AIR®

AMERICAN INSTITUTES FOR RESEARCH®

Zambia's Multiple Category Targeting Grant: 36-Month Impact Report

February 2016

American Institutes for Research

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

Contents

Contributors ii
Acknowledgments iii
Acronyms iv
Executive Summary v
I. Introduction 1
II. Conceptual Framework 3
III. Study Design 5
IV. Attrition 7
V. Operational Performance 11
VI. Consumption Expenditures 13
VII. Poverty and Food Security 20
VIII. Resilience (Assets, Production, and Credit) 28
IX. Children 4-17 years old 47
X. Adolescents 58
XI. Women 68
XII. Community Overview 73
XIII. Discussion and Conclusion 76
Annex 1: Difference-in-Differences Estimation 79
Annex 2: Mean Differences at Baseline for Attrition Analysis 81
Annex 3: Poverty and Food Security 87
Annex 4: Resilience 90

Contributors

The evaluation of the Multiple Category Targeting Grant 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, the Department for International Development (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 (Palm Associates and the University of Zambia). The overall team leaders for this report are David Seidenfeld (AIR) and Sudhanshu Handa (UNC), but many others made important contributions and are listed below (by institutional affiliation and in alphabetical order within each institution):

AIR: Juan Bonilla, Alvaro Ballarin Cabrera, Thomas De Hoop, Gilbert Kiggundu, Nisha Rai, Hannah Reeves, Joshua Sennett, Dan Sherman, Jonathan Sokoll, Amy Todd, Rosa Castro Zarzur

Palm Associates: Alefa Banda, Liseteli Ndiyoi, Nathan Tembo

UNICEF Office of Research: Tia Palermo, Amber Peterman, Leah Prencipe

The suggested citation for this report is:

American Institutes for Research. (2015). *Zambia's Multiple Category Targeting Grant: 36-Month Impact Report.* Washington, DC: Author.

Contact information:

David Seidenfeld	Sudhanshu Handa	Gelson Tembo
dseidenfeld@air.org	shanda@email.unc.edu	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 provided.

Our special thanks go to Dr. Gelson Tembo (Palm Associates) for carrying out the data collection, and to 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 Serenje and Luwingu 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 high-quality data were collected. The highly competent team of data entry personnel at Palm Associates is also gratefully acknowledged.

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

David Seidenfeld, Ph.D.

Acronyms

ACC	Area Coordinating Committee
AIR	American Institutes for Research
ARI	Acute Respiratory Infection
CGP	Child Grant Program
CPI	Consumer Price Index
CWAC	Community Welfare Assistance Committee
DD	Differences-in-differences
DSWO	District Social Welfare Officers
FANTA	Food and Nutrition Technical Assistance Project
FAO	Food and Agricultural Organization of the United Nations
FGT	Foster-Greer-Thorbecke
MCTG	Multiple Category Targeting Grant
MCDMCH	Ministry of Community Development, Mother and Child Health
OVC	Orphans and Vulnerable Children
RCT	Randomized Controlled Trial
UNICEF	United Nations Children's Fund
ZDHS	Zambia Demographic and Health Survey
ZMW	Zambian Kwacha

Executive Summary

***Background*:** This report provides the 36-month follow-up results for the Multiple Category Targeting Grant (MCTG) impact evaluation. In 2011, the government of the Republic of Zambia—through the Ministry of Community Development, Mother and Child Health (MCDMCH)—began implementing the MCTG in two districts: Luwingu and Serenje. American Institutes for Research (AIR) was contracted by UNICEF Zambia to design and implement a randomized controlled trial (RCT) for a three-year impact evaluation of the program, and to conduct the necessary data collection, analysis, and reporting.[1] This report presents findings from the 36-month follow-up study, including impacts on expenditures, poverty, food security, resilience, children, adolescents, and women's empowerment.

***Study Design*:** We implemented a randomized controlled trial (RCT) to estimate program impacts after 36 months. This study includes 3,077 households in 92 Community Welfare Assistance Committees (CWACs) that were randomly assigned to treatment or control groups. As shown in the baseline report, randomization created equivalent groups. Although we lost 3 percent of households to attrition after 36 months, we maintained equivalent groups and found no differential attrition between treatment and control groups. By maintaining the integrity of the RCT design, we can attribute observed differences between treatment and control groups directly to the MCTG with confidence.

