Food and Agriculture Organization
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# Zambia's Child Grant Programme: 24-month impact report on productive activities and labour allocation

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Silvio Daidone, Benjamin Davis, Joshua Dewbre
Food and Agriculture Organization of the United Nations (FAO)
Rome, Italy

Mario González-Flores
American University
Washington, D.C. USA

Sudhanshu Handa
University of North Carolina
Chapel Hill, NC USA

David Seidenfeld
American Institutes for Research
Washington D.C. USA

Gelson Tembo
Palm Associates
Lusaka, Zambia

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**The From Protection to Production (PtoP) programme, jointly with the United Nations Children's Fund (UNICEF), is exploring the linkages and strengthening coordination between social protection, agriculture and rural development. The PtoP is funded principally by the United Kingdom Department for International Development (DFID), the Food and Agriculture Organization of the United Nations (FAO) and the European Union.**

**The programme is also part of the Transfer Project, a larger effort together with UNICEF, Save the Children and the University of North Carolina, to support the implementation of impact evaluations of cash transfer programmes in sub-Saharan Africa.**

**For more information, please visit PtoP website:**
**http://www.fao.org/economic/ptop**

## Abbreviations

| | |
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| AIR | American Institutes for Research |
| CGP | Child Grant Programme |
| CT | Cash Transfer |
| DiD | Difference-in-Differences |
| FAO | Food and Agriculture Organization of the United Nations |
| IPW | Inverse Probability Weighting |
| MCDMCH | Ministry of Community Development, Mother and Child Health |
| PSM | Propensity Score Matching |
| RCT | Randomized Control Trial |
| SD | Single Difference |
| UNICEF | United Nations Children's Fund |
| USD | United States Dollars |
| ZMK | Zambian Kwacha |

# Contents

# Executive summary

**The Zambia Child Grant Programme (CGP) is one of the Government of Zambia's flagship social protection programmes**. Implemented by the Ministry of Community Development, Mother and Child Health (MCDMCH) since 2010, the programme currently reaches 20 000 ultra-poor households with children under five years of age in three districts (Shangombo, Kalabo and Kaputa). At the time of the baseline household survey for this study in 2010, beneficiary households received 55 Kwacha (ZMK) a month (equivalent to around USD 12) independent of household size, an amount subsequently increased to 60 ZMK a month.

**This research report uses data collected from a 24-month randomized experimental design impact evaluation (2010 to 2012) to analyse the productive impact of the Zambia CGP** including food consumption, productive activities and investment, accumulation of productive assets and labour allocation. Although the programme is designed to increase food security and human capital development, with a focus on children under five, there are good reasons to also expect impact on the economic choices of beneficiaries, who are primarily agricultural producers.

**First, we find robust evidence of a positive and statistically significant impact of the programme on both food and non-food consumption**. The impact is larger in magnitude for food consumption and for smaller households (five or less members). The increase in food consumption stems exclusively from purchases as both the share of households consuming own-produced goods and the value of own-produced goods or received as gifts do not increase as a consequence of the transfer. The variety of the diet has also increased: treated households consumed significantly more quantities of cereals, pulses, meat, dairy/eggs, oils/fats and sweet products as compared to control households. This is particularly true for cereals and pulses in smaller-sized households.

**Second, the programme has a significant impact on the accumulation of some productive assets**. Large and significant effects are found on both the share of households owning animals and on the number of animals owned, especially for larger-sized households. These effects are larger in magnitude for poultry. With respect to agricultural tools we observe two distinct patterns: a significant positive impact on the share of households accumulating agricultural implements with low initial values at baseline; and a significant impact on the number of assets held for those implements already available at baseline by a large share of households.

**Third, CGP beneficiary households show an increase in savings and a tendency towards paying off their loans**. The impact is quite relevant for the share of households declaring to accumulate savings in the form of cash, but in terms of the amounts the result is significant only for smaller-sized households. We observe also a significant impact on the share of households declaring to have made some loans repayments, and only for larger households is this outcome significant in the absolute amount.

**Fourth, the programme has a positive impact on agricultural activity**. The CGP had a large impact on increasing the size of operated land and the use of agricultural inputs,

including seeds, fertilizer and hired labour, both on the share adopting those inputs and the corresponding monetary amount, especially for smaller households. The increase in agricultural input use led to higher production; we find a small yet significant increase in maize and rice production for smaller households and a decrease in cassava production, especially for larger households. The latter result however is consistent with the decline in household consumption of tubers. The increase in production appeared to be primarily sold rather than consumed on-farm; beneficiary households were more likely to sell their harvests compared to non-beneficiaries, reflected in both the share of households selling cash crops and the relative monetary value.

**Finally, in term of labour supply**, individuals from beneficiary households generally moved out of agricultural wage labour and into off-farm family enterprises. The impact is significant for both males and females, but is larger in magnitude for the latter. Further there is evidence of a positive impact also for males in non-agricultural wage labour. These results are consistent both in terms of probability of participation and intensity of labour. No effect is found for on-farm or for child labour.

**Overall, the study has provided direct evidence that the CGP programme influences the livelihood strategies of the poor, with differential intensity across household size**. The programme has helped families increase food consumption and productive activities and assets, including livestock holdings, which was among the six objectives of the programme. Further it provided more flexibility to families in terms of labour allocation, especially for women.

# 1. Introduction

This document constitutes the quantitative impact evaluation report on productive activities and labour allocation of the Child Grant Programme (CGP) implemented by the Ministry of Community Development, Mother and Child Health (MCDMCH), Government of Zambia. The impact evaluation is implemented by the American Institutes for Research (AIR) which has been contracted by the United Nations Children's Fund (UNICEF) Zambia to design and run a randomized control trial (RCT) for a three-year impact evaluation of the programme. The results of this report are included in the overall two-year impact evaluation report (Seidenfeld, *et al*. 2013).[1]

The CGP is an unconditional social cash transfer programme targeting any household with a child under five years old in three districts (Kalabo, Kaputa and Shangombo) that had not participated in a cash transfer programme in the past. Beneficiary households receive 60ZMK a month (equivalent to USD 12), an amount deemed sufficient by the MCDMCH to purchase one meal a day for everyone in the household for one month. The amount of the grant is the same regardless of household size in order to reduce the incentive for misrepresenting households' membership, but also to reduce administrative costs associated with delivering the transfer.

As with similar cash transfer programmes, the CGP aims to supplement household income, increase education and health outcomes and improve the overall nutrition of household members, especially children under five. Although the primary goal of the programme is to build human capital and to improve food security, there are good reasons to believe that the CGP can have impacts on the economic livelihoods of beneficiaries. Since the programme targeted rural areas, the vast majority of programme beneficiaries depend heavily on subsistence agriculture and live in places where markets for financial services (such as credit and insurance), labour, goods and inputs are likely to be lacking or not function well.

Our hypothesis is that the liquidity and security of regular and predictable cash transfers can increase productive and other income-generating investments, influence beneficiaries' role in social networks, increase access to markets and inject resources into local economies. These impacts come through changes in individual and household behaviour (labour supply, investments and risk management) and through impacts on the local economy of the communities (social networks, labour and good markets, multiplier effects, etc.) where the transfers operate.

Previous research in other sub-Saharan countries has shown that unconditional cash transfers have an impact on agricultural and non-agricultural productive choices (Covarrubias *et al.* 2012; Asfaw *et al*. 2013). This report will provide impact estimates of the CGP on a range of household and individual level outcomes. At the household level we examine consumption and non-consumption expenditure, agricultural assets accumulation, agricultural production and use of inputs, and saving behaviour. At the individual level we consider both adult and child labour supply, overall as well as by gender.

[1] Three tables (21, 24 and 29) included in this report are not found in Seindenfeld, *et al.* 2013.

## 2. Research Design

The CGP was implemented by the MCDMCH in 2010 in three of the poorest districts of the country – Kalabo, Kaputa and Shangombo – that have the highest rates of mortality, morbidity, stunting and wasting among children under five years of age. In addition to the geographic targeting, the CGP used a categorical targeting approach in which any household with a child under five years of age was eligible to receive the transfer. The transfers are made every other month through a local pay-point manager. As with other transfer programmes (such as Oportunidades in Mexico) the primary recipient of the transfer is the female in the household that is considered to be the primary caregiver. In contrast to some of the largest cash transfer programmes in the world, such as Oportunidades and Bolsa Familia, the CGP does not impose any conditions attached to the cash transfer.

The CGP impact evaluation was designed as an RCT using a randomized phase-in method (Duflo, Glennerster and Kremer 2008) that includes several levels of random selection. First, 90 out of 300 Community Welfare Assistance Committees (CWACs) in the three districts were randomly selected and ranked through a lottery to be considered in the programme. In a second phase CWAC members and Ministry staff identified all eligible households with at least one child under the age of three living in these 90 randomly selected communities. This resulted in more than 100 eligible households in each of the CWACs. After implementing a power analysis to ensure the study was able to detect meaningful effects, 28 households were randomly selected for inclusion in the evaluation from each of the 90 communities. This yielded a final study sample of more than 2 500 households.

Baseline data collection was carried out before CWACs were randomly assigned to treatment and control. Importantly, neither the households nor the enumerators knew who would benefit first and who would benefit later. The randomization was concluded with the flip of a coin and was carried out in public with local officials, Ministry staff and community members. Half of the selected communities were assigned to treatment and were incorporated to begin receiving benefits in December of 2010. The other half of the communities serve as the controls, and they were scheduled to receive the programme at the end of 2013.

The CGP has six specific objectives:

1. Supplement and not replace household income;
2. increase the number of children enrolled in and attending school;
3. reduce the rate of mortality and morbidity among children under five years old;
4. reduce stunting and wasting among children under five years old;
5. increase the number of households owning assets such as livestock; and
6. increase the number of households that have a second meal a day.

# 3. Analytical approach

## 3.1. Difference in differences estimator

When panel data are available with pre- and post-intervention information, which is the case with most of the outcome variables, the statistical approach we take to derive average treatment effects of the CGP is the difference-in-differences (DiD) estimator. This entails calculating the change in an indicator ($Y$), such as maize production, between baseline and follow-up period for beneficiary (T) and non-beneficiary (C) households and comparing the magnitude of these changes.

