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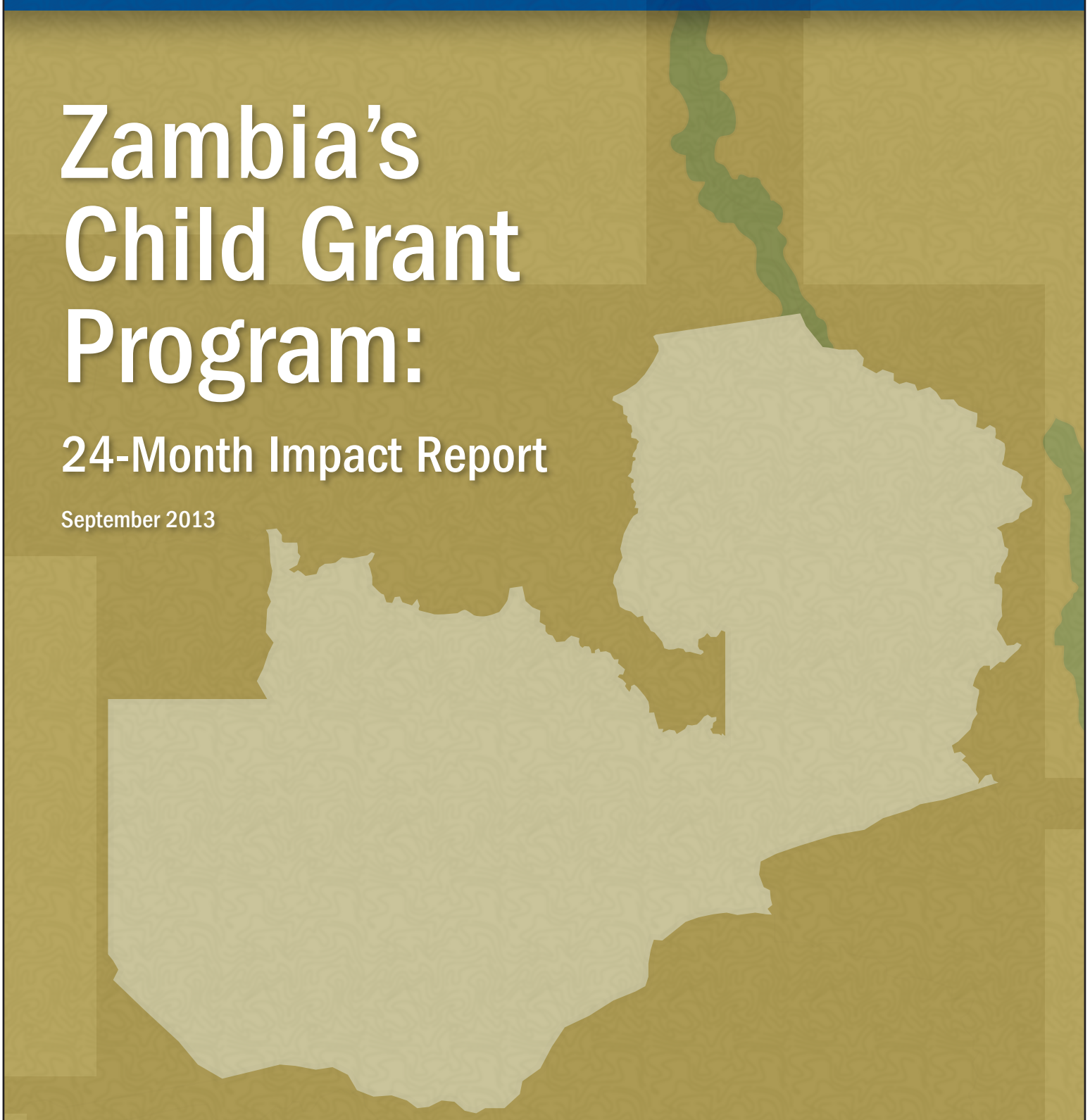
Zambia's Child Grant Program:

24-Month Impact Report

September 2013



1000 Thomas Jefferson Street NW, Washington, DC 20007-3835 | 202.403.5000 | TTY 877.334.3499 | www.air.org

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Contributors

The evaluation of the Child Grant Program is being conducted by American Institutes for Research (AIR) for the government of the Republic of Zambia, under contract to UNICEF, with funding from the Cooperating Partners—UNICEF, DfID, and Irish Aid. The Principal Investigators for the overall evaluation are David Seidenfeld (AIR) and Sudhanshu Handa (University of North Carolina at Chapel Hill). The Zambia-based Principal Investigator is Gelson Tembo of Palm Associates and the University of Zambia. The FAO (Principal Investigator Benjamin Davis) was contracted by DFID-UK to provide the analysis of the economic and spillover effects of the CGP. The overall team leaders of this report are David Seidenfeld (AIR), Sudhanshu Handa (UNC), and Benjamin Davis (FAO), but many others made important contributions and are listed below by institutional affiliation and alphabetical order within institution:

AIR: Cassandra Jessee, Leah Prencipe, Dan Sherman

Palm: Alefa Banda, Liseteli Ndiyoi, Nathan Tembo

FAO: Silvio Daidone, Joshua Dewbre, Mario Gonzalez-Flores

UC-Davis: Ed Taylor, Karen Thome

UNC: Amber Peterman

The suggested citation for this report is:

American Institutes for Research. (2013). *Zambia's Child Grant Program: 24-month impact report.* Washington, DC: Author.

Contact information:

David Seidenfeld
dseidenfeld@air.org

Sudhanshu Handa
shanda@email.unc.edu

Benjamin Davis
Benjamin.davis@fao.org

Gelson Tembo
tembogel@gmail.com

Acknowledgments

We recognize the contributions of many individuals and organizations without whom it would not have been possible to complete this study. Our thanks go to the Zambian Ministry of Community Development, Mother and Child Health (MCDMCH); the Department for International Development (DfID); the United Nations Children Fund (UNICEF); Irish Aid; and Palm Associates for the opportunity to carry out this study and for the financial and technical support that they rendered.

Our special thanks go to Dr. Gelson Tembo (Palm Associates) for carrying out the data collection and Mr. Paul Quarles van Ufford (UNICEF) and Ms. Kelley Toole (DfID) for their technical support during the design and fieldwork. The value of the logistical support obtained from Mr. Stanfield Michelo, the Director of Social Welfare at the MCDMCH; the staff in the cash transfer unit at the MCDMCH, Lusaka; and the district social welfare officers (DSWO) in Shangombo, Kaputa, and Kalabo also cannot be overemphasized. Everyone at the ministry provided valuable logistical support during data collection in the three districts, including program background information.

Our acknowledgments would be incomplete without mentioning our team of very able research assistants in Zambia. Specifically, we acknowledge the input of the team of enumerators and supervisors from Palm Associates, whose dedication during data collection ensured that the data collected were of high quality. The highly competent team of data entry personnel at Palm Associates is also greatly acknowledged.

The patience exercised by the Zambian households, community leaders, and community members during interviews are also greatly acknowledged. It is our hope that the insights from the information that they provided will translate into valuable interventions in their communities.

David Seidenfeld, Ph.D.

Acronyms

AIR	American Institutes for Research
ARI	Acute Respiratory Illness
CGP	Child Grant Social Cash Transfer Program
CWAC	Community Welfare Assistance Committee
DD	Differences-in-differences
ECD	Early Childhood Development
FANTA	Food and Nutrition Technical Assistance Project
FAO	Food and Agricultural Organization of the United Nations
HDDS	Household Dietary Diversity Score
IYCF	Infant and Young Child Feeding
LCMS	Living Conditions Monitoring Survey
LEWIE	Local Economy-wide Impact Evaluation
MCDMCH	Ministry of Community Development, Mother and Child Health (MCDMCH)
MICS	Multiple Indicators Cluster Surveys
RCT	Randomized Controlled Trial
UNICEF	United Nations Children's Fund
ZDHS	Zambia Demographic and Health Survey
ZMW	Zambian Kwacha
ZOI	Zone of Influence

Executive Summary

Background

In 2010, the Government of the Republic of Zambia through the Ministry of Community Development, Mother and Child Health (MCDMCH) began implementing the Child Grant social cash transfer program (CGP) in three districts: Kalabo, Kaputa, and Shangombo. The CGP targets households with children under age 5 living in program districts and provides each household with 60 kwacha (ZMW), or roughly U.S. $12, a month, regardless of household size. Payments are made every other month, and there are no conditions to receive the money. An impact evaluation was conducted as the program was implemented to learn its effects on recipients and provide evidence for deciding the future of the program. American Institutes for Research (AIR) was contracted by UNICEF Zambia in 2010 to design and implement a randomized controlled trial (RCT) for a 3-year impact evaluation of the program and to conduct the necessary data collection, analysis, and reporting.[1] This report presents findings after 24 months of program implementation, including impacts on expenditures, poverty, food security, children under age 5, children older than 5, and the economy.

Study Design

We implemented an RCT to estimate program impacts after 2 years. This study includes 2,515 households in 90 Community Welfare Assistance Committees (CWACs) that have been randomly assigned to treatment or control conditions. As shown in the baseline report, randomization created equivalent groups. We lost 226 households (9 percent) to attrition 2 years into the study; however, we maintain equivalent groups and find no differential attrition between treatment and control groups. By maintaining the RCT design, we can attribute observed differences between treatment and control groups directly to the CGP. At baseline (2010), we hypothesized about where we expected to find program effects based on the logic model and ex-ante simulations to predict impacts using the baseline data. We compare these estimates from baseline with observed impacts 2 years later.

Operational Performance

Overall, we find that the Ministry has successfully implemented the cash transfer program. Beneficiaries receive the correct amount of money according to schedule, can access the money without any cost and with relative ease, and do not experience unethical solicitations. Although recipients understand the eligibility criteria to enter the program, they have some misunderstanding about the conditions required to remain in the program, with many thinking that they need to spend the money to feed or clothe their children. The results of this study suggest that perceptions of conditions by the recipients might influence the impact of the program.

Consumption Expenditures

As predicted at baseline, a majority of the increased spending for CGP recipients goes for food (76 percent), followed by health and hygiene (7 percent), clothing (6 percent), and transportation/ communication (6 percent). In contrast, there is no significant program impact for spending on

[1] Palm Associates was contracted by AIR to assist with the baseline data collection.

education, domestic items, or alcohol/tobacco overall. However, we do find impacts on education spending for larger households because they have more children. Among the increased food expenditures, the largest share goes to cereals (40 percent), followed by meats, which include poultry and fish (21 percent), and then fats (15 percent) and sugars (11 percent). These impacts on food expenditures differ when we look at them by household size. In smaller households, the impact of the CGP on food is concentrated on cereals (where 45 percent of the impact on food is derived) followed by meat (15 percent), fats (14 percent), and pulses (13 percent). However among larger households, the impact of the grant on food is driven by meats (32 percent) and then cereals (30 percent). The conceptual framework suggests that the primary direct impact of the CGP will be on the consumption spending behavior of recipient households. The other outcomes in this study, such as nutrition, education, and material needs, are second-round effects in that they are not affected directly by the cash transfer but require a series of behavioral responses by the household induced by the income effect of the cash transfer in order to change. Therefore, we expect to see second-round impacts that coincide with observed spending patterns.

Poverty and Food Security

We find strong impacts for reducing extreme poverty and improving food security. The program reduces the extreme poverty household rate by 5.4 percentage points; however, the largest program impacts are found for the poverty gap (10.0 percentage points) and squared poverty gap (10.8 percentage points), which account for the distribution of individuals below the line rather than whether individuals moved above the line. We also find that the CGP increases the percentage of households eating two or more meals per day by 8 percentage points, with almost everyone eating two or more meals per day (97 percent). The program increases the number of households that are not severely food insecure by 18 percentage points, a 113 percent improvement over the control group. The CGP has a large impact on perceptions of food security. Twice as many CGP households (71 percent) as control households (35 percent) do not consider themselves very poor, a 31 percentage point difference. Five times more CGP households than control households report being better off now than they were 12 months ago, a 45 percentage point increase. These findings are consistent with predicted program impacts at baseline.

Young Children

We find strong impacts on reducing the incidence of diarrhea (4.9 percentage points) for children under 5 years old, but none for other young child health outcomes. The result for diarrhea is consistent with our hypotheses from baseline. We find no impacts on curative or preventative health-seeking behavior, which is also consistent with our hypotheses.

We find a large impact of the CGP on infant and young child feeding (IYCF)—an increase of 22 percentage points (from 32 percent to 60 percent, the control group improved to only 43 percent), an 88 percent increase over the baseline mean. This result is consistent with the consumption expenditure effects as well as the ex-ante predictions. The program also significantly increases weight for height among children ages 3 to 5. However, we do not find any impacts on height, which corroborates our baseline hypotheses, which predicted impacts to weight but not to height.

Older Children

We find large impacts on material well-being, with a 33 percentage point increase to the number of children who have all three needs met (shoes, second set of clothing, and a blanket), but no overall impacts on education or health. These results are supported by the spending patterns observed 24 months into the program and are consistent with baseline predictions. However, we find that the program has impacts on education outcomes, such as enrollment and attendance, for children with less educated mothers. This result occurs because more educated mothers have already enrolled their child and have less room from growth.

Productive Impacts

We find large impacts on crop and livestock production. The CGP increases the amount of operated land by 18 percentage points (a 34 percent increase from baseline), as well as the use of agricultural inputs. The program increases the share of households with any expenditure on inputs by 18 percentage points, from a baseline share of 23 percent. This increase is particularly relevant for smaller households (22 percentage points) and includes spending on seeds, fertilizer, and hired labor.

The increase in crop input use and tool ownership leads to an increase in the value of aggregate production. The CGP increases the overall value of the harvest by ZMW 146, which is a 50 percent increase from baseline. The program increases the share of households producing maize by 8 percentage points and 4 percentage points in the share producing rice. The overall increase in production appears to be destined for sale rather than consumed on farm. The CGP increases the share of households selling crops by 12 percentage point (an over 50 percent increase from baseline), and we do not find any increase in the share of consumption out of own production.

The program increases the production of livestock. The CGP has a positive impact on the ownership of a wide variety of animals, both in terms of share of households with livestock (a 21 percentage point increase overall, from 49 percent at baseline) and in the total number of different types of poultry. Further, beneficiary households experience approximately double the volume of purchase and sales of livestock compared with control households.

Impact to Labor

We find impacts to non-farm business activity and shifts in the labor supply from working on other people's farms to focusing on own farm and non-farm enterprises. The share of beneficiary households operating a non-agricultural enterprise increases by 17 percentage points compared with control households. Moreover, the program also increases the number of months in operation, the value of total monthly revenue and profit, and the share of households owning business assets.

The impact of the CGP on the economic activities of beneficiary households implies changes in labor supply. Overall, we find a significant shift from agricultural wage labor to family agricultural and non-agricultural businesses, which corresponds with the increases in household level economic activities brought on by receipt of the CGP transfer. The CGP decreases the share of households with an adult engaged in wage labor by 9 percentage points, an impact that is stronger for females of working age.

Most of the decrease occurs in agricultural wage labor (14 fewer days overall) and is offset by large significant increases in non-farm work (20 days overall) and non-farm enterprise (1.6 days). The program does not have any impact on child work for pay.

Local Economy

The CGP is likely to have significant multiplier effects on the local economy. A simulation model shows that the CGP has a potential total income multiplier of ZMW 1.79. That is, each kwacha transferred to poor households can raise income in the local economy by ZMW 1.79. Beneficiary households receive the direct benefit of the transfer, whereas ineligible households receive the bulk of the indirect benefit. Of the ZMW 1.79 income multiplier, ineligible households would receive ZMW 0.62 for each kwacha given to beneficiary households, while the beneficiary households receive the value of the transfer plus an extra ZMW 0.17, for a total of ZMW 1.17 for these recipient households. Beneficiary households thus benefit both directly and indirectly from the transfer program. More important, though, the CGP also confers significant benefits to non-beneficiaries through the increased demand for goods and services generated by their increased purchasing power.

Overall Summary

The CGP has generated positive impacts on a range of indicators identified in the conceptual framework as being plausible. What is particularly exciting about the results presented here is that the CGP not only addresses the immediate consumption and food security needs of recipients but also leads to significant increases in the productive capacity of households, both by supporting the expansion of existing economic activity by enabling their diversification into new activity. There is also evidence that the program is beginning to have an impact on young children through improved feeding and reductions in wasting, as well as older children. The table below links each program objective with the indicators reported here.

Summary of Impacts in Areas Directly Linked to CGP Objectives

Supplement and not replace household income	Increase of ZMW 15 in monthly per capita consumption expenditure Reduction of 11 percentage points in poverty gap and squared poverty gap
Increase the number of households having a second meal per day	Increase of 8 percentage points in households with 2+ meals per day Increase of 22 percentage points in proportion of children ages 6 to 24 months receiving minimum feeding requirements
Reduce the rate of mortality and morbidity of children under 5	Reduction in diarrhea of 5 percentage points
Reduce stunting and wasting among children under 5	Increase in weight-for-height of 0.196 z-scores among children ages 3 to 5 years Increase in weight-for-weight and weight-for-age of 0.118 and 0.128, respectively, among children ages 0 to 5, but no statistically significant effects

Increase the number of children enrolled in and attending primary school	No statistically significant effects
Increase the number of households owning assets such as livestock	Increase of 21 percentage points in households owning any livestock. Increase of 4.5 percentage points in households owning any non-farm business assets.

I. Introduction

This paper provides the 24-month follow-up results for the Child Grant cash transfer program impact evaluation. In 2010, the government of the Republic of Zambia through the Ministry of Community Development, Mother and Child Health (MCDMCH) began implementing the Child Grant cash transfer program (CGP) in three districts: Kaputa, Kalabo, and Shongombo. American Institutes for Research (AIR) was contracted by UNICEF Zambia in 2010 to design and implement a randomized controlled trial (RCT) for a 3-year impact evaluation of the program and to conduct the necessary data collection, analysis, and reporting.[2] This paper presents findings from the 24-month follow-up study in 13 sections: Introduction, Conceptual Framework, Study Design, Attrition, Operational Performance, Consumption Expenditures, Poverty and Food Security, Young Child Outcomes, Children Over 5 Years Old, Women, Birth Outcomes, Economic Impacts, and Discussion and Conclusion.

Background

In 2010, Zambia's MCDMCH started the rollout of the CGP in three districts: Kalabo, Kaputa, and Shongombo. Zambia had been implementing cash transfer programs since 2004 in 12 other districts, trying different targeting models including community-based targeting, proxy means testing, and categorical targeting by age (over 60 years old). The government decided to introduce a new model, the CGP, in three new districts that had never received any cash transfer program. This categorical model targets any household with a child under 5 years old. Recipient households receive 60 kwacha (ZMW) a month (equivalent to U.S. $12), an amount deemed sufficient by the MCDMCH to purchase one meal a day for everyone in the household for 1 month. The amount is the same regardless of household size. Payments are made every other month through a local pay point manager, and there are no conditions to receive the money.

Locations

The MCDMCH chose to start the CGP in three districts within Zambia that have the highest rates of extreme poverty and mortality among children under age 5, thus introducing an element of geographical targeting to the program. The three districts are Kaputa, located in Northern Province; Shongombo, located in Western Province; and Kalabo, also located in Western Province. All three districts are near the Zambian border with either the Democratic Republic of Congo (Kaputa) or Angola (Shongombo and Kalabo) and require a minimum of 2 days of travel by car to reach from the capital, Lusaka. Because Shongombo and Kalabo are cut off from Lusaka by a flood plain that turns into a river in the rainy season, they can be reached only by boat during some months of the year. These districts represent some of the most remote locations in Zambia, making them a challenge for providing social services, and are some of the most underprivileged communities in Zambia.

Enrollment

Only households with children under age 3 were enrolled in the program to ensure that every recipient household receives the transfers for at least 2 years. This means that the baseline sample includes only

[2] Palm Associates was contracted by AIR to assist with the baseline data collection.

households with a child under 3. The Ministry implements a continuous enrollment system in which households are immediately enrolled after having a newborn baby. Thus, every household in the district with a child under 5 will receive benefits for 2 years after the program is introduced to that area.

