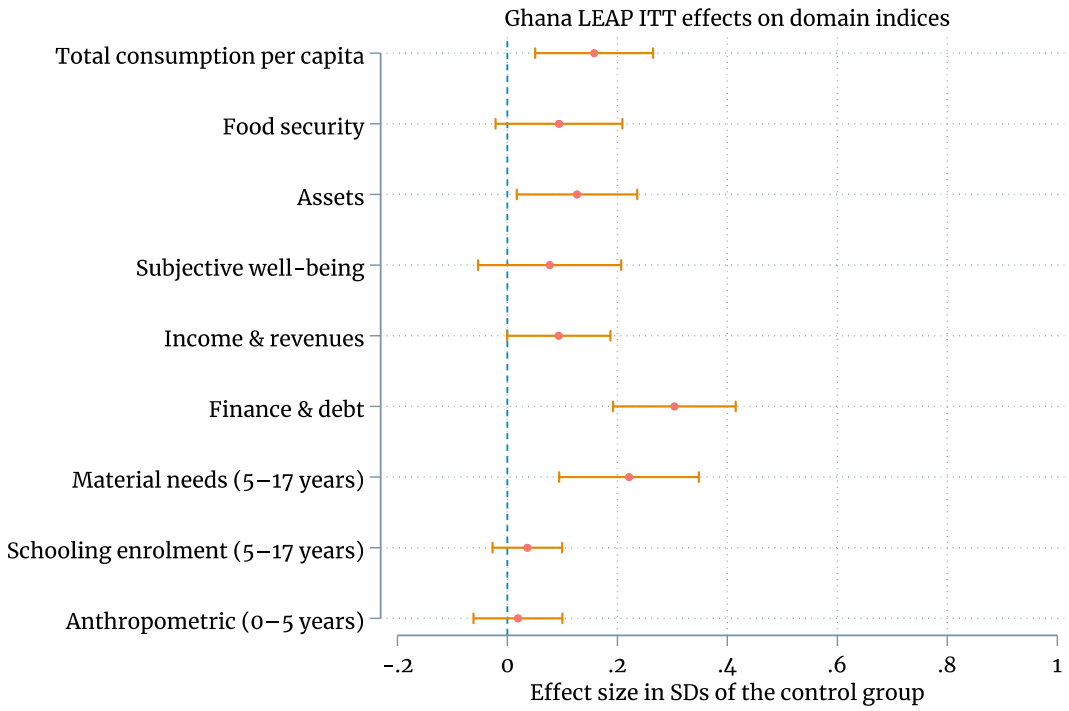

FIGURE 2 Twenty-four month intent-to-treat impacts on domain indices for Ghana LEAP 1000