Two key features of this design are particularly attractive for deriving unbiased programme impacts. First, using pre- and post-treatment measures allows us to net out unmeasured fixed time-invariant family or individual characteristics (such as entrepreneurial drive) that may affect outcomes. Second, using the change in a control group as a comparison allows us to account for general trends in the value of the outcome. For example, if there is a general increase in maize production because of higher rainfalls, deriving treatment effects based only on the treatment group will confound programme impacts on production with the general improvement in weather conditions.

The key assumption underpinning the DiD is that there is no systematic unobserved time-varying difference between the treatment and control groups. For example, if plot quality for the T group remains constant over time but the C group experiences on average deterioration and erosion, then we would attribute a greater increase in agricultural production in T to the programme rather than to this unobserved time-varying change in soil characteristic. In practice the random assignment to T and C, the geographical proximity of the samples and the rather short duration between pre- and post-intervention measurements, make this assumption reasonable.

In large-scale social experiments like the CGP, it is typical to estimate the DiD in a multivariate framework, controlling for potential intervening factors that might not be perfectly balanced across T and C units and/or are strong predictors of the outcome ($Y$). Not only does this allow us to control for possible confounders, it also increases the efficiency of our estimates by reducing the residual variance in the model. The basic setup of the estimation model is shown in equation (1):

$$Y_{it} = \beta_0 + \beta_1 D_{it} + \beta_2 R_t + \beta_3 (R_t * D_i) + \Sigma \beta_i Z_i + \varepsilon_{it} \qquad (1)$$

where $Y_{it}$ is the outcome indicator of interest; $D_i$ is a dummy equal to 1 if household $i$ received the treatment and 0 otherwise; $R_t$ is a time dummy equal to 0 for the baseline and to 1 for the follow-up round; $R_t * D_i$ is the interaction between the intervention and time dummies, and $\varepsilon_{it}$ is the statistical error term. To control for household and community characteristics that may influence the outcome of interest beyond the treatment effect alone, we add in $Z_i$, a vector of household and community characteristics to control for observable differences across households at the baseline which could have an effect on $Y_{it}$. These factors are not only those for which some differences may be observed across treatment and control at the baseline, but also ones which could have some explanatory role in the estimation of $Y_{it}$.

As for coefficients, $\beta_0$ is a constant term; $\beta_1$ controls for the time-invariant differences between the treatment and control; $\beta_2$ captures changes over time; and $\beta_3$ is the double difference estimator which captures the impact of the programme.

## 3.2. Cross-sectional estimators

When panel data are not available, as is the case for some of our outcome variables that are observed only at follow-up, a single difference (SD) estimator or propensity score matching (PSM), or a combination of the two like the inverse probability weighting (IPW), can be applied.

SD estimates impacts by comparing the mean values of the indicator of interest for the recipients and the non-recipients. This estimator relies on the random assignment of the households to the treatment and the control groups before the intervention takes place. Causal effects estimates are unbiased since both potential outcomes and observed characteristics are independent from the treatment. Equation (2) presents the regression equivalent of the SD with covariates,

$$Y_i = \beta_0 + \beta_1 D_i + \Sigma \beta_i Z_i + \varepsilon_i \qquad (2)$$

where the estimated $\beta_1$ coefficient is the causal effect of the programme, conditional on the $Zi$ vector of pre-treatment variables added to remove any potential bias arising from the misallocation of the transfer. In this setting it is crucial to ensure that the controls $Z$ are also exogenous. Even with an RCT, it is easy to break the experimental design by introducing endogeneity at the analysis stage.

Reweighting methods like the IPW are generally preferred for their finite sample properties (smaller bias and more efficient) over PSM methods. Unsurprisingly, since randomization worked well, results between the simple SD and the double robust IPW were very similar in both significance and magnitude. In the results section therefore we present only the former estimator.

# 4. Data

In order to evaluate the impact of the CGP this report uses baseline and 24-month follow-up data. The core instrument is the household questionnaire, which is very similar in layout and coverage to major national multitopic surveys in Zambia. The design of the instrument was guided by three principles: i) inclusion of key indicators allowing the programme to be assessed against stated objectives; ii) for all key indicators, use of questions from national surveys to ensure comparability; and iii) manageable length to avoid interviewer or respondent fatigue. Most of the instrument did not change between the two waves. However at follow-up some edits were incorporated to facilitate the household-level analysis and a study on the local economy. For the purposes of this research additional modules were added, allowing better measures of labour supply and productive activities.

Special attention was paid to the process and the timing of data collection, making sure that it was culturally appropriate, sensitive to Zambia's economic cycle and consistently implemented. For instance, the data at baseline and follow-up were conducted during the same time of the year between September and October to be sure the data were not picking up seasonal differences across the years. Importantly, given the objective and nature of the programme, these months represent the beginning of the lean season when households face the longest periods without a food harvest. The CGP aims to support households during a period when they need the greatest support. The logic for collecting data during these months is because this might be the period when the impacts of the programme are likely to be largest.

## 4.1. Baseline

The baseline data includes information for 2 519 households corresponding to 14345 individuals. Half of these households are in control communities and the other half are in treated communities. The geographic distribution of households and individuals is shown in Table 1, where it appears that households in Kaputa are bigger compared to the other two districts, especially Kalabo. Additionally, treated households are slightly larger than the control group.

In the baseline report Seidenfeld and Handa (2011) demonstrate that randomization was successful, as mean characteristics were balanced across groups. For the purpose of our study however we test a different set of outcome measures which are related to productive activities. With respect to household level variables we confirm that randomization has worked since the vast majority of indicators are not statistically different at the conventional 5 percent significance level, with 10 exceptions out of 71 (see Table 2). Four indicators have standardized differences greater than 10, but they are all below 15. Given the large sample size we have power to detect very small and substantively meaningless differences.

Besides checking for statistical equivalence between groups, the baseline provides a clear snapshot of the livelihoods in the targeted rural areas. A large majority of programme-eligible households are agricultural producers (almost 80 percent). By far the most important crop is maize; about a third of households produce cassava and 20 percent rice; followed by a smattering of millet, groundnut and sweet potatoes (see Table 3). As can be seen in Figure 1,

each district has quite different crop production patterns. Looking at the share of households producing each crop, Kaputa has mixed maize and cassava production (with a larger share of cassava), while Kalabo has mixed maize and rice production (with a larger share of rice). Maize dominates in Shangombo. In terms of available agricultural land, cropped areas are on average small among households in this sample, at just over half a hectare for those producing crops (see Table 4). Average land sizes are relatively similar across districts with somewhat higher values in Kalabo. Minor differences between treatment and controls households within districts are also discernible.

Not surprisingly, given the small land cropping sizes most crop production is for household consumption, though differences emerge among crops. We look at this from two dimensions. First, in Table 5 we see that overall 29 percent of crop producers at baseline sold some part of their harvest. By crop, however, this ranges from 19 and 16 percent for maize and cassava to 50 percent for rice, which means that rice to some extent functions as a cash crop in Kalabo and particularly in Kaputa (65 percent of rice producers sold some of their crop).

Second, in Figure 2 we see the distribution of maize use by district and by treatment and control. In all three districts the largest share of production goes to household consumption, but a non-trivial share (around 20 percent) is stored or given out as reimbursement. In Kaputa twenty percent of the harvest is sold. Very small amounts are used as by-products and as inputs to animal production.

Households in the baseline sample have relatively low levels of livestock assets. Less than half of all households have any kind of livestock and most of these households have only chickens. Only 5 percent of households have milk cows, and 10 percent have other kinds of cattle. For those that own milk cows, other cattle and goats, the average herd size is 3.7, 4.5 and 2.5 animals respectively.

Most producers used traditional production systems. Only 28 percent of crop producers used purchased inputs (Table 6). Most of these inputs (16 percent of producers) were seeds; only 1 percent used any kind of chemical input (fertilizers or pesticides). Some differences between treatment and control households do emerge at the district level though the numbers are small. Most households in the sample have basic agricultural implements: over 90 percent of households have a hoe and 79 percent an axe. From there it drops to less than 10 percent with a shovel or a plough.

Adult labour supply varies by gender (Table 7). At baseline women are more involved in nonfarm self-enterprise activities (17 to 8 percent) and as homemakers, while men are more involved in agricultural activities and particularly in fishing. Both men and women participate equally in wage activities. Significant differences between treatment and control households do emerge in a number of categories for males, though the differences are not of great magnitude.

Child labour is common among the households in this sample. Over 50 percent of children aged five to 18 are involved in labour activities (Table 8), almost all of which are unpaid. And an even a large share – 38 percent – of younger children (aged five to 10) “normally” work. This share increases dramatically by age, with 69 percent of 11-13 year olds and 77 percent of 14-18 year olds.

For those children who worked at baseline, the time commitment is significant as seen in Table 9. Children worked on average 25 hours of unpaid labour in the last two weeks prior to survey – reaching 35 hours for the oldest children. As the survey did not take place during a period of high agricultural demand for child labour, the numbers may not reflect increased seasonal demand for children's labour, paid or unpaid. Most of the relatively few cases of paid labour involved casual labour and farming (not reported in the Table).

## 4.2. Evaluation sample, attrition and programme implementation

Of the 2 519 target households, 2 298 were re-interviewed at follow-up, entailing an attrition rate of 8.8 percent. Mobility, the dissolution of households, death and divorce can cause attrition and make it difficult to locate a household for a second data collection. Sometimes households can be located and contacted but they may refuse to respond. Attrition causes problems within an evaluation because it not only decreases the sample size (leading to less precise estimates of programme impact) but also may introduce selection bias to the sample which will lead to incorrect programme impact estimates or change the characteristics of the sample and affect its generalizability.

Seidenfeld *et al.* (2013) investigated in detail both differential and overall attrition. The former relates to baseline characteristics between treatment and control households that remain at follow-up. The latter instead looks at similarities at baseline between the full sample of households and the non-attriters. They did not find any significant differential attrition after twenty-four months, meaning that the benefits of randomization are preserved. The differences in overall attrition are primarily driven by the lower response rate in Kaputa district.

For the purposes of this report we extended the attrition analysis in two directions: i) we looked at both differential and overall attrition in terms of outcome indicators of interest for this study; and ii) we assessed attrition randomness within the multivariate framework of a logit model. With respect to the former point we strongly confirmed results achieved by Handa *et al*. For instance, compared to baseline differences between treated and control groups already shown in Table 2, we detect only two additional outcome indicators as statistically different at conventional 5% level. Further, when comparing the full vs reduced sample at baseline, no indicator is statistically different at 5%.