Objectives

According to the MCDMCH, the goal of the CGP is to reduce extreme poverty and the intergenerational transfer of poverty. The objectives of the program relate to five primary areas: income, education, health, food security, and livelihoods. Therefore, the impact evaluation will primarily focus on assessing change in these areas. The objectives of the program according to the CGP operations manual follow (in no specific order):

- Supplement and not replace household income
- Increase the number of children enrolled in and attending primary school
- Reduce the rate of mortality and morbidity of children under 5
- Reduce stunting and wasting among children under 5
- Increase the number of households having a second meal per day
- Increase the number of households owning assets such as livestock

II. Conceptual Framework

The CGP provides an unconditional cash transfer to households with a child under age 5. CGP-eligible households are extremely poor, with 95 percent falling below the national extreme poverty line and having a median household per-capita daily consumption of ZMW 1.05, or approximately 20 U.S. cents. Among households at such low levels of consumption, the marginal propensity to consume will be almost 100 percent; that is, they will spend all of any additional income rather than save it. Thus, we expect the immediate impact of the program will be to raise spending levels, particularly basic spending needs for food, clothing, and shelter, some of which will influence children's health, nutrition, and material well-being. Once immediate basic needs are met, and possibly after a period of time, the sustained influx of new cash may then trigger further responses within the household economy, for example, by providing room for investment and other productive activity, the use of services, and the ability to free up older children from work to attend school.

Figure 2.1 brings together these ideas into a conceptual framework that shows how the CGP can affect household activity, the causal pathways involved, and the potential moderator and mediator factors. The diagram is read from left to right. We expect a direct effect of the cash transfer on household consumption (food security, material well-being), on the use of services, and possibly even on productive activity after some time. Sociological and economic theories of human behavior suggest that the impact of the cash may work through several mechanisms (mediators), including a woman's bargaining power within the household (because the woman receives the cash directly) and the degree to which the woman receiving the cash is forward looking. Similarly, the impact of the cash transfer may be weaker or stronger depending on local conditions in the community. These moderators include access to markets and other services, prices of goods and services, and shocks. Moderating effects are shown with dotted lines that intersect with the solid lines to indicate that they can influence the strength of the direct effect.[3]

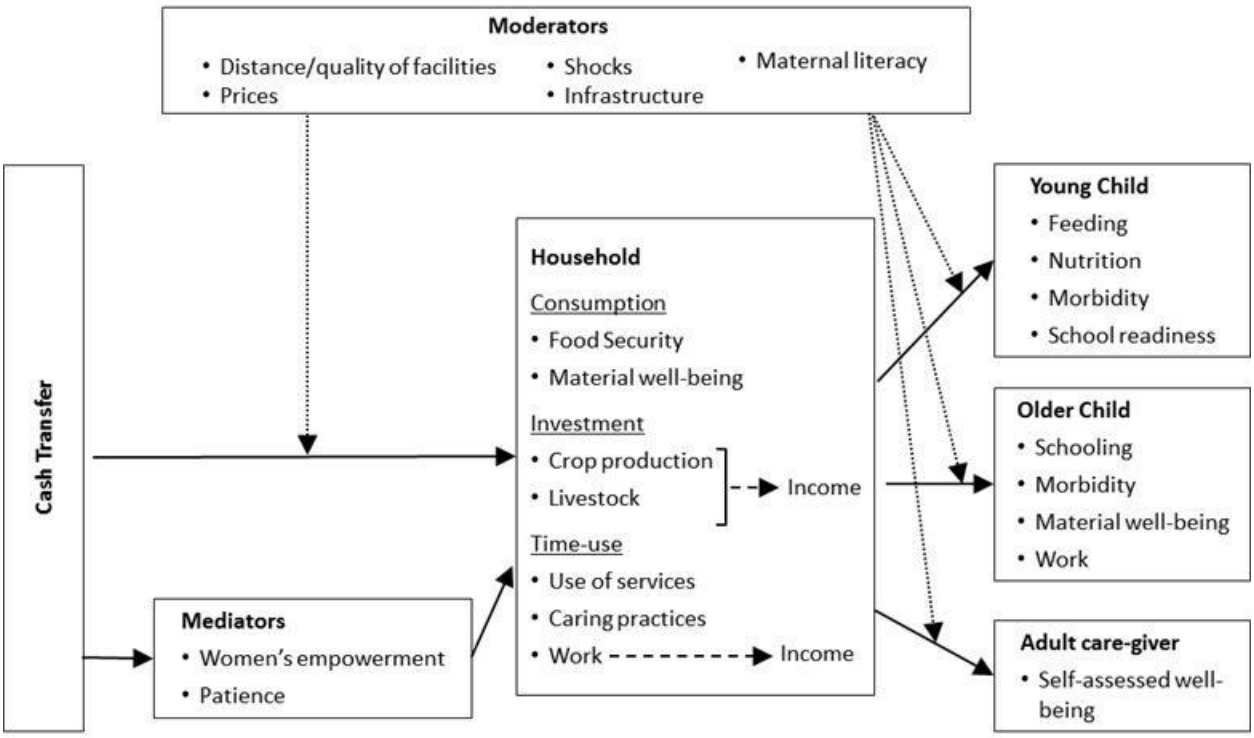
The next step in the causal chain is the effect on children, which we separate into effects on older and younger children because of the program's focus on very young children and because the key indicators of welfare are different for the two age groups. It is important to recognize that any potential impact of the program on children must work through the household by its effect on spending or time allocation decisions (including use of services). The link between the household and children can also be moderated by environmental factors, such as distance to schools or health facilities, as indicated in the diagram, and household-level characteristics themselves, such as the mother's literacy. Indeed, from a theoretical perspective, some factors cited as mediators may actually be moderators, such as women's bargaining power. We can test for moderation versus mediation through established statistical

[3] A mediator is a factor that can be influenced by the program and so lies directly within the causal chain. A moderator, in contrast, is not influenced by the program. Thus, service availability is a moderator, whereas women's bargaining power may be either a moderator or a mediator depending on whether it is itself changed by the program. Maternal literacy is a moderator and not a program outcome, unless the program inspires caregivers to learn to read and write.

techniques,[4] and this information will be important to help us understand the actual impact of the program on behavior.

Figure 2.1 identifies some of the key indicators along the causal chain that we analyze in the evaluation of the CGP. These are consistent with the log frame of the project and are all measured using established items in existing national sample surveys such as the Living Conditions Monitoring Survey (LCMS) and the Zambia Demographic and Health Survey (ZDHS). The only exception is the school readiness indicator, which is a relatively new index developed by UNICEF to be rolled out as part of its global Multiple Indicators Cluster Surveys (MICS) Program.

Figure 1. Conceptual Framework for Impact Evaluation of Child Grant Program



Beyond the household: local economy effects

Figure 2.1 provides a framework for understanding the impact of the program on beneficiaries, but economic theory, and indeed common sense, tells us that significant injections of cash into a small geographical area can have spillover effects on non-beneficiaries as well. This is because the increased purchasing power of beneficiaries raises demand for goods and services, which in turn can increase profits of local businesses if they are able to respond to demand. These local economy, or spillover, effects, to the extent that they exist, are important to document in order to understand the full impact of the program on the residents of a beneficiary community.

[4] Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182.

III. Study Design

The CGP impact evaluation relies on a design in which communities were randomized to treatment and control to estimate the effects of the program on recipients. Communities designated by Community Welfare Assistance Committees (CWACs) were randomly assigned to either the treatment condition to start the program in December 2010 or to the control condition. This study reports on the effects of the program after 2 years.

Benefits of Randomization

A randomized controlled trial (RCT) is the most powerful research design for drawing conclusions about the impacts of an intervention on specific outcomes. An RCT draws from a pool of comparable subjects and then randomly assigns some to a treatment group that receives the intervention and others to a control group that receives the intervention against which comparisons can be made. An RCT permits us to directly attribute any observed differences between the treatment and control groups to the intervention; otherwise, other unobserved factors, such as motivation, could have influenced members of a group to move into a treatment or control group.[5] Randomization helps ensure that both observed and unobserved characteristics that may affect the outcomes are similar between the treatment and control conditions of the sample. In a randomized experiment, treatment and control groups are expected to be comparable (with possible chance variation between groups) so that the average differences in outcome between the two groups at the end of the study can be attributed to the intervention. Our analysis of comparison and treatment groups finds that randomization created equivalent groups at baseline for the CGP evaluation (see the baseline report for a complete description of the randomization process and results).

Timing and Process of Data Collection

To ensure high-quality and valid data, we paid special attention to the process and timing of data collection, making sure that it was culturally appropriate, sensitive to Zambia's economic cycle, and consistently implemented. AIR contracted with Palm Associates, a Zambian research firm with years of experience conducting household surveys throughout Zambia, to help implement the CGP survey and enter the data. A team of Zambian enumerators experienced in household and community surveys and fluent in the local language where they worked were trained on the CGP instrument and then tested in the field before moving into their assigned communities for data collection.

One enumerator collected data in each household, interviewing the identified potential female recipient and documenting her answers. This oral interview process was necessary because many of the recipients are illiterate. In addition to interviewing the female head of household, the enumerator collected anthropometric measures (height and weight) for every child age 7 or under, using high-quality height boards and scales endorsed by UNICEF. Enumerators were trained in proper anthropometric measuring techniques and then supervised in the field by specialists from Zambia's National Food and Nutrition Commission. In addition to the household survey, two senior enumerators administered a

[5] Campbell, D. T., & Stanley, J. C. (1963). *Experimental and quasi-experimental designs for research*. Hopewell, NJ: Houghton Mifflin.

community questionnaire in every CWAC to a group of community leaders, including CWAC committee members, teachers, village headmen, and local business owners. Last, a senior member on the enumerator team administered four business enterprise questionnaires for each CWAC.

The 24-month follow-up data collection occurred in Zambia's lean season, when people have the least amount of food left from the previous harvest and hunger is at its greatest. The timing of this round of data collection fell exactly 24 months from the baseline study, ensuring that households are being compared in the same season as at baseline. Furthermore, Zambia's seasonality was taken into account to ensure accessibility to households. Zambia has three seasons: a rainy season from December through March, a cold dry season from April through August, and a hot dry season from September through November. Data collection was timed early in the lean season, September through October of 2012, to prevent difficulty reaching households due to flooding. Crops are planted in the rainy season and harvested throughout the rainy season and into May. Food is most scarce toward the end of the hot dry season (October and November) because this is the longest period without a food harvest. The CGP aims to support poor households during this period of hunger by providing enough money to purchase a meal a day. We believe that the biggest impacts of the program are likely to be observed during this lean season; thus, the study is designed with baseline and follow-up periods of data collection during this season.

Data Entry

Palm Associates entered the data as they came in from the field. Data were verified using double entry on separate computers, flagging inconsistent responses between the two entries, and referring to the original questionnaire to see the actual response.

Analysis Approach

This study is a longitudinal, randomized, controlled evaluation with repeated measures at the individual and household levels. We estimate program impacts on individuals and households using a differences-in-differences (DD) statistical model that compares change in outcomes between baseline and follow-up and between treatment and control groups (see Annex 2 for details on this method).[6] The DD estimator is the most commonly used estimation technique for impacts of cash transfer models and has been used, for example, in Mexico's Progresa program[7] and Kenya's Cash Transfer for Orphans and Vulnerable Children.[8] We use cluster-robust standard errors to account for the lack of independence across observations due to clustering of households within CWACs.[9] We also use inverse probability weights to account for the 9 percent attrition in the follow-up sample.[10] The CGP provides the same transfer size to a household, regardless of the household size. Therefore, we investigate differential impacts by household size for each outcome. We present impacts by household size only when they are

[6] Local economy effects use a different analysis approach, which is explained in the appendix.
[7] http://wbro.oxfordjournals.org/cgi/reprint/20/1/29
[8] Kenya CT-OVC Evaluation Team. (2012). The impact of the Kenya CT-OVC Program on human capital. *Journal of Development Effectiveness*, *4*(1), 38–49.
[9] http://www2.sas.com/proceedings/sugi23/Posters/p205.pdf
[10] Woolridge, J. W. (2010). *Econometric analysis of cross section and panel data*. Cambridge, MA: MIT Press.

different. Additionally, an influx of cash into a region may influence non-beneficiary households as well, a phenomenon that is estimated through a local economy model called the (LEWIE) method (see Annex 5).

IV. Attrition

Attrition within a sample occurs when households from the baseline sample are missing in the follow-up sample. Mobility, the dissolution of households, death, and divorce can cause attrition and make it difficult to locate a household for a second data collection. Attrition causes problems in conducting an evaluation because it not only decreases the sample size (leading to less precise estimates of program impact) but also introduces selection bias to the sample, which will lead to incorrect program impact estimates or change the characteristics of the sample and affect its generalizability.[11] There are two types of attrition: differential and overall. Differential attrition occurs when the treatment and control samples differ in the types of individuals who leave the sample. Differential attrition can create biased samples by eliminating the balance between the treatment and control groups achieved through randomization at baseline. Overall attrition is the total share of observations missing at follow-up from the original sample. Overall attrition can change the characteristics of the remaining sample and affect the ability of the study's findings to be generalized to populations outside the study. Ideally, both types should be small.

We investigate attrition at the 24-month follow-up by testing for similarities at baseline between (1) treatment and control groups for all nonmissing households (differential attrition) and (2) all households at baseline and the remaining households at the 24-month follow-up (overall attrition). Testing these groups on baseline characteristics can assess whether the benefits of randomization are preserved at follow-up. Fortunately, we do not find any significant differential attrition at the 24-month follow-up, meaning that we preserve the benefits of randomization. We find small differences between the study population at baseline and those that remain at the 24-month follow-up; the remaining households are less likely to have experienced a shock, especially flooding or drought at baseline, and they consume a higher proportion of maize over cassava. The differences from overall attrition are primarily driven by the lower response rate in Kaputa district.

Differential Attrition

We find no difference in baseline characteristics between the treatment and control households that remain in the study at the 24-month follow-up, meaning that there is no differential attrition and the benefits of randomization are preserved. Table 4.1 shows the household response rates at the 24-month follow-up by treatment status for each district. The response rates are balanced between the treatment and control groups. We test all the household, young child, and older child outcome measures and control variables for statistical differences at baseline between the treatment and control groups that remain in the 24-month follow-up analysis. None of the 43 indicators is statistically different, demonstrating that on average, people missing from the 24-month follow-up sample looked the same at baseline regardless of whether they were from the treatment or control group. The similarity of the

[11] What Works Clearinghouse (http://ies.ed.gov/ncee/wwc/documentsum.aspx?sid=19)

characteristics of people missing in the follow-up sample between treatment statuses allays the concern that attrition introduced selection bias. Thus, the study maintains strong internal validity created through randomization, enabling estimated impacts to be attributed to the cash transfer program rather than to differences in the groups resulting from attrition. See Annex 3 for the results of the tests mean differences on the 43 indicators.

Table 4.1: Household Response Rate by Study Arm at 24-Month Follow-Up for CGP (n = 2515)

District	Treatment	Control	n
Kaputa	82.3	80.1	837
Kalabo	96.4	95.9	838
Shangombo	96.4	96.7	839
Overall	91.9	90.6	2514

Overall Attrition

Ninety-one percent of the households from baseline remain in the 24-month follow-up sample. Table 4.2 indicates that 72 percent of the missing households come from Kaputa. Most of the attrition in Kaputa occurred because the Cheshi lake is drying up, forcing households that relied on the lake for fishing and farming at baseline to move their homes as they follow the edge of the lake inward. Entire villages disbanded, with households spreading out to new areas and building new homes in remote swampy areas that are difficult to locate or reach by vehicle on land. This problem in Kaputa affected treatment and control households equally, demonstrated by the lack of differential attrition by treatment status.

Table 4.2: Overall Attrition for CGP 24-Month Follow-Up: Household Response Rate by District

District	Response rate	Households at Baseline	Percent of Total Missing Households
Kaputa	81	837	72
Kalabo	96	838	15
Shangombo	97	839	13
Overall	91	2514	100

There is almost no difference in baseline characteristics between the remaining sample at the 24-month follow-up and the sample at baseline, with no mean differences on all but two indicators. The relatively large attrition in Kaputa leads to two small differences in the characteristics of the total sample that remains at the 24-month follow-up compared with the entire sample at baseline. We find that when compared with baseline, the remaining sample contains a lower rate of households that experienced shocks and a lower share of roots and tubers, on average, is consumed. See Table 4.3 for details on these variables with statistical differences at baseline between the missing households and those that remain. The larger attrition rate in Kaputa drives these findings because households in Kaputa tend to eat more cassava (a tuber) as their staple food instead of maize, which is more common in Kalabo and Shangombo. This cultural difference explains the decrease in the average household consumption share

of roots and tubers. The ecological changes in Kaputa region, especially the lake drying up, explain why we find that a slightly smaller percentage of remaining households reported experiencing a shock such as drought or flooding (16 percent) compared with the entire baseline sample (19 percent). See Annex 3 for all results comparing the baseline sample with those who remain in the 24-month follow-up.

Table 4.3: Differences Between the Full Sample and the Sample Remaining at the 24-Month Follow-Up

Variables	Full Sample	N1	Remaining Sample	N2	Mean Difference	*p*-value
Roots/tubers share	0.17	2519	0.15	2295	0.02	<.0001
Household affected by any shocks	0.19	2519	0.16	2298	0.03	<.0001

T-tests clustered on the CWAC level.

The remaining sample at 24-month-follow-up is likely more similar to populations throughout Zambia because most of the missing households from the study depend on a lake that is drying up for their livelihood, a characteristic less common throughout the country. The ability to generalize results from the study to populations outside the study area, say, to other districts in Zambia or to other countries, changes as the study sample that remains changes from baseline. Therefore, the study's generalizability (external validity) likely has increased with the new study population that remains at the 24-month follow-up because the remaining sample is more similar to the populations where the program might be scaled to.

V. Operational Performance

The MCDMCH had been implementing the CGP cash transfer program for 2 years by the time AIR conducted the follow-up round of data collection. We use this opportunity to investigate the fidelity of program implementation from the beneficiaries' perspective. This section discusses the results of the implementation questions. We focus on two primary areas: payments and program understanding.

Overall, the Ministry successfully implements the cash transfer program. Beneficiaries receive the designated amount on schedule; they can access the money without any cost and with relative ease; and they do not experience unethical solicitations. Although recipients understand the eligibility criteria to enter the program, they have some misunderstandings about the conditions required to remain in the program, with many thinking that they need to spend the money to feed their children. The analyses for this section include only responses from beneficiaries of the program at the 2-year follow-up. Thus, all the data presented here are from people who have been receiving the cash transfers for 2 years. Data and analyses are presented through descriptive statistics due to the cross-sectional nature of the data. The 1,128 households in the sample are spread across 45 CWACs in the three CGP districts (Kaputa, Kalabo, and Shangombo).

Payments

Monitoring payments provides insights into program efficiency. Ineffective payment distribution may result in underutilization of funds, missed payments, and dissatisfaction in beneficiary households. High private costs for the recipients, such as expenses to access payment, solicitations or mistreatment by program staff, and lack of timely payments could have a negative impact on program effects. The potential problems in distribution could also add upfront costs to the Ministry, making program expansion within Zambia challenging. This study investigates recipient experiences around four themes related to payments: access to payments, notifications of payments, unjust solicitations for payments, and timeliness.

Access: Findings from the study suggest that recipient households incur little to no cost with an easy travel experience to access their cash. These results help explain the high success rate of completed payments during the first 2 years of the program's operations, with 98 percent of households in the study receiving all their payments during this time. Almost every recipient walks to the pay point (97 percent), with under 1 percent reporting that they paid any money for travel. Most recipients do not walk far to collect their payment; the median round trip travel time is under 10 minutes. Upon arrival, recipients wait on average less than 17 minutes to receive their payment. Less than 10 percent of recipients report ever having to make multiple trips to receive a single payment. Last, 93 percent report that they generally feel safe after collecting money from the pay point. Therefore, it appears that pay points are appropriately located, easily accessible, quick, and reliable.

Almost all beneficiary households (96 percent) report that recipients regularly pick up the payments instead of using family members or friends. Over 90 percent of recipients have identified a representative, usually a family member or relative, to pick up payments if they are unable to. Thirty

percent of the recipients report that they have used their representative at least once. This procedure is consistent with the instructions in the program's operations manual.

Notifications: Nearly all recipients are happy with the payment method and notification process; only 4 percent of recipients report being dissatisfied. The most common recommendation for a better method of payment is door-to-door delivery, indicating that modifications to the program are not necessary for continued satisfaction with payment delivery.

A majority of households are informed about payments by CWAC members (74 percent), with the rest hearing about payments through family members (7 percent), pay point staff (5 percent), community leaders (5 percent), and other community members (5 percent).

Solicitations: Recipients rarely report solicitations, and nearly all recipients are happy with program staff. Although 8 percent of households report that community members request money from them, less than 1 percent report any requests from pay point staff or actually paying any amount of money to any party. The recipients express satisfaction with both the pay point staff and the CGP representatives (97 percent satisfied).

On-Time Payments: Overall, payments during the 2-year period have been consistently on time for all three districts. Payments are scheduled bimonthly, so we expect the average time between payments to be about 60 days. This is supported with the district data, which report an average of 59 days between payments over the course of 13 disbursements. During the 2 years of implementation, Shangombo was the only district to report missing a payment, and, therefore, a double payment was made. Over 90 percent of respondents report receiving a payment in the 3 months prior to the survey.