The 36-month follow-up data collection occurred in November and December 2014—the early stage of Zambia's lean season, when people start to run out of food from their previous harvest. The timing of this round of data collection fell exactly 36 months after the baseline study. 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. Crops are planted in the rainy season and harvested from the end of February until May. Food is least scarce toward the beginning of the cold dry season when crops are harvested.

Overall Results after 3 years: The overall impacts at 36 months are similar in pattern and magnitude to those found in earlier rounds. Moreover, the overall impacts of the program sum to a value that is greater than the transfer size. The program was originally designed with the transfer size equal to roughly one additional meal a day for the average family for 1 month. However, we find that in addition to eating more meals and being more food secure, families are also improving their housing conditions, buying more livestock, buying necessities for children, reducing their debt, and investing in productive activities. Monetizing and aggregating these consumption and nonconsumption spending impacts of the MCTG gives an estimated multiplier of 1.68. In other words, each Kwacha transferred is now providing an additional 0.68, or almost 70 percent more, in terms of net benefit to the household. These multiplier effects are derived in part through increased productive activity, including diversification of income sources into off-farm wage labor, investment in livestock, and nonfarm enterprise, with the latter being managed primarily by women. The 1.68 multiplier estimate is based on program impacts and accounts for changes in the control group, thus can be entirely attributed to the MCTG.

The results from the collection of evaluation reports over the 3-year period of 2011–2014 demonstrate unequivocally that common perceptions about cash transfers—that they are a hand-out and cause dependency, or lead to alcohol and tobacco consumption,—are not true in Zambia. The 1.68 multiplier effect, which is driven by productive activity, speaks directly to the response by poor, rural households in Zambia to use and manage the cash wisely and productively to improve their overall standard of living. At no point during the 3- year evaluation have there been any positive impacts on alcohol and

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

tobacco consumption. In short, this unconditional cash transfer has proven to be an effective approach to alleviating extreme poverty and empowering households to improve their standard of living in a way that is most appropriate for them, based on their own choices.

We also see that program impacts persist at 24 and 36 months into program implementation. The consistency of these impacts over time is impressive because Zambia experienced strong economic growth throughout the country during the first two years of the study, meaning that the program had to outperform the control group during a period when the control group was experiencing improved food security and economic improvement. The control group demonstrates consistent gains across most indicators during the period of the study, as seen in figures throughout this report that show control group status over the 3 years. Yet the program still demonstrated large impacts above and beyond the general improvement occurring in the country.

***Consumption, Food Security and Poverty*:** The MCTG led to an increase in ZMK 19 per person per month in overall consumption, the majority of which is devoted to food (ZMK 16 per person per month), health and clothing. The program not only increased the overall level of food consumption but also noticeably improved diet diversity, with significant increases in protein; the level of meats consumption almost trebled among intervention households over the three year evaluation period. There was no increase in the purchase of temptation goods such as alcohol and tobacco. The impact on consumption is 66 percent larger than the per capita transfer size, implying an important multiplier effect of the MCTG.

Consistent with the large improvements in consumption, the MCTG reduced the severe poverty headcount rate by 9 percentage points. More importantly, the program reduced the poverty gap and squared poverty gap (based on the severe poverty line), which give more weight to the poorest households, by 12 and 11 points respectively. Similarly, the program had a 15 percentage point impact on the proportion of households eating 2+ meals per day, a key indicator in the program's results matrix.

***Resiliency*:** Similar to what we found at 24-months, we see that after 36-months the MCTG continues to have an important effect on improving the resiliency of households. The MCTG led to improvements across a number of domains that are typically associated with strengthening resilience including increased agricultural assets (livestock and small tools), non-agricultural assets (domestic items, radios, clocks), and significant strengthening of existing income generation sources. The program also led to a shift in coping mechanisms towards more self-reliance (e.g. savings) among those who experienced a negative shock.

