Can unconditional cash transfers raise long-term living standards? Evidence from Zambia

Sudhanshu Handa, Luisa Natali, David Seidenfeld, Gelson Tembo, Benjamin Davis
Zambia Cash Transfer Evaluation Study Team

Abstract
In Africa, state-sponsored cash transfer programs now reach nearly 50 million people. Do these programs raise long-term living standards? We examine this question using experimental data from two unconditional cash transfer programs implemented by the Zambian Government. We find far-reaching effects of the programs both on food security and consumption as well as on a range of productive outcomes. After three years, household spending is on average 67 percent larger than the value of the transfer received, implying a sizeable multiplier effect, which works through increased non-farm activity and agricultural production.

Keywords
Poverty reduction; Unconditional cash transfers; Zambia

1. Introduction
With one-fifth of the world’s population still living in extreme poverty there remains a vital need to identify interventions which can lead to sustained increases in living standards. Recently several evaluations of ‘graduation programs’ have generated enthusiasm about their potential to offer a permanent escape from poverty for the world’s poorest. These programs, exemplified by the NGO BRAC in Bangladesh, provide a ‘big-push’ to extremely poor households consisting of cash transfers, livestock assets, training and supervision in the use of the asset, life-skills training and eventually access to formal sector credit at market interest rates. An evaluation conducted by BRAC itself in Bangladesh reported a 40 percent increase in consumption four years after the supervision and other training support ended as well as a significantly larger productive asset base relative to a non-experimental comparison.
group (Raza et al., 2012). Subsequently, this model was subject to a multi-site randomized control trial (RCT) in six different countries across three continents by the Graduation Program Consortium. Results of program impacts across both consumption and economic domains one year after the supervisory visits ended, and approximately 2–3 years after the initial transfer of assets, show continued positive impacts on both consumption/food-security and productive assets though with some variation cross sites (Banerjee et al., 2015).

Importantly, given the large upfront cost of the big-push graduation model and the intensive hand-holding it entails, a cost-benefit assessment shows net positive returns in five of the six sites, suggesting that this type of approach makes financial sense. A more recent paper, which is based on data from BRAC beneficiaries in Bangladesh, also calculates positive benefit-cost ratios as well as large increases in more productive labor activities among women four years after the initial transfer of assets (Bandiera et al., 2016).

The BRAC approach serves as a template for similar interventions which are currently estimated to reach almost half a million people in Bangladesh and another half a million across 20 countries world-wide. Meanwhile, a recent review by the World Bank (2015) estimates that around 150 countries in the developing world have cash assistance programs and that approximately 800 million people are reached by some type of cash transfer program. Significant expansion of cash transfer programs has recently occurred in sub-Saharan Africa (SSA), with a doubling of development oriented (i.e. non-humanitarian) programs from 20 to 41 between 2010 and 2015, reaching an estimated 8–10 million households or 50 million individuals (World Bank, 2015; Garcia and Moore, 2012). Such programs are of course fundamentally different from graduation programs both in objective and implementation. First, their primary objective is poverty mitigation rather than economic empowerment, although many large programs on the continent do have economic empowerment as a secondary objective.¹ And second, cash transfer programs tend to be nationally owned and implemented, while the graduation model to this date is only implemented in the NGO sector, likely due to its complexity and the large initial upfront investment required to launch the programs. Given the relative simplicity of the unconditional cash transfer model, its popularity world-wide, and the sheer number of beneficiaries currently being reached, an obvious question is whether it has the potential to go beyond just protecting consumption and generate impacts on productive activity as well, which could ultimately lead to permanent increases in living standards.

How could a small, predictable sum of money, paid monthly or bimonthly lead to long-term increases in living standards? Most theories on poverty cite credit or informational constraints, lack of skills, lack of access to instruments to manage risk, and present bias (myopia) as some of the key determinants of poverty, and the graduation model addresses several of these constraints directly. An unconditional cash transfer in its simplest form, in other words absent any explicit message or complementary intervention, would in principle only directly address two constraints—liquidity and insurance. Although targeting is to the ultra-poor, even these households might spend some of the transfer on agricultural production as a way to ensure their food security, and lumpy or unpredictable transfers

¹For example, the Malawi Social Cash Transfer Program and Ghana’s Livelihood Empowerment Against Poverty both mention economic empowerment goals as additional program objectives.
might be used for investment. The literature to date on the economic impacts of cash transfers is thin, both because this is not their primary aim, and because most evaluations do not follow households long enough for productive effects to establish themselves. Gertler et al. (2012) report positive impacts of Mexico’s Progresa (now called Prospera) conditional cash transfer (CCT) on livestock holdings and small business activity 18 months after program initiation, and show that increases in consumption in the original treatment group were larger than the control group that entered the program four years later, suggesting a multiplier effect of the cash transfer over time. On the other hand, Maluccio (2010) did not find any productive effects of a similar conditional cash transfer program in Nicaragua after 18 months. Recently, the Food and Agricultural Organization (FAO) in collaboration with UNICEF began a major initiative to document the productive impacts of national cash transfer programs in SSA. A summary of initial results across seven unconditional cash transfer programs, all implemented by governments, suggests that there are impacts of such programs on livestock assets, engagement in non-farm business activity, and on-farm investment in fertilizer and seeds (Covarrubias et al., 2012; FAO, 2016; Handa et al., 2016a; PtoP, 2014), with variations depending on the size and predictability of the transfer and the demographic composition of target households. And recently, Give Directly, an NGO operating in East Africa, also reported large impacts of an unconditional cash transfer on productive outcomes such as livestock, durable assets, and agriculture and business revenue after only nine months of transfers (Haushofer and Shapiro, 2016).

In 2010, the Zambian government began testing two different cash transfer models to inform future scale-up decisions. Each program was accompanied by a randomized control trial (RCT) with one baseline and several longitudinal post-intervention follow-ups starting at 24-months. Both models entailed a flat unconditional cash transfer of approximately $12 ($24 PPP) per month paid every two months. The Child Grant Program (CGP) targeted all households with a child under age five in three poor rural districts, while the Multiple Category Targeted Program (MCP) targeted vulnerable households, those with a female or elderly head keeping orphans, or a household with a disabled member, in two rural districts; ninety percent of beneficiaries fell below the national extreme poverty line in each program and median beneficiary consumption was around 30 US cents per person per day. The distinct demographic criteria across the two programs meant that the same basic program was delivered to extremely poor households but with very different demographic make-ups. The CGP is composed of younger households with more prime-age members while MCP households actually have an absence of prime-age members, and instead many more adolescents and elderly care-takers. Both sets of beneficiaries are equally poor, so the difference in their demographic composition allows us to observe whether the size and pattern of impacts across programs is similar, which enhances the generalizability of our evidence.

We present comparative results for both programs across eight major domains covering both protective and productive outcomes, even though the primary objective of the programs themselves is protective. The domains are consumption, food security, assets, income and revenue, finance and debt, relative poverty, children’s material needs and schooling. We find strong impacts of both programs not just on protective domains such as consumption, food security, and children’s material needs, but also on productive ones, which indicates that
these two programs had a transformative effect on recipient households. Also of interest is that impacts do not differ significantly across household eligibility type despite the very different age composition of members. The large impacts on both consumption (the primary objective of the programs) and productive activity suggest that transfers were invested and so might lead to sustained improvements in living standards. There are however nuances in terms of specific impacts, especially in productive domains, which we discuss in more detail in the paper. We monetize the consumption, savings and asset accumulation impacts in a one year period and compare this value to the yearly transfer to derive an income multiplier of around 1.67 averaged across both programs. In other words, beneficiary households are able to convert each Kwacha of transfer into an additional 0.67 Kwacha worth of income, suggesting that these programs go well beyond their primary goal of protecting consumption, and that even in the absence of complementary interventions such as those in the graduation model, small, predictable unconditional cash transfers may also contribute to long-term poverty reduction.

In terms of contributions to the literature, Haushofer and Shapiro (2016) note that the long-term effects of UCTs are ‘still incompletely understood’, especially in developing countries, as are UCTs delivered to populations chosen for reasons other than just poverty such as caretakers of orphans (p37). This paper addresses both these knowledge gaps by providing evidence on two UCTS from a low-income country, neither of which targets explicitly on poverty. Moreover, the two programs are different from the Give Directly (GD) model in that they are implemented by a national government which speaks to potential scalability, and provide the transfer in cash (rather than electronically) which is similar to the vast majority of programs in Africa and also avoids the potential confound of introducing savings or mobile money accounts, thus providing a clean assessment of cash alone. Also, GD makes one lump-sum transfer (average transfer amount of US 709 PPP) whereas most national programs in Africa tend to provide smaller grants smoothed over a longer period of time as is the case in the two programs analysed in this paper. Our evidence thus comes from two programs which better represent the typical program governments introduce to address poverty. Can these programs also contribute to economic growth by raising productivity? This is the key question we address.

Three published articles and one working paper have used these data to analyse subsets of the indicators reported in this paper. Hjelm et al. (2017) estimate the impact of these two programs on perceived stress, and investigate food security as one potential pathway through which the programs impact perceived stress. While perceived stress is not used in the current paper, food security is reported here. Handa et al. (2016a) present results from the 24-month follow-up of the CGP only, and use most of the indicators reported here. However, that paper does not present results for the MCP nor for the 36-month follow-up, nor does it attempt any calculation of income multipliers which is one of the main innovations in the current paper. Handa et al. (2016b) provides a detailed investigation into the pattern of impacts on school enrolment in the CGP only. Finally, a working paper (Natali et al., 2016) provides a focused

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2Unconditional cash transfers are usually defined as regular and predictable monetary transfers designed to support poor and vulnerable people and paid to the beneficiaries without any behavioural requirement. In this respect, the GD lump-sum transfer would not be technically classified as a UCT.
analysis of savings behaviour in the CGP, non-financial barriers to savings and whether savings have increased women’s economic position in the household. None of these existing papers present the full range of indicators across all waves and domains for both programs as we do here, and none of them are thus in a position to compute multiplier effects as we do in this paper.

2. Overview of the two programs and study design

Both the CGP and MCP were implemented by the Government of Zambia’s Ministry of Community Development, Mother & Child Health (MCDMCH), and provided a flat transfer of US$12 per month to beneficiaries irrespective of household size. Payments were unconditional and made bimonthly in person by Ministry employees at designated pay-points. The CGP was implemented in the three rural districts of Shangombo, Kalabo (Western Province) and Kaputa (Northern Province) while the MCP was implemented in the rural districts of Serenje (Central Province) and Kaputa (Northern Province). All five districts are extremely poor such that, though the programs did not target on poverty at the household level, 90 percent of beneficiaries were below the national extreme poverty line, and median consumption was around 30 US cents per person per day; targeting was therefore effective in reaching the poorest of the poor. Using baseline data, we estimated the transfer to represent on average 24 percent of pre-program consumption. Analysis of administrative data by the study team indicated that not only were payments made on schedule during the study period but over 95 per cent of beneficiaries collected their payments on time. An operations module fielded as part of the evaluation did not reveal any indication of leakage due to bribes or requests for payments from village elders or programme officials (AIR, 2014; AIR, 2015).