Program Understanding

Recipients demonstrate a mixed understanding of the policies for the cash transfer program. This knowledge is important because it affects their expectations and behavior. Recipients were asked various questions regarding their understanding of the program with respect to eligibility requirements, funding sources, and resources for complaints.

Eligibility: Seventy-five percent understand that they are eligible for the program because they have a child under 5 years old. The rest believe that they are eligible because they care for orphans (18 percent) or are very poor (7 percent). Almost everyone believes that the eligibility criteria are fair (97 percent), although this is not surprising because all respondents are actual program beneficiaries.

Most recipients believe that they will receive the cash transfers for 5 or more years (84 percent). However, there is some misunderstanding about what is required to continue to receive payments. Although the cash transfer is unconditional, almost 90 percent of recipients report having to follow requirements to keep receiving payments. Providing adequate food and nutrition to their children and keeping their children clean represent the most commonly perceived conditions. A majority of recipients (85 percent) believe that families can be kicked out of the program for not following the stipulations of the program. Roughly 80 percent of households who think that there are conditions also report that beneficiary households are monitored to see whether they are following the rules.

Funding Sources: Recipients have a good understanding of where program funds originate. Half of all recipients attribute the funding to the Government of Zambia, an additional 18 percent report the MCDMCH specifically, and 22 percent say from a foreign NGO or donor.

Complaints: The Ministry has procedures in place for recipients to lodge grievances. Recipients seem to understand that there is a system, but it is not clear whether they understand the process. Almost 75 percent report that there is someone to whom they can report program issues, although roughly the same percentage believe that concerns are to be reported to the CWAC members. Only 18 households (less than 2 percent) have contacted someone, and the main reported problems concern missing or expired payments.

VI. Consumption Expenditures

The conceptual framework suggests that the primary direct impact of the CGP will be on the consumption spending behavior of recipient households, so we expect to see the most important impacts of the program on levels of spending, with relatively higher impacts on items that are more sensitive to income. Table 6.1 shows the impact estimates for total per capita expenditure (row 1) and then impacts on per capita spending on other consumption items. The CGP has increased total per capita consumption spending by ZMW 15.18 per month, which is more than the per capita value of the transfer. Thus, as expected among very poor households, almost all the income from the program is consumed.

The subsequent rows of Table 6.1 show the distribution of the increased spending by category. The majority of the increased spending goes to food (ZMW 11.60), which is 76 percent of additional spending, followed by health and hygiene (ZMW 1.08) at 7 percent, clothing at 6 percent, and transportation/communication at 6 percent. In contrast, there is no program impact on education, domestic items, or alcohol/tobacco.

Table 6.1: Impact of CGP on Consumption Expenditure

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Total	**15.18**	46.56	67.04	48.59
	(5.07)			
Food	**11.60**	34.45	50.16	35.85
	(4.76)			
Clothing	**0.93**	1.47	2.42	1.50
	(5.71)			
Education	0.10	0.49	1.19	0.99
	(0.34)			
Health	**1.08**	2.60	4.13	2.89
	(4.22)			
Domestic	0.53	6.11	6.40	5.64
	(0.81)			
Transport/Communication	**0.86**	0.91	2.23	1.29
	(2.32)			
Other	-0.01	0.13	0.23	0.18
	(-0.11)			
Alcohol, Tobacco	0.09	0.41	0.29	0.26
	(0.68)			
N	4594			

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices.

Table 6.2 breaks down the program impacts by detailed food groups. The overall increase in food spending is ZMW 11.60 as reported in Table 6.1; the largest share goes to cereals (ZMW 4.54), followed by meats, including poultry and fish (ZMW 2.44), followed by fats such as cooking oil (ZMW 1.76) and then sugars (ZMW 1.28). There is a clear shift away from roots and tubers (primarily cassava) and toward protein (dairy, meats), indicating a possible improvement in diet diversity among CGP recipients.

Table 6.2: Impact of CGP on Food Expenditure

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Cereals	**4.54**	11.61	15.54	9.95
	(3.26)			
Tubers	-0.924	4.96	4.56	4.93
	(-1.25)			
Pulses	**1.22**	0.94	2.00	0.77
	(4.98)			
Meats	**2.44**	6.78	11.43	7.91
	(3.08)			
Fruits, Veg	0.49	7.03	8.86	8.89
	(0.56)			
Dairy	**0.76**	0.88	1.27	0.48
	(3.55)			
Baby Foods	0.02	0.01	0.03	0.01
	(0.78)			
Sugars	**1.28**	0.79	2.61	0.98
	(7.80)			
Fats, Oil, Other	**1.76**	1.45	3.87	1.93
	(6.13)			
N	4594			

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Impacts by Household Size

The CGP provides the same-size transfer to a household regardless of the household's size. CGP households vary in size, with roughly half the households having 5 or fewer members (1,218 households) and the other half having 6 or more members (1,238 households). Therefore, the value of the transfer per capita within a household greatly varies and could lead to differential program impacts. We investigate the possibility of differential program impacts by household size, comparing smaller households (5 or fewer members) with larger households (6 or more members). Throughout this report we provide impacts by household size only when a difference exists. We begin by comparing the demographic profile of smaller and larger households in the study sample. Table 6.3 shows that smaller

households are richer (in terms of total per capita expenditure) and more frequently found in Kalabo (39 percent). The demographic composition of smaller households is also different, with a larger share of members ages 0–5 (41 percent) and a larger share (35 percent) of adults ages 19 to 35 year old (prime-age). In contrast, larger households have a smaller share of pre-school children (11 percent) and a much larger share of primary school-age children (28 percent). Larger households have heads that are slightly older and much more likely to be married (81 percent). Thus it appears that larger households in our sample are slightly further along in the life-cycle relative to smaller households.

Table 6.3: Mean Household Characteristics by Size of Household

	All	Size <= 5	Size > 5
Number of residents	5.69	4.03	7.42
Total expenditure per capita (ZMW)	46.40	55.29	37.20
Kalabo	0.33	0.39	0.27
Shangombo	0.33	0.28	0.39
Kaputa	0.33	0.33	0.34
Demographic composition			
Share 0–5 years	0.36	0.41	0.30
Share 6–12 years	0.19	0.11	0.28
Share 13–18 years	0.08	0.05	0.12
Share 19–35 years	0.26	0.35	0.18
Share 36–55 years	0.09	0.06	0.11
Share 56+	0.02	0.02	0.02
Head's characteristics			
Age	29.85	26.81	32.99
Years of schooling	4.06	4.18	3.93
Married	0.72	0.64	0.81
Never married	0.11	0.16	0.05
Widow	0.06	0.06	0.07
Divorce	0.07	0.09	0.05
N	2519	1281	1238

Table 6.4 shows impacts on total expenditure and broad groups by large and small households. Not surprisingly given the flat transfer, impacts on total expenditure are double the size for small households as they are for larger households, and this pattern also holds for the impacts on food and clothing. However, there are now significant impacts on education spending among large households (ZMW 0.61) and no impacts among small households. This result is consistent with the demographic profile of larger households, which contain proportionately more school age children relative to smaller households (see Table 6.3). The impact of the CGP is much larger among smaller households for health spending (ZMW 1.58), which is consistent with the larger proportion of very young children in smaller households. The impact on transportation and communication (ZMW 1.39) spending is also over 4 times the size in smaller households as it is in larger households.

Table 6.4: Impact of CGP on Consumption Expenditure by Household Size

	Size <= 5		Size > 5	
	Baseline Mean	Program Impact	Baseline Mean	Program Impact
Total	55.40	**20.37**	37.42	**10.10**
		(4.40)		(3.38)
Food	41.36	**15.17**	27.30	**8.16**
		(3.99)		(3.56)
Clothing	1.77	**1.22**	1.15	**0.61**
		(5.24)		(4.10)
Education	0.25	-0.25	0.74	**0.44**
		(-0.51)		(2.10)
Health	3.25	**1.58**	1.93	**0.57**
		(3.88)		(2.19)
Domestic	7.36	1.11	4.81	-0.02
		(1.15)		(-0.03)
Transport/Comm	0.84	**1.38**	0.98	0.34
		(2.44)		(0.62)
Other	0.16	-0.04	0.10	0.03
		(-0.24)		(0.48)
Alcohol, Tobacco	0.41	0.20	0.41	-0.03
		(1.29)		(-0.17)
N	2306		2288	

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Table 6.5 presents program impacts on food spending by household size. Here also there are some interesting differences in terms of the composition of food spending that the CGP has impacted in small and large households. In smaller households, the impact of the CGP on food is concentrated on cereals (where 45 percent of the impact on food is derived) followed by meat (15 percent), fats (14 percent), and pulses (13 percent). However among larger households, the impact of the grant on food is driven by meats (32 percent) and then cereals (30 percent). Again these distinct patterns are likely linked to the differences in household demographic composition between the two types of households; smaller households have a larger share of pre-school children who eat more cereal, while larger households have a greater share of school-age children (including teenagers) who eat more meats.

Table 6.5: Impact of CGP on Food Expenditure by Household Size

	Size <= 5		Size > 5	
	Baseline Mean	Program Impact	Baseline Mean	Program Impact
Cereals	13.83	**6.78**	9.32	2.44
		(3.46)		(1.91)
Tubers	5.63	-0.80	4.26	-1.05
		(-0.68)		(-1.63)
Pulses	1.03	**1.90**	0.85	**0.59**
		(4.42)		(2.75)
Meats	0.85	2.21	4.99	**2.58**
		(1.94)		(3.33)
Fruits, Veg	8.59	0.54	5.43	0.42
		(0.39)		(0.60)
Dairy	1.14	**0.74**	0.60	**0.76**
		(2.07)		(4.38)
Baby Foods	0.01	0.03	0.01	0.01
		(0.70)		(0.71)
Sugars	0.89	**1.58**	0.68	**1.01**
		(5.63)		(6.22)
Fats, Oil, Other	1.73	**2.17**	1.16	**1.40**
		(4.85)		(4.97)
N		2306		2288

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Actual Versus Predicted Impacts

Using baseline data, we had predicted the impact of the CGP transfer on the composition of overall and food spending under the assumption that households would treat the money from the CGP the same as they would any other source of income. Table 6.6 compares the share of the transfer allocated to the different spending items as well as the share that we predicted from the baseline data assuming only an income effect of the program. In general terms, the predictions are most accurate for food in that over three-fourths of spending from the CGP income is devoted to food, as we predicted. However we note some interesting and noteworthy differences between the two columns. In particular, more of the transfer (than predicted at baseline) is devoted to clothing, health, and transportation/communication and less (than predicted) to domestic items. This seems to be consistent with qualitative feedback from the field as well as the results from the operational data, which suggest that recipients believe that they must use the money to clothe and feed their children.

Table 6.6: Comparison of Actual and Predicted Impacts on Spending Groups

	Actual Impact	Predicted Impact at Baseline
Food	0.764	0.781
Clothing	0.061	0.025
Education	0.007	0.007
Health	0.071	0.050
Domestic	0.035	0.074
Transport/Communication	0.057	0.044
Other	-0.001	0.004
Alcohol, Tobacco	0.006	0.015
Total	1.000	1.000

NOTE: Numbers are the share of the total transfer allocated to each spending item. Column 1 is the actual share at follow-up; column 2 is the predicted share estimated from baseline data.

Table 6.7 provides a similar comparison for the composition of food spending. The biggest surprise here is the large discrepancy between the ex ante prediction of the share devoted to roots and tubers (0.14) and the actual share (which is a decline of 0.08 but not statistically different from 0). Instead, a larger share (than predicted) is devoted to cereals, sugars, fats, dairy, and pulses. This finding could be due to the greater level of attrition in Kaputa than in the other two districts because people in Kaputa mostly eat cassava, a tuber, but maize, a cereal, in the other two districts. Clearly CGP households now enjoy both higher levels of overall consumption and more diet diversity in terms of increased consumption of dairy and meat. However, there is also a significant increase in sugars, oils, and fats, so that not all the increase in food consumption may be healthy, although among this highly food insecure population, these increases in fats and sugars probably enhance diet diversity and improve nutritional intake.

Table 6.7: Comparison of Actual and Predicted Impacts on Food Spending

	Actual Impact	Predicted Impact at Baseline
Cereals	0.391	0.339
Tubers	-0.080	0.142
Pulses	0.105	0.030
Meats	0.211	0.236
Fruits, Veg	0.043	0.182
Dairy	0.065	0.027
Baby Foods	0.002	0.000
Sugars	0.111	0.039
Fats, Oil, Other	0.152	0.005
Total	1.000	1.000

NOTE: Numbers are the share of the total transfer allocated to each spending item. Column 1 is the actual share at follow-up; column 2 is the predicted share estimated from baseline data.

VII. Poverty and Food Security

Earlier in this report we showed that the CGP has a significant impact in raising the average consumption level of households. In this chapter, we provide estimates of the program's impact on measures of poverty and food security. Figure 7.1 compares the distribution of per capita monthly consumption expenditure between the two arms in each period; the vertical line is the severe poverty line as defined by the Central Statistics Office in 2010 (ZMW 96.37) inflated to 2012 units (in these figures we drop the top 1 percentile for ease of exposition). Individuals to the left of the line are in extreme poverty. In 2010, the two distributions are almost identical, and most important, the same proportion of households (96 percent) in treatment and control samples are below the severe poverty line. In 2012, however, the distribution of per capita expenditure among treatment households has clearly shifted to the right relative to control households, and it now appears as if fewer households (91 percent) in the treatment arm are below the severe poverty line compared to 96 percent in the control group.

Figure 7.1: Distribution of Expenditures

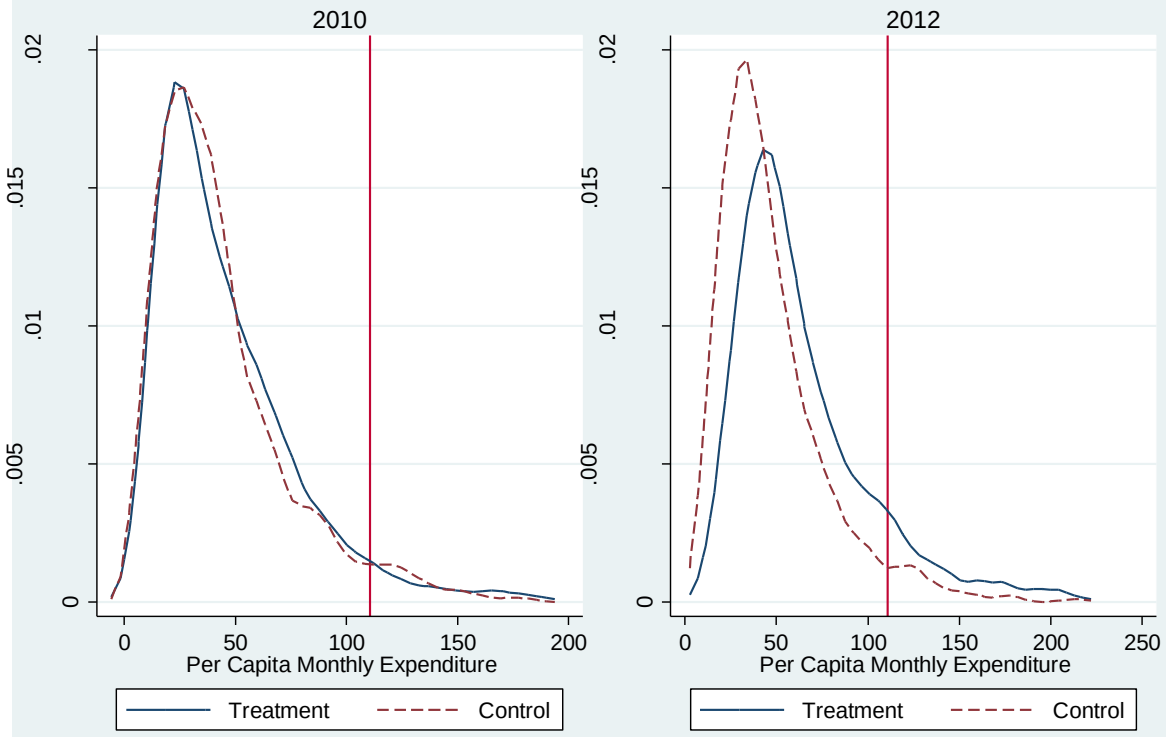


Table 7.1 provides more details on the impact of the CGP on the three commonly used FGT poverty indicators, the headcount, poverty gap, and squared poverty gap, using both the severe and the moderate poverty lines. In column 1, we provide the simple (unadjusted) impact estimates. These, as well as the means in the table, are weighted by household size to be representative of the population of individuals living in beneficiary households. Beginning with the severe poverty line, the program reduces the headcount rate by 5.4 percentage points; however, the largest program impacts are found for the

poverty gap (10.9percentage points) and squared poverty gap (10.8 percentage points), which account for the distribution of individuals below the line rather than whether individuals moved above the line. For programs that target people at the very bottom of the income distribution, these last two indicators are better measures of changes in welfare because it is highly unlikely for a program to provide sufficient funds to lift people at the very bottom of the distribution to above the poverty line. However, a significant positive movement below the line will show up in the poverty gap and squared poverty gap indicators. Thus, this pattern of results is evidence of both the highly successful targeting approach of the CGP as well as its impact on welfare.

Virtually all CGP recipients are below the moderate poverty line (99 percent), and the impact of the program on the poverty headcount using the moderate poverty line, although statistically significant, is very tiny at 1.7 percentage points. However, the impacts on the poverty gap and squared poverty gap continue to be large simply because these indicators account for the distribution of individuals below the line. Notice that among the control group, there is also a clear trend of improvement in terms of the poverty gap and squared poverty gap, although the gains in monetary welfare among the CGP participants is an order of magnitude larger in terms of percentage change from baseline.

Table 7.1: Impact of CGP on Poverty Indicators

		Means			Percent Change From Baseline	
	Program Impact	**Baseline**	**Treated**	**Control**	**Treated**	**Control**
		Severe Poverty Line				
Headcount	**-0.054**	0.958	0.906	0.960	-5.43	0.21
	(-3.71)					
Poverty Gap	**-0.109**	0.632	0.483	0.607	-23.58	-3.96
	(-4.54)					
Sq. Poverty Gap	**-0.108**	0.456	0.293	0.420	-35.75	-7.89
	(-4.19)					
		Moderate Poverty Line				
Headcount	**-0.017**	0.989	0.974	0.991	-1.52	0.20
	(-2.76)					
Poverty Gap	**-0.090**	0.743	0.627	0.727	-15.61	-2.15
	(-4.71)					
Sq. Poverty Gap	**-0.102**	0.593	0.449	0.567	-24.28	-4.38
	(-4.49)					
N	4815					

NOTE: Program impacts are raw difference-in-differences with cluster robust t-statistics in parentheses. All estimates are weighted by household size and corrected for attrition bias.

Food Security

One of the goals of the CGP is to improve the food security of beneficiary households and specifically increase the percentage of households eating two or more meals per day. As stated earlier, the program has large impacts on consumption, with over 75 percent of additional expenditures going toward food consumption. We find that these additional expenditures on food translate to greater food security, a finding consistent with our predictions conducted at baseline. Table 7.2 and Figure 7.2 show the impacts

of the program on several food security indicators. The CGP increases the percentage of households eating two or more meals per day by 8 percentage points, with almost everyone eating two or more meals per day (97 percent). Although the difference between the treatment and control groups is only 8 percentage points, a possible ceiling effect limits the measurement of the program's impact on this indicator because the indicator has almost topped out and reached its limit with only 3 percent remaining in the treatment group who eat fewer than two meals per day.

Fortunately, other indicators, such as the Food and Nutrition Technical Assistance Project (FANTA) food security score, provide greater depth to the program's impact. FANTA is a measure of a household's food insecurity, with greater values indicating more food insecurity. We find that the program reduces a household's food insecurity score by 2.5 points, a 20 percent decrease from the control group's score. The program increases the number of households that are not severely food insecure by 18 percentage points (36 percent in the treatment group versus 16 percent in the control group), a 113 percent improvement over the control group. The CGP has a strong impact on perceptions of food security. Twice as many CGP households (71 percent) as control households (35 percent) do not consider themselves very poor. Five times more CGP households (60 percent) than control households (12 percent) report being better off now than they were 12 months ago. Thus, it appears that the CGP improves household food security with strong impacts on one of the primary goals of the program, to increase the number of households eating two or more meals per day.