In order to evaluate attrition randomness in a multivariate framework we have run two simple logit models: 1) in the first we included the household level variables analysed by Handa *et al*. for overall attrition (both controls and outcomes); 2) in the second specification we added other outcomes related to productive activities, the treatment indicator, community level prices and, following Maluccio (2004), quality of first-round interview variables such as a dummy for revisit and length of interview. The issue is whether there is unobserved heterogeneity driving attrition which is related to programme impacts that could lead our working sample to give biased estimates. However apart from a significant effect of (exogenously determined) food prices, we do not find any significant effect for the remaining covariates except the dummy variable for Kaputa district. The treatment indicator is not statistically significant and this reinforces the idea that attriters are balanced across the two groups. As a further robustness check, we predicted attrition probabilities for the two logit models and from them we computed inverse probability weights which we used in the impact

analysis. The unweighted and weighted estimates provided identical results in terms of sign and significance for the different outcome indicators, while differences in impact magnitude weres negligible. In the results section we refer to the weighted estimates on the sample remaining at 24-month follow-up.

As far as the implementation of the programme is concerned, the main findings from Seidenfeld *et al.* (2013) suggest that overall CGP has been successful: beneficiaries received the designated amount on time, accessing the money with ease and without any cost. Only twenty beneficiary households responding at follow-up declared they had never received a payment, i.e. less than 2% of the beneficiaries. Efficient funds disbursement is crucial in cash transfer programmes, since payment regularity and minimal private costs in terms of accessing money accentuate programme effectiveness. Further, contamination does not appear to be a significant issue: thirty-five control households declared having received CGP payments and thirty-two of them reported having at least one household member who was currently a beneficiary. There could be a number of reasons for this occurrence: control households received a payment because they moved to a new area and found a way to register in a neighbouring treatment CWAC. It is also possible that respondents simply lied about receiving the payment or misunderstood the question. In our impact estimates we decided to keep these households in order to avoid introducing selection bias that we cannot account for. This may lead to a lower impact estimate rather than a pure ATT. Our panel estimation sample therefore is based on 2 298 households responding both at baseline and at follow-up.

# 5. Results and discussion

In this section we discuss the average treatment effects of the Zambia CGP programme on the treated households over six broad groups of outcome variables – crop production, livestock production, consumption, non-agricultural business activities, savings/credit decisions and labour supply. When the baseline information is available for a given outcome variable we employ a DiD estimator in a multivariate framework. However, when baseline information is missing, we use the single difference estimator. All standard errors reported in the tables are clustered at CWAC level.

## 5.1. Crop production

We look at various dimensions of the productive process in order to ascertain whether households have increased spending in agricultural activities, including crop production and crop input use. Overall, in terms of these direct impacts on crop activity, we find positive and significant impacts on area of land operated, overall crop expenditures, the share of households with expenditures on inputs (Table 10), and expenditure on seeds, fertilizer, hired labour and other expenditures (
Table **11**). The CGP increases the amount of operated land by 0.18 hectares (a 36 percent increase from baseline), and the programme has led to an increase of 18 percentage points in the share of households with any input expenditure, from a baseline share of 23 percent. This increase was particularly relevant for smaller households (22 percentage points) and included spending on seeds, fertilizer and hired labour. The increase of 14 percentage points in the proportion of small households purchasing seeds is equivalent to more than a doubling in the share of households. Small beneficiary households spent ZMK 42 more on crop inputs than

the corresponding control households, including ZMK 15 on hired labour. This equals three times the value of the baseline mean for overall spending and four times for hired labour.

Similarly, we see a positive impact on ownership of agricultural tools, but with two distinct patterns: a positive impact of between 3 to 4 percentage points on the share of households accumulating agricultural implements with low initial values at baseline (less than 10 percent at baseline), such as hammers, shovels and ploughs (Table 12); and a significant impact on the number of assets held, for those implements already widely available at baseline (up to approximately 90 percent of households at baseline), such as axes and hoes (Table 13). The impact on hammers, shovels and ploughs is concentrated among larger-sized households (7 percentage points in the case of hammers, from a baseline of 6 percent).

Did the increase in input use and tools lead to an increase in crop production? We focus primarily on the three most important crops (maize, cassava and rice), as well as aggregating all production by value of total harvest.[2] First, the programme facilitated shifts in production compared to control households (Table 14). The share of (large) beneficiary households planting maize increased by 8 percentage points (from a baseline of 58 percent), while the share of small beneficiary households planting rice increased by 4 percentage points (from a baseline of 17 percent). The share of all households producing groundnuts – a relatively minor crop (5 percent at baseline) – increased by 3 percentage points.

Aggregating all output by value, we find that the CGP had a positive impact (at the 10 percent level) in the value of all crops harvested – ZMK 146, an approximately 37 percent increase from baseline (Table 15). The impact rises to ZMK 182 for smaller households and is not significant for larger households. We find few significant impacts, however, on the output of specific crops. The impact results regarding maize are large and in the right direction, but not quite significant. The results are similar for rice, though in this case for small households the positive impact is significant at 10 percent. Larger households had significantly lower production of cassava (129 kg, from a baseline of 179 kg). The latter result is consistent with the decline in consumption of tubers found in the food consumption module.

Why is there a significant impact on the value of aggregate production yet far less of a clear story of impact on specific crops? It could be the result of a diffuse increase in production across crops. Differential crop price increases between treatment and control households may have played a role, but we find possible indication of this only in the case of the price of rice.[3] Note also that no production data were collected on fruits and vegetables, though from the consumption model there is a significant increase in the share of households consuming fruits and vegetables from home production. Finally, while households used more inputs in production they may not be using them in the most efficient manner – efficiency analysis is a topic for further research.

Along with an increase in the value of crop production, a larger share of beneficiary households marketed their crop production (an increase of 12 percentage points, from a

[2] The value of total harvest is the product of harvest quantity and the median unit price; the latter is computed from crop sales at district level and if missing, at the level of all three districts.

[3] We compared sale prices for each crop in the production module across time after inflating the reported values in 2010 to 2012 using the all-Zambia CPI. Simple t-tests show that only the price of rice is significantly higher in 2012 compared to 2010, and significantly different between treatment and control households.

baseline of 22 percent). The average value of sales among all crop producing households was also larger for beneficiary households (ZMK 82, over double the baseline value of ZMK 77), though in the case of larger households the impact is significant only at 10 percent. The increase in market participation was driven by maize production in Kaputa, and both maize and rice production in Kalabo. At the same time, the share of households consuming some part of their harvest increased by 6 percentage points (significant at the 10 percent level, as seen in Table 16) which comes from increased groundnut and rice consumption of home production (not shown). This result is compatible with the analysis of the last two weeks of consumption reported in the consumption module, where the share of consumption from home production increases with CGP participation but is not statistically significant.

## 5.2. Livestock production

The CGP had a positive impact on the ownership of a wide variety of livestock both in terms of share of households with livestock (a 21 percentage point increase overall, from 48 percent at baseline; Table 17) and in the total number of goats and poultry (an increase in 0.14 goats, 0.2 ducks and 1.23 chickens, from baseline values of 0.05, 0.13 and 1.99 respectively; Table 18). Both small and large beneficiary households increased livestock ownership, but the impacts were particularly strong for large households. The share of large households with livestock increased 27 percentage points from a base of 54 percent (compared to 16 percentage points for small households), including 5 and 21 percentage point increases in the ownership of milk cows and chickens respectively (compared to non-significant results for small households). In terms of numbers of livestock, the impact was more balanced between small and larger households. Small household beneficiaries obtained more goats, larger households more ducks and overall, small households accumulated more animals as measured in Tropical Livestock Units (TLU)[4] though significant only at the 10 percent level.

Overall, beneficiary households had a significantly larger volume of purchases and sales of livestock compared to control households (Table 19). This increase in volume is not significant for smaller households; for larger households, the joint volume of sales (ZMK 109) and purchases (ZMK 73) is over twice as large as at baseline. In contrast to crop input use, no impact is found on expenditure on inputs for livestock production, including vaccinations and other expenditures. With respect to fodder we observe a significant (at 10 percent) positive impact for smaller-sized households, but given data limitations we are unable to assess whether home produced fodder is substituting for purchased fodder and thus this variable may underestimate the overall increase in fodder use, particularly for larger households who have more productive capacity.

## 5.3. Consumption

Table 20 contains the impact estimates on adult equivalent total, food and non-food consumption. Approximately 80 percent of the positive and significant increase in total consumption goes towards food, a finding consistent with other cash transfer programmes. As shown in

[4] The TLU conversion factors are based on the average weight of animal species and aggregation of livestock into a single index.

Table 21, the increase in food consumption stems from an increase in purchases of food, not from increases in own production, especially in smaller households. This means that the share of food consumption purchased rose from 43.5 to around 54 percent because of the programme. For maize, not only did purchases increase, but also consumption from own production, for which we detect a significant increase of around ZMK 1.15 (results not reported). Further, similar results are obtained for the share of households consuming in each food category: a 5.7 and 4.2 percentage point increase in consumption of maize and rice is observed, but only with a ten percent significance level (results not shown).

## 5.4. Non-farm business activities

Households benefitting from the CGP are significantly more likely to have a non-farm business. The average treatment effect ranged from 16 to 18 percent for small and large households respectively (Table 22). In addition to their greater likelihood of running a business, CGP households operated enterprises for longer periods (1.5 months more on average) and more profitably – earning about ZMK 69 more than control businesses. Results also suggest the programme is enabling businesses to accumulate physical capital. Beneficiary households are 5 percentage points more likely to own assets and have substantially larger holdings (as judged by value) though the latter is not statistically significant. Estimated magnitudes are greater for larger households across all enterprise-related outcomes.

With respect to the financing of non-farm business activities and excluding CGP, some households use CGP as a source of capital. Further, after CGP implementation larger households are significantly more likely to reinvest proceeds from their non-farm activities, the impact being 4.5 percentage points (results not shown). However compared to control households beneficiaries are not more likely to attract additional resources, neither through loans from institutions or people, nor by using own savings or wage labour earnings.

## 5.5. Impact on credit and savings

Households benefitting from CGP show an increase in savings and a tendency towards paying off their loans (Table 23).[5] The impact in terms of the share of households declaring to accumulate savings in the form of cash is large (+24 percent) and in terms of the amounts the result is larger for smaller sized households. We observe also a significant impact on the share of households declaring to have made some loans repayments (1.7 percent), and only for larger households is this outcome significant in the absolute amount. The DiD estimates are mirrored by the results on the propensity of purchase on credit and for loan application (Table 24). In the former case, results are negative but not statistically significant while for the latter impact estimates are strongly negative for larger households. We might interpret this result as an indication of a generally negative attitude of the targeted population towards being in debt.