While program parameters are identical, a key difference in design is the demographic eligibility criterion. The CGP was targeted to households with a child under age 3 while the MCP was targeted to households with various types of vulnerabilities, leading to very different family structures in the two programs. As depicted in Fig. 1, the CGP beneficiaries were typically young families with prime-age members and young children while the MCP beneficiaries were ‘missing generation’ families with very few prime-age members and many adolescents. For example, the mean recipient age in the CGP was 30 compared to a mean age of 56 in the MCP. These stark differences in demographic composition allow for an interesting assessment of whether the programs lead to similar impacts, which would strengthen the external validity of the findings.

Both the CGP and the MCP are multisite RCTs. In each district, community welfare assistance committees (CWACs - also referred to as clusters or communities throughout the paper) were first randomly selected to enter the study and households were subsequently sampled from each selected community. After baseline data collection, clusters were then randomly assigned to intervention or delayed entry control status via a public coin toss conducted by the Permanent Secretary of the MCDMCH. In the MCP, 92 communities

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3The ministry was recently renamed to Ministry of Community Development and Social Services (MCDSS).
4The transfer represents a 27 and a 21 percent increase to the household monthly consumption in the CGP and MCP respectively.
were randomly selected for the study (46 from each district) whereas in the CGP 90 clusters were randomly selected (30 within each district). The delayed entry control group was expected to start receiving the grant after the evaluations had terminated in late 2014. However, the Government of Zambia decided to consolidate its various grant programs into one unified program and common eligibility criteria in 2015. The new program began scale-up in new districts, and re-targeting of households in the evaluation districts did not commence until early 2016. Thus, households in the treatment areas continued to receive transfers under their existing program (CGP or MCP) until they were re-targeted.

The main household survey instrument was quite comprehensive and included modules on consumption, health, education, housing, agricultural and other productive activities. Most survey items were taken from the Zambia Living Conditions Monitoring Survey (LCMS) or the Demographic & Health Survey, both of which are conducted periodically by the National Statistics Office. The core survey was administered to one main respondent in the household, the biological mother or primary care-giver of the index child in the CGP, or the care-giver or disabled member in the MCP; this was typically the member designated by the program to receive the transfer in treatment communities. A key feature of the instrument is that we implemented the entire consumption module from the LCMS, featuring over 200 food and non-food items, so that we could make strict ‘apples-to-apples’ welfare comparisons between the population in the two programs and the rest of the country, important for assessing the targeting strategy employed by the Ministry.

The evaluation was commissioned by the MCDMCH and UNICEF-Zambia to the American Institutes for Research and the University of North Carolina at Chapel Hill. Data collection was conducted by an independent private firm (Palm Associates) that is unaffiliated with the MCDMCH and the informed consent form did not mention the programs or that the study was commissioned by the MCDMCH. The study underwent ethical review at the American Institutes for Research (AIR) in Washington, D.C. and at the University of Zambia. Questionnaires and summary reports for both programs are available on the Transfer Project website (http://www.cpc.unc.edu/projects/transfer). Table 1 provides an overview of program targeting criteria and key timelines.

### 3. Data, balance and attrition

#### 3.1. Data

The baseline samples contain 2519 and 3078 households in the CGP and MCP respectively. In both cases, the study sample size was powered to detect significant effects for key program indicators that required the largest sample size. For the CGP this was child anthropometry, while in the MCP this was school attendance among secondary school age children. Sample size requirements for household level indicators such as consumption, food security and livestock ownership were smaller than for these individual indicators.

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5The experimental design was possible - and satisfies ethical requirements - due to limited financial resources and capacity that would have not allowed the MCDMCH to deliver the program to all eligible households at once.
3.2. Baseline descriptive statistics

As mentioned earlier, due to the strong geographic targeting of the two programs, households are extremely poor, with mean per capita consumption at baseline of ZMW 41 in the CGP and ZMW 51 in the MCP—the latter is in 2011 units whereas the former is in 2010 units (see Table 2). When converted to US dollars at prevailing exchange rates this represents approximately 30 US cents per person per day. This low level of consumption is consistent with low levels of food security, with only around 15 (MCP) to 20 (CGP) percent of the sample not or rarely worrying about food, and 57 percent of the combined sample not going a whole day without eating in the last four weeks. Households also have low levels of education—30 percent or more of respondents had never attended school. The key difference across the two samples is driven by the distinctive targeting criteria of the two programs which leads to notably different demographic compositions: households are slightly larger in the CGP (5.7 vs 5.0 in the MCP), have more children under 5 but less secondary school-aged children (age 13–18); they also have more prime-age adults (age 19–35) and less older people. This is also reflected in the respondent’s characteristics who are much older in the MCP (56 vs 30 in the CGP). Respondents in the CGP are more likely to be married (around 75 percent) while in the MCP respondent are mostly widowed (55 percent) or divorced/separated (10 percent). Finally, in the CGP virtually all respondent are women compared to 75 percent in the MCP.

The individual sub-group indicators shown in Table 3 are fairly comparable across the two samples, with slightly higher baseline savings rates among women in the CGP and slightly higher fulfilment of materials needs among children 5–17 years in the MCP though in both samples the largest deprivation for children this age comes from lack of shoes. As the CGP is focused on families with young children, we also collected anthropometric measurements for children under 5 years of age, which are reported in the Appendix (Table A2)—these indicate that 35 percent of children were stunted and 16 percent underweight at baseline.

3.3. Balance

The community level randomization for both studies resulted in balance across virtually all major program indicators. Balance tests for household characteristics and selected outcome indicators are shown in Table 2. For the CGP only two indicators are significantly different at baseline between intervention and control groups (proportion of respondents divorced/separated, and whether household owned any goats). For the MCP, one indicator—value of harvested crop—is statistically significant. Table 3 reports balance tests for indicators related to specific sub-groups of household members—women, children age 5–17 and children age 11–17. The only statistically significant differences at baseline is for school attendance among children 11–17 in the MCP, where attendance is slightly lower in the intervention group (75 versus 79 percent).

3.4. Attrition

Overall household attrition by wave three was less than five percent for both programs. However, around ten percent of households in the CGP sample were not interviewed at wave two due to the drying up of Lake Cheshi in the Kaputa district which forced many households to relocate temporarily—most of these households were subsequently recovered.
in wave three. Attrition rates are not statistically significantly different between treatment and control arms. An analysis of differential attrition is shown in the appendix (Tables A3 and A4) and is based on our final analytical sample which is the full panel of households, those that appear in all three survey waves, and thus excludes the CGP households that were not interviewed at wave two even though they were subsequently interviewed at wave three. For the CGP, only two of the nearly 50 indicators are significantly different between the attritors in treatment and control groups while there is no significant difference in any indicator across the two groups in the MCP sample.\(^6\) While overall attrition does not affect internal validity, there are a few differences between the panel and the original sample which could affect generalizability to the entire target population (external validity). This is an important consideration for the MCDMCH so we weight our estimates by the inverse of the probability of appearing in all three waves, using an extensive list of baseline covariates including household demographic composition, district of residence, characteristics of the main respondent, consumption, assets, and exposure to shocks. This weighting approach to account for general attrition is discussed in Shadish et al. (2002), and is akin to selection on observables (Imbens, 2004; Rosenbaum and Rubin, 1983; Heckman et al., 1997).\(^7\)

4. Methodology and key measures

4.1. Methodology

We estimate program impacts using a difference-in-differences (DD) model augmented with a vector of baseline covariates and allowing for differential impacts at 24- and 36-months. The core estimating equation is

\[ Y_{ijr} = \alpha + \beta_T T_j + \beta_{R2} R_{2r} + \beta_{R3} R_{3r} + \beta_{TR2} T_j * R_{2r} + \beta_{TR3} T_j * R_{3r} + \sum_{k=1}^{K} \theta_k X_k + \epsilon_{ijt} \]

In this framework \( Y_{ijr} \) is the outcome indicator for the household/woman/child \( i \) in community \( j \) at time (round) \( r \). \( T_j \) is a dummy equal to one if in the treatment group, \( R_2 \) and \( R_3 \) capture the two follow-ups at 24- and 36-months respectively and \( \beta_{TR2} \) and \( \beta_{TR3} \) capture the intent-to-treat (ITT) effects at 24- and 36-months respectively; \( X \) is a set of pretreatment demographic controls and \( \epsilon \) is the error term. Regressions are estimated using OLS with robust standard errors clustered at the community level. We restrict our sample to the full panel, that is, to only households that appear in all three waves, although results are the same when we relax this assumption and use households that appear in at least two waves. For all outcomes, we have estimated both unadjusted and covariate adjusted impacts but report only the adjusted results here due to space constraints. Adjusted regressions include pre-treatment measures for household demographic composition and size (logged), respondent’s age, education and marital status, and district dummy variables. For child outcomes, we also included the age and sex of the child.\(^8\)

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\(^6\)We subject the data to sensitivity analysis using Lee bounds (Lee, 2009), which provides a range of estimates using different assumptions about attrition. These are discussed below.

\(^7\)Estimates with and without the inverse probability weights are similar. Nevertheless, we choose to use the weights to ensure results are consistent with the official evaluation documents that are publicly available.

\(^8\)
Some of our outcome variables were not collected at baseline (see Table 4) so for these we estimate single difference models at 24- and/or 36-months, controlling for the same set of pre-treatment covariates. These estimates naturally rely on baseline equivalence for identification. The key assumption behind the DD is that of parallel trends. We do not have multiple pre-treatment data points to explicitly test for differences in trends between treatment arms but control communities are from the same districts as treatment ones which makes this assumption more tenable. We analysed trends in village level prices and incidence of covariate shocks during the study period and these showed no statistically significant differences between treatment and control arms over time.

4.2. Measures

We report results for almost 40 outcome variables – at the household, woman and child level - grouped into 8/9 domains as reported in Table 4; the definition of each indicator is reported in Table A1 in the Appendix. It is now common for researchers conducting their own independent RCTs to specify their main indicators in a pre-analysis plan to guard against the temptation to cherry-pick results. Here we evaluate two national programs under contract, and so the program’s stated objectives and associated results framework - both of which go through a transparent process - serve as the equivalent to a pre-analysis plan, while the technical proposal submitted during the competitive tender for the contract specifies the statistical methodology to be used. Both programs have similar stated objectives, and these relate to food security and consumption, asset ownership, children’s material well-being and children’s schooling. The CGP has the additional objective to reduce malnutrition among pre-school children. The key indicators associated with these objectives were identified prior to baseline in order to inform questionnaire design. In this paper, we report on three domains beyond the stated objectives of the program in order to provide comparability with Banerjee et al. (2015): subjective well-being, finance and debt, and income and revenues. We define all indicators such that higher values are positive outcomes. Note that for loans and debt (in the finance and debt domain), unlike Banerjee et al. (2015) we consider less debt and fewer loans as positive outcomes; indeed, in our study sample, virtually all loans are taken from informal sources and used for consumption, and beneficiaries report that reducing outstanding debt is a key concern of theirs. In order to compare effect sizes across indicators and domains, we follow the approach taken by Banerjee et al. (2015) and convert all variables into z-scores by subtracting the control group mean (at each wave) and dividing by the control group standard deviation (at each wave); this implies that at each wave the control group has a mean of 0 and standard deviation of 1.