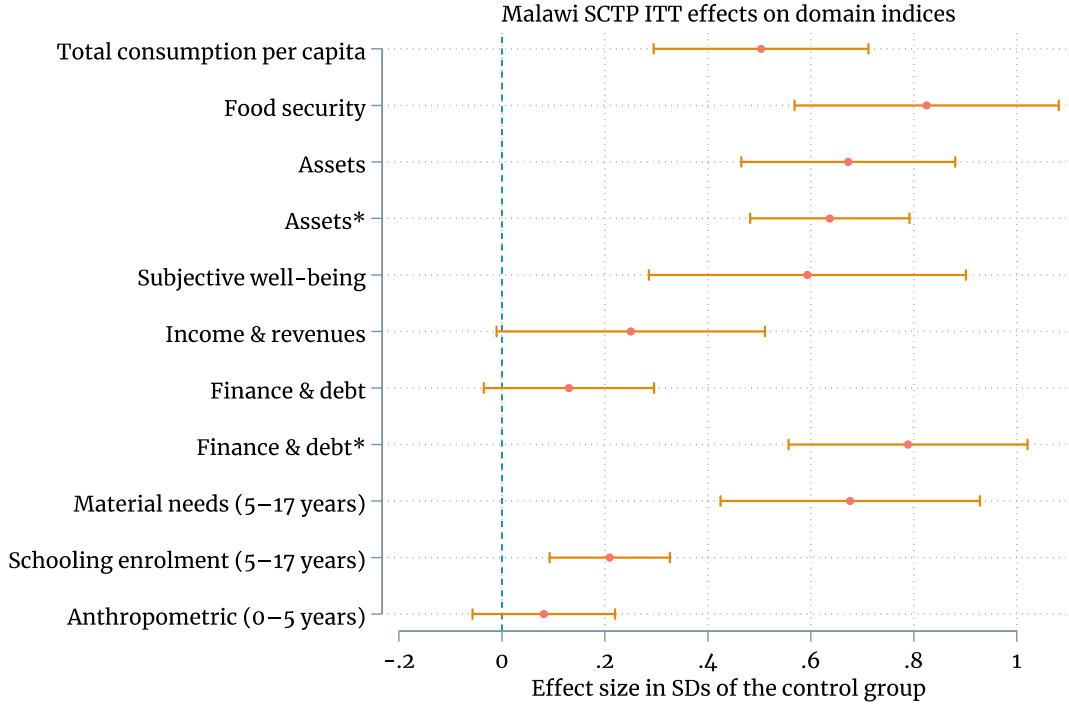

FIGURE 3 Thirty month intent-to-treat impacts for Malawi SCTP

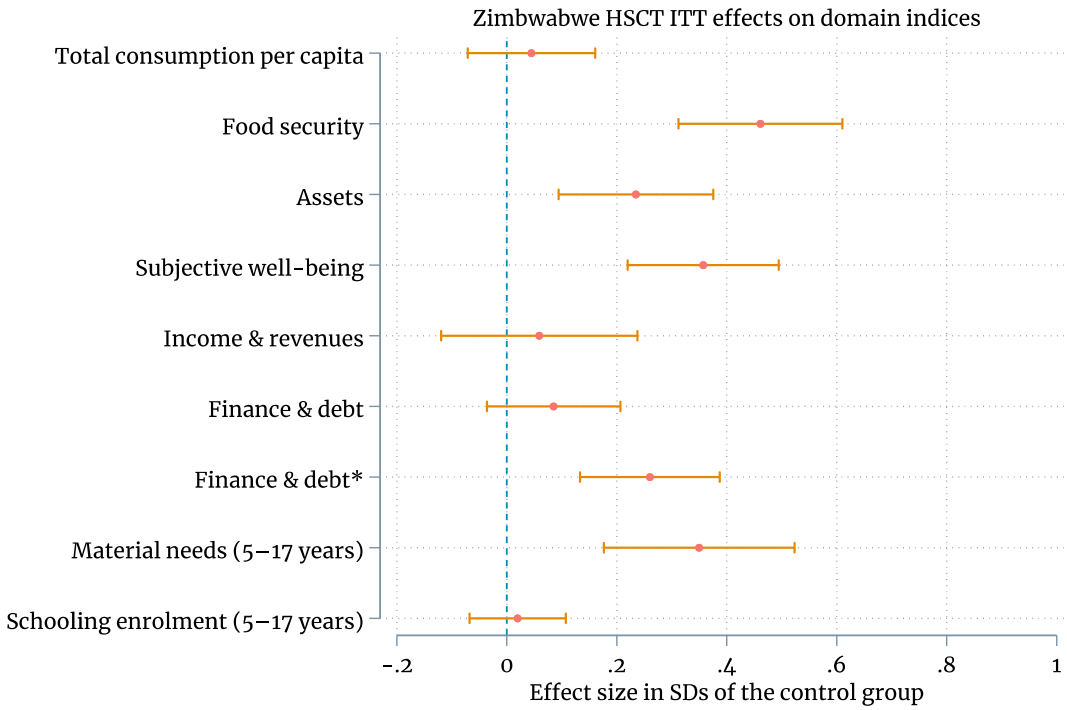

FIGURE 4 Forty-eight month intent-to-treat impacts for Zimbabwe HSCT

index with an asterisk is one that includes one or more indicators that are only available at follow-up and impact estimates are based on single difference; impacts on these indices based on DD estimates using available indicators in both waves are also shown.

The primary objective of these social protection programmes is to alleviate hunger, and all programmes do that through large positive effects on consumption (Malawi, Ghana) or food security (Malawi, Zimbabwe). Effect sizes for food security are noteworthy in Malawi (0.8SD) and Zimbabwe (0.5SD). The stated secondary objectives of all programmes relate to economic strengthening and children's well-being. All three programmes show significant effects on assets, with the largest effect size in Malawi at 0.63SD. Children's well-being is captured through three indicators, material well-being (MWB), schooling, and, in Ghana only, anthropometry (given that LEAP 1000 targets households with a young child or pregnant woman). MWB is statistically significant across all three countries, indicating that households do spend part of the transfer on material items that are specifically earmarked for children (in this case shoes, clothing, or a blanket). Effects on the other indicators are not consistent across countries, schooling only shows as significant in Malawi, and there are no significant effects on anthropometry in Ghana, which is consistent with the accumulated evidence on the relationship between cash transfer programmes and child anthropometry (Chakrabarti et al., 2020; Manley & Slavchevska, 2019).