Figure 7.2: Food Security Indicators by Treatment Status and Time

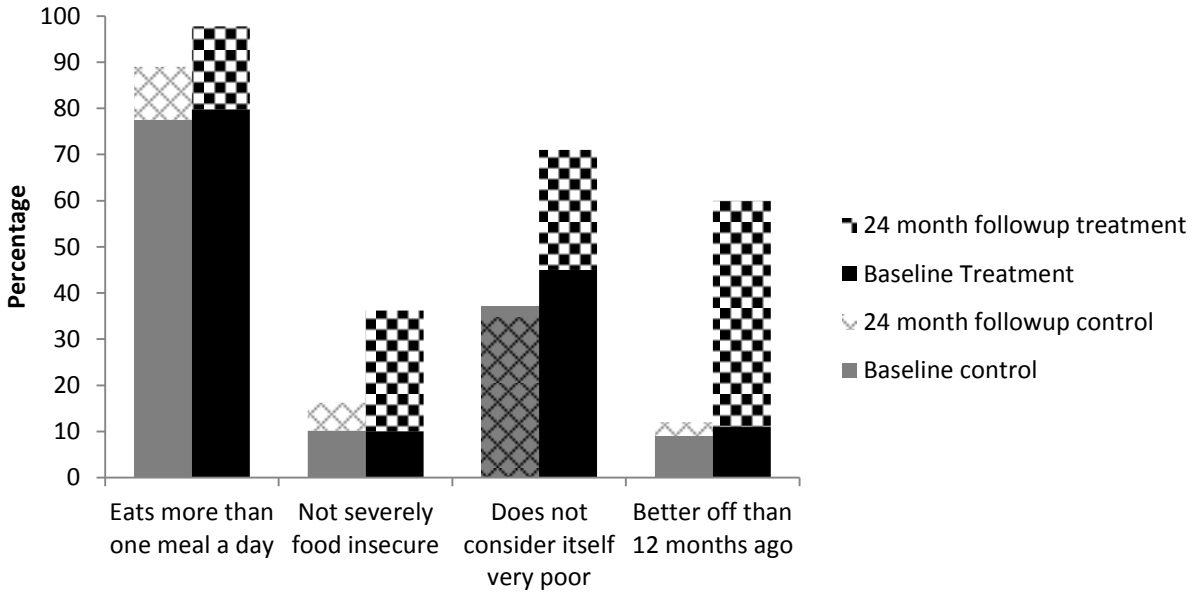


Table 7.2: Food Security Indicators, by CGP Treatment

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Eats more than one meal a day	**0.079**	0.78	0.97	0.89
	(4.02)			
Ate meat/fish => 5 times in last month	0.006	0.31	0.32	0.27
	(0.11)			
Ate vegetables => 5 times in last month	-0.006	0.61	0.74	0.74
	(-0.09)			
Food security scale	**2.498**	15.10	9.63	12.36
	(4.23)			
Is not severely food insecure	**0.177**	0.10	0.36	0.16
	(4.00)			
Does not consider itself very poor	**0.305**	0.41	0.71	0.35
	(-5.78)			
Better off than 12 months ago	**0.453**	0.10	0.60	0.12
	(10.51)			
N	4,549	2,249	1,153	1,145

NOTE: Estimations use difference-in-difference modeling among panel households. Cluster robust *t*-statistics are n parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, and a vector of cluster-level prices. All estimates are corrected for attrition bias.

Table 7.3 reports impacts for these same indicators by household size. Keeping in mind that these are mostly self-assessments of welfare, we see a distinct pattern of larger households reporting larger positive impacts of the CGP on their self-assessed welfare. For example, larger households are more likely to report that they are better off than 12 months ago (47 versus 43 percent), that they do not consider themselves very poor (33 versus 28 percent), and that they are not severely food insecure (21 versus 14 percent). This appears somewhat contradictory to the fact that the value of the grant (in per capita terms) is much larger for smaller households and the actual impact of the CGP on monetary welfare is larger in smaller households. In contrast, larger households are actually much poorer on a per capita basis, so the grant has a larger impact on psychological welfare, which in turn shows up in these self-reports of well-being. The relationship between psychological and material welfare is gaining increasing attention in the literature on poverty.[12]

[12] Grant, C. (2005). Insights on development from the economics of happiness. *World Bank Research Observer*, *20*(2), 201–231.

Table 7.3: Impacts on Food Security Indicators by Household Size

	Size <= 5		Size > 5	
	Baseline Mean	Program Impact	Baseline Mean	Program Impact
Eats more than one meal a day	0.770	**0.085**	0.805	**0.069**
		(3.68)		(3.02)
Ate meat/fish =>5 times last month	0.296	-0.013	0.334	0.021
		(-0.21)		(0.33)
Ate vegetables >= 5 times in last week	0.602	0.014	0.626	-0.027
		(0.19)		(-0.44)
Food security scale	15.11	**2.305**	15.24	**2.602**
		(3.14)		(4.60)
Is not severely food insecure	0.115	**0.145**	0.0792	**0.211**
		(2.64)		(4.78)
Does not considers itself very poor	0.393	**0.284**	0.441	**0.326**
		(4.12)		(6.02)
Better off than 12 months ago	0.0957	**0.434**	0.0981	**0.471**
		(7.79)		(9.44)
N		2306		2288

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Diet Diversity

Repetitive diets are typically common in food insecure regions in many parts of the world. These add to the load of undernourishment, mostly insufficient micronutrient consumption. An essential element to food-based approaches involves dietary diversification or consumption of a wide variety of foods across nutritionally distinct food groups. Increased dietary diversity is associated with increased household food access as well as individual probability of adequate micronutrient intake. As an indicator of food access, dietary diversity is defined as the number of individual food stuffs or food groups consumed over a given reference period.[13]

A standardized tool for measuring dietary diversity has been developed by the Food and Agricultural Organization of the United Nations (FAO).This tool can be administered at household and individual levels. Using an open recall method, the tool gathers information on all the foods and beverages consumed over the previous 24 hours by the household or individual. Food and beverages declared by the respondent(s) are then recorded into one of 16 standardized food groups.

Most often, dietary diversity is measured by counting the number of food groups rather than food items consumed. We adopt the same approach in this study, with 2- and 4-week reference periods for a number of selected food groups. Households were asked to recall all the foods eaten and beverages taken in the 2 and 4 weeks prior to the interview. We use this reference period because it offers a better clue of the habitual diet of households.

The type of dietary diversity scores calculated are household dietary diversity scores (HDDS).These at least portray a household's capability to consume assorted food stuffs. By means of the data collected

[13] Hoddinott, J., & Yohannes, Y. (2002). *Dietary diversity as a food security indicator*. Washington, DC: Academy for Educational Development, Food and Nutrition Technical Assistance Project.

from the 2- and 4-week dietary reference period, we calculated the HDDS by using the FAO and FANTA guidelines for measuring household and individual dietary diversity. The HDDS were calculated on the basis of the 12 selected food groups consumed over the previous 2 and 4 weeks because the consumption of certain food items belonging to the cereals food group were in the 2- and 4-week reference periods, respectively. We awarded a point to each food group consumed over the reference period and then calculated the sums of all points for the dietary diversity score for each household.

Following the FAO guidelines measuring household dietary diversity, the HDDS uses 12 food groups: cereals, roots and tubers, vegetables, fruits, meat, eggs, fish, pulses and legumes, fats and oil, sugar and sweets, milk and other milk product, and spices and beverages.

At baseline, vegetables, cereals, and fish were consumed on average more than any other food group (Table 7.4). Among the least consumed food groups were eggs, milk and other milk products, and spices and beverages. The 24-month follow-up indicates an increase in the consumption of the majority listed food groups. On average, the highest increase in consumption is for fats and cooking oil (35 percent), followed by sugars and sweets (31 percent), pulses and legumes (22 percent), and meat products (17 percent). Further analysis shows that within and across CGP districts, Kaputa has more households consuming roots and tubers than cereals. This is contrary to what we expected because maize cereal is believed to be the main staple in Zambia.

Table 7.4: Distribution of Food Groups Consumed

Food Group	Baseline Survey	24-Month Follow-Up Survey		
		24-Month Treatment	24-Month Control	Difference (T-C)
	(1)	(2)	(3)	(4)
		Percent (%)		
Cereals	81	98	93	5
Roots and tubers	49	46	46	0
Vegetables	91	97	96	1
Fruits	38	55	53	2
Meat	21	45	28	17
Eggs	4	9	3	6
Fish	77	85	79	6
Pulses and legumes	30	48	26	22
Fats and cooking oil	27	72	38	35
Milk and other milk products	24	30	19	10
Sugars and sweets	24	63	32	31
Spices and beverages	15	28	18	10
Number of Observations	2,517	1,148	1,142	

On average, the overall HDDS in the baseline was about 4.78. In the 24-month follow-up, the HDDS is 6.73 and 5.30 in the treatment and control groups, respectively (Table 7.5). CGP households consumed one more food group than their counterpart non-CGP households.

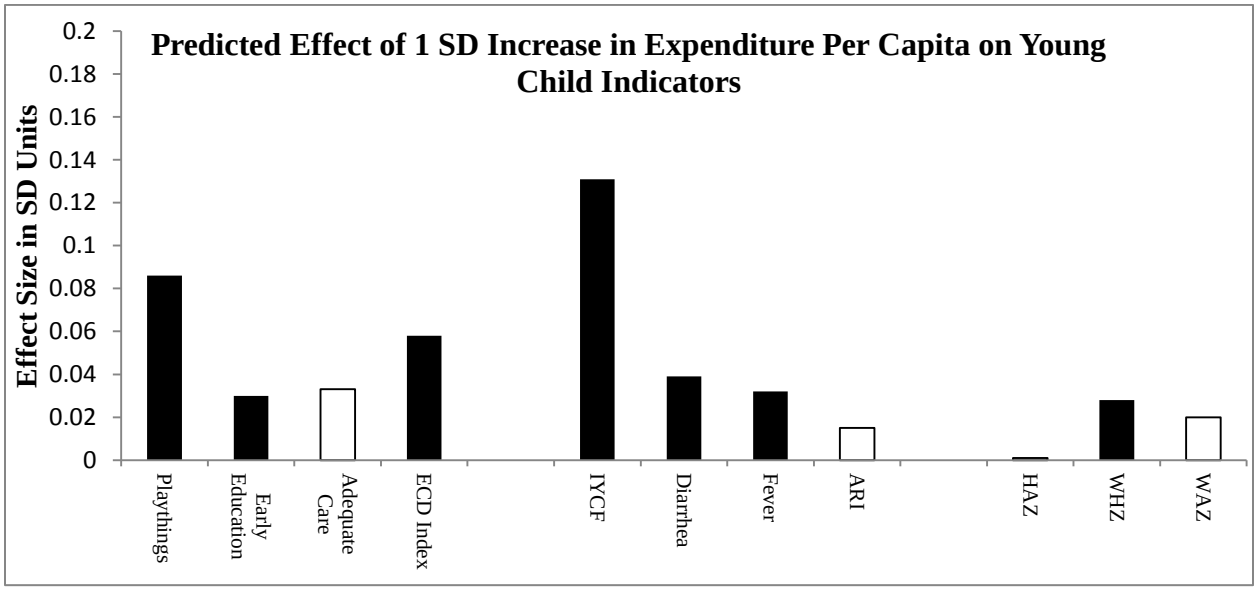
Table 7.5: Mean Household Dietary Diversity Scores at Baseline and Follow-Up

Variable	Baseline	24-Month Treatment	24-Month Control	Difference
HDDS	4.78	6.73	5.30	1.43
Observations	2,519	1,153	1,145	

XIII. Young Child Outcomes

In this section, we report program impacts on a series of young child indictors covering health, use of services, nutritional status, and early childhood development. We remind the reader that most of these are second-round effects in that they are not affected directly by the cash transfer but require a series of behavioral responses by the household induced by the income effect of the cash transfer in order to change. For example, nutritional status is affected by caregiving behaviors, caloric intake, and sanitation. For the CGP to affect nutritional status, it must induce a change in feeding practices or the disease environment of the household. In the baseline report, we presented some predictions of where we might expect to see impacts of the CGP. We reproduce this information here (Figure 8.1) to give the reader an idea of where we are likely to find effects of the CGP, assuming that recipients spend cash from the program in the same way as they spend other sources of income. The dark bars in this figure indicate effects that are likely to be statistically significant; the largest expected impact of the CGP is on infant and young child feeding (IYCF), followed by certain components of the early childhood indicators, incidence of diarrhea, and weight for height. It is useful to keep these predictions in mind as we go through the observed impact estimates.

Figure 8.1: Predicted Impacts of the CGP



Morbidity

Table 8.1 shows impact estimates on the three main illnesses occurring among preschool children. We see a strong program impact on the prevalence of diarrhea in the previous 2 weeks—a decline of 4.9 percentage points—and a somewhat smaller effect of 3.6 percentage points on acute respiratory illness (cough), although not statistically different from zero. The strong effect on the prevalence of diarrhea is consistent with our ex-ante predictions shown in the figure.

Table 8.1: Impacts on Morbidity Among Children 0–60 Months

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Diarrhea	**-0.049**	0.185	0.0684	0.0925
	(-2.38)			
Fever	-0.019	0.233	0.113	0.125
	(-0.53)			
Acute respiratory illness	-0.036	0.203	0.0511	0.0832
	(-1.42)			
N	7232			

NOTES: Reference period for illnesses is 2 weeks. Estimation uses difference-in-difference modeling among panel households. Cluster robust *t*-statistics are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, and a vector of cluster-level prices. All estimates are corrected for attrition bias.

Use of Health Services

Table 8.2 shows impacts on the use of services, including the household's possession of a birth registration document for their children under age 5. This document is not exactly a health indicator but is strongly related to assisted delivery, which itself is a key health service. The only statistically significant program effect is for the treatment of acute respiratory illness (ARI) and indicates a *reduction* in curative care for ARI among children in the program, an opposite effect from what we expect. Note that the ex-ante analysis suggests no impacts on curative or preventive care-seeking behavior.

Table 8.2: Impacts on Use of Services Among Children 0–60 Months

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Sought preventive care (N=7135)	-0.045	0.776	0.788	0.791
	(-1.14)			
Has birth registration document (N=7646)	-0.063	0.402	0.238	0.251
	(-0.79)			
Sought care for diarrhea* (N=972)	0.039	0.744	0.798	0.796
	(0.54)			
Sought care for fever* (N=1293)	0.012	0.726	0.848	0.823
	(0.16)			
Sought care for ARI* (N=1005)	**-0.142**	0.341	0.157	0.267
	(-2.00)			

* Only estimated on sample that reported this illness in the prior 2 weeks.

NOTE: Estimations use difference-in-difference modeling among panel households. Cluster robust *t*-statistics are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, and a vector of cluster-level prices. All estimates are corrected for attrition bias.

Nutritional Status and Feeding

Table 8.3 shows impact results for the three commonly used anthropometric indicators of weight-for-height (a short term measure of underweight), weight-for-age (undernutrition), and height-for-age (chronic or long-term nutritional status), all measured in standard deviations or *z*-scores using the new

World Health Organization reference tables. The CGP has induced an improvement in the weight of young children, with effects on weight-for-height and weight-for-age of about 0.12 standard deviation, although these are just outside the levels of statistical significance. We investigate whether program impacts are different for different age groups among young children and see a large effect on weight-for-height among children ages 3 to 5.

The table also shows a large highly statistically significant impact of the CGP on IYCF—an increase of 22 percentage points or an 88 percent increase over the baseline mean. This result is consistent with the consumption expenditure effects reported earlier, as well as the ex-ante predictions suggesting that the CGP would have a strong impact on this indicator. Because feeding is an important determinant of weight, we checked whether there are noticeable impacts of the CGP on weight among children 6 to 24 months but do not find any statistically significant effects.

Table 8.3: Impacts on Nutritional Status and Feeding

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Weight for age *z*-score (N=6825)	0.128	-0.902	-0.900	-0.963
	(1.89)			
Weight for height *z*-score (N=6157)	0.118	-0.180	-0.0961	-0.154
	(1.74)			
Height for age *z*-score (N=6155)	0.066	-1.416	-1.445	-1.491
	(0.70)			
Young child feeding (N=1983)	**0.217**	0.317	0.596	0.434
	(3.54)			

NOTE: Nutritional indicators are reported for children 0 to 60 months; child feeding are reported for children 6 to 24 months as recommended in the ZDHS. Estimations use difference-in-difference modeling among panel households. Cluster robust *t*-statistics are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, and a vector of cluster-level prices. All estimates are corrected for attrition bias.

Early Childhood Development

As we reported in the baseline report, an innovative aspect of the questionnaire we administered is the inclusion of the newly released early childhood development (ECD) module developed and tested by UNICEF as part of its global MICS 4 Program. We administered this module to children ages 3 through 7 in our sample and constructed six MICS recommended indicators from the MICS Child Development Indicator list (indicators 6.1 and 6.3–6.7).[14] Support to Learning measures whether an adult played with the child, counted, named or drew things with the child, sang songs or told stories to the child, read books or looked at pictures with the child, or took the child outside the compound. Learning Materials refers to whether the child possesses at least three books or whether the child plays with homemade or store-bought toys or objects around the home, such as pots, bowls, rocks, or sticks. Adequate Care measures whether the child was ever left alone for more than 1 hour or left in the care of someone less than 10 years old. School Attendance includes any sort of formal program, including preschool and

[14] See http://www.childinfo.org/mics4_tools.html.

daycare. Finally, the ECD Index is a 10-item scale that covers four developmental domains: physical (both gross and fine motor), language and cognition, socio-emotional, and approaches to learning.

Table 8.4 shows the marginal probability impact estimates on these six ECD indicators plus the overall ECD Index Score. Households in the CGP show significantly higher support for learning and learning materials as well as attendance at a formal educational program. The overall ECD Index Score has also increases noticeably, although it remains just outside statistical significance. The ex-ante simulations predicted a strong impact on playthings rather than support for learning or books/toys. It is interesting to note the strong increase in the mean level of playthings and adequate care in both arms; in these two cases, the absence of a control group would have suggested very strong program effects on these indicators, highlighting the benefit of having an experimental control group with which to capture overall trends over time in our indicators of interest.

Table 8.4: Impacts on Early Childhood Development Indicators

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Support to Learning (6.1)	**0.126**	0.432	0.307	0.225
	(2.33)			
Learning Materials: Books (6.3)	**0.010**	0.0148	0.027	0.011
	(2.09)			
Learning Materials: Playthings (6.4)	-0.035	0.629	0.767	0.751
	(-0.51)			
Adequate Care (6.5)	-0.003	0.307	0.620	0.647
	(-0.04)			
ECD Score 5+ (6.6)	0.070	0.558	0.610	0.572
	(1.32)			
ECD Index Score*	0.311	4.848	5.174	4.926
	(1.62)			
School Attendance (6.7)	0.041	0.224	0.154	0.136
	(1.76)			
N	5670			

NOTES: All estimates are marginal probabilities from probit regression except those with *, which are OLS because they are continuous instead of binary variables. Statistical significance at 10 percent or better is shown in bold. The MICS indicator number is shown in parentheses beside the indicator name.

A key objective of the CGP is to ensure that infants and young children receive a healthy start to life. The results presented here suggest that the program is meeting its goal. Specifically, children in beneficiary households are less likely to be sick with diarrhea and have higher weight-for-height and weight-for-age (although these two effects are just outside conventional levels of significance), and children ages 6 to 24 months are more likely to have the minimum recommended feeding. Children ages 3 to 7 years in CGP households also have a better developmental environment, with greater support to learning and more learning materials. These results are especially encouraging considering that this is a purely demand-side intervention without any conditions attached to the receipt of the transfer and without any explicit supply-side incentives to boost the use of services. For example, a recent meta-analysis of

the effectiveness of cash transfers on children's nutritional status concluded that the impacts were close to zero, underscoring the difficulty in moving an indicator such as height-for-age, which is determined by a range of factors of which income is only one.[15]

[15] Manley, J., Gitter, S., & Slavchevska, V. (2011). *How effective are cash transfer programs at improving nutritional status?* (Working Paper No. 2010-8). Towson, MD: Towson University, Department of Economics.

IX. Children Over 5 Years Old

Although the CGP targets households with children under age 5, older children might benefit from living in a household that receives the program, depending on how the money is spent. The conceptual framework in section II demonstrates how the cash might have an impact on certain areas, such as children's material well-being, education, and health. At baseline, we ran simulations to predict where we believed impacts were most likely to occur, based on the estimated elasticity of demand and spending patterns. We concluded that material well-being would likely improve and that there could be a small change in school attendance for older children, but we did not expect impacts for other older-child-related indicators because the transfers were not expected to be spent in ways to affect these outcomes. We investigate the effects of the CGP after 2 years on a number of outcomes in these areas for children ages 5 to 17. As expected, we find large impacts on material well-being but none on education or health. These results are supported by the spending patterns observed 24 months into the program. Recipient households spend 6 percent of their additional money on clothing but less than 1 percent of their additional money on education, so the lack of results for education is not surprising.