***Children*:** Consistent with previous waves, at 36 months the proportion of children in treatment households who have all three materials needs (shoes, blanket, two sets of clothes) continues to be significantly higher than that of the control households. The 36-month impact estimate is 28 percentage points, with 63 percent of children in treatment households having all material needs satisfied versus only 41 percent among control households. The overall material needs indicator is driven by shoes, highlighting that money from the cash transfer is used for this children's item in particular.

The program continues to impact school enrolment and attendance for children age 11-14 and 15-17 where the risk of drop-out is highest in Zambia. The 11-14 age range is interesting with the enrolment effect mostly driven by boys, while the attendance effect is mostly driven by girls. School enrolment for these households tends to decrease at age 13, so the program is having a positive effect on children during the ages when they are more prone to dropout. The overall program impacts on enrollment are 8 and 11 percentage points for children 11-14 and 15-17 respectively. These impacts are larger than

those reported for even conditional cash transfer programs which condition on school enrollment, again highlighting that such conditions may not be necessary when households already value education but simply do not have the means to pay for it.

***Adolescent*:** We examine a range of youth-specific outcomes using a unique survey module administered to youth ages 13 to 17 at Baseline (16 to 23 at 36-month follow-up). Overall, we find that the MCTG had little impact on the range of outcomes examined here, such as sexual debut, partner characteristics, condom use, and mental health. These findings are in contrast to similar evaluations completed in Kenya and ongoing in Malawi and Zimbabwe. However, as noted above, there are large, positive impacts on school enrollment which is a strong protective factor for many of these outcomes examined. Thus, while we do not find impacts on these outcomes here, it is possible that over time, the program may indirectly impact these outcomes through the education pathway.

***Women*:** The majority of MCTG program beneficiaries are women, usually widows caring for orphans. We find some evidence of direct impacts on women. For example, there is an 18 point increase in the proportion of women who hold any savings as a result of the MCTG, and among those who save, the amount saved is also significantly higher among program beneficiaries. There is also a significant increase in the production of groundnuts which is predominantly a female crop in Zambia, suggesting then that the economic position of women recipients has been strengthened. As a result we also find a 7 percentage point impact on the proportion who believe their life will be better in two years, though there are no impacts on a measure of stress which we collected for the first time in the 36-month survey.

Putting the MCTG Evaluation in Context: In addition to the large and consistent impacts of the program, this study is notable and differs from other cash transfer studies within Zambia and across Africa for its technical design, size, and length. Previous studies of cash transfer programs in Zambia faced challenges demonstrating program impacts due to weak, quasi-experimental designs or poorly implemented RCTs. This study does not suffer from those threats to validity because it is a well-implemented randomized experiment that maintained the control group and benefits of randomization throughout the study period. This study is one of the first RCTs of a national-scale, government-run cash transfer program in Africa. Few evaluations of cash transfer programs can make such strong causal claims with certainty the way the Zambia MCTG evaluation can.

Below we provide a summary of impacts by domain for areas related to the goals of the program – reducing poverty, improving food security, improving livelihood conditions, improving child well-being, and increasing productivity.

Poverty:	36-Month Impact	Baseline Mean	36M Treated Mean	36M Control Mean
Headcount	**-0.09**	0.92	0.79	0.89
Poverty gap	**-0.12**	0.57	0.37	0.47
Per-Capita expenditures (ZMW 2011)	**19.66**	51.35	81.23	62.50
Does not consider itself very poor (%)	**0.30**	0.33	0.65	0.39
Better off than 12 months ago (%)	**0.41**	0.08	0.42	0.10

Food Security:	36-Month Impact	Baseline Mean	36M Treated Mean	36M Control Mean
Eats more than one meal a day (%)	**0.15**	0.71	0.95	0.76
Per-Capita Expenditures on Food (ZMW 2011)	**16.77**	39.51	60.70	45.80
Is not severely food insecure (%)	**0.19**	0.17	0.32	0.19
Food security scale	**2.69**	-14.67	-9.83	-12.47

Housing conditions:	36-Month Impact	Baseline Mean	36M Treated Mean	36M Control Mean
Households with toilet (%)	0.004	0.790	0.940	0.911
Households that purchased floor (%)	0.005	0.056	0.050	0.053