The overall pattern of results can plausibly be linked to features of the respective country programmes. Ghana has the fewest significant domain impacts (four) and effect sizes are generally smaller, followed by Zimbabwe with five significant domain effects, while the largest overall impacts are observed in Malawi. In Ghana the size of the transfer is the smallest of the three programmes, and the follow-up period the shortest. The regression discontinuity design (RDD) of the impact evaluation means that better-off households within the eligibility range comprise the treatment group, which reduces the relative transfer size, and implies that the estimates are representative of a small sliver of the eligible households for whom the effect of the programme may actually be the smallest. In Zimbabwe, the follow-up period is longest but there were important implementation hiccups during the study

period, so that the transfer did not necessarily represent a predictable flow of income support, a key assumption in the programme's results framework. Overall results are largest and most consistent in Malawi, where the follow-up period is reasonably long at 30 months, the evaluation design is the strongest, and cash was delivered on time throughout the study period. Given these programme and design characteristics, Malawi probably represents the best possible scenario in terms of impacts among these three programmes, and this is borne out by the pattern of results. Nevertheless, there are significant impacts across multiple domains even in the other two programmes, suggesting that these unconditional cash transfer programmes are fulfilling their stated objectives of alleviating hunger, strengthening the household economy, and improving children's well-being despite imperfections in programme implementation.

5.4 | Meta-analysis of importance of transfer value

As noted earlier, the relative value of the transfer varies noticeably across the three programmes, and the pattern of impacts seem to correspond to the variation in transfer values, with smaller impacts in Ghana, where the relative size of the transfer is the smallest. We provide some additional evidence on the importance of the transfer by combining post-intervention data from all three countries and relating the magnitude of the change in outcomes (measured by our domain indexes) to the size of the transfer. In each country we know the actual size of the transfer received by each household in the treatment group, which we divide by their baseline consumption to obtain the transfer share. We estimate a household fixed-effects model on treatment households only, using baseline and follow-up data, and including the transfer share directly as a predictor as well as a time dummy.

Results of this model are shown in Panel A of Table 6. The coefficient of the transfer share is statistically significant and positive in six of the eight domains, not significant for school enrolment, and negative for Finance and Debt. The largest effect size is for consumption, where an additional one percentage point increase in the transfer share raises consumption by 0.02SD over the baseline among the treated households. In Panel B we introduce interactions between the transfer share and country. Ghana is the excluded country, and the interaction terms indicate the difference in the effect of transfer value on each outcome between the indicated country and Ghana. These interaction terms are statistically significant in five domains for Zimbabwe and six for Malawi. In these countries and for these domains, the transfer share has a stronger effect than in Ghana, with largest effects for food security and subjective well-being. In Ghana, the transfer share is just 13% of baseline consumption and without much variation in the sample, while in the other two countries the average share is higher and with considerable variation. Transfer share seems to not be strongly related to Finance and Debt, and is negatively associated with Finance & Debt in Panel A.

5.5 | Individual indicators

As we noted earlier, a key feature of the unconditional cash transfer (UCT) is that households can use the money in the ways that best alleviate their constraints as they see them. Providing summary indices over domains addresses the issue that effects can be spread out across a large set of indicators. Indeed, UCTs are often compared to sector interventions that target a narrow set of outcomes (such as school enrolment or preventive health check-ups), which misses the underlying purpose of a UCT, which is to expand the budget constraint to allow greater choice across all consumption bundles (McIntosh & Zeitlin, 2018). In this section, we report impacts on each of the individual components of the domain indices, both for transparency and to see if there are distinct patterns in the way that these ultra-poor households choose to spend their transfer, which in turn can help us understand their main constraints.