Material Well-Being

The CGP has a large impact on children's material well-being, indicating that recipients use some of the transfer to purchase blankets, clothing, and shoes, items deemed necessary for supporting orphans and vulnerable children.[16] The material well-being indicator is a scale from 0 to 3; a child gets a point for having a shared blanket, a second set of clothing, and shoes. At baseline, only 11 percent of the children ages 6 to 17 had all three items. Two years later, 61 percent of the children in recipient households have a blanket, a change of clothing, and shoes, whereas only 26 percent of the children in nonrecipient households have all three items. The CGP increases children's material well-being by 34 percentage points. This impact is largely due to the increase in the number of children with shoes in recipient households compared with those in nonrecipient households. Table 9.1 shows the impact of the program on each item that makes up the material well-being scale. The program has an impact on both shoes and blanket ownership, with shoes dominating this effect with a 33 percentage point increase (20 percentage point increase for blankets and 8 percentage point increase for clothing). A ceiling effect occurs for clothing because 97 percent of children in recipient households and 89 percent of children in nonrecipient households own a second set of clothing 2 years into the program. Therefore, there is little room for recipient households to improve more than nonrecipients on this indicator, yet the difference is still significant. This study asks about a second set of clothing, but perhaps children in recipient households own more clothing than children in nonrecipient households, an indicator not captured here.

[16] The material well-being scale is a recommended indicator to measure care and support for orphaned and vulnerable children. See UNICEF. (2005). *Guide to monitoring and evaluation of the national response for children orphaned and made vulnerable by HIV/AIDS*. New York, NY: Author. Available at http://www.measuredhs.com/hivdata/guides/ovcguide.pdf

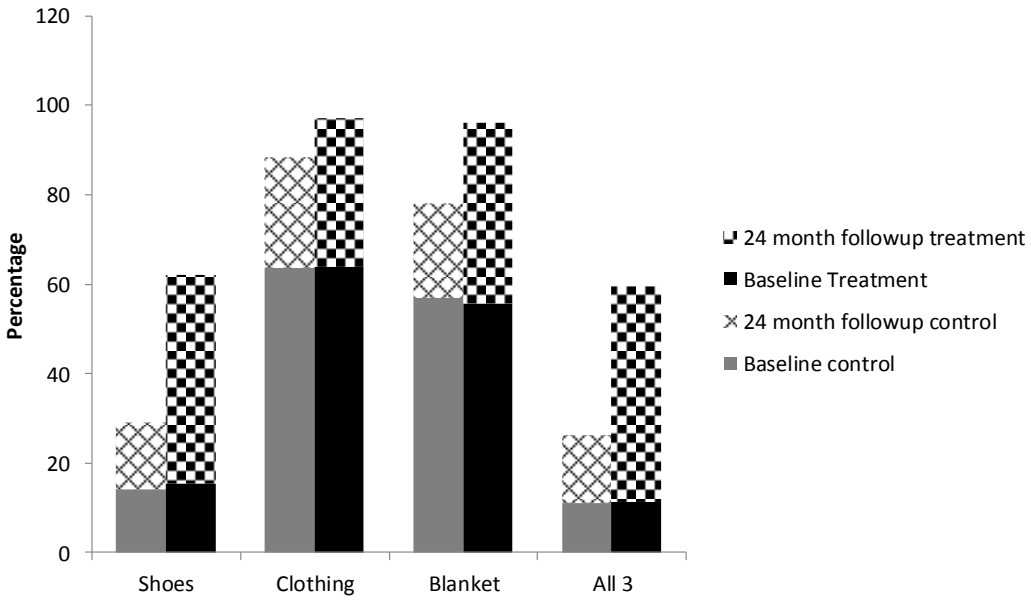
Table 9.1: Child Needs Met at Ages 5–17, by CGP Treatment

	Program Impact	Baseline	24-Month Treatment	24-Month Control
All needs met	**0.334**	0.11	0.61	0.26
	(5.47)			
Child has shoes	**0.331**	0.14	0.62	0.29
	(5.15)			
Child has two sets of clothing	**0.140**	0.63	0.97	0.88
	(4.47)			
Child has a blanket	**0.252**	0.58	0.96	0.78
	(6.04)			
N	8.367	1,936	2,022	

NOTE: Estimations use difference-in-difference modeling among panel households. Cluster robust *t*-statistics in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, and a vector of cluster-level prices.

Figure 9.1 shows the change from baseline to the 24-month follow-up for the treatment and control groups on each material well-being indicator. Both groups improved during the 2-year period, but the treatment group improved more than the control group as a result of CPG. We suspect that the control group's growth results from the bumper harvests that occurred during the study period and general economic improvement of the country.

Figure 9.1: Material Needs Met by Treatment Status and Time



Education

We investigate education outcomes related to enrollment, on-time enrollment, and attendance for children ages 6 to 16 and by gender. As predicted from a simulation with baseline data, we do not find any overall impacts on education outcomes to the entire group. However, we find strong impacts on these outcomes for children whose mothers are less educated. In other words, on average, the lower a mother's level of education completed, the greater the impact that CGP has on her children's education. Children living in a beneficiary household are 1 percentage point more likely to ever enroll in school and 2 percentage points more likely to enroll on time, for every year less of education their mother has. These are statistically significant impacts of the program on the treatment group compared with the control group. This result may sound counterintuitive because typically a mother's education is positively correlated with her children's education. This relationship holds true in Zambia, too, including with our sample, where at baseline, children of more educated mothers were more likely to be enrolled in school and attending school regularly. So how do we explain these findings? Well-educated mothers were already enrolling their children in school at baseline; therefore, the cash transfer has little opportunity to improve how they act. However, it seems that the CGP enables or motivates less educated mothers who did not enroll their child in school at baseline to change their actions and start enrolling their child in school, leading to a program impact on education for children with less educated mothers, but no impact on education for children with educated mothers because these children are already enrolled and attending school.

Health

We investigate health outcomes for older children with respect to morbidity, treatment seeking, and chronic illness. As predicted at baseline, we do not find any impacts on these health outcomes for children over age 5. Illness is a rare event, with only 10 percent of the children reporting that they were ill or injured in the previous 2 weeks. Of the 10 percent who reported being ill, 80 percent sought treatment. This rate of treatment is up from baseline by roughly 20 percentage points, but it occurs evenly in both the treatment and the control groups. Chronic illness is also an extremely rare event for this group, with less than 1 percent of older children reporting a chronic illness at baseline. Although the lack of impacts on health among older children was predicted at baseline, the expenditure analysis shows that 7 percent of the transfer is spent on health (mostly user fees and drugs), although there is no analogous increase in the use of curative care among older or younger children.

X. Women

Although the CGP is targeted toward children under age 5, because cash is in most cases given directly to women, there is potential for impacts on women-level outcomes. As demonstrated in the conceptual framework, these impacts depend on many factors, including power relations in households and characteristics of women, such as how future looking they are in determining consumption patterns. The following section explores trends and the impact of CGP on bargaining power, savings, future outlook, and women's health. Although we find significant impacts on women's savings and future outlook, we find no measurable impacts on decision making and health outcomes, with the exception of self-rated measures. Lack of impact on decision making can be partially explained by upward trends in indicators over the project cycle.

Bargaining Power

To explore bargaining power among sample households, we asked decision-making questions in nine domains: children's health, children's schooling, spending of own income, spending of partner's income, major household purchases, daily household purchases, spending on children's clothes and shoes, visits to family and relatives, and own health. These questions were asked of one woman per household (typically a mother or caregiver of a target child), and they allowed the respondent to answer whether a decision is typically made by herself, by her partner, jointly, or by someone else in the household. To explore impacts, we construct two indicators. The first is a count or summation, giving 1 point to each time the woman indicates having sole decision-making power in a domain (ranges from 0 to 9). The second is an index constructed by factor analysis, which weights indicators differently on the basis of their variation within the sample and correlation between each other.

Table 10.1 shows the impact of the program on the count indicator and the index of sole decision making. Results indicate that the program has no measurable impact on sole decision making, a finding that remains unchanged even when we consider sole or joint decision making.

Table 10.1: Women's Decision Making, by CGP Treatment

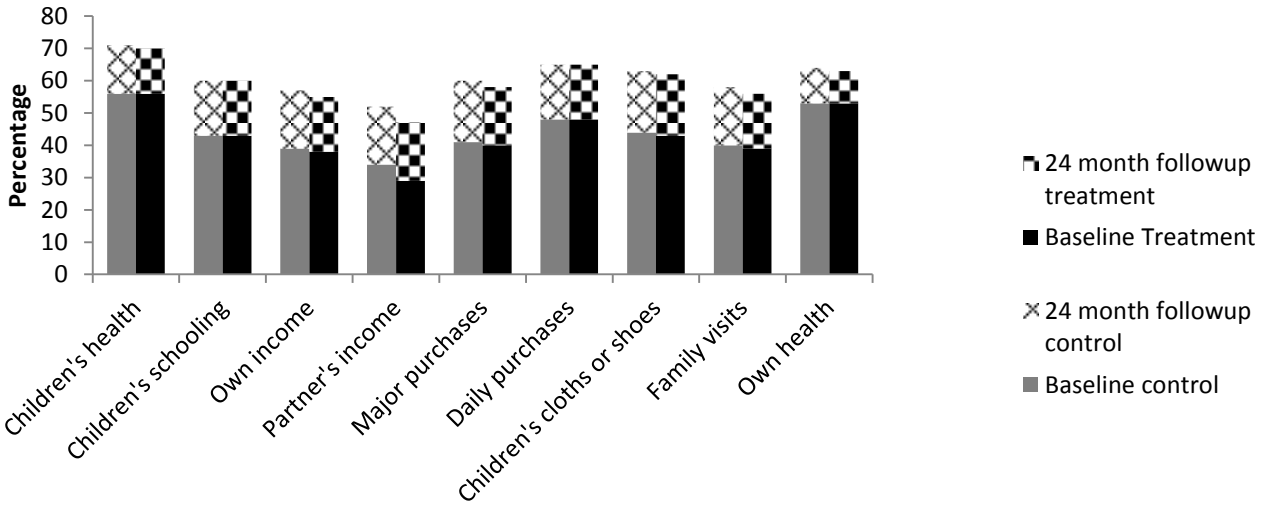
	Program Impact	Baseline	24-Month Treatment	24-Month Control
Count indicator of sole decision making (9 domains)	0.205	3.93	4.46	4.37
	(0.90)			
Index of sole decision making (9 domains)	0.055	-0.07	0.08	0.06
	(0.83)			
N	4,498	2,257	1,115	1,126

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, and a vector of cluster-level prices.

However, as seen in Figure 10.1, there are notable increases over time for both treatment and control groups in all decision-making domains. For example, the percentage of women responding that they alone have decision-making power about their child's health increases from approximately 56 percent to

approximately 70 percent in both treatment and control groups. Similar gains can be seen across other decision-making domains, and it is possible that these overall trends may mask program impacts. However, the lack of measurable impact indicates that transfers are seen as common household resources and are not necessarily changing women's bargaining power within households after 24 months.

Figure 10.1: Women's Sole Decision Making, by Treatment Status and Time



Savings and Future Outlook

In Table 10.2, we investigate indicators of savings and future outlook as reported by the female respondents answering bargaining-power questions for each household. Results indicate that at baseline, approximately 16 percent of households had any saving in the previous 3 months. However, by the 24-month follow-up, this percentage increased to 47 percent, while control households increased by a smaller fraction to 22 percent. As expected, we find a large and significant program impact on any savings and similarly on the amount of savings reported in ZMW. These impacts demonstrate that households not only are using the transfer for immediate consumption but also are saving a portion of the transfer. We also find significant impacts on future outlook. At baseline, 61 percent of households believed that life would improve over the next 3 years, and this increases to 91 percent among treatment households, and less so to 82 percent among control households.

Table 10.2: Savings and Future Outlook, by CGP Treatment

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Any savings last 3 months	**0.201**	0.16	0.47	0.22
	(3.42)			
Log amount saved last 3 months (ZMW)	**2.667**	1.74	5.29	2.31
	(5.45)			
Believes life will be better next 3 years	**0.115**	0.61	0.91	0.82
	(3.24)			
N	4,498	2,253	1,112	1,125

NOTE: Estimations use difference-in-difference probit modeling and OLS modeling (log savings) among panel households. Robust *t*-statistics clustered at the cluster level in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, and a vector of cluster-level prices.

Women's Health

We investigate health outcomes for women age 18 and older with respect to morbidity in the previous 2 weeks, care seeking for illness, chronic illness in the previous 6 months, and self-reported health status. We do not find any impacts on morbidity, care seeking, or chronic illness; however, these results are not surprising given the emphasis of the program on children. In addition, the percentages reporting morbidity and chronic illness at baseline were low (16 percent and 3 percent, respectively). We do find impacts on self-rated health status. More specifically, women in treatment households are significantly more likely to report "good health or better" and "very good health or better" than those in control households. Although self-reported measures of health are subject to bias, this may be an indicator that women are more optimistic about their health and economic situation in program households.

XI. Birth Outcomes

Although not a focus of the program, it is possible that the CGP impacts birth outcomes, including antenatal care and skilled attendance at birth. Impact pathways include direct health care spending or reallocation of resources through increases in women's bargaining power. We examine a range of birth outcomes, which are constructed as household-level averages for children born in the 24 months prior to each survey (during the program period, and 24 months prior to baseline). This results in approximately 1,634 households with baseline observations and 818 with 24-month follow-up observations, for a total sample size of 2,514.

Table 11.1 shows results of our analysis and indicates that the program has no significant impacts across all antenatal and skilled attendance indicators. For several indicators, including any antenatal care and quality of care (tetanus vaccination, malaria prevention, and voluntary counseling and testing [VCT] for HIV), it is unlikely we would observe impacts due to high baseline averages (e.g., 98 percent of the sample report receiving any antenatal care; 92 percent report receiving a tetanus vaccination). However, only 73 percent of the baseline sample report any antenatal care visit with a doctor or a nurse, and only 24 percent report the first visit within the first trimester of pregnancy. Likewise, only 35 percent reported at baseline that the birth was attended by a doctor or a nurse. Unlike many of the indicators examined in the report, there is no overall improvement in indicators from baseline to the 24-month follow-up, indicating a lack of progress on these indicators. These are also roughly comparable to the statistics found in the 2007 ZDHS, which collected information on births over the 5 years prior to the survey. According to the ZDHS, antenatal care is nearly universal (97 percent); approximately 21 percent of the sample visits within the first trimester, 59 percent of the sample completes at least the recommended four visits, and 42 percent of births are attended by a doctor or a nurse. Overall lack of impact means that increases on health expenditures are likely being allocated to young children and not to pregnant mothers and that transfers are not inducing large shifts in bargaining power and reallocation of resources. Future analysis will investigate possible heterogeneous effects by education of recipient females or by health service provision within the community.

Table 11.1: Antenatal Care and Skilled Attendance, by CGP Status

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Received any antenatal care	-0.003	0.98	0.99	0.99
	(0.21)			
Received antenatal care from doctor or nurse	0.024	0.73	0.73	0.74
	(0.42)			
Antenatal care within first trimester	0.009	0.24	0.27	0.20
	(0.22)			
At least four antenatal care visits	-0.057	0.65	0.60	0.68
	(0.88)			
Tetanus vaccination during pregnancy	-0.017	0.92	0.95	0.96
	(0.60)			
Malaria preventative medication during pregnancy	-0.004	0.93	0.98	0.98
	(0.19)			
VCT during pregnancy	-0.026	0.85	0.94	0.93
	(0.69)			
Birth attended by doctor or nurse	0.067	0.35	0.35	0.39
	(1.34)			
N	2,514	1,634	404	414

NOTE: Standard errors in parenthesis. Estimations use difference-in-difference probit modeling 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 size, recipient age, education and marital status, districts, distance to nearest health facility and a vector of cluster-level prices.

XII. Economic Impacts

CGP beneficiaries are poor, with limited options in terms of livelihoods and with few assets with which to generate income. Beneficiary households have on average approximately half a hectare of agricultural land, a couple of chickens, basic agricultural tools, and low levels of education, and they are highly dependent on unskilled labor. A large majority of CGP beneficiaries are agricultural producers. Almost 80 percent produce crops, and about half have some form of livestock. At the time of the baseline survey, the beginning of the hunger season, home production accounted for almost 40 percent of all food consumption. Most beneficiaries grow local maize, cassava, or rice, using traditional technology and very low levels of modern inputs, and have little access to credit. About half of all children work regularly on the family farm—including more than a third of those ages 5–10. Almost 40 percent of households have a non-agricultural enterprise at follow-up. Approximately 50 percent of households, and a quarter of all adults, had some form of wage labor at baseline (mostly agricultural and of a temporary nature), while 1/3 of households received private or public transfers.

Given the theory of change presented earlier, we expect the CGP to influence the livelihood activities of beneficiary households. Two characteristics of the CGP program, compared with other programs in Zambia and in the region, suggest a particularly large impact: the demographic profile, with relatively more available household labor able to work, and the relatively large transfer size. We hypothesize that the CGP will lead to an increase in household investment in agricultural input and labor use and production and in the operation of household nonfarm business enterprises. Finally, the program could affect the labor activities of individual household members, including the participation and intensity of wage labor (agricultural and nonagricultural) and their own farm labor. We expect an increase in labor dedicated to the beneficiaries' own farms and a decrease in less desirable agricultural wage labor. It is unclear the direction of impact on nonagricultural wage labor because this depends on labor market conditions in the local economy, the relative returns between on- and off-farm labor, and household domestic priorities.

As mentioned earlier, the effective per capita transfer is greater for small households than for large households. Although we might expect the impact to be greater for smaller households, it is important to keep in mind that small and large households are quite different in terms of demographic and livelihood profiles. Large households are much poorer in terms of per capita levels of consumption, but they have greater available productive resources in absolute terms. Although large households have a bigger dependency ratio, they also have more available household labor to work in family agricultural and nonagricultural businesses, as well as more male household members. Large and small households employ the same productive activities with the same technology, but larger households operate at a bigger scale. For example, at baseline they operated more land, used more productive inputs, produced more output of maize and cassava, had over double the number of livestock holdings, and had a greater number of livestock transactions.

Crop Production

We look at various dimensions of the productive process 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, and specific expenditure on seeds, fertilizer, hired labor, and other expenditures (Table 12.1). The CGP increases the amount of operated land by 0.18 hectares (a 34 percent increase from baseline), and the program 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 (see Annex 4, Table A4.1). This increase is larger among smaller households and includes spending on seeds, fertilizer, and hired labor. Small beneficiary households spend ZMW 42 more on crop inputs than the corresponding control households, including ZMW 15 on hired labor. This amounts to three times the value of the baseline mean for overall spending, and four times for hired labor.

Table 12.1: Impact of CGP on Crop Input Use and Land Use (ZK)

	Program Impact	**Baseline**	**Program Impact**	**Baseline**	**Program Impact**	**Baseline**
	All		***HH Size < 6***		***HH Size > 5***	
Operated land (has)	**0.179** (2.67)	0.49	**0.162** (2.54)	0.43	**0.197** (1.98)	0.56
Total crop exp	**31.17** (2.97)	21.78	**42.86** (5.14)	13.66	18.39 (1.12)	30.17
Exp seed	**9.86** (4.41)	6.40	**11.09** (4.94)	4.75	**8.61** (2.65)	8.10
Exp hired labor	8.42 (1.45)	7.61	**14.68** (4.19)	2.94	1.16 (0.11)	12.44
Exp pesticides	0.07 (0.40)	0.03	0.19 (1.13)	0.05	0.03 (0.13)	0
Exp fertilizer	**7.60** (2.06)	1.40	**8.92** (2.30)	0.66	6.50 (1.58)	2.16
Other crop exp	**5.23** (2.00)	6.34	**7.97** (2.59)	5.24	2.09 (0.59)	7.47
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

We also see a positive impact on ownership of agricultural tools, but with two distinct patterns. For implements widely available at baseline, such as axes and hoes (up to approximately 90 percent of households at baseline), we see significant program impacts on the number of assets held (Table 12.2). But for agricultural implements with low initial values (less than 10 percent at baseline), such as hammers, shovels, and ploughs, we see a positive impact of between 3 to 4 percentage points on the *share* of households now owning this equipment (Annex Table A4.2). In addition, the impact on hammers, shovels, and ploughs is concentrated among larger households.