4.3. Multiple testing

Providing estimates on multiple indicators across a range of domains guards against the selective reporting of only those estimates that are statistically significant. On the other hand, with so many estimates we may find false positives just because of the sheer number of tests computed. We take two approaches to account for this multiple testing. First, for

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8We used baseline age and gender for all child outcomes apart from anthropometric indicators for which we used contemporaneous age and gender; this was done in order to retain in the analysis infants born after baseline in panel households that would have otherwise not been included using baseline age and gender.
each family of outcomes, we adjust p-values using the Sidak-Bonferroni adjustment (Abdi, 2007). Second, we build summary indexes as ‘lead indicators’ for each domain following Anderson (2008) and Kling et al. (2007) and report the mean standardized treatment effect on the summary/lead indicators. Specifically, for each domain with the exception of consumption, food security and child material needs, the summary index is computed as the equally weighted average of z-scores of each indicator within the domain, then standardized against the control group within each round. In the case of consumption, food security and child material needs, we simply standardize total consumption, the food security scale and the child material needs, indicators as these are already summary statistics for that particular domain. We then estimated the mean standardized treatment effect (ITT) on each domain (and outcome) separately and report these estimates in the Section below.

5. Results overview

We begin by presenting a summary of results using domain indices and adjust p-values for multiple inference testing across domains—this ‘omnibus’ approach provides a sense of the overall pattern and magnitude of impacts of these two unconditional cash transfers. Figs. 2 and 3 show graphically the standardized impact estimates with adjusted confidence bounds for the CGP and MCP respectively. Beginning with the CGP, the program has had a significant impact on seven of the nine domains considered, the two exceptions being children’s schooling and young child anthropometry. The largest effect sizes occur for subjective well-being (relative poverty) and for children’s material needs, both at 24-months. However, both indices are subject to a ceiling effect (no further room for improvement among treatment households) which explains why their effect sizes decline at 36-months. Overall there is no clear indication that effect sizes increase over time. One important result is the lack of impacts on child nutritional status despite that being one of the primary objectives of the CGP. This is consistent with reviews on the effects of cash transfers on child nutrition reported by Manley et al. (2011) and de Groot et al. (2017). These reviews highlight the complex determinants of nutritional status, including the disease environment, sanitation and caring behaviour, which go well beyond what a simple UCT can be expected to affect, making it unlikely to find consistent impacts of such programs on child nutrition.

In Fig. 3, the MCP has had significant impacts in seven of the eight domains considered, the lone exception being Incomes & Revenues at 24-months which turns significant at 36-months. The largest point estimate is again associated with subjective well-being. Here there is some hint that effects grow larger over time, though all of the 24- and 36-month confidence bounds within domains overlap. Noteworthy is the significant impact of the MCP on schooling which is in contrast to the CGP—recall that the MCP has many more secondary school age children, and in fact, very few CGP households actually have a child

9Following Kling et al. (2007:89), we treat missing values as follows: “If an individual has a valid response to at least one component measure of an index, then any missing values for other component measures are imputed at the random assignment group mean. This results in differences between treatment and control means of an index being the same as the average of treatment and control means of the components of that index (when the components are divided by their control group standard deviation and have no missing value imputation), so that the index can be interpreted as the average of results for separate measures scaled to standard deviation units”.

10In recognition of this, government run UCTs in Ethiopia and Ghana have recently incorporated components into their programs to explicitly try and affect child nutritional outcomes.
over the age of 14 and this is not a priority indicator for households targeted under the CGP. Another interesting difference is that by 36-months the effect of the MCP on assets is much larger than in the CGP. On the other hand, the effect of the CGP on Incomes & Revenues appears to be larger than in the MCP at 24-months. These suggest the different ways that the two sets of households use the cash transfer, and will be discussed further in Section 7.

The main take-away from these summary results is that both cash transfer programs generate significant impacts across both protective (consumption, food security) and productive domains. Both programs also have an important effect on children’s material deprivation. And while the MCP significantly raises schooling among secondary school-age children, the CGP does not have an impact on nutritional status of preschool children, despite improvements in food security and consumption at the household level.

Tables 5 and 6 report the point estimates and associated p-values for the numbers underlying Figs. 2 and 3, along with the unadjusted and adjusted p-values for multiple inference across domains. Looking at the bottom of the two tables there is only one case where the adjustment for multiple inference changes the significance of the point estimate—Incomes & Revenues at 24-months in the MCP. However, by 36-months the standardized estimate of the program on this domain increases substantially to 0.33 and becomes statistically significant even after adjusting the p-value.

We conduct two robustness checks on these estimates. First, we construct Lee bounds (Lee, 2009) to assess the sensitivity of the results to alternative assumptions about attrition. These are presented in Tables A5 and A6 for the CGP and Tables A7 and A8 for the MCP. In no instance do these bounds cross zero when our own estimate is statistically significant suggesting that our results are robust to alternative assumptions about attrition. Second, for indicators where we have both baseline and follow-up measurements (see Table 4), we estimate single difference specifications controlling for the baseline value of the dependent variable (i.e. ANCOVA). The associated point estimates are presented graphically in Figures A1 (CGP) and A2 (MCP) in the appendix and are broadly consistent with the difference-in-difference estimates. The exceptions are Income & Revenue in the CGP at 36-months and Finance & Debt in the MCP at 24-months, both of which are not significant in the ANCOVA specification. However, the ANCOVA version of these indices exclude the components for which we do not have baseline measurements so estimates are not directly comparable. The other difference is the confidence bound for the school attendance point estimate which just touches zero in the MCP. Here we note that our main analytical sample is a household panel not an individual panel, while ANCOVA uses the individual panel so again, samples are slightly different.

6. Consumption and productive investment

The results overview indicates that these two programs have had a transformative effect on recipient households after three years of transfers. What is particularly interesting is the large impacts on both consumption (the primary objective of the programs) and productive activity, suggesting that transfers have been invested and so might lead to sustained improvements in living standards. In this section, we explore in more detail the impacts on
these two dimensions to understand the potential long term effects of the programs. Estimates for each individual indicator contained in the other domains are provided in the online Appendix, while means for all variables used in the analysis below are shown in Appendix Table A9 and A10.

6.1. Consumption

Impacts on consumption per capita, measured in logarithms, are shown in the last column in Table 7. As described in Section 2, consumption is measured using the exact consumption module deployed by the Zambian Statistics Office in the LCMS and covers over 200 individual items with varying reference periods depending on the likely frequency of purchase. All Kwacha units are deflated to baseline values (2010 for CGP and 2011 for MCP) using published CPI figures. Both programs have had a large impact on total consumption at 24- and 36-months, and the confidence intervals for the point estimates at each time period overlap. The average effect size over both follow-up periods is approximately 27 and 30 percent\(^{11}\) for the CGP and MCP respectively, and in the MCP in particular it seems to be driven by food consumption. The effect size is in line with the average size of the transfer in relation to baseline consumption (24 percent) so that, taken in isolation, it would appear that the whole transfer is simply consumed. However, the large impacts depicted in the previous section suggest that the story is more complex; in order to observe such a wide range of impacts, including on savings, and still have consumption increase by the exact size of the transfer implies that there must be productive investment that increases overall income and supports this magnitude of a consumption increase. We now take a closer look at the specific indicators within the three domains that encompass investment and productive activity: ‘Assets’, ‘Finance & Debt’ and ‘Incomes & Revenues’.

6.2. Investment and productive activity

The results overview in Figs. 2 and 3 showed significant impacts on the asset index for each program, with a noticeable increase in the effect size between 24- and 36-months in the MCP. The asset index is composed of three sub-indices covering domestic assets (furniture, appliances), livestock and productive assets (agricultural tools such as sickle and axe). Table 8 reports the program impacts on these three individual components of the overall asset index and shows that for each program at each time period and asset class, there is a statistically significant program effect, and effect sizes are smallest for productive assets, where they average 0.09 compared to say the domestic assets where effect sizes are almost double that number on average. And while effect sizes remain somewhat stable across time in the CGP, there is a noticeable increase at 36-months in the MCP for livestock (from 0.19 to 0.28) and domestic assets (from 0.13 to 0.24), which again suggests that there must be an income multiplier at work since the impact on consumption did not decline over time, and in fact increased at 36-months in the MCP.

We next turn to the ‘Incomes and Revenues’ domain where the index is composed of four variables covering participation in and revenues from non-farm enterprises (NFE),

\(^{11}\)Average coefficient sizes across the two waves are 0.24 and 0.265 respectively for the CGP and MCP. As the dependent variable is in logarithms, we take the exponential of 0.24 and 0.265 and subtract one to derive the effect sizes.
agricultural input spending and the value of total crop production. The NFE indicators were introduced at 24-months so impacts are based on single difference estimates at each time period. While the overall domain index is significant for both programs in both periods,\textsuperscript{12} we see some important differences across programs in terms of the underlying driver of these impacts which is insightful (see Table 9). The CGP households appear to have used the transfer to move into NFE, with an increase of 17 and 14 percentage points respectively at 24- and 36-months in the proportion of households now operating a NFE. Annual revenues from NFE have also increased by 203 ($e^{1.11} - 1$) and 125 ($e^{0.81} - 1$) percent respectively at 24- and 36-months (columns 4 and 6, panel A) though these amounts are over a relatively low base of just ZMW 77 (US$15). In contrast, there are no effects on NFE among MCP households. Rather the large impacts on the overall domain index are driven by agricultural productivity, with increases in spending on agricultural inputs averaging 242 ($e^{1.23} - 1$) percent across both follow-up periods (column 2, panel B), and an associated increase in the value of crop production of 141 ($e^{0.88} - 1$) percent (average across both periods).

The domain of ‘Finance and Debt’ is composed of six variables: holding any cash savings and amount of cash savings, outstanding loans prior to six months ago, new loans within the last six months, and the amount of outstanding debt in Kwacha on previous and new loans. We report program impacts on each of these individual indicators in Table 10. Note that none of these indicators were collected at baseline, and the loan/debt information was only collected at 36-months for the CGP, hence these are all single difference impact estimates. Loans and amount borrowed are coded so that reductions in debt and loans are positive.

Figs. 2 and 3 showed significant impacts on this domain for both programs at both periods. Results in Table 10 indicate that the overall domain result is strongly driven by an increase in both the proportion of households with any cash savings, and the total amount of those savings (this latter effect is estimated over all households and so is obviously driven by the higher proportion of non-zero savers in the treatment group). The average effect size on proportion of savers is 16 and 14 percentage points respectively in the CGP and MCP. There are also significant impacts in both programs on the number of outstanding loans taken out over six months ago and the total Kwacha amount owed on these loans, suggesting that treatment households use the transfer to pay-off older debt. There is also a reduction in new debt taken on, though this is only statistically significant in the MCP at 24-months (columns 5 and 6, panel B).