Figures 5–8 show the individual indicator impacts for each of the three programmes, where, as before, all indicators are defined so that higher is better, and converted to z-scores of the control group in the same wave. Rather than sifting through each of the indicators, we identify broad patterns in the results. The Finance & Debt index consists

TABLE 6 Effect of the transfer share on domain indices

	Total consumption per capita	Food security	Assets	Subjective well-being	Income & Revenues	Finance & Debt	Material needs[1]	Schooling enrolment[1]
Panel A								
Transfer share	0.0169	0.00927	0.0129	0.00796	0.00340	-0.00878	0.00883	0.00212
	(0.003)*	(0.003)*	(0.002)*	(0.002)*	(0.002)*	(0.002)*	(0.003)*	(0.001)
Panel B								
Transfer share	0.001	-0.018	-0.002	-0.008	-0.007	-0.001	-0.009	-0.001
	(0.005)	(0.005)*	(0.004)	(0.004)*	(0.004)	(0.004)	(0.005)	(0.002)
Transfer share * Zimbabwe	0.008	0.023	0.009	0.015	0.006	-0.007	0.012	0.001
	(0.004)*	(0.004)*	(0.004)*	(0.004)*	(0.003)	(0.003)*	(0.004)*	(0.002)
Transfer share * Malawi	0.031	0.033	0.026	0.016	0.018	-0.008	0.025	0.007
	(0.004)*	(0.006)*	(0.005)*	(0.004)*	(0.004)*	(0.004)	(0.006)*	(0.003)*
N	7,956	7,952	7,960	7,952	7,962	7,962	19,735	19,802

[1]/ Children aged 5–17 years.

Estimations use fixed-effects modelling (treated group only) and include a time dummy. Robust standard errors (clustered at the relevant level) are in parentheses. * $p<0.05$; mean transfer shares are 20.5, 24.8 and 13.4% in Malawi, Zimbabwe, and Ghana respectively.