Table 12.2: Impact of CGP on agricultural implements (number)

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***HH Size < 6***		***HH Size > 5***	
Axe	**0.184**	1.12	**0.198**	1.00	0.173	1.24
	(2.43)		(2.41)		(1.74)	
Pick	0.027	0.04	-0.006	0.03	**0.059**	0.05
	(1.15)		(-0.22)		(2.12)	
Hoe	**0.296**	1.54	**0.214**	1.34	**0.388**	1.75
	(3.76)		(2.24)		(3.56)	
Hammer	**0.042**	0.06	0.024	0.04	**0.060**	0.07
	(2.16)		(1.12)		(2.06)	
Shovel	0.027	0.06	-0.019	0.04	0.075	0.09
	(0.98)		(-0.58)		(1.84)	
Plough	0.033	0.07	0.021	0.06	0.052	0.09
	(1.66)		(0.89)		(1.85)	
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

Does 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) and aggregate all production by the value of the total harvest.[17] First, the program has facilitated some shifts in production in beneficiary households compared with control households (Table 12.3). The share of (large) beneficiary households planting maize has increased by 8 percentage points (from a baseline of 53 percent), whereas the share of small beneficiary households planting rice has increased by 4 percentage points (from a baseline of 16 percent). The share of all households producing groundnuts, a relatively minor crop (5 percent at baseline), has increased by 3 percentage points.

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

Table 12.3: Impact of CGP on Crop Production (share)

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***HH Size < 6***		***HH Size > 5***	
Maize	0.049	0.55	0.020	0.53	**0.081**	0.58
	(1.48)		(0.55)		(1.99)	
Cassava	-0.026	0.26	-0.010	0.21	-0.045	0.31
	(-1.02)		(-0.42)		(-1.45)	
Rice	0.031	0.16	**0.039**	0.17	0.019	0.15
	(1.70)		(2.00)		(0.73)	
Millet	0.010	0.06	0.010	0.07	-0.003	0.06
	(0.63)		(0.50)		(-0.18)	
groundnut	**0.035**	0.05	**0.030**	0.02	**0.032**	0.07
	(3.35)		(2.83)		(2.11)	
Sweet potatoes	-0.000	0.04	-0.007	0.03	0.008	0.05
	(-0.03)		(-0.92)		(0.89)	
Sorghum	0.009	0.04	0.018	0.04	0.002	0.03
	(0.91)		(1.22)		(0.16)	
Other beans	0.009	0.01	0.012	0.01	0.007	0.02
	(1.50)		(1.54)		(0.74)	
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

Aggregating all output by value, we find that the CGP has had a positive impact (at the 10 percent level) in the value of all crops harvested—ZMW 146, approximately a 50 percent increase from baseline (Table 12.4). The impact rises to ZMW 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 on maize are large and in the right direction but are not quite significant. The results are similar for rice, although 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). This result is consistent with the decline in consumption of tubers reported earlier.

Why is there a significant impact on the value of aggregate production, but little clear 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 do not find any systematic indication of this (see Annex 1). Note also that no production data have been collected on fruits and vegetables, although the consumption model shows evidence of an increase in the share of households consuming fruits and vegetables from home production. Finally, while households use more inputs in production, they may not be using them in the most efficient manner—efficiency analysis is a topic for further research.

Table 12.4: Impact of CGP on crop production (kg and 2012 ZMW)

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***HH Size < 6***		***HH Size > 5***	
Maize	49.502	148.16	35.112	117.84	63.766	179.46
	(1.62)		(1.54)		(1.25)	
Cassava	-68.142	146.64	-16.958	102.96	**-129.226**	191.74
	(-1.67)		(-0.51)		(-2.05)	
Rice	20.381	78.90	39.409	78.10	2.709	79.72
	(1.32)		(1.79)		(0.16)	
Millet	2.540	7.08	1.825	7.55	0.081	6.60
	(0.90)		(0.55)		(0.03)	
Groundnut	2.977	11.32	3.744	5.40	3.182	17.43
	(0.63)		(1.37)		(0.38)	
Sweet potato	-6.406	6.09	-3.683	4.65	-8.077	7.58
	(-1.05)		(-0.61)		(-0.88)	
Sorghum	1.567	5.68	4.260	6.72	-1.233	4.60
	(0.53)		(0.88)		(-0.61)	
Other beans	-0.531	1.06	0.244	0.88	-0.977	1.23
	(-0.84)		(0.34)		(-0.82)	
Value of harvest	145.88	393.88	**182.27**	323.54	104.18	466.58
	(1.95)		(2.40)		(1.04)	
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

Along with an increase in the value of crop production, a larger share of beneficiary households market their crop production (an increase of 12 percentage points, from a baseline of 22 percent. The average value of sales among all crop producing households is thus larger for beneficiary households (ZMW 82, over double the baseline value of ZMW 76), although for larger households, the impact is significant only at 10 percent (Table 12.5). The increase in market participation is driven by maize production in Kaputa and by both maize and rice production in Kalabo. At the same time, the share of households consuming some part of their harvest has increased by 6 percentage points (significant at the 10 percent level, as seen in the last row of Table 12.5), which comes from increased groundnut and rice consumption of home production (not shown).

Table 12.5: Impact of CGP on Agricultural Production

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***HH Size < 6***		***HH Size > 5***	
Value of sales (ZMW)	**81.52**	75.77	**86.27**	63.59	73.80	88.35
	(3.16)		(3.75)		(1.72)	
% selling crops	**0.120**	0.22	**0.144**	0.20	**0.092**	0.24
	(3.51)		(2.92)		(2.37)	
Value of crops consumed at home (ZMW)	41.25	204.20	28.36	173.79	49.90	235.64
	(1.49)		(1.03)		(1.36)	
% of crops consumed at home	0.059	0.76	0.063	0.73	0.057	0.80
	(1.78)		(1.60)		(1.57)	
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

Livestock Production

The CGP has a positive impact on the ownership of a wide variety of livestock, both in the share of households with livestock (a 21 percentage point increase overall, from 49 percent at baseline—Table 12.6) and in the total number of goats and poultry (an increase in 0.14 goats and 1.23 chickens, from baseline values of 0.05 and 1.99, respectively—Table 12.7). Both small and large beneficiary households have increased livestock ownership, but the impacts are particularly strong for large households. The share of large households with livestock has increased 27 percentage points from a base of 55 percent (compared with 16 percentage points for small households), including 5 and 21 percentage point increases in the ownership of milk cows and chickens, respectively (compared with nonsignificant results for small households). In terms of the number of livestock, the impact is more balanced between small and larger households. Small household beneficiaries have obtained more goats and larger households, more ducks. Overall, small households have accumulated more animals as measured in Tropical Livestock Units (TLU),[18] although significant only at the 10 percent level.

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

Table 12.6: Impact of CGP on Livestock Ownership (share)

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***HH Size < 6***		***HH Size > 5***	
Milk cows	0.033	0.06	0.014	0.05	**0.051**	0.06
	(1.74)		(0.75)		(2.15)	
Other cattle	**0.084**	0.10	**0.082**	0.08	**0.082**	0.12
	(4.02)		(3.30)		(3.02)	
Chickens	**0.154**	0.41	**0.097**	0.36	**0.214**	0.47
	(3.45)		(1.97)		(4.12)	
Goats	**0.036**	0.02	**0.034**	0.01	**0.035**	0.03
	(3.35)		(3.57)		(2.01)	
Ducks	**0.030**	0.03	**0.026**	0.02	**0.036**	0.04
	(2.78)		(2.08)		(2.06)	
Total	**0.209**	0.49	**0.155**	0.43	**0.266**	0.55
	(4.68)		(3.11)		(5.11)	
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

Table 12.7: Impact of CGP on Livestock Ownership (number)

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***HH Size < 6***		***HH Size > 5***	
Milk cows	-0.061	0.21	0.019	0.09	-0.128	0.33
	(-0.70)		(0.46)		(-0.78)	
Other cattle	0.263	0.45	0.227	0.33	0.269	0.57
	(1.32)		(1.25)		(0.79)	
Chickens	**1.234**	1.99	**1.137**	1.48	**1.293**	2.53
	(3.28)		(2.77)		(2.57)	
Goats	**0.142**	0.05	**0.173**	0.03	**0.100**	0.07
	(4.31)		(3.52)		(2.45)	
Ducks	**0.198**	0.12	**0.150**	0.10	**0.258**	0.15
	(2.72)		(1.99)		(2.51)	
Total (TLU)	0.138	0.37	0.165	0.24	0.102	0.50
	(1.27)		(1.67)		(0.55)	
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

Further, overall, beneficiary households have a significantly larger volume of purchases and sales of livestock compared with control households (Table 12.8). This increase in the volume is not significant for smaller households; for larger households, the joint volume of sales (ZMW 73) and purchases (ZMW

110) is over twice as large as at baseline. In contrast to crop input use, no impact is found on expenditures on inputs for livestock production, including vaccinations and other expenditures.

Table 12.8: Impact of CGP on Livestock Production (2012 ZMW)

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***HH Size < 6***		***HH Size > 5***	
Total livestock exp	-0.57 (-0.34)	1.16	-1.83 (-0.84)	0.48	1.11 (0.51)	1.88
Fodder exp	1.07 (1.61)	0.30	0.51 (1.82)	0.00	1,841 (1.25)	0.61
Vaccinations exp	-0.52 (-0.81)	0.40	-1.04 (-1.08)	0.31	36 (0.09)	0.48
Other livestock exp	-1.12 (-1.19)	0.47	-1.30 (-1.06)	0.16	-0.76 (-0.57)	0.79
Livestock purchases	**47.70** (2.93)	25.30	25.29 (1.20)	17.90	**73.00** (3.02)	32.95
Livestock sales	**55.56** (3.67)	34.66	13.43 (1.13)	13.94	**109.51** (4.20)	56.07
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

Nonfarm Business Activities

Beneficiary households of the CGP are significantly more likely to have a nonfarm enterprise (Table 12.9). The share of beneficiary households operating a nonfarm enterprise has increased by 17 percentage points compared with control households. Moreover, the program doubles the average number of months in operation (reaching 2.8 months at follow-up), the value of total monthly revenue (ZMW 184) and profit (ZMW 69), and the share of households owning business assets (5 percentage points, reaching 12 percent at follow-up). The impacts are significant for both small and large households, although the impact on ownership (7 percentage points) is significant only for large households.

Table 12.9: Impact of CGP on Nonfarm Enterprise (NFE)

	Program Impact	Follow-up	Program Impact	Follow-up	Program Impact	Follow-up
	All		***HH Size < 6***		***HH Size > 5***	
HH operates NFE	**0.166**	0.39	**0.157**	0.39	**0.177**	0.38
	(4.42)		(3.60)		(4.50)	
Months in operation	**1.445**	2.83	**1.201**	2.80	**1.629**	2.85
	(4.44)		(3.38)		(4.23)	
Total monthly revenue (ZMW)	**184.28**	184.33	**135.24**	150.03	**233.52**	219.67
	(4.43)		(3.77)		(3.65)	
Total monthly profit (ZMW)	**69.08**	81.87	**55.13**	72.98	**81.24**	91.03
	(4.05)		(3.32)		(3.78)	
Owned business assets	**0.0452**	0.12	0.0238	0.13	**0.0669**	0.12
	(2.51)		(1.04)		(3.22)	
Value of owned assets (ZMW)	196.64	134.63	17.18	46.63	342.05	225.06
	(1.24)		(0.66)		(1.27)	
N	2247	2247	1141	1141	1106	1106

NOTE: Estimations use single difference modeling. 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 size, recipient age, education and marital status, districts, and household demographic composition. Follow-up refers to follow-up mean value of indicator shown in the preceding column.

Labor Supply

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

The CGP has led to a 9 percentage point decrease in the share of households with an adult engaged in wage labor, from 59 percent at baseline (Table 12.10). The impact is 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.[19]

[19] In this analysis we join together permanent and temporary labor because 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 contracts last for 12 months and over. Temporary employees usually have an expected duration of the main job of less than 1 year, carrying out seasonal or casual labor.

Table 12.10: Participation in Any Labor Activity, HH Level

	Program Impact	Follow-up	Program Impact	Follow-up	Program Impact	Follow-up
	All		***Males***		***Females***	
Participation in any labor activity	**-0.0913** (-2.79)	0.50	-0.0488 (-1.40)	0.44	**-0.136** (-4.10)	0.40
N	2296	2296	1764	1764	2282	2282

NOTE: Estimations use single difference modeling. 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 size, recipient age, education and marital status, districts, and household demographic composition. Follow-up refers to follow-up mean value of indicator shown in the preceding column.

In terms of types of employment, the reduction in wage labor has taken place primarily in agricultural wage labor, with an 8 percentage point reduction for households with male labor and a 17 percentage point reduction for households with female labor (Table 12.11). This result is expected because agricultural wage labor is generally considered the least desirable labor—an activity of last resort. But when liquidity is constrained, households may be obliged to overly depend on it. The CGP has also led to a reduction in labor intensity in terms of days of agricultural wage labor, both overall (14 days fewer per year) and for females (12 days fewer per year). The reduction in agricultural wage labor is also reflected in the yearly value of household earnings, which is reduced by ZMW 93 for households with female labor. Although the program does not have a significant impact on participation in nonagricultural wage labor, it does have a significant impact on earnings from this kind of work, both overall (ZMW 471) and for households with female labor (ZMW 154). This significant impact stems from a small (less than 1 percentage point) increase in permanent nonagricultural wage employment for females.

Table 12.11: Participation in Agricultural and Nonagricultural Wage Labor, HH Level

	Program Impact	Follow-up	Program Impact	Follow-up	Program Impact	Follow-up
	All		***Males***		***Females***	
Participation in paid agricultural labor	**-0.145** (-3.85)	0.34	**-0.0807** (-2.23)	0.26	**-0.174** (-4.55)	0.29
Participation in paid non-agricultural labor	0.0371 (1.67)	0.19	0.0398 (1.71)	0.18	0.0316 (1.58)	0.11
Days in paid agriculture (year)	**-13.75** (-2.76)	35.69	-3.036 (-0.73)	22.34	**-12.37** (-5.02)	18.64
Days in paid nonagriculture (year)	3.025 (1.04)	19.93	2.082 (0.80)	15.53	1.088 (0.63)	8.05
Earnings in paid agriculture (year)	-67.62 (-1.25)	337.04	22.44 (0.46)	221.13	**-93.43** (-3.63)	168.16
Earnings in paid nonagriculture (year)	**471.65** (1.97)	693.37	380.60 (1.45)	666.33	**153.64** (2.17)	182.40
N	2296	2296	1764	1764	2282	2282

NOTE: Estimations use single difference modeling. 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 size, recipient age, education and marital status, districts, and household demographic composition. Follow-up refers to follow-up mean value of indicator shown in the preceding column.

If not working in agricultural wage labor, what do the male and female adults in beneficiary households do with their time? Part of that time is spent working in the family's nonfarm enterprise—the CGP leads to a 16 percentage point increase in the share of households that had labor dedicated to nonfarm enterprise activity, with an average increase of 1.57 days a week in terms of intensity (Table 12.12). The impact is somewhat higher for female labor (16 percentage points and 0.98 of a day a week in terms of intensity compared with 12 percentage points and 0.62 of a day a week).

Table 12.12: Participation and Days Worked in Nonfarm Enterprise, HH Level

	Program Impact	Follow-up	Program Impact	Follow-up	Program Impact	Follow-up
	All		***Males***		***Females***	
Participation in NFE	**0.171** (4.69)	0.38	**0.120** (4.78)	0.18	**0.156** (4.58)	0.33
Days worked (last week) in NFE	**1.573** (4.38)	2.64	**0.618** (3.57)	0.94	**0.984** (4.50)	1.76
N	2202	2202	2102	2102	2197	2197

NOTE: Estimations use single difference modeling. 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 size, recipient age, education and marital status, districts, and household demographic composition. Follow-up refers to follow-up mean value of indicator shown in the preceding column.

We expect the CGP to lead to an increase in the intensity of labor on the farm, given the productive impacts described above. Indeed, households with male labor spend an extra 13 days on their own farm agricultural activities (Table 12.13). Overall, beneficiary households spend an extra 20 days on their own farm labor (significant at the 10 percent level). Finally, adults may also increase their time in domestic

chores or child care or simply leisure, but we did not collect data on these common household activities, which can all lead to an increase in family well-being.

Table 12.13: Participation and Days Worked on Own Farm Agriculture, HH Level

	Program Impact	Follow-up	Program Impact	Follow-up	Program Impact	Follow-up
	All		***Males***		***Females***	
Participation on own farm	-0.0133 (-0.61)	0.92	0.0170 (0.71)	0.79	-0.0140 (-0.65)	0.92
Days worked (last year) on own farm	20.19 (1.84)	145.76	**13.27** (2.00)	71.60	8.242 (1.50)	78.45
N	2202	2202	2102	2102	2197	2197

NOTE: Estimations use single difference modeling. 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 size, recipient age, education and marital status, districts, and household demographic composition. Follow-up refers to follow-up mean value of indicator shown in the preceding column.

Finally, in terms of children, overall the program has not had any impact on child labor, either paid or unpaid (Table 12.14). Given program impacts on household productive activities and adult labor supply, along with findings on reducing child labor from cash transfer programs in other countries, these results suggest the need for further detailed study.

Table 12.14: Impact of CGP on Child Labor Supply (Share), Individual Level

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***Females***		***Males***	
Total	0.047 (0.05)	0.53	0.016 (0.05)	0.54	0.083 (0.06)	0.52
Paid	-0.017 (0.01)	0.05	-0.014 (0.01)	0.06	-0.017 (0.02)	0.04
Unpaid	0.039 (0.05)	0.48	0.001 (0.06)	0.49	0.080 (0.06)	0.48
N	8062	4182	4053	2117	4009	2065

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Follow-up refers to follow-up mean value of indicator shown in the preceding column.

Simulations of the Impact on the Local Economy[20]

The CGP is likely to have an economic impact beyond that on beneficiary households described above. As they spend CGP transfers, beneficiary households transmit the impact of the program to other households inside and outside the communities in which they live.

The structure of the Local Economy-wide Impact Evaluation (LEWIE) model is centered on the principal economic activities in which beneficiary and nonbeneficiary households participate, the households' income sources, and the goods and services on which households spend their income. Household participate in crop and livestock production; in retail, service, and other production activities; and in the labor market. The retail sector includes village stores, which obtain most of their goods outside the village, as well as stores in nearby villages, towns, and the rest of Zambia. Production activities use different factors: hired labor, family labor, land, capital, livestock, and purchased inputs, some of which are obtained inside the village and some outside.

Households consume and produce local commodities and can export production or import outside goods. The LEWIE model incorporates both CGP and nearby villages and towns, which may have a large market visited by people from many communities. This area is called the Zone of Influence (ZOI). Table 12.15 illustrates how expenditures vary across space by commodity. More than 70 percent of all retail purchases—and 90 percent of livestock—are made in both the CGP or nearby village. These high shares lay the basis for potential income multipliers within the local economy. Purchased inputs for crop production and business retail, however, tend to be made at the town or beyond level. The linkages between the ZOI and the rest of the economy determine how the transfer flows between households in the local economy and whether spillovers accrue to households locally.

Table 12.15: Locations of Purchases of Different Commodities and Factors (share)

Items Purchased	Village	Nearby Village	Town	Elsewhere (incl govt)
Retail items purchased by households	0.545	0.172	0.281	0.002
Purchased input for crop production	0.117	0.095	0.535	0.252
Retail inputs purchased by businesses	0.172	0.095	0.444	0.289
Animal products purchased by households	0.820	0.131	0.049	0.000

NOTE: Data are taken from CGP impact evaluation household surveys and business enterprise survey.

The LEWIE model simulation shows that the CGP has a potential total income multiplier of ZMW 1.79 in nominal terms, with a 90 percent confidence interval (CI) of 1.73-1.85. That is, each Kwacha transferred to poor households can raise the local income by ZMW 1.79 (Table 12.16).

[20] This section summarizes results from the local economy simulations of program effects, which are reported fully in Thome, K., Taylor, J. E., Davis, B., Handa, S., Seidenfeld, D., & Tembo, G. (2013). *Local Economy-wide Impact Evaluation (LEWIE) of Zambia's Child Grant Program* (PtoP project report). Rome, Italy: FAO and the World Bank.

Table 12.16: Simulated CGP Income Multiplier

	Total Income Multiplier	Confidence Interval	Eligible Households	Ineligible Households
Nominal	1.79	1.73 to 1.84	1.17	0.62
Real	1.34	1.29 to 1.39	1.05	0.30

NOTE: Estimations are based on the LEWIE model. "Nominal" impacts refer to the simulation where producers respond perfectly to increases in demand. "Real" allows for an imperfect supply response, which leads to price inflation in the ZOI.

Eligible households receive the direct benefit of the transfer, and ineligible households receive the bulk of the indirect benefit. Of the ZMW 1.79 nominal income multiplier, ineligible households receive ZMW 0.62 for each Kwacha given to eligible households; the eligible households receive the value of the transfer plus an extra ZMW 0.17, for a total of ZMW 1.17 (Table 12.16). Beneficiary households thus benefit both directly and indirectly from the transfer program.