[5] This table does not exactly match Table 10.2 (Savings and Future Outlook) in Seidenfeld *et al*. 2013. We include loan repayments and use the reported amount, while they use the log of savings. We have estimated a 24 percentage points increase in the share of households saving, while Seidenfeld *et al*. 20123, estimated a 20.1 percentage points.

## 5.6. Impact on labour supply

The changes in household economic activities brought on by the CGP necessarily imply changes in labour activities of individual household members, the main input to household livelihoods, including wage labour and agricultural and non-agricultural enterprises. Overall, we find a significant shift from agricultural wage labour to family agricultural and non-agricultural businesses, in correspondence with the increases in household level economic activities brought on by receipt of the CGP transfer.

The CGP led to a 9 percentage point decrease in the share of households with an adult engaged in wage labour, from 59 percent at baseline (Table 24). The impact was much stronger for households with females of working age – a decrease of 14 percentage points compared with no significant impact on households with males of working age.[6]

In terms of types of employment the reduction in wage labour took place primarily in agricultural wage labour, with an 8 percentage point reduction for households with male labour and a 17 percentage point reduction for households with female labour (Table 25). This result was expected as agricultural wage labour is generally considered the least desirable labour activity of last resort, and when liquidity constrained, households may be obliged to overly depend on it. The CGP also led to a reduction in labour intensity in terms of days of agricultural wage labour, both overall (14 days fewer per year) and for females (12 days fewer per year). The reduction in agricultural wage labour is also reflected in the yearly value of household earnings which was reduced by ZMK 93 for households with female labour. On the other hand, while the programme did not have a significant impact on participation in non-agricultural wage labour (although the coefficients are positive), it did have a significant impact in terms of increasing earnings derived from this kind of work, both overall (ZMK 471) and for households with female labour (ZMK 154). This significant impact stems from a small (less than one percentage point) increase in permanent non-agricultural wage employment for females.

If not working in agricultural wage labour, what did the male and female adults in beneficiary households do with their time? Part of that time was spent working in the family's non-farm enterprise – the CGP led to a 16 percentage point increase in the share of households that engaged in labour dedicated to non-farm enterprise activity, with an average increase of 1.57 days a week in terms of intensity (Table 26). The impact is somewhat higher for female labour (16 percentage points and 0.98 days a week in terms of intensity compared to 12 percentage points and 0.62 days a week).

We would have expected the CGP to have led to an increase in the intensity of on-farm labour, given the productive impacts described above. Indeed households with male labour spend an extra 13 days in own farm agricultural activities (Table 27). Overall, beneficiary households spend an extra 20 days in own farm labour (significant at the 10 percent level). Finally adults may also increase their time spent in domestic chores, or child care, or simply

[6] In this analysis we join together permanent and temporary labour since only 3 percent of households have access to permanent employment. Permanent workers typically refer to employees with paid leave entitlements in jobs or work contracts of unlimited duration, including regular workers whose contract last for 12 months and over. Temporary employees usually have an expected duration of a main job of less than one year, carrying out seasonal or casual labour.

leisure, but data were not collected on these common household activities which can all lead to an increase in family well-being.
Finally with respect to child labour, the survey instrument dedicated a full section on the economic activities performed by children aged five to 18 at both baseline and follow-up, allowing us to use DiD estimates (Table 28). Overall, the programme has not had any impact on children's work, in either paid or unpaid activities. Given programme impacts on household productive activities and adult labour supply along with findings on reducing child labour from cash transfer programmes in other countries, these results suggest the need for further research.

## 5.7. Impact on household income

Lastly, in this section we focus our analysis on the impact of the CGP on the composition of household income which is expressed as the share of a given source in annual total gross income. In Table 29 we provide the impact of the CGP on the shares of household income sources. Three results emerge from this set of estimates: i) there is a large increase in the share of income coming from non-farm enterprises (14.3 percentage points); ii) a considerable decline of the relative importance of wage employment income, falling by 10 percentage points; and iii) a statistically significant rise of income from livestock sources and a drop in other types of transfers, excluding the CGP. Both of the latter results are however small in magnitude. The reduction in wage employment is concentrated almost exclusively within the agricultural sector. Further all these results are substantially homogeneous, with minor differences in magnitude by household size.

# 6. Conclusions

This report uses data collected between 2010 and 2012 in three of the poorest districts of Zambia in order to assess whether an unconditional cash transfer, the CGP, targeting very poor households can have an effect on agricultural production and livelihood options. The CGP was implemented using an RCT phased-in approach where half of 90 communities were assigned to receive the treatment in 2010, while the other half were to receive the programme starting in 2013. The CGP used a combination of geographic and categorical targeting to identify households with at least one child under the age of three. The CGP does not impose any conditions attached to the cash transfer. The programme has been shown to have a positive impact over a number of household and child welfare indicators, including consumption, dietary diversity, health and schooling (Seidenfeld *et al.* 2013).

The results found in this paper present a promising picture in terms of the impact of the programme on investments in productive assets, input use and agricultural production. Households invested more in livestock: large and significant effects are found on both the share of households owning animals and on the number of animals owned, especially for larger-sized households. Further, the CGP is facilitating the purchase and/or increased use of agricultural inputs, especially land, seeds, fertilizers and hired labour, both on the share adopting those inputs and the corresponding monetary amount, especially for smaller households.

The increase in the use of agricultural inputs led to expansion in the production of maize and rice, though statistically significant only for smaller-sized households – and beneficiary households reduced the production of cassava. In contrast with cash transfer results from other countries such as Malawi and Kenya, the increase in agricultural production did not lead to an increase in consumption of goods produced on farm, but instead to more market participation. More detailed analysis can be carried out to ascertain whether these average impacts are similar across different types of agricultural producers.

The programme has had a positive and significant impact in improving the livelihood position and options of treated households which after intervention derive a much greater share of income from off-farm enterprises and a much lower share from wage employment, especially temporary agricultural labour. Taken together with adult labour supply response, these results suggest that, for some beneficiary households, the programme satisfies a cash flow need that was otherwise met through less preferred casual agricultural work and thus allowing households to concentrate on household business activities, whether in agriculture or off farm.

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# Tables

**Table 1** **Baseline household and individual sample sizes by district and treatment status**

| | Treatment status | | |
|---|---|---|---|
| District | Control | Treatment | Total |
| Kaputa | 420 | 419 | 839 |
| | *2 541* | *2 658* | *5 199* |
| Kalabo | 420 | 420 | 840 |
| | *2 173* | *2 212* | *4 385* |
| Shangombo | 419 | 421 | 840 |
| | *2 377* | *2 384* | *4 761* |
| Total | 1 259 | 1 260 | 2 519 |
| | *7 091* | *7 254* | *14 345* |

**Note**: Sample of individuals in italic.

**Table 2 Baseline household outcomes**

| | Treatment | Control | diff | t-stat | p-value | bias (%) |
|---|---|---|---|---|---|---|
| Consumption per adult equivalent | | | | | | |
| Food | 53.3 | 50.4 | 3.0 | 1.555 | 0.120 | 6.198 |
| Non-food | 17.6 | 16.8 | 0.7 | 1.137 | 0.255 | 4.533 |
| Own-produced | 21.0 | 19.2 | 1.7 | 1.431 | 0.152 | 5.704 |
| | | | | | | |
| Income sources | | | | | | |
| HH farming | 76.83% | 78.95% | -2.13% | -1.286 | 0.199 | 5.123 |
| HH herding livestock | 49.29% | 47.42% | 1.87% | 0.937 | 0.349 | 3.735 |
| Any HH member in waged labor | 11.11% | 10.25% | 0.86% | 0.703 | 0.482 | 2.800 |
| HH received any transfer | 30.00% | 26.61% | 3.39% | 1.890 | 0.059 | 7.531 |
| | | | | | | |
| Production | | | | | | |
| Value of harvest | 403.8 | 398.1 | 5.7 | 0.211 | 0.833 | 0.840 |
| Value of sales | 73.4 | 80.4 | -7.0 | -0.435 | 0.664 | 1.732 |
| HH selling crops | 20.48% | 25.10% | -4.62% | -2.769 | 0.006 | 11.034 |
| Value of own consumption | 207.1 | 206.4 | 0.7 | 0.065 | 0.948 | 0.258 |
| | | | | | | |
| Quantity harvested, kg | | | | | | |
| Maize | 153.1 | 143.9 | 9.1 | 0.602 | 0.548 | 2.397 |
| Cassava | 159.3 | 136.0 | 23.2 | 1.360 | 0.174 | 5.421 |
| Rice | 75.5 | 82.2 | -6.7 | -0.586 | 0.558 | 2.334 |
| Millet | 6.0 | 8.7 | -2.7 | -1.539 | 0.124 | 6.131 |
| Groundnut | 9.2 | 13.5 | -4.4 | -1.292 | 0.197 | 5.147 |
| Sweet potatoes | 5.1 | 8.3 | -3.2 | -1.847 | 0.065 | 7.358 |
| Sorghum | 3.4 | 7.6 | -4.2 | -1.577 | 0.115 | 6.282 |
| Other beans | 1.0 | 1.0 | 0.0 | 0.018 | 0.986 | 0.070 |
| | | | | | | |
| % households harvesting | | | | | | |
| Maize | 55.48% | 55.20% | 0.27% | 0.138 | 0.890 | 0.550 |
| Cassava | 24.21% | 27.64% | -3.43% | -1.968 | 0.049 | 7.841 |
| Rice | 15.71% | 16.60% | -0.89% | -0.604 | 0.546 | 2.407 |
| Millet | 5.71% | 6.59% | -0.88% | -0.917 | 0.359 | 3.654 |
| Groundnut | 4.29% | 5.32% | -1.04% | -1.216 | 0.224 | 4.844 |
| Sweet potatoes | 3.81% | 5.08% | -1.27% | -1.551 | 0.121 | 6.181 |
| Sorghum | 2.62% | 4.37% | -1.75% | -2.393 | 0.017 | 9.535 |
| Other beans | 0.95% | 1.67% | -0.72% | -1.580 | 0.114 | 6.294 |
| | | | | | | |
| Input use, ZMK | | | | | | |
| Operated land , ha | 0.50 | 0.49 | 0.00 | 0.109 | 0.914 | 0.433 |
| Seeds | 6,521 | 5,892 | 629 | 0.652 | 0.515 | 2.598 |
| Hired labour | 12,056 | 2,143 | 9,913 | 2.199 | 0.028 | 8.764 |
| Pesticides | 0 | 50 | -50 | -1.095 | 0.274 | 4.363 |
| Fertilizers | 1,517 | 1,313 | 204 | 0.266 | 0.790 | 1.059 |
| Other | 7,285 | 4,930 | 2,355 | 1.512 | 0.131 | 6.028 |
| | | | | | | |
| Input use, % households | | | | | | |
| Seeds | 13.10% | 13.26% | -0.17% | -0.126 | 0.900 | 0.500 |
| Hired labour | 3.73% | 2.14% | 1.59% | 2.358 | 0.018 | 9.397 |
| Pesticides | 0.00% | 0.16% | -0.16% | -1.415 | 0.157 | 5.639 |
| Fertilizers | 1.03% | 0.79% | 0.24% | 0.626 | 0.531 | 2.496 |
| Other | 10.48% | 10.41% | 0.07% | 0.058 | 0.953 | 0.232 |