6.3. Effect sizes and comparison with other cash transfer programs

To place these results in context we compare effect sizes (focusing on 36-month impacts) to effects reported from other cash transfer programs. The increase in consumption after three years is on the order of 22 and 36 percent for the CGP and MCP respectively, significantly higher than the 14 percent increase in consumption reported for CCTs in Mexico (Hoddinott and Skoufias, 2004), Colombia (Attanasio and Mesnard, 2006) and Nicaragua (Maluccio and Flores, 2005). However, the effect is much larger than the 5 percent increase reported by Banerjee et al. (2015) in their six-country study of graduation programs but in line with the

\textsuperscript{12}The Sidak-Bonferroni adjusted p-value is not significant at 24-months for the MCP though the unadjusted p-value is 0.04.
29 percent reported by Blattman et al. (2016) for a graduation-type program in Uganda and the 23 percent reported in the Give Directly study (Haushofer and Shapiro, 2016).

The impacts around asset accumulation and economic activity are quite provocative given the nature of the intervention. The CGP increases participation in NFE by 14 percentage points and NFE revenues by 125 percent or 0.33 SD. While this is much lower than the 48 point increase in business enterprise engagement reported by Blattman et al. (2016), the program they evaluate provides cash *conditional* on opening a business, along with a short business skills training and ongoing supervision. The revenue impacts in the Zambian CGP are larger than the results from Give Directly of 33 percent or 0.18 SD and comparable to those reported by Banerjee et al. (2015) of 0.38 SD.

At 36-months the effect sizes for amount saved are 77 and 95 percent for the CGP and MCP respectively, compared to the close to 100 percent increase in savings reported by Banerjee et al. (2015) and Haushofer and Shapiro (2016), and the 300 percent increase reported by Blattman et al. (2016). The overall asset index effects are 0.55 and 0.72 SD in the CGP and MCP, compared to 0.25 in the six-country graduation model study presented in Banerjee et al. (2015) and 0.40 SD in the Ugandan program evaluated by Blattman et al. (2016). As mentioned earlier, the evidence on assets and economic activity from CCTs is mixed, but Covarrubias et al. (2012) report a doubling of the share of households with small agricultural tools such as axes and sickles due to the Malawi Social Cash Transfer Program, which is an unconditional cash transfer targeted to labor-constrained ultra-poor rural households and very similar to the MCP in terms of target group. Haushofer and Shapiro (2016) also report a 0.73 SD increase in the value of non-land durable assets which is similar to effect sizes for the two Zambia programs, though that program provides a lump-sum transfer which is more likely to support asset investment.

### 7. Multiplier effects and mechanisms

#### 7.1. Expenditure multiplier

A relatively simple flat cash transfer, unconditional and paid bimonthly, has wide-ranging effects on ultra-poor households in rural Zambia, significantly raising consumption while at the same time strengthening economic capacity and assets. The annual amount transferred to a household is US$144 (or US$288 PPP). We compare this annual transfer to what households spend based on estimated impacts. We track and/or quantify all expenditure that we can measure in our survey instrument - notably consumption expenditures, savings, spending on non-consumption items such as agricultural inputs (tools, seeds, fertilizer) and livestock purchases . For productive tools and livestock, we estimate the impact on the number purchased and monetize using market prices taken either from the community price questionnaire fielded as part of the evaluation, from the Zambia LCMS if not in our

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13 This program also differs from a UCT in that it provides a lump-sum payment upfront which represented 30 times the baseline monthly earnings of beneficiaries.

14 Livestock impacts are found for cattle, goats, chickens and pigs. Three-fourths of households reported consuming their own chickens while no households reported consuming the three other types of livestock. This could lead to double-counting as poultry consumption is captured in the consumption module. Excluding chickens from our multiplier estimates leads to negligible differences in the multiplier.
own survey, or by direct observation in local markets. Other spending items are already measured in Kwacha. All monetary values are deflated to baseline Kwacha (2010 for CGP and 2011 for MCP), annualized, and compared to the annual amount transferred to each household in Kwacha. Only statistically significant impacts (at the five percent level) are considered. We base our calculations on 24-month impact estimates, 36-month impact estimates, and the average of the 24- and 36-month impact estimates (pooled impact estimates) to get a range of estimated spending.

Results of this exercise are shown in Table 11; details on the multiplier computation, including coefficient estimates and prices for each relevant component, are provided in Table A11 in the Appendix. Our preferred estimates are those based on the pooled follow-up data which averages out the error associated with noisy outcomes such as agricultural and business spending. These pooled estimates indicate multipliers of 1.61 and 1.72 in the CGP and MCP respectively, and neither of the 95 percent confidence bound derived from the bootstrap with 1000 replications contain zero. The confidence bounds indicate that the multiplier may be as high as 2.32 in the MCP and as low as 1.07 in the CGP. The average multiplier across the two programs is 1.67 which means that households spend 67 percent more than what they actually receive through the cash transfer. These estimates are not directly comparable to those from Banerjee et al. (2015), who consider the initial two years of the graduation program as the investment period, and then calculate the benefits as the present value of the future stream of consumption and revenue assuming that benefits one year after the program ended are maintained permanently. Our estimates do not assume an investment period because the goal of these UCTs is protection and not investment and the programs are ongoing. For this reason, we prefer a ‘follow the money’ approach to see if the program leads to households boosting their spending over and above what they actually receive, a multiplier that would be generated if households used some of it to improve their income generating capacity.

The multipliers reported in Table 11 is on beneficiary households only, and though it includes spill over effects among beneficiaries, should not be compared with multipliers derived from computable general equilibrium models of the local economy, as those include secondary and tertiary effects on non-beneficiaries as well. Spending and investments of program participants can generate impacts beyond the beneficiary population through economic transactions. Researchers at the FAO have built a simulation of the local economy in the CGP evaluation districts and estimated a local economy multiplier of 1.79, which includes these secondary effects (Thome et al., 2016). Hence, the estimates reported here are under-estimates of the total multiplier generated by these programs.

### 7.2. Explaining the multiplier

These multipliers are large and lead to the obvious question of how they are generated—what are the livelihood strategies pursued by these households that generate such large revenue? Agriculture is the dominant livelihood source in the two populations so that is an obvious channel for income generation. The results in the previous section indicated that for MCP households there is both an increase in amount spent on agricultural inputs as well as the value of harvest. On the other hand, for the CGP households, the transfer has not
increased crop production but rather engagement in non-farm enterprise (NFE). We take a closer look at these two potential channels (agricultural and NFE) to understand the extent to which they can help explain the large multiplier effects reported in Table 11. To do so, we pool the follow-up data and estimate the average impact of the transfer for several indicators related to agricultural production and NFE, for each program.

In the MCP the main channel is agriculture and livestock. Table 12 shows that MCP households have managed to more than double their revenue\(^{15}\) from sales of harvest (column 1) over a baseline mean of ZMW 240 and have also translated their increased livestock holdings into a 26 (\(e^{0.23-1}\)) percent increase in revenue though the control mean is very small (column 6). We investigated the source of additional crop sales by looking at the eight most common crops grown in the sample, and find that sales are driven by maize, sweet potatoes and other beans (columns 2–4). A comparison of prices for these crops across treatment and control communities, taken from our community price questionnaire, does not show any significant price differences, which might otherwise explain these impacts. We also found a statistically significant increase in the share of households now growing groundnuts, which is typically a cash crop, but this did not contribute to the increase in revenue from crop sales. The large increase in crop production is somewhat surprising among MCP households given their shortage of prime-age labor. Column (5) of Table 12 shows that the cash transfer led to a 141 (\(e^{0.88-1}\)) percent increase in expenditure on hired labor for agricultural activity. Finally, while MCP did not lead to more households engaging in NFE, those who were already engaged in NFE however saw significant increases in profit over those in the control group. The increases in revenue documented here total to approximately ZMW 455, which is about 87 percent of the ZMK 518 increase in spending implied by the estimates in Table 11.\(^{16}\)

In contrast, the CGP has not led to an increase in agricultural output but has increased engagement in and revenue from NFE. Table 13 documents program impacts on several aspects of NFE activity as well as sales of livestock and harvest. The program has led to an increase in profits from NFE of 120 (\(e^{0.79-1}\)) percent and a 40 (\(e^{0.34-1}\)) percent increase in the value of assets dedicated to NFE, and increase in revenue from the sale of crops (column 4) as well as revenue from livestock sales (column 5). However, the control means are lower than in the MCP, so that the increase in revenue from these sources combined adds to about ZMW 140, compared to the increase in spending of approximately ZMW 400 implied by the multiplier estimates in Table 12.\(^{17}\)

We are unable to completely find all sources of increased income for the household because our survey instrument does not comprehensively track all possible sources of income nor do we directly measure income itself. One potentially important income sources we are missing is revenue from agricultural and livestock by-products, such as eggs, milk, honey from beekeeping, or the sale of skins and hides. Finally, reporting of revenue and profit tends to

\(^{15}\)Almost triple with an increase of 185 percent (\(e^{1.047-1}\)).

\(^{16}\)The annual value of the MCP transfer in 2011 units is ZMW 720 and 72 percent of this is ZMW 518.

\(^{17}\)In 2010 ZMW the annual CGP transfer is 660. Table 12 shows a pooled multiplier of 1.61 which represents ZMW 403 of additional spending.
display high variance over time and considerable measurement error, all of which can contribute to an under-measurement of income.

7.3. Additional insights from savings and NFE

The strong positive impact of both programs on cash savings within the context of the results on consumption and productive activity are consistent with an improvement in living standards under certain conditions which are likely to hold in the current context. The neoclassical model on savings and consumption behaviour (e.g. Besley, 1995; Gersovitz, 1988) does not by itself predict an increase in savings with an increase in permanent income. However, an augmented model with uncertainty in income would lead to precautionary savings, while a model with borrowing constraints would also increase savings and disrupt perfect consumption smoothing, and both these conditions characterize the context of these households who live on close to 30 U.S. cents per person per day. The cash transfer, insofar as it represents a constant predictable income source, both increases mean income but is also likely to reduce the variance of income as the transfer represents 25 percent of pre-program consumption. This reduction in the variance of income should reduce precautionary savings.

Table 14 reports the main reason for savings among those who report any positive cash savings in the last 30 days, organized by whether the reasons reflected were mainly precautionary (such as for health care or purchasing bulk or other food items), mainly investment (for instance, for purchasing household durable assets or livestock) or whether the responses could be classified as either precautionary or investment (as in those cases in which the respondent reports the same number of precautionary and investment reasons). In the MCP we observe a clear shift away from precautionary to investment motives for savings as we would expect with a decline in income volatility due to the cash transfer, but in the CGP we do not observe a similar shift.\(^{18}\)

Further insight on the role of the cash transfers on the financial position of these households can be gleaned from a question we asked about the main source of capital for the NFE for those households that actively operated an NFE at the time of survey. Recall that the CGP had an important impact on both the proportion of new households now operating an NFE, as well the value of assets and overall profits. While the prevalence of NFEs among CGP households is three times higher than in the MCP, the profile of business types is the same across study sites. The role of the cash transfer in supporting NFEs in both groups is reported in Table 15, which organizes the sources into four categories including the cash transfer. Among CGP households where impacts on NFE are the strongest, there is a large shift from the ‘other’ source to the cash transfer as the main source of capital for the business, and one of the other three sources—savings—is of course itself strongly impacted by the program. In the control group, 34 percent of NFE owners cite ‘other’ sources for their capital; these sources are primarily agriculture, wage labour and friends. While the impact on NFE participation is not significant in the MCP, 10 percent of households own a NFE and here we also see an important shift away from ‘other’ sources to the cash transfer and own

\(^{18}\)Further details for savings in the CGP are available in Natali et al. (2016).
savings as the main source of capital, and again, own savings is affected by the cash transfer itself.