The impact of the CGP varies considerably across sectors of economic activity. The cash transfers stimulate the production of crops and livestock by ZMW 0.47 and ZMW 0.09 per Kwacha transferred, respectively. The largest positive multiplier effects are on retail (ZMW 1.91), which is what we expect because the bulk of spending on retail is done within the CGP or nearby villages (that is, within the ZOI). Like the income multipliers, much of these impacts occur in the ineligible households (Table 12.17) because they own the shops and retail outlets.

Table 12.17: Simulated CGP Production Multiplier

	Production Multiplier	Confidence Interval	Eligible Households	Ineligible Households
Crop production	0.47	0.41 to 0.52	0.18	0.29
Livestock production	0.09	0.07 to 0.10	0.02	0.07
Services	0.28	0.26 to 0.30	0.10	0.18
Other production	0.02	0.01 to 0.02	0.01	0.01
Retail	1.91	1.81 to 2.01	0.40	1.51

NOTE: Estimations are based on the LEWIE model.

These simulations assume that producers can respond immediately to the increase in demand brought about by the greater purchasing power of beneficiaries. But if local production or supply of goods do not (or cannot) increase sufficiently to meet the increased demand brought on by the CGP, prices will increase. This will raise consumption costs for all households and could result in a real-income multiplier that is lower than the nominal multiplier. According to the CGP LEWIE, this real income multiplier of the program could be as low as ZMW 1.34 (CI: 1.29–1.39; bottom row of Table 12.16).

These simulations illustrate that without efforts to ensure an adequate supply response in the local economy, part of the program's impact may be inflationary rather than real. Even a relatively small

increase in the local current price index (CPI) can result in a smaller real income multiplier because it potentially affects all expenditures of all household groups. The higher the local supply response, the larger is the real expansion in the local economy and the smaller the resulting inflation effect. The analysis of inflation trends presented in Annex 1 suggests that there is no excess price inflation in intervention areas due to the CGP. It appears that the "nominal" effects reported in Table 8.16 are a closer approximation of the likely spillover impacts of the CGP in these areas.

XIII. Discussion and Conclusion

The design of the impact evaluation of Zambia's CGP represents a gold standard in evaluation research in that it involves a large, multisite sample with an experimental control group, a baseline measurement, and repeated post-intervention measures. Attrition in the first follow-up is reasonable at 10 percent, with no differential attrition, thus preserving the experimental balance created at baseline. Consequently, results presented here can be interpreted as causal effects of the CGP on the indicators reported rather than confounding factors that have not been accounted for.

Operational Performance and Theory of Change

Results from the data collected at the 24-month follow-up on perceptions of program operations indicate that recipients are, by and large, satisfied with the operation of the program: transfers are being delivered in a timely manner, and out-of-pocket costs of collecting payments are small. The timely, predictable delivery of cash and the low cost to beneficiaries of collecting the money are essential preconditions for ensuring positive program impacts. These preconditions appear to have been met in the CGP.

The challenge with evaluating the impact of an unconditional cash transfer program is that households are free to use the money as they see fit. Because cash is fungible, impacts might be found anywhere, depending on the preferences and constraints of each individual household. We have addressed this challenge by laying out a theoretical framework for the behavioral response of households and by using pre-program data to estimate income effects for different indicators to give us an idea of the preferences of households and how they are likely to use the cash transfer. We use our theory and these expected impacts to guide our analysis; in addition, deviations between predicted and actual impacts provide insights about how households change their previous behaviors in response to participation in the CGP.

Consumption and Food Security

Consistent with the relative poverty of households and our theory, we see large impacts of the CGP on consumption expenditures, which increase by more than the per capita value of the transfer. This result for consumption suggests that the beneficiary households use the transfer to produce more, and this can be attributed to increased production (see section 12). Also consistent with ex-ante behavior, three-fourths of the transfer is spent on food. However, contrary to expectation, a significant portion of the transfer is spent on clothing (6.1 percent) and health (7.1 percent); this result is consistent with what beneficiaries report to be their obligation and responsibility as program participants, namely, food, clothing, and health of young children. This behavioral response is interesting given that the program is unconditional and no punitive sanctions are associated with patterns of spending. Within food spending, we find that the CGP significantly increases both caloric intake (cereals) and protein (meats, dairy). In addition, we see significant impacts on sugars, oils and fats, and pulses, which is somewhat contrary to the ex-ante predictions. These differences, particularly for oils and fats, contribute to diet diversity and likely imply more cooking at home. The overall increase in total and food spending is borne out by significant improvements in food security, measured both through the FANTA food security index and self-reports by households of the number of meals eaten per day, as well as their perceptions of

whether their life has improved over the previous year. Together, this is extremely strong evidence of positive impacts on the overall monetary well-being of CGP participants.

Individual Impacts on Children

Impacts on specific indicators for individuals within the household are necessarily second-round effects in that they work their way through the spending and time-use allocations brought about by the cash transfer. Among young children, we find significant program impacts on reducing diarrhea (5 percentage points), increasing IYCF for children ages 6 to 24 months (22 percentage points), and reducing wasting among this same group. Among all children ages 0 to 60 months, we find some signs that their weight is improving, although impacts are just outside the level of statistical significance. There are definite indications that the caring environment for young children ages 3 to 7 has improved as a result of the CGP, with children receiving significantly more support for learning (13 percentage points) and learning materials (1 percentage point, or a 68 percent increase over baseline). Most of these impacts are consistent with what we predicted at baseline and are also consistent with the expenditure impacts that show increases in calorie and protein availability, clothing, and health spending.

Among children ages 6 to 17, our ex-ante analysis suggested that the CGP would improve their material welfare but not schooling or health, and this is what we find at follow-up. The CGP has had a large impact (33 percentage point increase) on ensuring that children's material needs are met (possession of blanket, shoes, clothing), with the overall effect particularly driven by shoes. This is exactly consistent with the expenditure results, which show a large impact on clothing expenditure.

Maternal Health and Women's Status

This report also presents findings on a set of maternal health and women's status indicators, although we did not investigate these at baseline to predict impacts, and they are not featured prominently in the conceptual framework because the link between income and these indicators is not well-established given the importance of supply-side factors. Indeed, the evidence reported here shows no impacts on maternal health indicators, such as antenatal care, assisted delivery, morbidity, or chronic illness. We do not find evidence of impacts on women's decision making within the household. However, we do see a positive impact on the propensity for women to save money (20 percentage points) in the reference period, the amount saved, and their expectation that their lives will be better in 3 years (12 percentage points). We also find significant program impacts on self-reported general health status among women, which, taken together with their expectations about the future and their ability to save, may reflect an overall optimism about their lives.

Economic Impacts

The theoretical framework posits that once basic consumption needs are satisfied households may begin using the cash transfer to bolster their livelihoods strategies, either by *diversifying* income sources or *expanding* their current productive activity. In the case of the CGP, we observe both types of economic impacts. Over 80 percent of CGP households are engaged in agricultural production, and we report positive impacts of the program on both investment in production and the value of that production. For example, there is a program impact of 18 percentage points in the share of households

with any expenditure on productive inputs (seeds, fertilizer, labor), and a 50 percent increase in the overall value of agricultural commodities harvested.

The CGP also leads to income diversification among recipients. There is a significant positive impact on the share of households owning livestock (21 percentage points) from a base of only 49 percent at baseline. The CGP also boosted non-farm economic activity, with an impact of 17 percentage points in the proportion of households engaged in any nonfarm enterprise and corresponding increases in business asset ownership, months of operation, revenue, and profit.

As to be expected given the impacts on both existing economic activity and new activity, the CGP leads to interesting and generally welfare-enhancing patterns of labor reallocation. Households in the program have reduced their engagement in casual labor (14 fewer days), typically the least productive form of work in rural settings, and increased their time to own-farm activity (20 more days). In addition, more household time is devoted to nonfarm enterprises, which is usually the most economically productive type of work in these settings. In terms of demographic differences, women tend to increase their time in nonfarm business, whereas men increase their time for working on their own farm. The program has no discernible impacts on child labor.

Local Economy Effects

A study being conducted in parallel to the main evaluation seeks to measure the impact of the CGP on the local economy, for both beneficiaries and nonbeneficiaries. Simulations show that the CGP has a potential total income multiplier of ZMW 1.79—that is, each Kwacha transferred to poor households can raise local income by ZMW 1.79. Beneficiary households receive the direct benefit of the transfer, whereas ineligible households receive the bulk of the indirect benefit. Of the ZMW 1.79 nominal income multiplier, ineligible households receive ZMW 0.62 for each Kwacha given to beneficiary households, while the beneficiary households receive the value of the transfer plus an extra ZMW 0.17, for a total of ZMW 1.17. Beneficiary households thus benefit both directly and indirectly from the transfer program. More important, the CGP can also have a significant impact on the incomes of nonbeneficiaries, a fact that has not been fully realized or documented in other cash transfer evaluations.

Conclusions

The CGP has generated positive impacts on a range of indicators identified in the conceptual framework as being plausible. What is particularly exciting about the results presented here is that the CGP not only addresses the immediate consumption and food security needs of recipients but also leads to significant increases in the productive capacity of households, both by supporting the expansion of existing economic activity and by enabling their diversification into new activity. There is also evidence that the program is beginning to have an impact on young children, with improved feeding and reduced wasting among children ages 6 to 24 months, reduced morbidity among children ages 0 to 60 months, and improvements in weight among all children ages 0 to 60 months (although not statistically significant). The learning and developmental environment for children ages 3 to 7 has also significantly improved, as has access to basic needs (clothing, shoes, blanket) among children ages 5 to 17. Table 13.1 links each program objective with the indicators reported here.

Table 13.1: Summary of Impacts in Areas Directly Linked to CGP Objectives

Supplement and not replace household income	Increase of ZMW 15 in monthly per capita consumption expenditure Reduction of 11 percentage points in poverty gap and squared poverty gap
Increase the number of households having a second meal per day	Increase of 8 percentage points in households with 2+ meals per day Increase of 22 percentage points in proportion of children ages 6 to 24 months receiving minimum feeding requirements
Reduce the rate of mortality and morbidity of children under 5	Reduction in diarrhea of 5 percentage points
Reduce stunting and wasting among children under 5	Increase in weight-for-height of 0.196 *z*-scores among children ages 3 to 5 years Increase in weight-for-weight and weight-for-age of 0.118 and 0.128, respectively, among children ages 0 to 5, but no statistically significant effects
Increase the number of children enrolled in and attending primary school	No statistically significant effects
Increase the number of households owning assets such as livestock	Increase of 21 percentage points in households owning any livestock Increase of 4.5 percentage points in households owning any nonfarm business assets

Annex 1: Prices in the CGP Evaluation Sample

There is a concern that in the remote villages of Zambia where the CGP operates, a large influx of cash to the community may lead to inflation if supply cannot adequately respond to the new increase in demand for goods and services. We implemented a community questionnaire as part of the survey fieldwork in which we collected prices on 12 key consumption items. We inflated the reported values in 2010 to 2012 units using the all-Zambia CPI and checked to see whether there was any excess inflation in intervention communities relative to control communities, a sign of supply bottlenecks that might cause inflationary pressure with the existence of the program.

Table A1.1 begins by simply comparing prices for each item across time among all communities. Column 3, which reports *t*-statistics for mean differences, shows no excess inflation in these communities once we account for the all-Zambia CPI. If anything, in a few cases (e.g., cooking oil, sugar), prices are somewhat lower in the evaluation communities in 2012 than in 2010.

Table A1.1: Community Prices Over Time (in Zambian Kwacha)

	Baseline	**24-Month Follow-up**	***t*-statistic**
Maize grain price	30.58	25.99	0.02
Rice price	5.31	4.75	0.22
Bean price	7.28	11.24	-1.74
Dry fish price	4.11	4.48	0.71
Chicken price	17.24	16.70	-0.88
Cooking oil price	13.12	11.75	-2.04
Sugar price	9.21	9.28	-1.94
Table salt price	8.12	5.16	-0.66
Toilet soap price	6.92	5.53	-0.39
Laundry soap price	6.76	6.25	0.99
Panadol price	4.50	5.07	0.66
Secondary school fee	402.64	712.93	-0.36
N	90	90	

NOTE: *t*-tests estimates provided. Baseline prices inflated to 2012 levels.

Table A1.2 reports difference-in-difference estimates that effectively compare the change in a price over this period between treatment and control households in a manner similar to program impact estimates reported in the main text. We are interested in whether the existence of the program has led to an increase in a price relative to control communities; we find no evidence of excess inflation in treatment communities. Indeed, the only statistically significant impact is for cooking oil and that shows a relative decline in price rather than an increase.

Table A1.2 Community Prices, by CGP Treatment

	Program Impact	Baseline	24-Month Treatment	24-Month Control
Maize grain price	-4.30	30.58	26.01	25.98
	(-1.44)			
Rice price	0.17	5.31	4.81	4.69
	(0.24)			
Bean price	-2.48	7.28	10.16	12.33
	(-1.73)			
Dry fish price	0.62	4.11	4.72	4.24
	(0.58)			
Chicken price	1.17	17.24	15.93	17.48
	(0.55)			
Cooking oil price	**-2.01**	13.12	11.04	12.46
	(-2.54)			
Sugar price	-1.14	9.21	8.87	9.70
	(-1.90)			
Table salt price	-1.00	8.12	5.00	5.32
	(-0.58)			
Toilet soap price	0.02	6.92	5.46	5.60
	(0.03)			
Laundry soap price	0.08	6.76	6.44	6.06
	(0.13)			
Panadol price	1.02	4.50	7.55	6.53
	(0.63)			
Secondary school fee	-102.68	402.64	689.29	736.56
	(-0.73)			
N	180	90	45	45

NOTE: Estimations use difference-in-difference modeling. Cluster robust *t*-statistics are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for District. Baseline prices are inflated to 2012 levels.

Annex 2: Difference-in-Differences Estimation

The statistical approach we take to derive average treatment effects of the CGP is the difference-in-differences (DD) estimator. This entails calculating the change in an indicator (Y), such as food consumption, between baseline and follow-up period for treatment and comparison group units and comparing the magnitude of these changes. Figure A2.1 illustrates how the estimate of differences in differences between treatment (T) and control (C) groups is computed. The top row shows the baseline and postintervention values of the indicator (Y), and the last cell in that row depicts the change or difference in the value of the outcome for T units. The second row shows the value of the indicator at baseline and postintervention for comparison group units, and the last cell illustrates the change or difference in the value of this indicator over time. The difference between these two differences (treatment vs. control), shown in the shaded cell in Figure A2.1, is the difference-in-differences or double-difference estimator.

Figure A2.1: The Difference-in-Differences (DD) Estimator

	Baseline (2010)	Post (2012)	1st difference
Treatment (T)	Y^{T}_{2010}	Y^{T}_{2012}	$\Delta Y^{T}=(Y^{T}_{2012}-Y^{T}_{2010})$
Comparison (C)	Y^{C}_{2010}	Y^{C}_{2012}	$\Delta Y^{C}=(Y^{C}_{2012}-Y^{C}_{2010})$
			Difference in differences DD = $(\Delta Y^{T} - \Delta Y^{C})$

The DD is one of the strongest estimators available in the evaluation literature (Shadish et al., 2002). Two key features of this design are particularly attractive for deriving unbiased program impacts. First, using pre- and posttreatment measures allows us to "difference" out unmeasured fixed (i.e., time-invariant) family or individual characteristics that may affect outcomes, such as motivation, health endowment, mental capacity, and unobserved productivity. It also allows us to benchmark the change in the indicator against its value in the absence of treatment. 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 school enrollment owing to expansion of school access, deriving treatment effects based only on the treatment group will confound program impacts on schooling with the general trend increase in schooling.

The key assumption underpinning the DD is that there is no systematic unobserved time-varying difference between the T and C groups. For example, if the T group changes its preference for schooling over time but the C group does not, then we would attribute a greater increase in schooling in T to the program rather than to this unobserved time-varying change in characteristic. In practice, the random assignment to T and C, the geographical proximity of the samples, and the rather short duration between pre- and postintervention measurements will make this assumption quite reasonable.

When treatment and comparison units are selected randomly and their characteristics are perfectly balanced, the simple mean differences as shown in Figure A2.1 are usually sufficient to derive unbiased estimates of program impact. However in large-scale social experiments, it is typical to estimate the DD

in a multivariate framework, controlling for other 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. Of course, there is an important weakness to the multivariate approach, which is that overfitting the statistical model can wash-away program effects that work through the control variables. For example, if we control for the number of young children in the household when estimating treatment effects on nutrition, and if the program improves nutrition through decreases in fertility (through the well-known child quantity-quality trade-off), then we may not estimate a positive treatment effect when controlling for the number of young children, even though the program actually has an impact on nutrition.

Cross-Section Analysis of Selected Indicators

One data issue distinguishes the nonagricultural enterprise and labor analysis from the analysis used in the rest of the report. Both a detailed labor module and a nonagricultural enterprise model were included in the 2012 follow-up questionnaire but not in 2010. Consequently, we have only one observation per household and per individual for most of the labor and nonagricultural enterprise outcomes of interest. Impact estimates for these indicators are derived using multivariate cross-section analyses. We also experimented with inverse probability weight estimators but these yielded similar results given the excellent balancing properties at baseline.

Annex 3: Mean Differences at Baseline for Attrition Analysis

Table A3.1: Household-Level Control Comparisons (Control Versus Treatment for Respondent Households)

Variables	Control	N1	Treatment	N2	Mean Difference	*p*-value
Household size	5.66	1167	5.74	1128	-0.08	0.6489
Number of people ages 0-5	1.91	1167	1.89	1128	0.02	0.7244
Distance to food market	21.29	777	15.29	754	6.00	0.3245
Distance to health facility	9.48	1061	9.29	1024	0.18	0.8986
Yes/no whether household was affected by drought	0.05	1167	0.04	1128	0.01	0.7416
Yes/no whether household was affected by flood	0.06	1167	0.03	1128	0.03	0.2007
Yes/no whether household was affected by any shocks	0.17	1167	0.16	1128	0.01	0.8431

T-tests clustered on the CWAC level.

Table A3.2: Household-Level Outcome Comparisons (Control Versus Treatment for Respondent Households)

Variables	Control	N1	Treatment	N2	Mean Difference	*p*-value
Per capita food expenditure, kwacha	29.20	1167	30.86	1128	-1.66	0.4675
Food share of total household expenditure	0.71	1167	0.72	1127	0.00	0.7885
Cereal as share of total food expenditure	0.32	1167	0.35	1125	-0.03	0.3583
Roots and tubers as share of total food expenditure	0.16	1167	0.14	1125	0.02	0.5568
Pulses and legumes as share of total food expenditure	0.03	1167	0.03	1125	0.00	0.5668
Fruits and vegetables as share of total food expenditure	0.23	1167	0.21	1125	0.02	0.2151
Meats, poultry, fish as share of total food expenditure	0.17	1167	0.18	1125	-0.01	0.3718
Total household expenditure per person in the household	39.65	1167	41.52	1128	-1.87	0.4861
Food security scale	15.31	1150	14.90	1106	0.41	0.4967

T-tests clustered on the CWAC level.

Table A3.3: Children Under 5 Control Comparisons (Control Versus Treatment for Respondent Households)

Variables	Control	N1	Treatment	N2	Mean Difference	*p*-value
Person's age in months	27.18	1983	26.55	1908	0.63	0.1856
Gender	0.51	2225	0.48	2128	0.03	0.0416
Highest grade level the primary caregiver completed	3.46	2345	3.95	2229	-0.49	0.1000
Received BCG vaccine	0.96	1958	0.97	1878	-0.01	0.1895
Received oral polio vaccine (OPV)	0.96	1956	0.95	1873	0.00	0.7582
Received DPT vaccine	0.95	1953	0.95	1867	0.00	0.8333

T-tests clustered on the CWAC level.

Table A3.4: Children Under 5 Outcome Comparisons (Control Versus Treatment for Respondent Households)

Variables	Control	N1	Treatment	N2	Mean Difference	*p*-value
Weight in kilograms	11.80	1902	11.86	1823	-0.06	0.8671
Height in centimeters	80.15	1796	79.16	1712	0.99	0.3574
Received vitamin A dose in the 6 months prior to survey	0.76	1664	0.80	1612	-0.04	0.1841
Had diarrhea in the 2 weeks prior to survey	0.17	1959	0.20	1874	-0.03	0.2486
Had a fever in the 2 weeks prior to survey	0.23	1968	0.23	1888	0.00	0.9114

T-tests clustered on the CWAC level.

Table A3.5: Children Under 5 Anthropometrics (Control Versus Treatment for Respondent Households)

Variables	Control	N1	Treatment	N2	Mean Difference	*p*-value
Length/height-for-age z-score	-1.43	1642	-1.42	1535	-0.01	0.9175
Weight-for-age z-score	-0.91	1766	-0.94	1657	0.03	0.6787
Weight-for-length/height z-score	-0.15	1641	-0.21	1524	0.06	0.3244

T-tests clustered on the CWAC level.