(Continued)

| | Treatment | Control | diff | t-stat | p-value | bias (%) |
|---|---|---|---|---|---|---|
| Livestock holding; % households | | | | | | |
| Cows | 4.68% | 5.88% | -1.20% | -1.341 | 0.180 | 5.344 |
| Cattle | 9.13% | 9.45% | -0.32% | -0.281 | 0.779 | 1.119 |
| Chickens | 40.56% | 40.27% | 0.29% | 0.146 | 0.884 | 0.582 |
| Goats | 3.17% | 1.19% | 1.98% | 3.412 | 0.001 | 13.597 |
| Ducks | 2.54% | 3.57% | -1.03% | -1.508 | 0.132 | 6.010 |
| Total | 48.57% | 47.10% | 1.47% | 0.739 | 0.460 | 2.943 |
| | | | | | | |
| Livestock holding, # animals | | | | | | |
| Cows | 0.27 | 0.12 | 0.15 | 1.178 | 0.239 | 4.694 |
| Cattle | 0.48 | 0.35 | 0.13 | 0.798 | 0.425 | 3.181 |
| Chickens | 2.00 | 1.88 | 0.12 | 0.770 | 0.441 | 3.069 |
| Goats | 0.08 | 0.03 | 0.05 | 2.958 | 0.003 | 11.788 |
| Ducks | 0.09 | 0.16 | -0.07 | -1.792 | 0.073 | 7.138 |
| Total, TLU | 0.42 | 0.27 | 0.15 | 1.321 | 0.187 | 5.263 |
| | | | | | | |
| Llivestock expenses, ZMK | | | | | | |
| Fodder | 0.0 | 0.5 | -0.5 | -1.000 | 0.317 | 3.986 |
| Vaccines | 0.5 | 0.2 | 0.2 | 0.793 | 0.428 | 3.159 |
| Other | 0.7 | 0.2 | 0.5 | 0.933 | 0.351 | 3.720 |
| | | | | | | |
| Value of livestock, ZMK | | | | | | |
| Purchases | 19.4 | 29.6 | -10.3 | -1.361 | 0.174 | 5.424 |
| Sales | 34.5 | 30.7 | 3.8 | 0.220 | 0.826 | 0.876 |
| | | | | | | |
| Agricultural assets, % households | | | | | | |
| Axe | 79.21% | 75.22% | 3.99% | 2.388 | 0.017 | 9.514 |
| Pick | 2.54% | 2.70% | -0.16% | -0.253 | 0.801 | 1.007 |
| Hoe | 90.95% | 91.34% | -0.39% | -0.344 | 0.731 | 1.372 |
| Hammer | 4.76% | 4.77% | 0.00% | -0.004 | 0.996 | 0.018 |
| Shovel | 6.51% | 4.21% | 2.30% | 2.563 | 0.010 | 10.214 |
| Plough | 6.51% | 6.35% | 0.15% | 0.157 | 0.875 | 0.626 |
| | | | | | | |
| Agricultural assets, # tools | | | | | | |
| Axe | 1.15 | 1.08 | 0.06 | 1.663 | 0.097 | 6.625 |
| Pick | 0.03 | 0.04 | -0.01 | -1.038 | 0.299 | 4.138 |
| Hoe | 1.55 | 1.51 | 0.04 | 0.952 | 0.341 | 3.793 |
| Hammer | 0.05 | 0.06 | 0.00 | -0.154 | 0.878 | 0.613 |
| Shovel | 0.07 | 0.05 | 0.02 | 1.330 | 0.184 | 5.299 |
| Plough | 0.07 | 0.07 | 0.00 | 0.415 | 0.678 | 1.655 |
| | | | | | | |
| Savings and loans | | | | | | |
| % HH saving money | 18.33% | 15.81% | 2.53% | 1.686 | 0.092 | 6.718 |
| % HH making loan repayments | 0.71% | 1.35% | -0.64% | -1.579 | 0.114 | 6.293 |
| Savings amount, ZMK | 16.0 | 23.9 | -8.0 | -1.354 | 0.176 | 5.393 |
| Loan repayments amount, ZMK | 1.1 | 0.6 | 0.5 | 0.585 | 0.559 | 2.330 |

**Table 3** **Share of households producing given crops, over those who are crop producers (by treatment status, baseline)**

| | Control | Treatment | Total | |
|---|---|---|---|---|
| Maize | 69.92 | 72.21 | 71.05 | |
| Cassava | 35.01 | 31.51 | 33.28 | * |
| Rice | 21.03 | 20.45 | 20.74 | |
| Millet | 8.35 | 7.44 | 7.9 | |
| Groundnut | 6.74 | 5.58 | 6.17 | |
| Sweet potatoes | 6.44 | 4.96 | 5.71 | |
| Sorghum | 5.53 | 3.41 | 4.49 | ** |
| Other beans | 2.11 | 1.24 | 1.68 | |
| Total | 994 | 968 | 1 962 | |

**Note:** difference *significant at 10%, ** significant at 5%

**Table 4** **Cropped area, average per household in farming, hectares (by district and treatment status, baseline)**

| | Kaputa | Kalabo | Shangombo | Total |
|---|---|---|---|---|
| Treatment | 0.60 | 0.81 | 0.56 | 0.65 |
| Control | 0.65 | 0.76 | 0.48 | 0.62 |
| Total | 0.63 | 0.79 | 0.52 | 0.63 |

**Table 5** **Share of crop producing households who sell part of their production (by district and treatment status, baseline)**

| | Kaputa | Kalabo | Shangombo | Total |
|---|---|---|---|---|
| Overall | | | | |
| Total | 40 | 33 | 17 | 29 |
| Maize | 35 | 13 | 15 | 19 |
| Cassava | 16 | 14 | na* | 16 |
| Rice | 65 | 44 | na* | 51 |
| | | | | |
| Treatment | | | | |
| Total | 34 | 34 | 15 | 27 |
| Maize | 34 | 11 | 12 | 17 |
| Cassava | 16 | 10 | na* | 15 |
| Rice | 79 | 43 | na* | 48 |
| | | | | |
| Control | | | | |
| Total | 45 | 31 | 19 | 32 |
| Maize | 37 | 15 | 18 | 22 |
| Cassava | 17 | 17 | na* | 17 |
| Rice | 61 | 47 | na* | 53 |

**Note**: * too few producers/sellers

**Table 6** **Share of households adopting crop inputs, and total amount spent (by district and treatment status, baseline)**

| Overall | Kaputa | Kalabo | Shang'ombo | Total |
|---|---|---|---|---|
| Total exp, ZMK | 14.951 | 34.637 | 30.627 | 26.392 |
| % households | | | | |
| Total | 22 | 33 | 30 | 28 |
| Seeds | 16 | 25 | 10 | 16 |
| Hired labour | 2 | 4 | 6 | 4 |
| Pesticides | 0 | 0 | 0 | 0 |
| Fertilizers | 3 | 1 | 0 | 1 |
| Other | 9 | 11 | 19 | 13 |
| **Treatment** | **Kaputa** | **Kalabo** | **Shang'ombo** | **Total** |
| Total exp, ZMK | 11.319 | 48.090 | 46.445 | 35.381 |
| % households | | | | |
| Total | 18 | 36 | 34 | 29 |
| Seeds | 12 | 28 | 12 | 17 |
| Hired labour | 1 | 7 | 6 | 5 |
| Pesticides | 0 | 0 | 0 | 0 |
| Fertilizers | 3 | 1 | 0 | 1 |
| Other | 7 | 13 | 19 | 13 |
| **Control** | **Kaputa** | **Kalabo** | **Shang'ombo** | **Total** |
| Total exp, ZMK | 18.195 | 21.327 | 14.140 | 17.639 |
| % households | | | | |
| Total | 26 | 30 | 27 | 27 |
| Seeds | 19 | 23 | 8 | 16 |
| Hired labour | 2 | 1 | 5 | 3 |
| Pesticides | 0 | 0 | 0 | 0 |
| Fertilizers | 3 | 0 | 0 | 1 |
| Other | 12 | 9 | 18 | 13 |

**Table 7** **Adults participation to labour supply, baseline**

| Female | Control | Treatment | Total | Diff | |
|---|---|---|---|---|---|
| Agriculture | 33.15 | 33.02 | 33.08 | 0.13 | |
| Farming | 32.94 | 32.41 | 32.67 | 0.53 | |
| Fishing | 0.07 | 0.13 | 0.10 | -0.07 | |
| Forestry | 0.14 | 0.47 | 0.31 | -0.33 | |
| | | | | | |
| Wage labour | 0.42 | 0.61 | 0.51 | -0.19 | |
| Casual | 26.96 | 25.29 | 26.11 | 1.68 | |
| Self enterprise | 16.12 | 18.43 | 17.29 | -2.30 | * |
| Not working | 23.35 | 22.66 | 23.00 | 0.69 | |
| # individuals | 1 439 | 1 487 | 2 926 | | |

| Male | Control | Treatment | Total | Diff | |
|---|---|---|---|---|---|
| Agriculture | 49.50 | 47.75 | 48.61 | 1.75 | |
| Farming | 43.88 | 39.79 | 41.79 | 4.09 | ** |
| Fishing | 5.53 | 7.35 | 6.46 | -1.82 | * |
| Forestry | 0.09 | 0.61 | 0.35 | -0.51 | ** |
| | | | | | |
| Wage labour | 1.72 | 1.99 | 1.86 | -0.27 | |
| Casual | 25.29 | 24.31 | 24.79 | 0.99 | |
| Self enterprise | 7.16 | 9.78 | 8.50 | -2.61 | ** |
| Not working | 16.32 | 16.18 | 16.25 | 0.14 | |
| # individuals | 1 103 | 1 156 | 2 259 | | |