Together this additional analysis provides useful insights into the effect of the cash transfer on investment and living standards. Both programs lead to significant increases in savings, and in the MCP at least, these savings are now less likely to be for precautionary reasons, as we would expect when there is a reduction in the variance of income. In addition, both the cash transfer itself and personal savings are cited as the primary sources of capital for NFE among 58 and 49 percent of NFE operators in the CGP and MCP (treatment groups) respectively, providing further evidence that the programs are enabling households to invest and improve their long term living standards.

7.4. Threats to internal validity

What are the potential threats to internal validity which might explain these large overall impacts and the resulting multiplier? An obvious one is that the control group, associating the study team with the program, might systematically under-report consumption in hopes of gaining eligibility to the program. As mentioned earlier, data collection was conducted by a private firm unaffiliated with the MCDMCH and enumerators were given clear instructions that they were not to mention the program or the MCDMCH during field work. In addition, neither program is explicitly poverty targeted so underreporting consumption could not lead to program eligibility, though potential beneficiaries may not have that level of understanding of the programs. Moreover, the consumption module itself is taken from the Zambian Central Statistics Office’s LCMS, a national household survey used to estimate the poverty line and poverty rates, which includes over 200 individual items of expenditure over varying recall periods. This makes it harder to consciously under-report expenditures.

Finally, during the earlier part of the study, between 2010 and 2013 Zambia as a whole enjoyed strong GDP per capita growth, while growth dropped off after 2013 and stagnated in 2014. Figs. 4 and 5 display the evolution of per capita consumption in the two study samples and these indicate that the trends in the control group match quite consistently with the overall trend in economic performance in Zambia. The CGP control group displays a strong increase in consumption over the period 2010–2013, while the MCP control group shows an even stronger increase between 2011 and 2013, and then a slight decline in consumption between 2013 and 2014, mirroring what happened in the country as a whole over that time period. These trends suggest that consistent underreporting is unlikely to explain the difference in consumption between the two study arms.

8. Discussion and conclusion

How do we reconcile the large, across the board, impacts of the two Zambian programs with the existing literature on unconditional cash transfers? First, we believe that the simple act of placing all results together in one paper and documenting both productive and protective outcomes might make the results appear overwhelmingly good. The practice of putting all results together in this way is rare, and the few papers that have done so have also reported large effects across multiple domains. The recent paper by Haushofer and Shapiro (2016) on Give Directly provide results across eight domains covering both production and protection,
and find statistically significant impacts in five of the eight domains, with stronger effects in productive domains. That program is quite different from the Zambian programs in that it provides one-time large lump-sum which would make it easier for liquidity constrained households to make productive investments, and the transfer size is 53 percent of recipient baseline income, twice the size of the transfer in the Zambian programs in relative terms. As mentioned earlier, Banerjee et al. (2015) also show results across eight domains - with significant impacts on seven of the eight one year after the conclusion of the program; of course, that is a graduation program that explicitly aims to build productive capacity through an intensive two years of capacity building.

Two cash transfer programs which are more similar to the Zambian programs are the Kenya Cash Transfer for Orphans and Vulnerable Children (CT-OVC) and Mexico’s Progresa/Oportunidades (now called Prospera). Those are both poverty targeted cash transfer programs whose main objective is to alleviate poverty in the first instance; the Kenyan program is unconditional while the Mexican one is conditional. Both programs have been widely studied and have had positive impacts across many of the domains reported in this study, but these results have been published in separate papers, an approach which does not lend itself to the type of multiplier calculations provided here.

A recent book comparing the evidence across nine African cash transfer programs (Davis et al., 2016), including these two Zambian programs, concludes that program parameters critical for generating transformative effects such as those reported here, are the size of the transfer and the regularity, frequency and predictability of payments. The key thresholds appear to be a transfer size that is at least 20 percent of pre-program consumption, and payments which are regular (and thus predictable) and frequent (monthly or bimonthly). The two Zambian programs do well on both these dimensions. Transfer size is on average 25 percent of beneficiary pre-program consumption, has been updated regularly to maintain its real value, is paid bimonthly, and payments were not delayed or missed, operational aspects which very likely contributed to the large impacts. Our three-year evaluation window is also longer than most evaluations, giving the transfers more time to translate into widespread gains for households. In contrast the Give Directly study was based on a relatively short follow-up of 9-months. Apart from these implementation issues, we have also shown that the targeting of both programs was successful in identifying and reaching the poorest, which could be another factor behind the impressive results estimated.

We believe the generalizability of the results presented here are quite high. The majority of existing national cash transfer programs in SSA are unconditional and target beneficiaries at similar levels of poverty. In terms of demographic structure, large programs in Kenya, Ghana, Malawi, Zimbabwe, Ethiopia and Mozambique target so-called ‘labor-constrained’ households with high dependency ratios and demographic profiles similar to the MCP, while the largest cash transfer program on the continent is the South African Child Support Grant which targets children up to age 17. Like the two Zambian programs, all these programs are implemented by national governments and are unconditional.

In conclusion, two government implemented unconditional cash transfer programs in rural Zambia lead to strong protective and productive impacts for ultra-poor households three
years after program initiation. Some of the impacts on consumption and asset accumulation are comparable to graduation type programs recently evaluated in the literature. The overarching objective of unconditional cash transfers is to support food security and consumption, and productive objectives tend to be secondary. However, the results we present imply sizeable productive effects, leading to income multipliers of around 67 percent on average, strong evidence refuting the idea that unconditional cash transfer programs are ‘hand-outs’ that lead to dependency. Indeed, by allowing households to meet their consumption needs and to eventually diversify livelihoods and accumulate assets as they see fit, they contribute to the inclusive growth agenda of developing country governments, with important implications for economic development policy.

**Supplementary Material**

Refer to Web version on PubMed Central for supplementary material.

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Fig. 1.
Age distribution of the CGP and MCP samples at baseline.
Fig. 2.
Intent-to-treat effects in nine domain indices by wave (CGP).
Notes: Estimates are based on difference in differences (single difference for the ‘Incomes & Revenues’ indices and the ‘Finance & Debt’ index at 36-months). Consumption, food security and child material needs indices are standardized measures against the control group within each round; the remaining summary indices are computed as the equally weighted average of z-scores of each indicator within the domain, then standardized against the control group within each round. Impact estimates are mean standardized ITTs, therefore effect sizes are expressed in SD of the control group. Robust standard errors are clustered at the community level. Confidence intervals are adjusted using Sidak-Bonferroni. Estimates include controls for respondent’s age, education and marital status, household size and household demographic composition, and districts. The Finance & Debt index at 24-months does not include debt and credit indicators; see text for further details.
Fig. 3.
Intent-to-treat effects in eight domain indices by wave (MCP).
Notes: Estimates are based on difference in differences (single difference for Income & Revenues and Finance & Debt indices). Consumption, food security and child material needs indices are standardized measures against the control group within each round; the remaining summary indices are computed as the equally weighted average of z-scores of each indicator within the domain, then standardized against the control group within each round. Impact estimates are mean standardized ITTs, therefore effect sizes are expressed in SD of the control group. Robust standard errors are clustered at the community level. Confidence intervals are adjusted using Sidak-Bonferroni. Estimations are adjusted and include respondent’s age, education and marital status, household size and household demographic composition, and districts.
Fig. 4.
Consumption trends in CGP.
Fig. 5.
Consumption trends in MCP.
Table 1

Program parameters and study time lines.

|                           | The Child Grant Programme                                                                   | The Multiple Category Targeting Programme                                      |
|---------------------------|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Eligibility requirements  | The scheme targets households who have children under the age of five (36 months). However, | Households that meet one of the following criteria:                             |
|                           | in the evaluation, the eligibility criteria at entry point is for children below 3 years old (36 months) with evidence of under-5 card. | - A female-headed household keeping orphans                                    |
|                           |                                                                                             | - A household with a disabled member                                             |
|                           |                                                                                             | - An elderly-headed household (over 60 years old) keeping orphans                |
|                           |                                                                                             | - A special case, being critically vulnerable                                   |
| Cash transfer             | In 2010, 55 Kwacha (ZMW) a month (equivalent to approximately U.S. $12) irrespective of household size, an amount deemed sufficient to purchase one meal a day for everyone in the household for one month. Treatment households continued to receive transfers until they were retargeted in 2016. | In 2011, eligible households receive 60 Kwacha (ZMW) a month (equivalent to approximately U.S. $12) irrespective of household size, an amount deemed sufficient to purchase one meal a day for everyone in the household for one month. Treatment households continued to receive transfers until they were retargeted in 2016. |
| Started                   | 2010                                                                                        | 2011                                                                            |
| 24-month follow-up        | 2012                                                                                        | 2013                                                                            |
| 36-month follow-up        | 2013                                                                                        | 2014                                                                            |
| Location                  | Three rural districts of Zambia: Kaputa (Northern Province), Kalabo and Shangombo (Western Province) | Two rural districts of Zambia: Serenje (Central Province) and Luwingu (Northern Province) |
| Sample size               | 2519 households                                                                             | 3078 households                                                                |
| Unit of randomization     | CWAC - Community Welfare Assistance Committees (90 clusters: 45 treatment and 45 control)  | CWAC - Community Welfare Assistance Committees (92 clusters: 46 treatment and 46 control) |
| Method of randomization   | Public lottery                                                                              | Public lottery                                                                  |
Table 2

Baseline balance tests for key household and respondent characteristics.