Child well-being: Schooling	36-Month Impact	Baseline Mean	36M Treated Mean	36M Control Mean
Enrollment 15-17 years (boys & girls), (%)	**0.111**	0.712	0.568	0.497
Enrollment 11-14 years (boys), (%)				
Enrollment 11-14 years (girls), (%)	**0.079**	0.805	0.808	0.772
Enrollment 8-10 years (boys & girls), (%)	0.069	0.814	0.807	0.778
Amount spent on school uniforms (11-14 years) (ZMW 2011)	0.041	0.680	0.758	0.757
	5.315	7.129	15.044	10.743

Adolescent Well-being	36-Month Impact	Baseline Mean	36M Treated Mean	36M Control Mean
Age at first sex (years)	-0.101			16.635
Condom use at first sex (%)	0.010			0.300
CES-D	-0.54	17.89	19.24	19.50
Depressed (>=20 on CESP-D index)	-0.02	0.33	0.45	0.46

Child well-being: basic material needs (Ages 5-17 – All)	36-Month Impact	Baseline Mean	36M Treated Mean	36M Control Mean
All needs met (%)	0.277	0.159	0.631	0.405

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

Production and economic activity:	36-Month Impact	Baseline Mean	36M Treated Mean	36M Control Mean
Household operates NFE (%)	**0.03**			0.08
Own NFE assets (%)	-0.14			7.27

Households owning chicken (%)	**0.26**	0.48	0.61	0.40
Households owning goats (%)	**0.23**	0.11	0.26	0.10
<u>Proportion of women holding savings</u>				
Any savings in previous 3 months (%)	**0.18**	0.13	0.26	0.10
Log Amount saved last month (ZMW)	**0.70**	1.26	1.09	0.42
Own maize production (Kg)	**127.11**	399.74	405.51	416.92
Own groundnut production (Kg)	**36.68**	63.77	73.25	46.33
% of crops sold	-0.03	0.15	0.20	0.25

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

I. Introduction

This report provides the 36-month follow-up results for the Multiple Category Targeting Grant (MCTG) cash transfer program impact evaluation. In 2011, the government of the Republic of Zambia—through the Ministry of Community Development, Mother and Child Health (MCDMCH)—began implementing the MCTG in two districts: Serenje and Luwingu. American Institutes for Research (AIR) was contracted by UNICEF Zambia in 2010 to design and implement a randomized controlled trial (RCT) for a three-year impact evaluation of the program and to conduct the necessary data collection, analysis, and reporting.[2] This report presents findings from the 36-month follow-up study, updating results from the 24-month impact report, including impacts on expenditures, poverty, food security, living conditions, children, women, and productivity.

Background

In 2011, Zambia's MCDMCH started the rollout of the MCTG in two districts: Serenje and Luwingu. 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 and under five years old). The government decided to introduce a new model—the MCTG—in two new districts that had never received a cash transfer program. This categorical model targets any household that meets any of the following conditions:

- A female-headed household keeping orphans
- A household with a disabled member
- A household headed by an elderly person (over 60 years old) keeping orphans
- A special case: This category is for cases that are critical but do not qualify under the other categories (for example, a household of two elderly people who are unable to look after themselves)

Recipient households receive 70 kwacha (ZMW) a month (equivalent to U.S. $11)—an amount deemed sufficient to purchase one meal a day for everyone in the household for one month. The amount is the same regardless of household size. Payments are made every other month through a local paypoint manager, and there are no conditions that must be met in order to receive the money.

Locations

The MCDMCH chose to start the MCTG in the two districts within Zambia that have some of the highest rates of extreme poverty, thus introducing an element of geographical targeting to the program. The two districts are Luwingu (located in Northern Province) and Serenje (located in Central Province).