**Note:** * 0.10 ** 0.05 *** 0.01.

**Table 8** **Child participation (%) to paid and/or unpaid work, baseline**

| | Control | Treatment | Total |
|---|---|---|---|
| Overall | | | |
| 5-10 yrs | 39.21 | 37.01 | 38.12 |
| 11-13 yrs | 70.87 | 67.54 | 69.18 |
| 14-18 yrs | 82.17 | 74.06 | 77.78 |
| 5-18 yrs | 53.92 | 51.41 | 52.65 |
| Female | | | |
| 5-10 yrs | 41.95 | 39.00 | 40.47 |
| 11-13 yrs | 66.24 | 70.40 | 68.39 |
| 14-18 yrs | 83.46 | 74.63 | 78.51 |
| 5-18 yrs | 55.12 | 53.59 | 54.32 |
| Male | | | |
| 5-10 yrs | 36.50 | 34.91 | 35.73 |
| 11-13 yrs | 75.20 | 64.66 | 69.94 |
| 14-18 yrs | 80.80 | 73.33 | 76.92 |
| 5-18 yrs | 52.74 | 49.05 | 50.91 |

**Table 9** **Number of hours of children in paid/unpaid work, by gender and treatment status, baseline**

| | Paid | | | Unpaid | | |
|---|---|---|---|---|---|---|
| | Control | Treatment | Total | Control | Treatment | Total |
| Overall | | | | | | |
| 14-18 yrs | 18.06 | 14.69 | 16.28 | 33.21 | 36.69 | 35.00 |
| 5-18 yrs | 16.29 | 14.20 | 15.19 | 24.10 | 26.26 | 25.17 |
| Female | | | | | | |
| 14-18 yrs | 17.44 | 14.96 | 16.14 | 35.86 | 36.56 | 36.23 |
| 5-18 yrs | 16.53 | 14.04 | 15.25 | 24.87 | 26.39 | 25.65 |
| Male | | | | | | |
| 14-18 yrs | 19.14 | 14.24 | 16.53 | 30.33 | 36.85 | 33.57 |
| 5-18 yrs | 15.89 | 14.45 | 15.11 | 23.31 | 26.10 | 24.64 |

## Table 10 Impact of CGP on crop input use (share)

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Crop exp | **0.177** | 0.225 | **0.223** | 0.213 | **0.134** | 0.236 |
| | (4.31) | | (4.52) | | (2.98) | |
| Exp seeds | **0.100** | 0.131 | **0.135** | 0.12 | 0.067 | 0.143 |
| | (3.11) | | (3.60) | | (1.78) | |
| Exp hired labour | **0.054** | 0.029 | **0.072** | 0.024 | 0.038 | 0.034 |
| | (3.69) | | (3.97) | | (1.84) | |
| Exp pesticides | 0.002 | 0.001 | 0.004 | 0.002 | 0.001 | 0 |
| | (0.82) | | (1.17) | | (0.39) | |
| Exp fertilizers | **0.032** | 0.009 | **0.034** | 0.007 | 0.029 | 0.012 |
| | (2.11) | | (2.69) | | (1.35) | |
| Other crop exp | **0.151** | 0.104 | **0.153** | 0.105 | **0.150** | 0.103 |
| | (4.00) | | (3.19) | | (3.80) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

## Table 11 Impact of CGP on crop input use and land use (value)

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Operated land (ha) | 0.179 | 0.496 | **0.162** | 0.43 | **0.197** | 0.563 |
| | (2.67) | | (2.54) | | (1.98) | |
| Crop exp | **31.2** | 20.8 | **42.9** | 13.3 | 18.4 | 28.5 |
| | (2.97) | | (5.14) | | (1.12) | |
| Exp seeds | **9.9** | 6.2 | **11.1** | 4.6 | **8.6** | 7.8 |
| | (4.41) | | (4.94) | | (2.65) | |
| Exp hired labour | 8.4 | 7.1 | **14.7** | 2.8 | 1.2 | 11.5 |
| | (1.45) | | (4.19) | | (0.11) | |
| Exp pesticides | 0.1 | 0.0 | 0.2 | 0.1 | 0.0 | 0.0 |
| | (0.40) | | (1.13) | | (0.13) | |
| Exp fertilizers | **7.6** | 1.4 | **8.9** | 0.7 | 6.5 | 2.1 |
| | (2.06) | | (2.30) | | (1.58) | |
| Other crop exp | **5.2** | 6.1 | **8.0** | 5.1 | 2.1 | 7.1 |
| | (2.00) | | (2.59) | | (0.59) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 12** Impact **of CGP on agricultural implements (share)**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Axes | 0.008 | 0.773 | 0.005 | 0.735 | 0.007 | 0.812 |
| | (0.22) | | (0.10) | | (0.17) | |
| Picks | 0.010 | 0.026 | 0.001 | 0.024 | 0.019 | 0.028 |
| | (0.69) | | (0.05) | | (1.22) | |
| Hoes | 0.010 | 0.912 | 0.002 | 0.901 | 0.020 | 0.922 |
| | (0.56) | | (0.09) | | (0.87) | |
| Hammers | **0.044** | 0.047 | 0.025 | 0.037 | **0.065** | 0.058 |
| | (3.20) | | (1.63) | | (3.15) | |
| Shovels | **0.031** | 0.053 | 0.017 | 0.034 | 0.044 | 0.073 |
| | (2.15) | | (1.09) | | (1.84) | |
| Plough | **0.036** | 0.065 | 0.025 | 0.052 | **0.051** | 0.078 |
| | (1.97) | | (1.28) | | (2.10) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 13** **Impact of CGP on agricultural implements (number)**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Axes | **0.184** | 1.114 | **0.198** | 1.005 | 0.173 | 1.227 |
| | (2.43) | | (2.41) | | (1.74) | |
| Picks | 0.027 | 0.037 | -0.006 | 0.027 | **0.059** | 0.046 |
| | (1.15) | | (-0.22) | | (2.12) | |
| Hoes | **0.296** | 1.532 | **0.214** | 1.339 | **0.388** | 1.731 |
| | (3.76) | | (2.24) | | (3.56) | |
| Hammers | 0.042 | 0.055 | 0.024 | 0.042 | **0.060** | 0.068 |
| | (2.16) | | (1.12) | | (2.06) | |
| Shovels | 0.027 | 0.063 | -0.019 | 0.036 | 0.075 | 0.091 |
| | (0.98) | | (-0.58) | | (1.84) | |
| Plough | 0.033 | 0.07 | 0.021 | 0.056 | 0.052 | 0.085 |
| | (1.66) | | (0.89) | | (1.85) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 14 Impact of CGP on crop production (share)**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Maize | 0.049 | 0.555 | 0.020 | 0.534 | **0.081** | 0.576 |
| | (1.48) | | (0.55) | | (1.99) | |
| Cassava | -0.026 | 0.258 | -0.010 | 0.212 | -0.045 | 0.305 |
| | (-1.02) | | (-0.42) | | (-1.45) | |
| Rice | 0.031 | 0.159 | **0.039** | 0.166 | 0.019 | 0.153 |
| | (1.70) | | (2.00) | | (0.73) | |
| Millet | 0.010 | 0.062 | 0.010 | 0.066 | -0.003 | 0.058 |
| | (0.63) | | (0.50) | | (-0.18) | |
| Groundnut | **0.035** | 0.046 | **0.030** | 0.025 | 0.032 | 0.067 |
| | (3.35) | | (2.83) | | (2.11) | |
| Sweet potatoes | -0.000 | 0.043 | -0.007 | 0.032 | 0.008 | 0.054 |
| | (-0.03) | | (-0.92) | | (0.89) | |
| Sorghum | 0.009 | 0.036 | 0.018 | 0.039 | 0.002 | 0.032 |
| | (0.91) | | (1.22) | | (0.16) | |
| Other beans | 0.009 | 0.014 | 0.012 | 0.011 | 0.007 | 0.017 |
| | (1.50) | | (1.54) | | (0.74) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, operated land, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 15** **Impact of CGP on crop production (kg and 2012 ZMK)**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Maize | 49.5 | 148.2 | 35.1 | 117.8 | 63.8 | 179.5 |
| | (1.62) | | (1.54) | | (1.25) | |
| Cassava | -68.1 | 146.6 | -17.0 | 103 | **-129.2** | 191.7 |
| | (-1.67) | | (-0.51) | | (-2.05) | |
| Rice | 20.4 | 78.9 | 39.4 | 78.1 | 2.7 | 79.7 |
| | (1.32) | | (1.79) | | (0.16) | |
| Millet | 2.5 | 7.1 | 1.8 | 7.5 | 0.1 | 6.6 |
| | (0.90) | | (0.55) | | (0.03) | |
| Groundnut | 3.0 | 11.3 | 3.7 | 5.4 | 3.2 | 17.4 |
| | (0.63) | | (1.37) | | (0.38) | |
| Sweet potatoes | -6.4 | 6.1 | -3.7 | 4.6 | -8.1 | 7.6 |
| | (-1.05) | | (-0.61) | | (-0.88) | |
| Sorghum | 1.6 | 5.7 | 4.3 | 6.7 | -1.2 | 4.6 |
| | (0.53) | | (0.88) | | (-0.61) | |
| Other beans | -0.5 | 1.1 | 0.2 | 0.9 | -1.0 | 1.2 |
| | (-0.84) | | (0.34) | | (-0.82) | |
| Value of harvest | 145.9 | 399.0 | **182.3** | 330.9 | 104.2 | 469.3 |
| | (1.95) | | (2.40) | | (1.04) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, operated land, district dummies and a vector of shock variables. For the value of harvest we included also input expenditure. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 16** **Impact of CGP on agricultural production (2012 ZMK)**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Value of sales | **81.5** | 76.8 | **86.3** | 65.3 | 73.8 | 88.7 |
| | (3.16) | | (3.75) | | (1.72) | |
| % selling crops | **0.120** | 0.226 | **0.144** | 0.210 | **0.092** | 0.242 |
| | (3.51) | | (2.92) | | (2.37) | |
| Value of crops consumed at home | 41.2 | 202.9 | 28.4 | 174.1 | 49.9 | 232.7 |
| | (1.49) | | (1.03) | | (1.36) | |
| % consuming crops at home | 0.059 | 0.761 | 0.063 | 0.732 | 0.057 | 0.790 |
| | (1.78) | | (1.60) | | (1.57) | |
| No. | 4,596 | | 2,336 | | 2,260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, operated land, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 17 Impact of CGP on livestock ownership (share)**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Milk cows | 0.033 | 0.053 | 0.014 | 0.046 | **0.051** | 0.061 |
| | (1.74) | | (0.75) | | (2.15) | |
| Other cattle | **0.084** | 0.094 | **0.082** | 0.08 | **0.082** | 0.107 |
| | (4.02) | | (3.30) | | (3.02) | |
| Chickens | **0.154** | 0.404 | **0.097** | 0.351 | **0.214** | 0.458 |
| | (3.45) | | (1.97) | | (4.12) | |
| Goats | **0.036** | 0.023 | **0.034** | 0.013 | **0.035** | 0.033 |
| | (3.35) | | (3.57) | | (2.01) | |
| Ducks | **0.030** | 0.032 | **0.026** | 0.021 | **0.036** | 0.043 |
| | (2.78) | | (2.08) | | (2.06) | |
| Total | **0.209** | 0.480 | **0.155** | 0.424 | **0.266** | 0.537 |
| | (4.68) | | (3.11) | | (5.11) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 18 Impact of CGP on livestock ownership (number)**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Milk cows | -0.061 | 0.196 | 0.019 | 0.089 | -0.128 | 0.308 |
| | (-0.70) | | (0.46) | | (-0.78) | |
| Other cattle | 0.263 | 0.417 | 0.227 | 0.315 | 0.269 | 0.523 |
| | (1.32) | | (1.25) | | (0.79) | |
| Chickens | **1.234** | 1.949 | **1.137** | 1.450 | **1.293** | 2.464 |
| | (3.28) | | (2.77) | | (2.57) | |
| Goats | **0.142** | 0.057 | **0.173** | 0.030 | **0.100** | 0.084 |
| | (4.31) | | (3.52) | | (2.45) | |
| Ducks | **0.198** | 0.129 | **0.150** | 0.105 | **0.258** | 0.153 |
| | (2.72) | | (1.99) | | (2.51) | |
| Total | 0.138 | 0.347 | 0.165 | 0.226 | 0.102 | 0.471 |
| | (1.27) | | (1.67) | | (0.55) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 19 Impact of CGP on livestock production (2012 ZMK)**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Total livestock exp | -0.6 | 1.1 | -1.8 | 0.4 | 1.1 | 1.7 |
| | (-0.34) | | (-0.84) | | (0.51) | |
| Fodder exp | 1.1 | 0.3 | 0.5 | 0.0 | 1.8 | 0.6 |
| | (1.61) | | (1.82) | | (1.25) | |
| Vaccinations exp | -0.5 | 0.4 | -1.0 | 0.3 | 0.0 | 0.4 |
| | (-0.81) | | (-1.08) | | (0.09) | |
| Other livestock exp | -1.1 | 0.4 | -1.3 | 0.2 | -0.8 | 0.7 |
| | (-1.19) | | (-1.06) | | (-0.57) | |
| Livestock purchases | **47.7** | 24.3 | 25.3 | 17.2 | **73.0** | 31.6 |
| | (2.93) | | (1.20) | | (3.02) | |
| Livestock sales | **55.6** | 32.7 | 13.4 | 13.2 | **109.5** | 52.8 |
| | (3.67) | | (1.13) | | (4.20) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 20 Impact of CGP on total adult equivalent consumption**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Food consumption | **19.3** | 51.9 | **22.9** | 64.4 | **15.1** | 38.9 |
| | (5.46) | | (4.50) | | (5.03) | |
| Non-food consumption | **5.0** | 17.2 | **4.8** | 20.7 | **5.2** | 13.6 |
| | (3.86) | | (2.49) | | (3.63) | |
| Total consumption | **24.2** | 69.1 | **27.7** | 85.1 | **20.3** | 52.5 |
| | (5.88) | | (4.62) | | (5.36) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies, a vector of shock variables and a community level vector of prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