|                          | CGP (N = 2272) |                         | MCP (N = 2938) |                         |
|--------------------------|----------------|--------------------------|----------------|--------------------------|
|                          | Control        | Treatment                | P-value of diff | Control        | Treatment                | P-value of diff |
| Respondent widowed       | 0.06           | 0.06                     | 0.85           | 0.55           | 0.56                     | 0.76           |
| Respondent never married | 0.11           | 0.11                     | 0.91           | 0.04           | 0.03                     | 0.52           |
| Respondent divorced or separated | 0.09           | 0.06                     | 0.03           | 0.10           | 0.09                     | 0.79           |
| Respondent ever attended school | 0.70           | 0.74                     | 0.28           | 0.64           | 0.64                     | 0.86           |
| Female respondent        | 0.99           | 0.99                     | 0.15           | 0.75           | 0.76                     | 0.70           |
| Age of respondent (years) | 29.57          | 29.91                    | 0.62           | 56.97          | 56.16                    | 0.51           |
| Household size           | 5.63           | 5.76                     | 0.45           | 5.01           | 4.98                     | 0.90           |
| Number of members aged 0–5 years | 1.90           | 1.89                     | 0.85           | 0.68           | 0.72                     | 0.49           |
| Number of members aged 6–12 years | 1.27           | 1.26                     | 0.93           | 1.22           | 1.31                     | 0.23           |
| Number of members aged 13–18 years | 0.53           | 0.60                     | 0.15           | 0.98           | 0.92                     | 0.25           |
| Number of members aged 19–35 years | 1.30           | 1.36                     | 0.23           | 0.82           | 0.76                     | 0.43           |
| Number of members aged 36–55 years | 0.53           | 0.54                     | 0.89           | 0.54           | 0.52                     | 0.53           |
| Number of members aged 56–69 years | 0.07           | 0.07                     | 0.68           | 0.37           | 0.39                     | 0.43           |
| Number of members aged 70 years or older | 0.03           | 0.03                     | 0.59           | 0.40           | 0.36                     | 0.22           |
| Total household exp. per person (ZMW) | 39.56          | 41.55                    | 0.46           | 52.04          | 50.23                    | 0.55           |
| Asset index              | 0.27           | 0.31                     | 0.22           | 0.44           | 0.39                     | 0.16           |
| Livestock index          | 0.02           | 0.22                     | 0.39           | 0.30           | 0.26                     | 0.28           |
| Productive asset index   | 0.32           | 0.35                     | 0.24           | 0.74           | 0.72                     | 0.50           |
| Value of harvest (ZMW)   | 329.10         | 360.17                   | 0.51           | 1058.29        | 876.36                   | 0.05           |
| Does not (or rarely) worry about food | 0.21           | 0.20                     | 0.95           | 0.15           | 0.15                     | 0.99           |
| Does not (or rarely) go to sleep hungry at night | 0.43           | 0.50                     | 0.13           | 0.54           | 0.52                     | 0.44           |
| Does not (or rarely) go whole day w/o eating | 0.50           | 0.56                     | 0.22           | 0.60           | 0.58                     | 0.72           |
| Food security scale (0–24) | 8.74           | 9.05                     | 0.60           | 9.35           | 9.26                     | 0.85           |
| Owned any chickens in last 12 months | 0.43           | 0.44                     | 0.88           | 0.50           | 0.45                     | 0.21           |
| Owned any goats in last 12 months | 0.01           | 0.03                     | 0.03           | 0.13           | 0.10                     | 0.17           |
| Owns a pick              | 0.03           | 0.03                     | 0.99           | 0.09           | 0.07                     | 0.17           |

P-values are reported from Wald tests on the equality of means of Treatment and Control for each variable. Standard errors are clustered at the community level.
Table 3

Baseline balance tests for sub-group indicators.

|                      | CGP Control | CGP Treatment | P-value of diff. | MCP Control | MCP Treatment | P-value of diff. |
|----------------------|-------------|---------------|------------------|-------------|---------------|------------------|
| **Female respondent level indicators** |             |               |                  |             |               |                  |
| Holding any savings  | 0.16        | 0.18          | 0.39             | 0.12        | 0.12          | 0.70             |
| Amount saved last month (ZMW) | 20.63      | 17.85         | 0.72             | 15.65       | 6.36          | 0.23             |
| Amount saved last month (ZMW) | 0.59        | 0.66          | 0.54             | 0.41        | 0.40          | 0.88             |
| Believes life will be better in future | 0.67        | 0.70          | 0.56             | 0.77        | 0.80          | 0.21             |
| **Material needs children 5–17 years** |             |               |                  |             |               |                  |
| Child has shoes      | 0.14        | 0.14          | 0.91             | 0.22        | 0.19          | 0.27             |
| Child has two sets of clothing | 0.63        | 0.64          | 0.87             | 0.79        | 0.74          | 0.14             |
| Child has blanket    | 0.58        | 0.56          | 0.79             | 0.63        | 0.58          | 0.24             |
| All needs met (shoes, blanket, clothes) | 0.11        | 0.11          | 0.92             | 0.17        | 0.14          | 0.20             |
| **Schooling indicators children 11–17 years** |             |               |                  |             |               |                  |
| Currently attending school | 0.79        | 0.81          | 0.57             | 0.80        | 0.75          | 0.04             |
| Full attendance prior week | 0.60        | 0.65          | 0.19             | 0.64        | 0.60          | 0.13             |
| Number of days attended prior week | 3.48        | 3.61          | 0.38             | 3.55        | 3.34          | 0.06             |

P-values are reported from Wald tests on the equality of means of Treatment and Control for each variable. Standard errors are clustered at the community level. Sample sizes for CGP and MCP respectively are: Female respondents: 2221 and 2,512, children 5–17: 4409 and 6,409, children 11–17: 1701 and 3594.
Table 4

Indicator list by wave and domain.

| Domain                | Indicators                                                                 | Level             | Baseline | 24-months | 36-months |
|-----------------------|-----------------------------------------------------------------------------|-------------------|----------|-----------|-----------|
|                       |                                                                             |                   | MCP      | CGP       | MCP       | CGP       |
| Consumption           | Overall per capita consumption<sup>a</sup>                                 | Household         | x        | x         | x         | x         | x         |
|                       | Food consumption per capita                                                |                   | x        | x         | x         | x         | x         |
|                       | Non-food consumption per capita                                            |                   | x        | x         | x         | x         | x         |
| Food security         | Does not (or rarely) worry about food                                      | Household         | x        | x         | x         | x         | x         |
|                       | Able to eat preferred food most of the times                               |                   | x        | x         | x         | x         | x         |
|                       | Does not (or rarely) eat food he/she does not want to eat due to lack of resources |                   | x        | x         | x         | x         | x         |
|                       | Does not (or rarely) eat smaller meal than needed                           |                   | x        | x         | x         | x         | x         |
|                       | Does not (or rarely) eat fewer meals because there is not enough food      |                   | x        | x         | x         | x         | x         |
|                       | Never (or rarely) no food to eat because of lack of resources              |                   | x        | x         | x         | x         | x         |
|                       | Does not (or rarely) go to sleep hungry                                    |                   | x        | x         | x         | x         | x         |
|                       | Does not (or rarely) go a whole day/night without eating                   |                   | x        | x         | x         | x         | x         |
|                       | Food security scale (0–24 where higher means more food secure)<sup>a</sup>  |                   | x        | x         | x         | x         | x         |
| Assets                | Domestic Asset index                                                        | Household         | x        | x         | x         | x         | x         |
|                       | Livestock index                                                             |                   | x        | x         | x         | x         | x         |
|                       | Productive index                                                            |                   | x        | x         | x         | x         | x         |
| Finance/debt          | Whether woman currently saving in cash                                      | Woman             | x        | x         | x         | x         | x         |
|                       | Amount saved by women                                                       |                   | x        | x         | x         | x         | x         |
|                       | Whether household has new loan                                             | Household         | x        | x         | x         | x         | x         |
|                       | Reduction in the amount borrowed                                           |                   | x        | x         | x         | x         | x         |
|                       | Not having an outstanding longer-term loan (loans taken out more than 6 months before the follow-up considered) |                   | x        | x         | x         | x         | x         |
|                       | Reduction in the amount owed                                               |                   | x        | x         | x         | x         | x         |
| Income and revenues   | Value of harvest                                                            | Household         | x        | x         | x         | x         | x         |
|                       | Spending on agricultural inputs                                            |                   | x        | x         | x         | x         | x         |
|                       | Operating a NFE                                                             |                   | x        | x         | x         | x         | x         |
|                       | Revenues from NFES                                                          |                   | x        | x         | x         | x         | x         |
| Relative (and/or subjective) Poverty | Does not consider household very poor                                      | Household         | x        | x         | x         | x         | x         |
| Domain | Indicators                                      | Level                | Baseline | 24-months | 36-months |
|--------|------------------------------------------------|----------------------|----------|-----------|-----------|
|        | Better off compared to 12 months ago           | x                    | x        | x         | x         |
|        | Think life will be better in either 1, 3 or 5 years | x                    | x        | x         | x         |
| Material needs | Shoes                         | x                    | x        | x         | x         |
|        | Blanket                                      | x                    | x        | x         | x         |
|        | Two sets of clothes                        | x                    | x        | x         | x         |
|        | All needs met<sup>a</sup>                     | x                    | x        | x         | x         |
| Schooling | School attendance                      | x                    | x        | x         | x         |
|        | Days attended in prior week                  | x                    | x        | x         | x         |
| Nutrition of young children [CGP only] | Not underweight                  | x                    | x        | x         | x         |
|        | Not wasted                                   | x                    | x        | x         | x         |
|        | Not stunted                                  | x                    | x        | x         | x         |

<sup>a</sup>Denotes lead indicators in that domain. In domains without a lead or summary indicator, an index is created based on all the indicators listed in that domain. X denotes indicator was included in the wave and study. The definition of each indicator is provided in Table A1 in the Appendix.

<sup>b</sup>We use crop figures collected at a special 30-month follow-up which referred to the same crop season that the 36-month follow-up would have referred to.
Table 5

Effects of CGP on domains indices.

|                        | Total consumption per capita | Food security scale | Overall asset index | Relative poverty index | Incomes & Revenues index | Incomes & Revenues index | Finance & Debt index | Finance & Debt index | Material needs index (5–17 years) | Schooling index (11–17 years) | Anthropometric index (0–59 months) |
|------------------------|-----------------------------|---------------------|---------------------|------------------------|--------------------------|--------------------------|---------------------|---------------------|----------------------------------|---------------------------------|----------------------------------|
| Impact at 24-Month     |                             |                     |                     |                        |                          |                          |                     |                     | 0.48                             | 0.53                            | 0.56                             | 1.11                             | 0.62                             | 0.58                             | 0.82                             | −0.02                            | 0.06                             |
|                        | (0.10)**                    | (0.11)**            | (0.08)**            | (0.11)**               | (0.08)**                | (0.12)**                | (0.12)**            | (0.07)**            | (0.05)**                          |                                  |                                  |
| Impact at 36-Month     | 0.38                        | 0.53                | 0.55                | 0.74                   | 0.35                     | 0.29                     | 0.57                | 0.07                | −0.06                            |                                  |                                  |
|                        | (0.07)**                    | (0.13)**            | (0.09)**            | (0.11)**               | (0.07)**                | (0.08)**                | (0.10)**            | (0.07)**            | (0.05)**                          |                                  |                                  |

|                        | 0.23                        | 0.10                | 0.20                | 0.22                   | 0.15                     | 0.14                     | 0.07                | 0.04                | 0.16                             | 0.07                            | 0.02                             |
| $R^2$                  |                             |                     |                     |                        |                          |                          |                     |                     |                                  |                                  |                                  |
| $N$                    | 6813                        | 6776                | 6815                | 6813                   | 2272                     | 2272                     | 6667                | 2272                | 14,798                           | 6027                            | 10,074                           |
| Unadj. p-value: 24 m  | 0.00                        | 0.00                | 0.00                | 0.00                   | 0.00                     | 0.00                     | 0.00                | 0.00                | 0.82                             | 0.20                            |                                  |
| impact = 0             |                             |                     |                     |                        |                          |                          |                     |                     |                                  |                                  |                                  |
| Adj. p-value: 24 m    | 0.00                        | 0.00                | 0.00                | 0.00                   | 0.00                     | 0.00                     | 0.00                | 0.00                | 1.00                             | 0.86                            |                                  |
| impact = 0             |                             |                     |                     |                        |                          |                          |                     |                     |                                  |                                  |                                  |
| Unadj. p-value: 36 m  | 0.00                        | 0.00                | 0.00                | 0.00                   | 0.00                     | 0.00                     | 0.00                | 0.00                | 0.33                             | 0.22                            |                                  |
| impact = 0             |                             |                     |                     |                        |                          |                          |                     |                     |                                  |                                  |                                  |
| Adjusted p-value: 36  | 0.00                        | 0.00                | 0.00                | 0.00                   | 0.00                     | 0.00                     | 0.01                | 0.00                | 0.97                             | 0.89                            |                                  |
| m impact = 0           |                             |                     |                     |                        |                          |                          |                     |                     |                                  |                                  |                                  |