Objectives

According to the MCDMCH, the goal of the MCTG 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 focus primarily on assessing change in these areas. According to the MCTG operations manual, the program has the following six objectives (listed in no particular order):

- To supplement and not replace household income
- To increase the number of children enrolled in and attending primary school
- To reduce the rate of mortality and morbidity among children under five
- To reduce stunting and wasting among children under five

- To increase the number of households having a second meal per day
- To increase the number of households owning assets such as livestock

II. Conceptual Framework

The MCTG provides an unconditional cash transfer to households that meet one of several demographic criteria. MCTG-eligible households are extremely poor: At baseline, 91 percent fell below the national extreme poverty line and had a median household per capita daily consumption of ZMW 1 (approximately 20 U.S. cents). Households with very low levels of consumption will spend almost all their income. We therefore expected that among the beneficiary population, virtually all of the cash transfer will be spent during the initial stages of the program, and that it will be spent on meeting basic needs such as food, clothing, and shelter. Once these immediate basic needs are met (and possibly after a period of time has elapsed), the influx of new cash may then trigger further responses within the household economy—for example, by providing room for investment, other productive activity, and the use of services, and by freeing up older children from labor obligations in order to attend school.

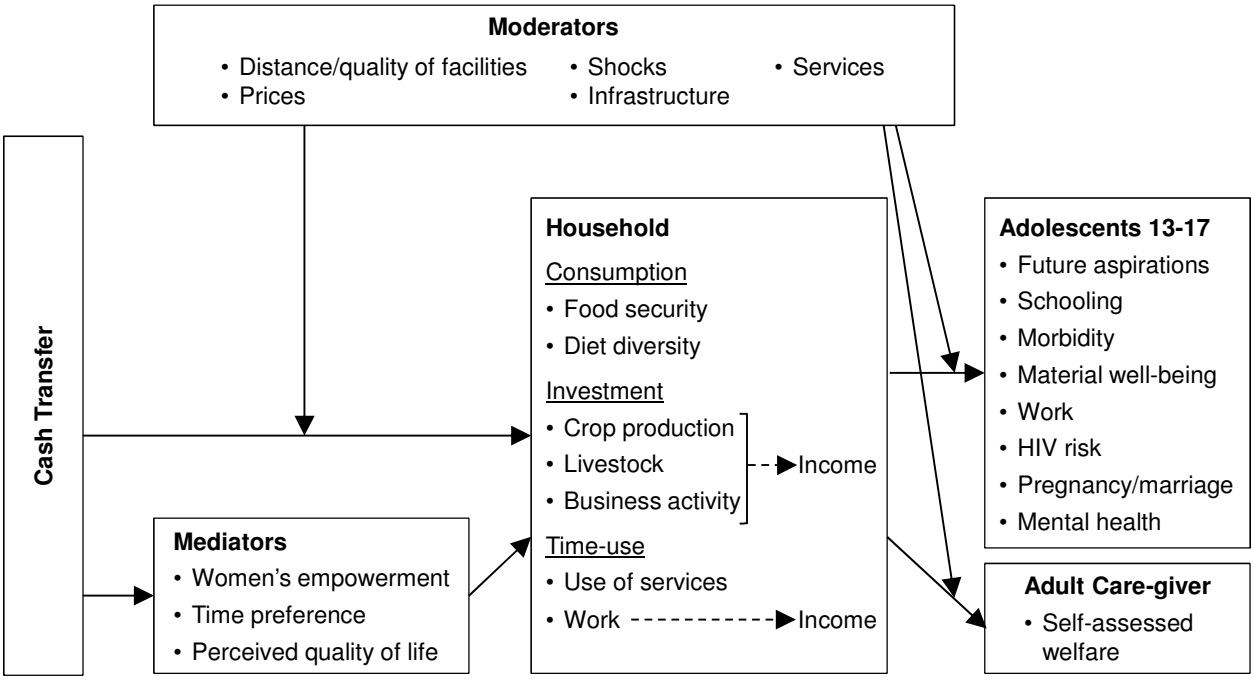
Figure 1, presented in earlier reports, brings these ideas together into a conceptual framework that shows how the MCTG can affect household activity, the causal pathways involved, and the potential moderating and mediating factors (moderators and mediators). The diagram is read from left to right. We expected the cash transfer to have a direct effect on household consumption (food security, diet diversity), 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 be affected by several mediating factors, including bargaining power within the household, the degree to which the household is forward looking, and the expectations the household has about quality of life in the future (which could determine investment and other choices with longer term implications). Similarly, the impact of the cash transfer may be smaller or larger depending on local conditions in the community (moderators). These moderators include access to markets and other services, prices, and shocks. Moderating effects are shown with lines that intersect the direct causal pathways between the cash transfer and outcomes to indicate that they can influence the strength of the direct effect.