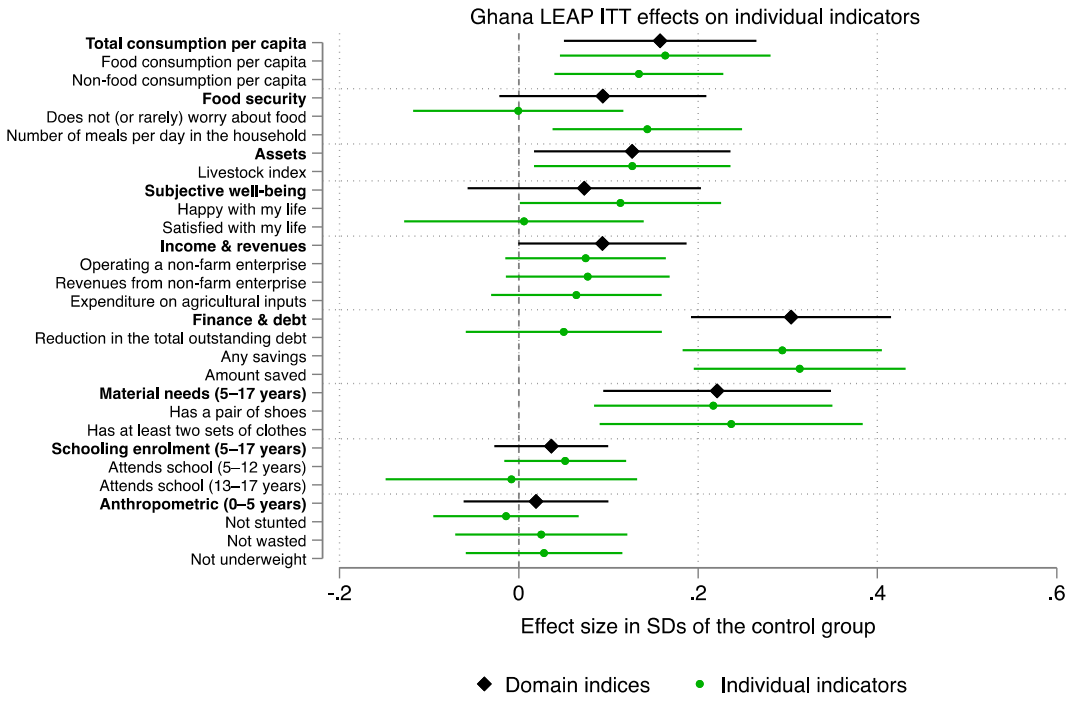

FIGURE 5 Intent-to-treat impacts on individual indicators for Ghana LEAP 1000

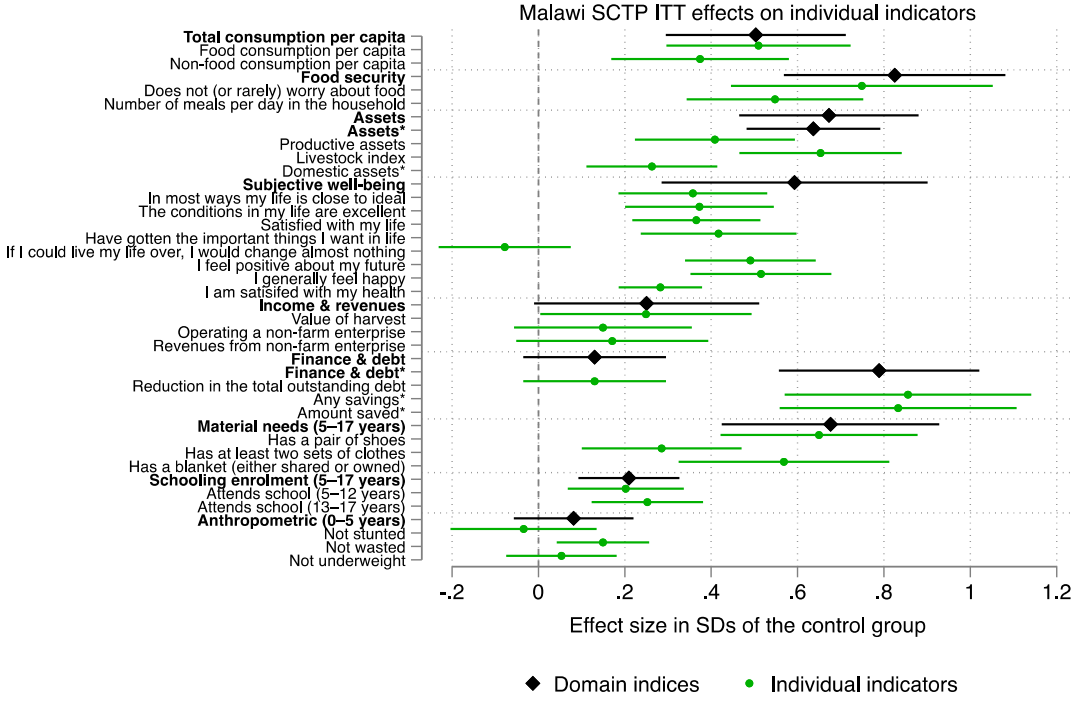

FIGURE 6 Intent-to-treat impacts on individual indicators for Malawi SCTP

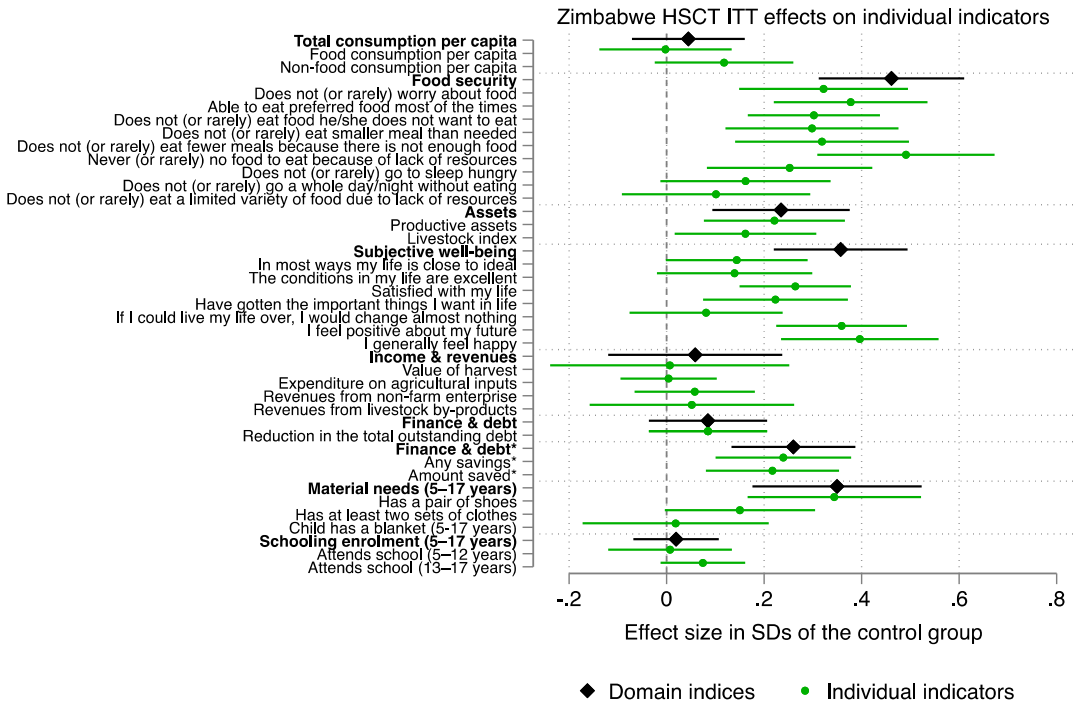

FIGURE 7 Intent-to-treat impacts on individual indicators for Zimbabwe HSCT

of the (change in the) stock of debt and whether the household has any savings and, if so, the amount saved. The point estimates for debt reduction are positive, indicating that households reduce debt as a result of receiving the cash, rather than taking on more debt, though none of the estimates are statistically significant. On the other hand, in all three countries, there is a significant increase in cash savings and the amount held (which is defined over all households and not just among savers), suggesting a precautionary savings motive consistent with households who are credit constrained. The Asset index is significant in all three countries. Analysis of the components of the index indicates that in all countries the livestock component of the index is statistically significant, with a particularly large 0.62SD effect size in Malawi. Livestock can, of course, be viewed as a form of savings as well as a livelihood strategy. The Food Security index in Zimbabwe is measured by the comprehensive Household Food Insecurity Access Scale (HFIAS), but by just two indicators in the other two countries; in those two countries the indicator on number of meals eaten per day shows a statistically significant improvement, as does the closest comparable item in the HFIAS in Zimbabwe ("eat fewer meals in a day"). In all countries the sub-component of "shoes" in the children's MWB index shows statistically significant improvements among the treated group over the controls, indicating that this is the dimension of child material possessions that is the major constraint. Finally, the subjective well-being index includes an indicator on happiness, which is statistically significant at 5% in Malawi and Zimbabwe, and at 10% in Ghana.

5.6 | Šidák–Bonferroni adjustments

Multiple inference testing produces a different Type I error rate that increases with the number of tests. Because we are reporting evidence on multiple domains, we are more susceptible to rejecting the null hypothesis when it is true (Abdi, 2007) in at least one domain. An approach to guard against this false positive is to adjust p-values using the Šidák–Bonferroni adjustment (Abdi, 2007).

$$Pval_j^* = 1 - (1 - Pval_j)^N \quad (2)$$

In equation (2) above, $Pval_j^*$ is the Šidák--Bonferroni adjusted p-value for outcome *j*, where j is the domain of interest (consumption, food security, assets, finance/debt, income and revenue, subjective well-being, material needs, schooling, or anthropometric) and $Pval_j$ is the unadjusted p-value from a two-tail test for outcome *j*. *N* is the number of tests we performed (nine in Ghana and Malawi, eight in Zimbabwe).