Notes: Estimations use difference in difference modeling (single difference for the ‘Incomes & Revenues’ indices and the ‘Finance & Debt’ index at 36-months). Consumption, food security and child material needs indices are standardized measures against the control group within each round; the remaining summary indices are computed as the equally weighted average of z-scores of each indicator within the domain, then standardized against the control group within each round. Impact estimates are mean standardized ITTs, therefore effect sizes are expressed in SD of the control group. Robust standard errors clustered at the community level are in parentheses.

* $p < 0.1$

** $p < 0.05$.

Adjusted p-values are Sidak-Bonferroni corrected p-values. Estimations are adjusted and include respondent’s age, education and marital status, household size and household demographic composition, and districts. The Finance & Debt index at 24-months does not include debt and credit indicators; see text for further details.
### Table 6

Effects of MCP Program on domains indices.

|                         | Total consumption per capita | Food security scale | Overall asset index | Relative poverty index | Incomes & Revenues index | Finance & Debt index | Incomes & Revenues index | Material needs index (5–17 years) | Schooling index (11–17 years) |
|-------------------------|-----------------------------|---------------------|---------------------|------------------------|-------------------------|----------------------|--------------------------|---------------------------------|-----------------------------|
| Impact at 24-Month      | 0.38                        | 0.41                | 0.44                | 1.05                   | 0.19                    | 0.34                 | 0.47                     | 0.23                            |
|                         | (0.10)**                    | (0.10)**            | (0.08)**            | (0.11)**               | (0.09)**                | (0.08)**             | (0.10)**                 | (0.06)**                        |
| Impact at 36-Month      | 0.51                        | 0.54                | 0.72                | 0.97                   | 0.36                    | 0.33                 | 0.55                     | 0.23                            |
|                         | (0.14)**                    | (0.10)**            | (0.09)**            | (0.13)**               | (0.07)**                | (0.06)**             | (0.08)**                 | (0.06)**                        |
| $R^2$                   | 0.27                        | 0.08                | 0.25                | 0.17                   | 0.07                    | 0.06                 | 0.08                     | 0.03                            | 0.07                        | 0.04                        |
| $N$                     | 8810                        | 8733                | 8811                | 8811                   | 2937                    | 2937                 | 2937                     | 2936                            | 18,097                      | 10,429                      |
| Unadj. p-value: 24 m impact = 0 | 0.00                      | 0.00                | 0.00                | 0.00                   | 0.04                    | 0.00                 | 0.00                     | 0.00                            | 0.00                        | 0.00                        |
| Adj. p-value: 24 m impact = 0 | 0.00                      | 0.00                | 0.00                | 0.00                   | 0.29                    | 0.00                 | 0.00                     | 0.00                            | 0.00                        | 0.00                        |
| Unadj. p-value: 36 m impact = 0 | 0.00                      | 0.00                | 0.00                | 0.00                   | 0.00                    | 0.00                 | 0.00                     | 0.00                            | 0.00                        | 0.00                        |
| Adjusted p-value: 36 m impact = 0 | 0.00                      | 0.00                | 0.00                | 0.00                   | 0.00                    | 0.00                 | 0.00                     | 0.00                            | 0.00                        | 0.00                        |

Notes: Estimations use difference in difference modeling (single difference for Income & Revenues and Finance & Debt indices). Consumption, food security and child material needs indices are standardized measures against the control group within each round; the remaining summary indices are computed as the equally weighted average of z-scores of each indicator within the domain, then standardized against the control group within each round. Impact estimates are mean standardized ITTs, therefore effect sizes are expressed in SD of the control group. Robust standard errors clustered at the community level are in parentheses.

* p < 0.1  
** p < 0.05;  
*** p < 0.01.

Adjusted p-values are Sidak-Bonferroni corrected p-values. Estimations are adjusted and include respondent’s age, education and marital status, household size and household demographic composition, and districts.
Table 7

Effects of the CGP and MCP on log consumption.

| Panel A: CGP | Food consumption per capita, logged | Non-food consumption per capita, logged | Total consumption per capita, logged |
|--------------|------------------------------------|----------------------------------------|-------------------------------------|
| Impact at 24-Month | 0.28 | 0.23 | 0.28 |
| (0.07)*** | (0.07)*** | (0.07)*** |
| Impact at 36-Month | 0.19 | 0.19 | 0.20 |
| (0.05)*** | (0.07)*** | (0.05)*** |
| R² | 0.25 | 0.19 | 0.27 |
| N | 6813 | 6813 | 6813 |
| Unadj. p-value: 24 m impact = 0 | 0.00 | 0.00 | 0.00 |
| Adj. p-value: 24 m impact = 0 | 0.00 | 0.00 | 0.00 |
| Unadj. p-value: 26 m impact = 0 | 0.00 | 0.01 | 0.02 |
| Adjusted p-value: 26 m impact = 0 | 0.00 | 0.02 | 0.02 |
| Panel B: MCP | | | |
| Impact at 24-Month | 0.26 | 0.08 | 0.22 |
| (0.08)*** | (0.07) | (0.06)*** |
| Impact at 36-Month | 0.37 | 0.13 | 0.31 |
| (0.11)*** | (0.08)* | (0.09)*** |
| R² | 0.28 | 0.27 | 0.32 |
| N | 8810 | 8810 | 8810 |
| Unadj. p-value: 24 m impact = 0 | 0.00 | 0.27 | 0.27 |
| Adj. p-value: 24 m impact = 0 | 0.00 | 0.46 | 0.46 |
| Unadj. p-value: 36 m impact = 0 | 0.00 | 0.10 | 0.10 |
| Adjusted p-value: 36 m impact = 0 | 0.00 | 0.18 | 0.18 |

Notes: Estimations use difference in difference modeling. Robust standard errors clustered at the community level are in parentheses.

* p < 0.1
** p < 0.05;
*** p < 0.01.

Adjusted p-values are Sidak-Bonferroni corrected p-values. Estimations are adjusted and include respondent’s age, education and marital status, household size and household demographic composition, and districts.
### Table 8

Effects of the CGP and MCP on assets.

|                              | Domestic Asset Index | Livestock Index | Productive asset index |
|------------------------------|----------------------|----------------|------------------------|
| **Panel A: CGP**             |                      |                |                        |
| Impact at 24-Month           | 0.15                 | 0.15           | 0.10                   |
|                             | (0.02)***            | (0.03)***      | (0.03)***              |
| Impact at 36-Month           | 0.18                 | 0.16           | 0.09                   |
|                             | (0.03)***            | (0.03)***      | (0.03)***              |
| **Panel B: MCP**             |                      |                |                        |
| Impact at 24-Month           | 0.13                 | 0.19           | 0.08                   |
|                             | (0.04)***            | (0.03)***      | (0.03)***              |
| Impact at 36-Month           | 0.24                 | 0.28           | 0.11                   |
|                             | (0.04)***            | (0.04)***      | (0.03)***              |

- $R^2$: 0.21, 0.11, 0.11
- $N$: 6801, 6808, 6794
- Unadj. p-value: 24 m impact = 0: 0.00, 0.00, 0.00
- Adj. p-value: 24 m impact = 0: 0.00, 0.00, 0.00
- Unadj. p-value: 36 m impact = 0: 0.00, 0.00, 0.00
- Adjusted p-value: 36 m impact = 0: 0.00, 0.00, 0.01

Notes: See notes to Table 8.
Table 9

Effects of the CGP and MCP on incomes and revenues.

|                  | Value of harvest,logged | Spending on ag. inputs,logged | Operating NFE | Revenues from NFEs, logged | Operating NFE | Revenues from NFEs, logged |
|------------------|-------------------------|-------------------------------|---------------|---------------------------|---------------|---------------------------|
|                  | (1)                     | (2)                           | (3)           | (4)                       | (5)           | (6)                       |
| Panel A: CGP     |                         |                               |               |                           |               |                           |
| Impact at 24-Month | 0.40                    | 0.89                          | 0.17          | 1.11                      |               |                           |
|                   | (0.25)                  | (0.19)                        | (0.04)        | (0.24)                    |               |                           |
| Impact at 36-Month| 0.33                    | 0.09                          | 0.14          | 0.81                      |               |                           |
|                   | (0.28)                  | (0.20)                        | (0.03)        | (0.17)                    |               |                           |
| \( R^2 \)        |                         |                               |               |                           |               |                           |
|                   | 0.13                    | 0.08                          | 0.09          | 0.12                      | 0.17          | 0.17                      |
| \( N \)          | 6816                    | 6816                          | 2272          | 2272                      | 2272          | 2272                      |
| Unadj. p-value: 24 m impact = 0 | 0.11                    | 0.00                          | 0.00          | 0.00                      | 0.00          | 0.00                      |
| Adj. p-value: 24 m impact = 0 | 0.38                    | 0.00                          | 0.00          | 0.00                      | 0.00          | 0.00                      |
| Unadj. p-value: 36 m impact = 0 | 0.24                    | 0.66                          | 0.00          | 0.00                      | 0.00          | 0.00                      |
| Adjusted p-value: 36 m impact = 0 | 0.67                    | 0.99                          | 0.00          | 0.00                      | 0.00          | 0.00                      |
| Panel B: MCP     |                         |                               |               |                           |               |                           |
| Impact at 24-Month | 0.67                    | 1.04                          | -0.01         | -0.02                     | 0.02          | 0.11                      |
|                   | (0.21) **                | (0.22) ***                    | (0.03)        | (0.14)                    |               |                           |
| Impact at 36-Month| 1.09                    | 1.41                          | 0.02          | 0.11                      | 0.02          | 0.11                      |
|                   | (0.21) **                | (0.20) ***                    | (0.02)        | (0.10)                    |               |                           |
| \( R^2 \)        |                         |                               |               |                           |               |                           |
|                   | 0.13                    | 0.11                          | 0.02          | 0.02                      | 0.02          | 0.02                      |
| \( N \)          | 8811                    | 8811                          | 2937          | 2937                      | 2934          | 2934                      |
| Unadj. p-value: 24 m impact = 0 | 0.01                    | 0.00                          | 0.64          | 0.91                      | 0.42          | 0.29                      |
| Adj. p-value: 24 m impact = 0 | 0.00                    | 0.00                          | 0.98          | 1.00                      | 0.89          | 0.74                      |
| Unadj. p-value: 36 m impact = 0 | 0.00                    | 0.00                          | 0.00          | 0.00                      | 0.00          | 0.00                      |
| Adjusted p-value: 36 m impact = 0 | 0.00                    | 0.00                          | 0.00          | 0.00                      | 0.00          | 0.00                      |

Notes: Estimations use single differences (difference in differences for harvest and spending on agricultural inputs). Robust standard errors clustered at the community level are in parentheses.