## Table 21 Impact of CGP on type of food consumption

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| Share of households | | | | | | |
| Purchases | -0.013 | 0.968 | -0.018 | 0.964 | -0.010 | 0.973 |
| | (-0.88) | | (-0.94) | | (-0.69) | |
| Own produced | 0.024 | 0.783 | 0.023 | 0.778 | 0.009 | 0.787 |
| | (0.60) | | (0.49) | | (0.20) | |
| Gifts in kind | -0.024 | 0.647 | 0.025 | 0.680 | -0.064 | 0.613 |
| | (-0.54) | | (0.47) | | (-1.29) | |
| Amount consumed per adult equivalent, ZMK | | | | | | |
| Purchases | **16.0** | 22.7 | **18.2** | 28.1 | **13.8** | 17.0 |
| | (6.25) | | (4.96) | | (6.11) | |
| Own produced | 2.2 | 20.1 | 4.1 | 24.1 | -0.4 | 16.1 |
| | (0.86) | | (1.19) | | (-0.20) | |
| Gifts in kind | 1.1 | 9.1 | 0.6 | 12.3 | 1.8 | 5.7 |
| | (0.92) | | (0.34) | | (1.85) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies, a vector of shock variables and a community level vector of prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

## Table 22 Impact of CGP on non-farm enterprise

| | Impact | Follow-up | Impact | Follow-up | Impact | Follow-up |
|---|---|---|---|---|---|---|
| | All | | HH Size<6 | | HH Size>5 | |
| HH operates NFE | **0.166** | 0.390 | **0.157** | 0.390 | **0.177** | 0.380 |
| | (4.42) | | (3.6) | | (4.5) | |
| Months in operation | **1.445** | 2.830 | **1.201** | 2.800 | **1.629** | 2.850 |
| | (4.44) | | (3.38) | | (4.23) | |
| Total monthly revenue (ZMK) | **184.3** | 184.3 | **135.2** | 150.0 | **233.5** | 219.7 |
| | (4.43) | | (3.77) | | (3.65) | |
| Total monthly profit (ZMK) | **69.1** | 81.9 | **55.1** | 73.0 | **81.2** | 91.0 |
| | (4.05) | | (3.32) | | (3.78) | |
| Owned business assets | **0.045** | 0.120 | 0.024 | 0.130 | **0.067** | 0.120 |
| | (2.51) | | (1.04) | | (3.22) | |
| Value of owned assets (ZMK) | 196.6 | 134.6 | 17.2 | 46.6 | 342.0 | 225.1 |
| | (1.24) | | (0.66) | | (1.27) | |
| No. | 2 247 | | 1 141 | | 1106 | |

**Note**: Estimations use single difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies, a vector of shock variables and a community level vector of prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

## Table 23 Impact of CGP on savings and loan repayments

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | HH size<6 | | HH size>5 | |
| HH saved cash | **0.240** | 0.168 | **0.230** | 0.177 | **0.251** | 0.158 |
| | (5.73) | | (4.78) | | (5.54) | |
| Savings amount | **54.4** | 19.4 | **55.2** | 19.8 | **50.6** | 18.9 |
| | (5.79) | | (4.72) | | (4.12) | |
| HH repaid loan | **0.017** | 0.010 | 0.011 | 0.009 | **0.020** | 0.011 |
| | (2.44) | | (1.07) | | (2.05) | |
| Loan repayments amount | -0.3 | 0.9 | -2.4 | 1.2 | 1.4 | 0.6 |
| | (-0.24) | | (-1.14) | | (1.85) | |
| No. | 4 596 | | 2 336 | | 2 260 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies, a vector of shock variables and a community level vector of prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

## Table 24 Impact of CGP on propensity of purchase on credit and loan application

| | Impact | Follow-up | Impact | Follow-up | Impact | Follow-up |
|---|---|---|---|---|---|---|
| | All | | HH Size<6 | | HH Size>5 | |
| HH purchased on credit | -0.048 | 0.354 | -0.054 | 0.360 | -0.039 | 0.348 |
| | (-1.58) | | (-1.42) | | (-1.09) | |
| HH received loan | **-0.077** | 0.350 | -0.060 | 0.344 | **-0.090** | 0.355 |
| | (-2.49) | | (-1.47) | | (-2.53) | |
| *From family,friend,or neighbour* | **-0.066** | 0.328 | -0.050 | 0.321 | **-0.072** | 0.334 |
| | (-2.16) | | (-1.23) | | (-2.08) | |
| *From other people/institutions* | **-0.015** | 0.026 | -0.008 | 0.027 | **-0.026** | 0.024 |
| | (-1.95) | | (-0.84) | | (-2.29) | |
| No. | 2 298 | | 1 168 | | 1 130 | |

**Note**: Estimations use single difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies, a vector of shock variables and a community level vector of prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

## Table 25 Impact of CGP on participation in agricultural and non-agricultural wage labour, HH level

| | Impact | Follow-up | Impact | Follow-up | Impact | Follow-up |
|---|---|---|---|---|---|---|
| | All | | Males | | Females | |
| Participation in wage labour | **-0.0913** | 0.4965 | -0.0488 | 0.4393 | **-0.1363** | 0.4048 |
| | (-2.79) | | (-1.40) | | (-4.10) | |
| Participation in paid agriculture | **-0.1449** | 0.3366 | **-0.0807** | 0.2613 | **-0.1737** | 0.2920 |
| | (-3.85) | | (-2.23) | | (-4.55) | |
| Participation in paid non-agriculture | 0.0371 | 0.1893 | 0.0398 | 0.1809 | 0.0316 | 0.1122 |
| | (1.67) | | (1.71) | | (1.58) | |
| Days in paid agriculture | **-13.75** | 35.69 | -3.04 | 22.34 | **-12.37** | 18.64 |
| | (-2.76) | | (-0.73) | | (-5.02) | |
| Days in paid non-agriculture | **3.03** | 19.93 | **2.08** | 15.53 | 1.09 | 8.05 |
| | (1.04) | | (0.80) | | (0.63) | |
| Earnings in paid agriculture | -67.623 | 337.038 | 22.443 | 221.128 | **-93.434** | 168.164 |
| | (-1.25) | | (0.46) | | (-3.63) | |
| Earnings in paid non-agriculture | **471.646** | 693.375 | 380.596 | 666.333 | **153.645** | 182.402 |
| | (1.97) | | (1.45) | | (2.17) | |
| No. | 2 296 | | 1 764 | | 2 282 | |