In Zimbabwe, the household-level and child-level results are robust to multiple-testing adjustments. Overall, the adjusted p-values are larger than the unadjusted p-values. However, statistically significant results are unaffected. For example, food security scale, asset index, subjective well-being index, and material needs index remain statistically significant at 1% level even after adjusting the p-values.

In Malawi, the results are also robust to multiple-testing adjustment, except for income and revenue index. While income and revenue index becomes insignificant after correcting for multiple testing, the unadjusted income and revenue index is only weakly significant (p-value < 0.1). All other indices remain statistically significant at the 1% level. In Ghana, adjusting for multiple testing produces mixed results. Total consumption per capita remains statistically significant, while the asset index and income and revenue index become insignificant after adjusting for multiple testing. Finance and debt index and material needs index remains significant at 1% level. Results based on these corrections are provided in the online supplementary material.

6 | FOLLOWING THE MONEY

The survey questionnaires are such that we are able to track and construct a fairly comprehensive measure of total household expenditure, which we can compare to the value of the transfer received by the household to get an overall sense of spending patterns and possible multiplier effects of the cash transfer. The largest component of total spending is consumption, where our measure is identical to the consumption measure used by the respective national statistical offices to construct national poverty lines and associated monetary poverty estimates (comprising 200+ individual items). Our consumption measure includes donations, which we separate out for this exercise in order to focus on cash spending. Beyond consumption, other components of spending we can measure include cash savings, loan payments or debt reduction, agricultural inputs (fertilizer, hired labour, seeds, rental equipment), and purchases of livestock in the past year. In Malawi and Zimbabwe we also have a measure of spending on agricultural or productive assets in the past year (tools such as hoe, axe, machete, spade, wheelbarrow, and so on). In terms of inflows, we capture the value of donations of consumption and net remittances (cash donations received less sent), and of course the value of the cash transfer received by the household. The reference period is annual, and all monetary figures are in local currency at the base year of the study.