* \( p < 0.1 \)
Adjusted p-values are Sidak-Bonferroni corrected p-values. Estimations include respondent's age, education and marital status, household size and household demographic composition, and districts.
Table 10

Effects of CGP and MCP on finance and debt.

|                  | Holding any savings (women) | Amount saved, logged (women) | No outstanding debt | Reduction in amount owed, logged | No new borrowing | Reduction in amount borrowed, logged | No outstanding debt | Reduction in amount owed, logged | No new borrowing | Reduction in amount borrowed, logged |
|------------------|-----------------------------|-------------------------------|---------------------|----------------------------------|-----------------|--------------------------------------|---------------------|----------------------------------|-----------------|--------------------------------------|
| **Panel A: CGP** |                             |                               |                     |                                  |                 |                                      |                     |                                  |                 |                                      |
| Impact at 24-Month | 0.22                        | 1.09                          | (0.05)**            | (0.18)**                         | 0.06            | 0.26                                 | 0.02                | 0.05                             |                 |                                      |
|                   | (0.05)**                     | (0.18)**                      |                     |                                  |                 |                                      |                     |                                  |                 |                                      |
| Impact at 36-Month | 0.10                        | 0.57                          | 0.06                | 0.26                             | 0.02            | 0.05                                 |                     |                                  |                 |                                      |
|                   | (0.05)**                     | (0.18)**                      | (0.02)**            | (0.08)**                         | (0.03)          | (0.11)                               |                     |                                  |                 |                                      |
| \(R^2\)           | 0.08                        | 0.10                          | 0.02                | 0.02                             | 0.01            | 0.02                                 |                     |                                  |                 |                                      |
| \(N\)             | 6667                        | 6658                          | 2272                | 2270                             | 2271            | 2271                                 |                     |                                  |                 |                                      |
| \(P\)-values      |                             |                               |                     |                                  |                 |                                      |                     |                                  |                 |                                      |
| Unadj: 24 m impact = 0 | 0.00                       | 0.00                          | 0.00                | 0.00                             | 0.00            | 0.00                                 |                     |                                  |                 |                                      |
| Adj: 24 m impact = 0 | 0.00                        | 0.00                          | 0.00                | 0.00                             | 0.00            | 0.00                                 |                     |                                  |                 |                                      |
| Unadj: 36 m impact = 0 | 0.03                       | 0.00                          | 0.00                | 0.00                             | 0.00            | 0.00                                 | 0.56                | 0.67                             |                 |                                      |
| Adj: 36 m impact = 0 | 0.17                        | 0.01                          | 0.00                | 0.00                             | 0.00            | 0.00                                 | 0.99                | 1.00                             |                 |                                      |
| **Panel B: MCP**  |                             |                               |                     |                                  |                 |                                      |                     |                                  |                 |                                      |
| Impact at 24-Month | 0.14                        | 0.63                          | 0.03                | 0.11                             | 0.05            | 0.22                                 |                     |                                  |                 |                                      |
|                   | (0.04)**                     | (0.18)**                      | (0.01)**            | (0.05)**                         | (0.02)**        | (0.09)**                              |                     |                                  |                 |                                      |
| Impact at 36-Month | 0.14                        | 0.67                          | 0.02                | 0.02                             | 0.03            | 0.03                                 | 0.02                | 0.02                             | 0.02            | 0.02                                 |
|                   | (0.03)**                     | (0.14)**                      |                     |                                  |                 |                                      |                     |                                  |                 |                                      |
| \(R^2\)           | 0.05                        | 0.06                          | 0.02                | 0.02                             | 0.03            | 0.03                                 | 0.01                | 0.02                             | 0.02            | 0.02                                 |
| \(N\)             | 7860                        | 7854                          | 2936                | 2930                             | 2933            | 2926                                 | 2936                | 2932                             | 2934            | 2933                                 |
| \(P\)-values      |                             |                               |                     |                                  |                 |                                      |                     |                                  |                 |                                      |
| Unadj: 24 m impact = 0 | 0.00                       | 0.00                          | 0.03                | 0.03                             | 0.02            | 0.01                                 |                     |                                  |                 |                                      |
| Adj: 24 m impact = 0 | 0.02                        | 0.00                          | 0.14                | 0.15                             | 0.12            | 0.09                                 |                     |                                  |                 |                                      |
| Unadj: 36 m impact = 0 | 0.00                       | 0.00                          | 0.14                | 0.15                             | 0.12            | 0.09                                 |                     |                                  |                 |                                      |
| Adj: 36 m impact = 0 | 0.00                        | 0.00                          | 0.31                | 0.53                             | 0.24            | 0.21                                 |                     |                                  |                 |                                      |

Notes: Estimations use single differences (difference in differences for saving outcomes). See notes to Table 9.
Table 11

Estimated multiplier effects of the two programs.

|               | CGP     | MCP     |
|---------------|---------|---------|
| 24-month      | 1.83**  | 1.35    |
|               | [1.20, 2.47] | [0.80, 1.91] |
| 36-month      | 1.39    | 2.08**  |
|               | [0.84, 1.94] | [1.24, 2.01] |
| Pooled        | 1.61**  | 1.72**  |
|               | [1.07, 2.15] | [1.11, 2.32] |

Notes: The multiplier effect is computed as the ratio of the sum total of annualized spending impacts over the annual value of the transfer; spending impacts include: consumption, savings, livestock purchases and productive tools. Loan repayments are excluded to maintain comparability across programs since they are not captured at 24-months in the CGP. Impacts are based on estimated econometric results reported Appendix Table A11. Only statistically significant (at the 5 percent level) impact estimates are considered.
Table 12

MCP impacts on agricultural activity.

|                                | Harvest sales (logged) | Livestock sales (logged) |
|--------------------------------|------------------------|--------------------------|
|                                | Total                  | Maize                    | Sweet potatoes | Other beans | Expenditure on hired labour (logged) | Livestock sales (logged) |
|                                | (1)                    | (2)                      | (3)            | (4)         | (5)                                    | (6)                    |
| (Pooled) Impact                | 1.047***               | 0.550***                 | 0.131***       | 0.243**     | 0.881***                               | 0.229***               |
|                                | (0.212)                | (0.177)                  | (0.0489)       | (0.0976)    | (0.147)                                | (0.0782)               |
| Treated                        | −0.337*                | −0.294*                  | −0.114**       | −0.0350     | 0.0178                                 |                       |
|                                | (0.179)                | (0.162)                  | (0.0476)       | (0.133)     | (0.0446)                               |                       |
| Follow-ups dummy              | −0.749***              | −0.294**                 | −0.136***      | −0.289***   | 0.243***                               |                       |
|                                | (0.149)                | (0.136)                  | (0.0404)       | (0.0604)    | (0.0576)                               |                       |
| Control mean at baseline (ZMW) | 239.9                  | 197.3                    | 7.9            | 19.2        | 4.0                                    | 16.8*                  |
| Observations                  | 8811                   | 7818                     | 7818           | 7818        | 8811                                   |                       |
| R-squared                     | 0.049                  | 0.060                    | 0.020          | 0.038       | 0.122                                  |                       |

Notes: Impacts reported are pooled (24- and 36-months). Estimations are based on difference in difference modeling apart from livestock sales that were not collected at baseline. These estimates are therefore based on post-intervention comparisons only. Robust standard errors in parentheses.

*** p < 0.01,
**  p < 0.05,
*   p < 0.1.

aPooled follow-ups mean.
## Table 13

Impact of CGP on economic activity.

| Variables                  | Non-farm enterprises | Agriculture | Livestock sales (logged) |
|----------------------------|----------------------|-------------|--------------------------|
|                            | Profits (logged)     | Value of assets (logged) | Harvest Sales (logged) | Livestock sales (logged) |
| (Pooled) Impact            | (1)                  | (3)         | (4)                      | (5)                      |
|                            | 0.794***             | 0.343***    | 0.702***                 | 0.239**                  |
|                            | (0.152)              | (0.0728)    | (0.176)                  | (0.118)                  |
| Treated                    | −0.239               | −0.0394     |                          |                          |
|                            | (0.175)              | (0.0772)    |                          |                          |
| Follow-ups dummy           | −0.0978              | 0.0427      |                          |                          |
|                            | (0.118)              | (0.0775)    |                          |                          |
| Control mean at baseline (ZMW) | 46.91$^a$             | 20.06$^a$   | 66.3                     | 28.0                     |
| Observations               | 4544                 | 4541        | 6816                     | 6816                     |
| R-squared                  | 0.130                | 0.034       | 0.089                    | 0.025                    |

Notes: Impacts reported are pooled (24- and 36-months). Estimations based on difference in difference modeling for agricultural outcomes and single-difference modeling for NFE outcomes that were not collected at baseline. These (NFE) estimates are therefore based on post-intervention comparisons only. Robust standard errors in parentheses.

$^{***}$ p < 0.01,  
$^{**}$ p < 0.05,  
$^*$ p < 0.1.

$^a$Pooled follow-up control mean.
Table 14

Reasons for saving among savers (percent).

| Reason      | CGP Treatment | CGP Control | MCP Treatment | MCP Control |
|-------------|---------------|-------------|---------------|-------------|
| Investment only | 20.2          | 19.5        | 24.5          | 15.4        |
| Precautionary only | 63.8          | 64.5        | 59.7          | 76.7        |
| Both         | 15.1          | 14.3        | 14.0          | 6.9         |
| None stated  | 1.0           | 1.6         | 1.9           | 1.0         |
| N            | 392           | 251         | 808           | 403         |

Figures are based on combined 24- and 36-month follow-up data only.
Table 15

Main source of capital for non-farm enterprise (percent).

|                  | CGP Treatment | CGP Control | MCP Treatment | MCP Control |
|------------------|---------------|-------------|---------------|-------------|
| Business itself  | 27.6          | 36.8        | 26.1          | 19.6        |
| Savings          | 16.7          | 28.8        | 27.7          | 19.6        |
| Cash transfer    | 41.3          | –           | 21.5          | –           |
| Other            | 14.4          | 34.43       | 24.8          | 60.82       |
| N                | 1129          | 671         | 303           | 194         |

Figures are based on combined 24- and 36-month follow-up data only.