Table A3.6: Children Ages 3–7 Development Scores (Control Versus Treatment for Respondent Households)

Variables	Control	N1	Treatment	N2	Mean Difference	*p*-value
Development scale 1 - Played with items	1.50	1427	1.55	1356	-0.05	0.4099
Care scale - Family engagement activities	2.52	1427	2.41	1356	0.11	0.5446
Development scale 2 - Various skills/behaviors	4.39	1427	4.47	1356	-0.08	0.6380

T-tests clustered on the CWAC level.

Table A3.7: Older Child (5–17) Characteristics (Control Versus Treatment for Respondent Households)

Variables	Control	N1	Treatment	N2	Mean Difference	*p*-value
Female	0.50	2112	0.52	2093	-0.02	0.2934
Maternal orphan	0.08	2112	0.09	2093	-0.01	0.6417
Paternal orphan	0.16	2112	0.18	2093	-0.02	0.3783
OVC	0.21	2112	0.23	2093	-0.02	0.4088
Minimum needs met	0.80	2112	0.77	2093	0.04	0.3390
Ever enrolled in school	0.73	2104	0.72	2085	0.00	0.8308
Currently enrolled in school	0.64	2104	0.64	2085	0.00	0.8783
Full attendance in prior week	0.78	1308	0.80	1278	-0.01	0.6604
Paid or unpaid work	0.59	2081	0.57	2048	0.02	0.5776
Unpaid hours in last 2 weeks	21.23	1213	23.70	1129	-2.47	0.4030

T-tests clustered on the CWAC level.

Table A3.9: Household-Level Outcome Comparisons (Full Sample Versus Remaining Sample at 24-Month Follow-Up)

Variables	Full Sample	N1	Remaining Sample	N2	Mean Difference	*p*-value
Per capita food expenditure, kwacha	30.03	2519	30.02	2298	0.01	0.92
Food share of total household expenditure	0.72	2517	0.72	2297	0.00	0.00
Cereal as share of total food expenditure	0.33	2515	0.34	2295	-0.01	<.0001
Roots and tubers as share of total food expenditure	0.17	2519	0.15	2295	0.02	<.0001
Pulses and legumes as share of total food expenditure	0.03	2519	0.03	2295	0.00	0.39
Fruits and vegetables as share of total food expenditure	0.16	2515	0.22	2295	-0.06	0.78
Meats, poultry, fish as share of total food expenditure	0.18	2515	0.18	2295	0.00	0.35
Total household expenditure per person in the household	40.43	2515	40.57	2298	-0.14	0.52
Food security scale	15.15	2474	15.1	2259	0.05	0.29

T-tests clustered on the CWAC level.

Table A3.10: Children Under 5 Control Comparisons (Full Sample Versus Sample Remaining at 24-Month Follow-Up)

Variables	Full Sample	N1	Remaining Sample	N2	Mean Difference	*p*-value
Person's age in months	28.54	224	28.88	168	-0.34	0.0116
Gender	11.79	369	11.83	3729	-0.04	0.7521
Highest grade level the primary caregiver completed	0.72	1420	0.58	1313	0.14	0.4527
Received BCG vaccine	0.95	217	0.94	166	0.01	0.1807
Received Oral Polio Vaccine (OPV)	0.95	217	0.96	166	-0.01	0.8242
Received DPT vaccine	0.94	216	0.94	166	0.00	0.5457

T-tests clustered on the CWAC level.

Table A3.11: Children Under 5 Outcome Comparisons at Baseline (Full Sample Versus Sample Remaining at 24-Month Follow-Up)

Variables	Full Sample	N1	Panel	N2	Mean Difference	*p*-value
Weight in kilograms	79.67	352	79.67	3512	0.00	0.9973
Height in centimeters	0.94	390	0.94	3820	0.01	0.6575
Does child have a Health Card?	0.71	328	0.78	3280	-0.07	0.0489
Received vitamin A dose in the 6 months prior to survey	0.20	384	0.19	3837	0.02	0.4805
Had diarrhea in the 2 weeks prior to survey	0.22	388	0.23	3860	-0.02	0.4852

T-tests clustered on the CWAC level.

Table A3.12: Children Under 5 Anthropometrics (Full Sample Versus Sample Remaining at 24-Month Follow-Up)

Variables	Full Sample	N1	Panel	N2	Mean Difference	*p*-value
Length/height-for-age z-score	-1.48	308	-1.43	3181	-0.05	0.5570
Weight-for-age z-score	-1.01	338	-0.93	3427	-0.09	0.3789
Weight-for-length/height z-score	-0.10	307	-0.18	3169	0.08	0.4176

T-tests clustered on the CWAC level.

Table A3.13: Children (3–7) Development Scores (Full Sample Versus Sample Remaining at 24-Month Follow-Up)

Variables	Full Sample	N1	Panel	N2	Mean Difference	*p*-value
Development scale 1 - Played with items	1.41	287	1.52	2787	-0.11	0.1286
Care scale - Family engagement activities	2.21	287	2.47	2787	-0.25	0.1115
Development scale 2 - Various skills/behaviors	4.55	287	4.42	2787	0.13	0.4005

T-tests clustered on the CWAC level.

Table A3.14: Older Child (5–17) Characteristics at Baseline, Full Sample Versus Panel

Variables	Full Sample	N1	Panel	N2	Mean Difference	*p*-value
Female	0.47	386	0.51	4205	-0.04	0.1024
Maternal orphan	0.10	386	0.08	4205	0.02	0.5071
Paternal orphan	0.20	386	0.17	4205	0.03	0.3422
OVC	0.26	386	0.22	4205	0.03	0.4014
Minimum needs met	0.77	386	0.79	4205	-0.02	0.6211
Ever enrolled in school	0.77	382	0.72	4189	0.05	0.0370
Currently enrolled in school	0.68	382	0.64	4189	0.04	0.1361
Full attendance in prior week	0.80	252	0.79	2586	0.01	0.8481
Paid or unpaid work	0.53	375	0.58	4129	-0.05	0.2702
Unpaid hours last 2 weeks	20.90	195	22.42	2342	-1.52	0.5298

T-tests clustered on the CWAC level.

Annex 4: Additional Results on Economics Impacts

Table A4.1: Impact of CGP on Crop Input Use (share)

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***HH Size<6***		***HH Size>5***	
Total crop exp	**0.177**	0.23	**0.223**	0.22	**0.134**	0.24
	(4.31)		(4.52)		(2.98)	
Exp seed	**0.100**	0.13	**0.135**	0.12	0.067	0.14
	(3.11)		(3.60)		(1.78)	
Exp hired labor	**0.054**	0.03	**0.072**	0.03	0.038	0.04
	(3.69)		(3.97)		(1.84)	
Exp pesticides	0.002	0.00	0.004	0.00	0.001	0.00
	(0.82)		(1.17)		(0.39)	
Exp fertilizer	**0.032**	0.01	**0.034**	0.01	0.029	0.01
	(2.11)		(2.69)		(1.35)	
Other crop exp	**0.151**	0.11	**0.153**	0.11	**0.150**	0.11
	(4.00)		(3.19)		(3.80)	
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

Table A4.2: Impact of CGP on Agricultural Implements (share)

	Program Impact	Baseline	Program Impact	Baseline	Program Impact	Baseline
	All		***HH Size<6***		***HH Size>5***	
Axe	0.008	0.78	0.005	0.73	0.007	0.81
	(0.22)		(0.10)		(0.17)	
Pick	0.010	0.03	0.001	0.03	0.019	0.03
	(0.69)		(0.05)		(1.22)	
Hoe	0.010	0.92	0.002	0.90	0.020	0.93
	(0.56)		(0.09)		(0.87)	
Hammer	**0.044**	0.05	0.025	0.04	**0.065**	0.06
	(3.20)		(1.63)		(3.15)	
Shovel	**0.031**	0.06	0.017	0.04	0.044	0.08
	(2.15)		(1.09)		(1.84)	
Plough	**0.036**	0.07	0.025	0.05	**0.051**	0.08
	(1.97)		(1.28)		(2.10)	
N	4596	2298	2336	1168	2260	1130

NOTE: Estimations use difference-in-difference modeling 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 size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Baseline refers to baseline mean value of indicator shown in the preceding column.

Annex 5: The Local Economy-wide Impact Evaluation Model for the CGP

The Local Economy-wide Impact Evaluation (LEWIE) model for the CGP begins by nesting household farm models for eligible and ineligible households within a region of interest. The household models describe each group's production activities, income sources, and expenditure patterns. In a typical model, households participate in activities such as crop and livestock production, retail, service provision, and other activities, as well as in the labor market. These activities, as well as household expenditures, are modeled using data from household surveys.

Household groups in a given village are linked through local trade, and villages are linked through regional trade. The entire program region interacts with the rest of the country, importing and exporting goods and selling labor. Interactions among households within the program area and between the program area and the rest of the economy are modeled using the survey data. The parameters in the LEWIE model are estimated econometrically. Sensitivity analysis, combined with Monte Carlo methods, allows testing the robustness of simulated impacts for errors in parameter estimates and model assumptions.

The LEWIE model is built for treatment and control villages and includes households both eligible and ineligible for inclusion in the CGP. The Zambia CGP LEWIE draws on baseline and follow-up data collected in 2010 and 2012 in the three program districts for the randomized controlled trial impact evaluation of the CGP. The LEWIE model also used the business enterprise survey that was implemented at follow-up, as well as the nationally representative Living Conditions Measurement Survey (LCMS).

The simulations assume that locally grown crops, livestock, retail, and other services, including labor, are traded locally. Given high transaction costs with the rest of the country and abroad, it is reasonable to assume that the prices of the goods produced are determined in local markets. A nearly perfectly elastic labor supply (η=100) is assumed, which reflects excess labor supply in rural Zambia. This can be expected to lower inflationary pressures from the program by limiting wage increases. It does not remove inflationary pressures completely, however, because land and capital constraints may continue to limit the local supply response. More detail on the methodology, as well as the complete results, including robustness checks.[21]

[21] Thome, K., Taylor, J. E., Handa, S., Seidenfeld, D., Tembo, G., & Davis, B. (2013). *Local Economy-wide Impact Evaluation (LEWIE) of Zambia's Child Grant Program* (PtoP project report). Rome, Italy: FAO and the World Bank.

Annex 6: Community Profile

Although the CGP provides cash directly to households, the cash can also have an impact on the broader community. The program injects cash into local businesses and other households in the community through direct spending on locally sourced goods and services by beneficiary households, thus increasing the local demand on these items. These changes in demand could alter prices, wages, and availability of credit if the market is unable to respond to that demand. In addition to these potential effects on the community, the CGP might also improve the functioning of local governance committees used to implement the program.

The CGP study includes an investigation of the program's impacts on community dynamics, including economic activities, with a particular focus on child labor, access to credit, and governance. We find no impacts of the program on child labor at the community level; however, the amount of child labor reported has declined over time in both the treatment and control communities. The CGP does not affect prices or wages, suggesting that the market can meet the new demand. Additionally, the CGP expands the ability of beneficiary households to secure credit. Last, we find that the CGP improves some elements of governance in the local structures through which it operates.

Community Profile Study Design

Palm Associates, under the direction of AIR, implemented the data collection for the CGP surveys, including the community survey. The research team administered a community survey in each of the 90 Community Welfare Assistance Committees (CWACs) across the three program districts: Kaputa, Kalabo, and Shangombo. As described in the methodology section, the CWACs were randomly assigned to intervention or control group with 45 communities in each group.[22] The community survey was collected in conjunction with the 24-month follow-up household data collection in September and October 2013. To investigate community level impacts, a pair of enumerators conducted interviews with a group of key informants. On average 13.6 informants (36 percent female) participated in each interview, including the village head, Area Coordinating Committee (ACC) members, CWAC members, government officials, and NGO workers. In this section we compare changes over time from baseline to follow-up between these communities by treatment status using difference in difference analysis. We include district fixed effects to account for clustering of CWACs within a district.

Description of the Communities

To provide a context for understanding the communities, this section describes the population of the communities, the availability of key facilities to these communities, and shocks experienced by them. These are poor rural communities, located far from urban centers and associated markets, facilities, and resources. At follow-up, the communities reported a median population of 1,525 people, with a median of 355 households. More households have moved into both the intervention and control communities than have moved out of these communities. On average, 19.9 households have moved into each

[22] In the baseline report, the findings were based on 80 community surveys. With further data cleaning, 4 additional community surveys were included in the baseline findings described in this report.

community during the past 2 years and 12.9 households have moved out.[23] There is no evidence that the CGP has an impact on household movement because there are no differences in migration between intervention and control communities.

Increased use of health and education facilities represents one goal of the CGP, therefore we investigate the availability of these facilities in the community. Ninety percent of CWACs have a primary school, with 70 percent of primary schools government owned and 28 percent community owned. For the CWACs without a local primary school, the distance may represent a barrier to access to primary schooling, especially for younger children and girls. Only three CWACs have a secondary school, indicating limited local opportunities for secondary school. A total of 31 health facilities serve the three rural districts of Zambia included in this study. Of these facilities 39 percent are health centers, 39 percent are health posts, and 13 percent are dispensaries (two facilities are not classified). The household survey reveals a person walks an average of 9 km to reach a health facility, indicating distances could be a challenge in accessing care, especially when ill.

We look at the various shocks experienced by the community to better understand exogenous factors that affect their well-being and economic situation. These include positive shocks, such as the opening of roads that improve accessibility and potentially open trading markets, and negative shocks, such as floods or droughts that destroy property or food sources. We find no differences between the intervention groups' and control groups' experiences of positive or negative shocks. This helps eliminate alternative explanations for observed impacts at household and individual levels. This equivalence is also another signal that randomization has worked. Shocks are moderators on the impact of the cash transfer, making them weaker or stronger depending on local conditions in the community. In the analysis of household data, shocks are used as control variables. Table A6.1 shows the various shocks experienced in the communities. Just under half (45 percent) of the communities experienced any positive shock, whereas all communities experienced at least one bad shock.

Table A6.1: Differences in Shocks Experienced at 24 month Follow-Up, by Control and Intervention

	Control	Intervention	Mean difference	*t*-statistic
Good External Shocks				
School constructed	0.13	0.16	0.02	0.2966
Road constructed	0.04	0.07	0.02	0.4556
Health facility constructed	0.02	0.02	0.00	0.0000
New employment opportunity available	0.07	0.13	0.07	1.0488
Development projected started	0.38	0.42	0.04	0.4260
Bad External Shocks				
Massive job lay-offs	0.09	0.07	-0.02	-0.3895
Sharp changes in prices	0.91	0.80	-0.11	-1.5014
Human disease/epidemic	0.78	0.84	0.07	0.8018
Livestock disease	0.80	0.82	0.02	0.2664

[23] $t(86) = 2.690$, $p < .05$

Crop disease	0.67	0.64	-0.02	-0.2194
Flood	0.58	0.60	0.02	0.2119
Drought	0.58	0.62	-0.04	-0.4260
N	45	45		

NOTE: *t*-statistics are provided. Bold indicates that they are significant at $p < .05$.

Economic Activity

We investigate the impact of the program on economic activity across the entire community (beneficiaries and nonbeneficiaries of the program living in treatment communities). The program does not have an impact on child labor; however, the amount of child labor has declined over the 2-year period in both the intervention and control communities. The decline in child labor includes the number of communities that have children who work as well as the proportion of children who work within those communities. On average, 78 percent of the communities have children under the age of 16 who work for money compared with 92 percent at baseline.[24] Further, the proportion of children working in the village has also declined since baseline. Of the villages where children worked at baseline, 64 percent reported that more than half the children participated in some sort of work for money, whereas only 39 percent of communities report the same 2 years later.[25] This could reflect the economic improvements in Zambia and could perhaps reflect the success of social marketing campaigns focused on reducing child labor and promoting education. We also see changes over time in the type of livelihood activities done by children. The majority of children who work (89 percent) engage in domestic work or farming as the primary form of labor. This is a shift from baseline where only 57 percent of children worked in domestic and home farm labor activities and were more engaged in fishing, trading, and industry-related work.[26] On average, when children are paid, they earn ZMW 8.60 daily, similar to the pay of adults with no difference between groups or over time.

The CGP could open new opportunities for livelihood and change participation in the various types of labor market. However, in looking at the profile of livelihood activities for adults, we see no changes to the types of activities in which these communities engage. Similar to baseline, crop farming is the primary economic activity in 89 percent of the villages. Key secondary livelihood activities include fishing (37 percent), trade/business (19 percent), and farming livestock (14 percent).

One concern about adding cash to these poor rural communities is the potential for an inflationary effect on prices and wages, especially if supply cannot adequately respond to the new increase in demand for goods and services. As described in Annex 1: Prices in the CGP Evaluation Sample, there has been no excessive inflation in the intervention communities compared with the control communities. The CGP does not cause an increase in prices in these communities. Similarly, there is no real economic impact on adult wages. The mean daily wage for men is ZMW 12.52 (approximately $2.50 USD daily), and women is ZMW 9.78 (approximately $2 USD daily). There are no differences between control and intervention groups.

[24] $t(82) = 2.528$, $p < .05$

[25] $t(58) = 3.231$, $p < .05$

[26] $t(55) = 4.180$, $p < .05$

Access to Credit

Borrowing is a short-term way to alleviate financial shortfalls often associated with poverty. Borrowing helps households cope with emergencies, smooth out consumption, or even seize small investment opportunities that could improve their lives. We find that the CGP improves community access to credit. When someone needs money in times of emergency or to make a large purchase, such as fertilizer, intervention communities have a greater likelihood of gaining access to credit compared with control communities. At baseline, only 12 percent of the communities had someone from whom to borrow money. At follow-up, 40 percent of the intervention communities have a lender, whereas only 9 percent of the control communities do. The impact of the CGP program is significant, explaining 33 percentage points of the difference. Given the small sample sizes for subsequent questions about borrowing, we can only describe the borrowing profile. At baseline, 22 percent of borrowers had to provide collateral to receive a loan; at follow-up, no one has to provide collateral. The typical median loan is ZMW 100. The CGP helps open access to additional resources when a household requires them.

Governance

The CGP uses government structures at the community and area levels to manage and administer the program in rural areas. By engaging in these local structures, the CGP could improve how they function. These changes could be in how the committees are structured, how often they meet, and how decisions are made. We find that the CGP has an impact on committee composition at the area level, but not at community level. We also find that the CGP improves the frequency with which committees meet. However, there are no program impacts on participation in local decision making (Table A6.2).

Two key committees enable community participation in government: the Area Coordinating Committee (ACC) and the CWAC. The ACC is a subdistrict structure covering 8 to 12 CWACs. The CWAC is a community-level structure, covering from as few as 20 up to approximately 500 households. While these are existing structures, the SCT program leverages these committees to ensure the smooth functioning of the program. The ACC comprises members from the respective CWACs and is responsible for verifying potential and actual beneficiaries, monitoring the performance of the CWACs, and handling grievances. The CWACs comprise members from the community and are responsible for raising awareness about the SCTs, identifying beneficiary households, communicating details about payments with households, and counseling beneficiary households.

CWAC representation in the ACC is important, particularly for intervention communities given the oversight role of the ACC in managing the CGP and handling grievances. We see strong program impact on community representation in the ACC, with intervention communities having significantly higher representation in these committees (93 percent) compared with the control communities (62 percent). Given the oversight relationship of the ACC to the CWAC, having greater representation facilitates better communication and management for the CGP.

At the community level, the CGP could also influence the structure and operations of CWACs. The program improves the frequency that CWACs meet by 59 percentage points, with 96 percent of intervention CWACs meeting at least quarterly but only 51 percent of control CWACs meeting with the same frequency. Given that the CGP program relies on the CWACs to support program administration,

the regularity of meetings is encouraging. However, there is no program impact on the composition of the CWACs. The majority (93 percent) of CWACs have an elected executive committee, indicating that most CWACs are following the appropriate protocols and have the expected structures to function well. On average, each committee has 9 members, with an average of 3.8 female members per committee, a similar profile to that at baseline. Similarly, the program does not increase the involvement of women in leadership. We find that only 16 percent of CWAC chairpersons are female, with no statistical differences between intervention and control communities, although the program does not affect the composition of the CWAC.

Table A6.2: Impact of CGP on Community Governance

	Program Impact	Baseline	24-Month Intervention	24-Month Control
Community has representation in the local ACC	**0.398** (3.11)	0.48	0.93	0.62
Community has an elected executive committee	0.047 (1.19)	0.85	0.98	0.89
Gender of CWAC chairperson is male	0.003 (0.04)	0.94	0.82	0.86
CWAC committee meets regularly (at least quarterly)	**0.587** (4.55)	0.38	0.96	0.49
N		84	45	45

NOTE: Estimations use difference-in-difference modeling in sample communities. T-statistics are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for district effects and a vector of cluster-level prices.