Results of our tracking exercise are summarized in Table 7, which shows treatment effects in local currency for each of the components of outlay and inflows as well as the annual mean value of the cash transfer received by recipients. The implied multiplier is simply the sum of the outlays divided by the sum of the inflows, shown in the last row of the table. These range from 1.19 in Ghana to 2.94 in Malawi, and generally follow the pattern of effect sizes reported earlier across the domains. Thus, on average it appears that households are able to translate the cash transfer into additional spending, which must naturally come through increased income-generating activity. How the cash supports productive activity is evident from Table 6. In Ghana, households use the cash to purchase agricultural inputs, in Malawi to purchase inputs and productive assets, and in Zimbabwe to purchase productive assets. Another insight from Table 7 is the important reduction in donations received by HSCT recipients, representing 20% of their total consumption. This explains the somewhat contradictory results in Figure 3 where the treatment effect of the

TABLE 7 Summary of annual total spending and monetary inflows to cash transfer households

	Ghana LEAP 1000 (adult equivalents)	Malawi SCTP	Zimbabwe HSCT
Outflows			
Purchased consumption	**98.92** (39.68)	**57752.21** (10368.03)	**232.97** (78.30)
Agricultural inputs	**9.40** (3.11)	**1123.33** (279.98)	1.41 (1.54)
Savings	**14.62** (4.54)	**455.54**[1] (101.50)	**11.31**[1] (5.16)
Debt reduction	-2.41 (3.35)	**679.74** (235.42)	4.05 (6.75)
Livestock	-0.30[1] (4.82)	**516.41** (80.98)	2.45 (1.48)
Productive asset	-	111.02 (70.09)	**6.94** (3.47)
Inflows			
Mean value of cash transfer	100	22490	262
Value of consumption donations	6.56 (6.72)	3634.97 (3135.27)	58.83 (42.64)
Net remittances	1.05[1] (1.94)	1265.05 (1735.04)	7.96 (17.36)
Implied multiplier (outflows/inflows)[2]	1.19 [0.35-2.04]	2.94 [1.80-5.32]	1.21 [0.57-2.32]

Numbers are treatment effects on the indicator in the first column, estimated in local currency using equation (1) unless noted otherwise; clustered standard errors shown in parentheses, bolded coefficients are significant at 5%. [1]/Single difference estimates. [2]/ Implied multiplier calculated by summing each of the estimated outflows and dividing by the sum of the inflows. The resulting multiplier is bootstrapped with 1,000 replications to obtain a confidence interval, shown in square brackets.

HSCT on total consumption is not statistically significant but the impact on food security is 0.5 SD; Table 7 shows that the HSCT in fact has a significant impact on *purchased* consumption of the household.

We have constructed similar multiplier estimates for two cash transfer programmes operated by the Government of Zambia (Handa et al., 2018), which averaged to 1.65, about the same range of the average (1.78) of the three estimates shown in Table 7. We show bias-corrected bootstrapped confidence intervals (1,000 repetitions) for each of the multiplier estimates, in two cases the confidence intervals do include one; on the other hand, for Malawi the implied multiplier could be as large as five. We note that, even with such sizeable multipliers, these households continue to be ultra-poor (fall below the lower poverty line). Mean daily per capita consumption as shown in Table 5 in Ghana is USD 0.79, a multiplier of 1.19 would raise daily consumption to USD 0.94, still well below the international poverty line of USD 1.90. In Malawi even if the multiplier were as high as 5, which is rather improbable, mean consumption would be USD 1.70, still below the international poverty line, though higher than the national poverty line. So, while these estimates provide further evidence that UCTs to the ultra-poor can have both protective and productive effects, they are unlikely by themselves to represent an approach to ensuring permanent "graduation" out of extreme poverty given the extremely low baseline consumption of the households involved. Of course, this is not the primary objective of these programmes in the first place.

7 | POLICY DISCUSSION AND CONCLUSION

We add to the small but growing evidence on the impacts of *government* cash transfer programmes in SSA on household well-being. We emphasize government programmes in contrast to non-governmental organizations (e.g. Give Directly reported in Haushofer & Shapiro, 2016) or investigator run programmes (e.g. the Zomba trial reported in Baird et al., 2011), since government programmes represent the outcome of a political process that results in programme parameters that are realistic and feasible, and account for implementation capacity, which is

important in low-income settings. Our results are thus a better reflection of the actual impacts of UCTs as a public policy initiative in SSA.