**Note**: Estimations use single difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies, a vector of shock variables and a community level vector of prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

## Table 26 Impact of CGP on participation and days worked in non-farm enterprise, HH level

| | Impact | Follow-up | Impact | Follow-up | Impact | Follow-up |
|---|---|---|---|---|---|---|
| | All | | Males | | Females | |
| Participation in NFE | **0.1707** | 0.3779 | **0.1196** | 0.1783 | **0.1552** | 0.3265 |
| | (4.67) | | (4.76) | | (4.57) | |
| Days worked in NFE (last week) | **1.57** | 2.65 | **0.62** | 0.94 | **0.98** | 1.76 |
| | (4.37) | | (3.57) | | (4.50) | |
| No. | 2 202 | | 2 102 | | 2 197 | |

**Note**: Estimations use single difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies, a vector of shock variables and a community level vector of prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 27** **Impact of CGP on participation and days worked in own farm agriculture, HH level**

| | Impact | Follow-up | Impact | Follow-up | Impact | Follow-up |
|---|---|---|---|---|---|---|
| | All | | Males | | Females | |
| Participation in own farm | **-0.0132** | 0.9218 | **0.0172** | 0.7900 | **-0.0139** | 0.9170 |
| | (-0.61) | | (0.71) | | (-0.65) | |
| Days worked in own farm (last week) | **20.12** | 146.66 | **13.26** | 71.60 | **8.18** | 78.45 |
| | (1.83) | | (1.99) | | (1.49) | |
| No. | 2 202 | | 2 102 | | 2 197 | |

**Note**: Estimations use single difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies, a vector of shock variables and a community level vector of prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 28** **Impact of CGP on child labour supply (share), individual level**

| | Impact | Baseline | Impact | Baseline | Impact | Baseline |
|---|---|---|---|---|---|---|
| | All | | Males | | Females | |
| Total | 0.047 | 0.525 | 0.083 | 0.512 | 0.016 | 0.537 |
| | (0.99) | | (1.44) | | (0.30) | |
| Paid | -0.018 | 0.043 | -0.017 | 0.039 | -0.014 | 0.047 |
| | (-1.40) | | (-0.96) | | (-0.94) | |
| Unpaid | 0.039 | 0.484 | 0.079 | 0.470 | 0.002 | 0.498 |
| | (0.78) | | (1.30) | | (0.03) | |
| No. | 8 054 | | 4 005 | | 4 049 | |

**Note**: Estimations use difference-in-difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies and a vector of shock variables. Baseline refers to baseline mean value of indicator shown in the preceding column.

**Table 29 Impact of CGP on the share household income sources**

| | Impact | Follow-up | Impact | Follow-up | Impact | Follow-up |
|---|---|---|---|---|---|---|
| | All | | HH Size<6 | | HH Size>5 | |
| Crop production | -0.032 | 0.342 | -0.026 | 0.333 | -0.035 | 0.352 |
| | (-0.97) | | (-0.72) | | (-1.03) | |
| Livestock production | **0.023** | 0.045 | **0.022** | 0.038 | 0.023 | 0.052 |
| | (3.08) | | (2.50) | | (1.92) | |
| Fishing | -0.003 | 0.024 | -0.004 | 0.022 | -0.002 | 0.026 |
| | (-0.37) | | (-0.45) | | (-0.19) | |
| Non-farm enterprises | **0.143** | 0.278 | **0.143** | 0.282 | **0.142** | 0.274 |
| | (4.18) | | (3.91) | | (3.80) | |
| Wage employment | **-0.100** | 0.247 | **-0.103** | 0.257 | **-0.096** | 0.237 |
| | (-5.19) | | (-4.37) | | (-4.96) | |
| *Agricultural wage* | **-0.101** | 0.159 | **-0.092** | 0.171 | **-0.106** | 0.148 |
| | (-5.26) | | (-4.06) | | (-5.14) | |
| *Non-agricultural wage* | 0.001 | 0.088 | -0.011 | 0.086 | 0.010 | 0.089 |
| | (0.06) | | (-0.65) | | (0.80) | |
| Transfers | **-0.031** | 0.064 | **-0.033** | 0.069 | **-0.032** | 0.059 |
| | (-3.62) | | (-3.32) | | (-3.09) | |
| No. | 2 282 | | 1 157 | | 1 125 | |

**Note**: Estimations use single difference modelling among panel households. Robust *t*-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household demographic composition, head of household characteristics, district dummies, a vector of shock variables and a community level vector of prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

## Figures

**Figure 1** **Share of households producing each crop (over all households producing crops), by district and treatment status (baseline)**

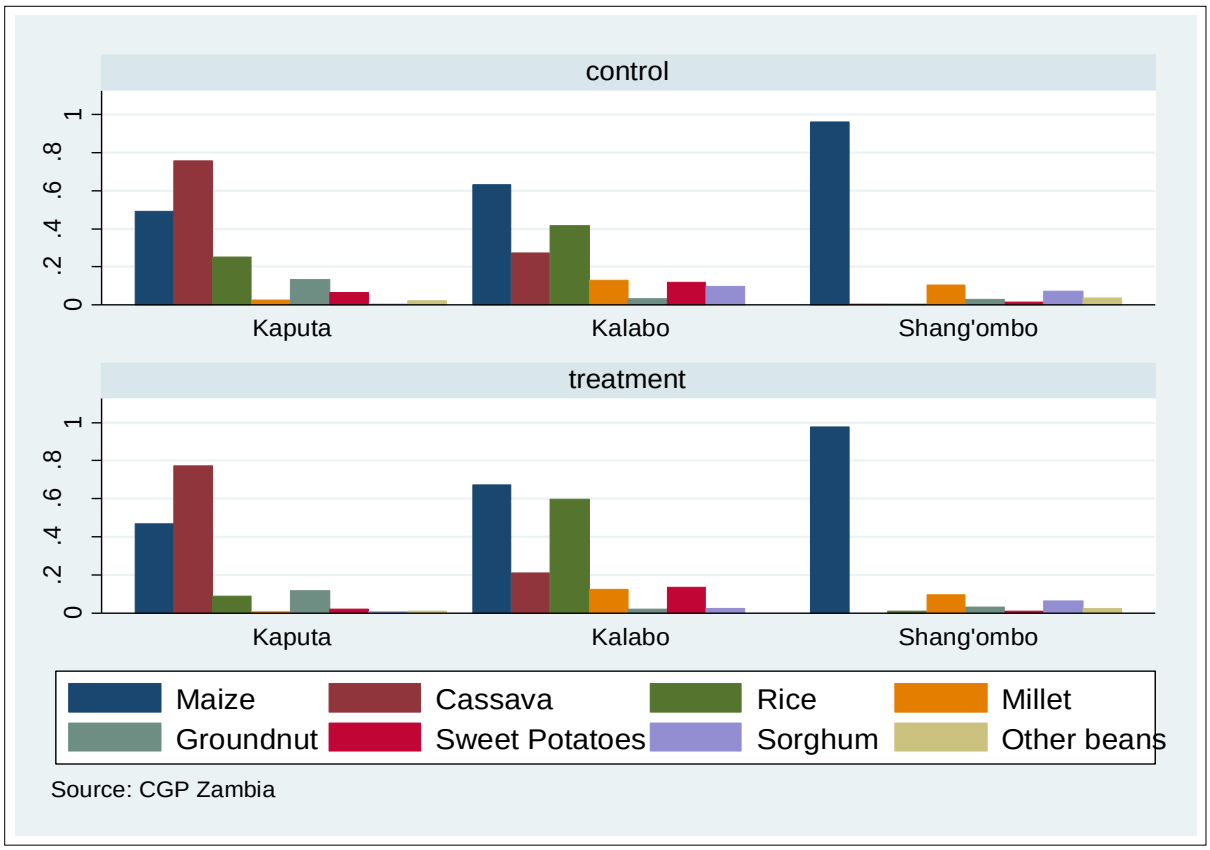
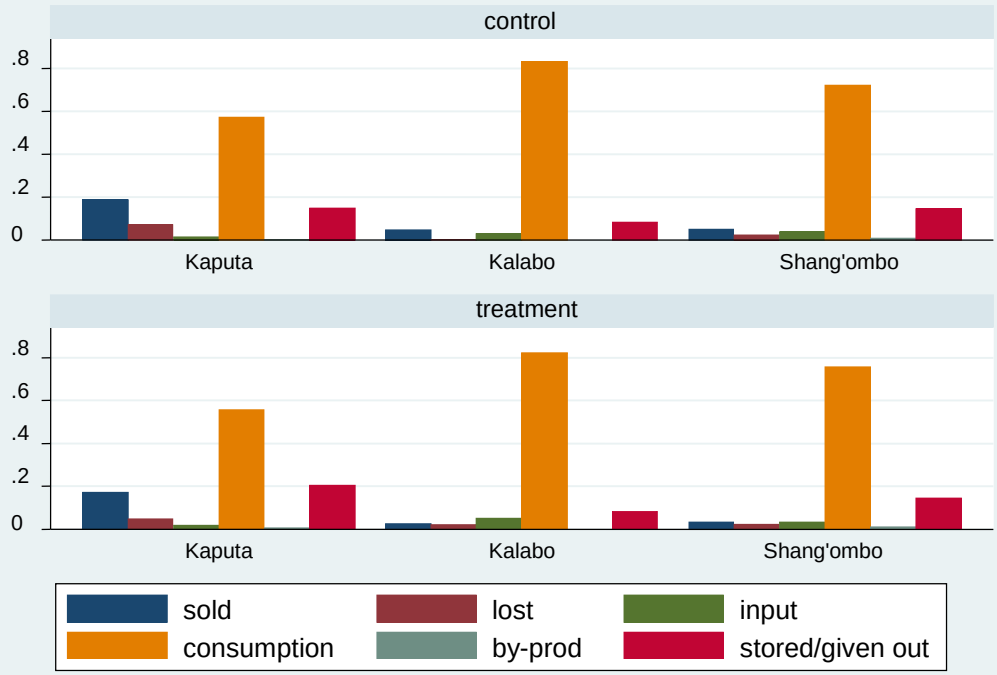


**Figure 2** **Use of maize harvest, by district and treatment status (baseline)**




Source: CGP Zambia