Results indicate a wide range of impacts across protective and productive domains. All three programmes have strong effects on the primary outcome area of these social protection programmes—food security or consumption. This occurs in Zimbabwe despite a significant reduction in donations (equivalent to 20% of baseline consumption) received by beneficiaries in the post-treatment period. This is a positive spillover for households that would have otherwise had to provide these donations. Qualitative evidence indicates that the reduced reliance on donations brought about by the transfer allowed households to be more independent in assuring their food security. All programmes have a significant impact on stabilizing and strengthening the financial security of households, by increasing asset ownership, reducing debt and increasing savings. The MWB of children in these households also improves, notably through the acquisition of shoes.

From a theoretical perspective, the unconditional nature of these three programmes, which is the case with almost all the major government programmes in SSA, empowers households to use the cash to satisfy their most pressing needs as they define them. This can pose a challenge for impact evaluation because the range of potential indicators and domains that can be affected is large. However, ultra-poor households in rural SSA tend to share a common set of constraints, and this is borne out in a consistent pattern of individual indicators that are moved by the programmes. Beyond food security, households in all countries use the cash to increase their cash savings, to pay down debt and to buy livestock. In these settings, where access to formal savings institutions is low, livestock serves as a form of savings, and can also be a productive livelihood strategy to complement usual farming activities. On the other hand, impacts on children's schooling is mixed, with significant impacts only in Malawi. Most cash transfer countries in Latin America tend to be conditional on households sending children to school, and the World Bank in particular has been a strong advocate of conditional cash transfers (Lagarde et al., 2007); the three large conditional cash transfer programmes in SSA (Senegal, Madagascar, and Tanzania) are all products of World Bank loans. In Zimbabwe, enrolment rates among children between five and 17 years old in our study population is 80%, the remaining out-of-school children are likely to be harder to reach and income may be just one of many barriers to schooling. In Ghana and Malawi, enrolment rates are slightly lower at 70%, suggesting there is more room for the programmes to have an effect. In Malawi we do see a positive impact on schooling, while in Ghana the lack of impact may be attributable to the low value of the transfer.

Our summary of total spending shows positive multiplier effects—households spend more than the total value of the cash transfer they receive, net of donations. The multiplier is only statistically significant in Malawi, where the overall size of impacts is also the largest. As noted above, Malawi represents the best-case scenario of an adequate transfer size delivered consistently, and can thus serve as a benchmark for what is possible if governments get these two key parameters right in their programme design and implementation of UCTs.

The pattern of results we report varies in a plausible way with programme parameters and the features of our study design. The important programme features are the value of the transfer and the consistency of payment. The key behavioural changes described in the programme results framework assume the transfer is viewed as a permanent change in income, which in turn requires that households expect payments to be made consistently. This was not the case in Zimbabwe, for example. Meanwhile, in Ghana transfers were the lowest (of the three programmes) relative to pre-programme consumption, in part because the study design used the richest eligible households. The pattern of results shows the smallest impacts in Ghana and the largest impacts in Malawi where transfers were of reasonable size and were made consistently through the entire study period. The impacts in Malawi represent the base-case scenario of a smoothly functioning programme that delivers an adequate amount of cash.

The overall results across three national programmes add to the growing evidence from SSA that government UCTs have important positive effects on households, that these effects are not limited to just food security, and that programme design features influence the pattern and size of impacts. A key distinguishing feature of our results is that they all come from programmes designed and implemented by national governments, an important dimension that is often overlooked in the discussion of evidence around cash transfers. Ultimately, for

programmes to be taken to scale, they must be feasible to implement and acceptable by governments and citizens. Many of the cash transfer results cited in the literature (see above) do not satisfy these basic requirements, and so while they provide important insights about behaviour, remain limited in terms of implications for public policy. Results in this article are based on programmes that pass both criteria of implementation feasibility and political acceptability, and may thus provide a more accurate reflection of what real-world cash transfer programmes can achieve in SSA.

DATA AVAILABILITY STATEMENT

Data for the Ghana LEAP 1000 evaluation are openly available at the Carolina Population Center Data Portal at https://data.cpc.unc.edu/projects/13/view

Data that support the findings for Zimbabwe and Malawi can be made available for replication purposes upon request from the corresponding author. These data are not publicly available due to privacy restrictions.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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