The next step in the causal chain is the effect on adolescents, and here we focused on adolescents aged between 13 and 17 at baseline—an important demographic group within the target households. At baseline, roughly 16 percent of all household members in the sample fell within this five-year age range. The key point here is that any potential impact of the program on children will work through the household, either through household spending or household time allocation decisions (including use of services). This link between the household and children can be moderated by environmental factors, such as distance to schools or health facilities (as indicated in the diagram), and by 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 techniques,[3] and this information will be important to help us understand the actual impact of the program on behavior.[4] In Figure 1, we list some of the key indicators along the causal chain that we analyze in the evaluation of the MCTG.

[3] 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.

[4] 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 adult recipients to learn to read and write.

Figure 1. Conceptual Framework for Impact Evaluation of Zambia Multiple Categorical Grant



III. Study Design

The MCTG impact evaluation relied on a design that randomized communities to treatment and control groups to estimate the effects of the program on recipients. Communities identified by Community Welfare Assistance Committees (CWACs) were randomly assigned to either the treatment group (which started the program in November 2011) or to the control group. This study reports on the effects of the program after three 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 (which receives the intervention) and others to a control group (against which comparisons can be made). An RCT permits us to directly attribute any observed differences between treatment and control groups to the intervention. Without randomization, unobserved factors (such as motivation) could have influenced members of a group to move into the treatment or control group.[5] Randomization helps to ensure that both observed and unobserved characteristics that may affect the outcomes are similar between the treatment and control groups. 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 the control and treatment groups found that randomization had created equivalent groups at baseline for the MCTG 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 MCTG 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 MCTG 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 interviewed up to two adolescents between the ages of 13 and 17 in each household. The adolescent interviews were held in private and enumerators could only interview adolescents of the same gender in order to be culturally sensitive given the private nature of the questions. In addition to the household survey, two senior enumerators administered a community questionnaire in every CWAC to a group of community leaders, including CWAC committee members, teachers, village headmen, and local business owners.

The 36-month follow-up data collection occurred towards the beginning of Zambia's lean season, when people start to have the least amount of food left from the previous harvest and hunger worsens. The timing of this round of data collection fell exactly 36 months after the baseline study, ensuring that households were being compared during the same season as at baseline. Zambia's seasonality was also

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

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 (November through December, 2014) to avoid difficulties 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 middle of the rainy season (February and March) because this is the longest period without a food harvest. The MCTG 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 and the study was therefore designed with baseline and follow-up periods of data collection towards the beginning of 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. Inconsistent responses between the two entries were flagged, and the actual response was then identified by referring back to the original questionnaire.

Analysis Approach

This study is a longitudinal, randomized, controlled evaluation with repeated measures at the individual and household level. We estimated program impacts on individuals and households using a differences-in-differences (DD) statistical model that compares change in outcomes between baseline and follow-up data collection and between treatment and control groups (see Annex 1 for details on this method). The DD estimator coupled with randomization is the strongest estimation technique available to assess impact, and this method has been used in Mexico's Progresa program[6], the Kenya's Cash Transfer for Orphans and Vulnerable Children, and the Child Grant Program in Zambia, among others.[7] We used cluster-robust standard errors to account for the lack of independence across observations due to the clustering of households within CWACs. We also used inverse probability weights to account for the 3 percent attrition in the follow-up sample.[8] The MCTG provides the same cash transfer amount, regardless of the household size. As such, we investigated differential impacts by household size for each outcome given that the per capita value of the transfer is larger among smaller households; we present impacts by household size only when they are different.

[6] http://wbro.oxfordjournals.org/cgi/reprint/20/1/29

[7] 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.

[8] Woolridge, J. W. (2010). *Econometric analysis of cross section and panel data*. Cambridge, MA: MIT Press.

IV. Attrition

Attrition within a sample occurs when households originally sampled and interviewed in the baseline are missing or were not interviewed 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 estimate 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. 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 achieve through randomization at the 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 of attrition should be small.

We investigate attrition at the 36-month follow-up by testing similarities using baseline data between: (1) treatment and control groups for all households within the panel sample (differential attrition) and (2) the full sample of households at baseline and the sample of households which remain at the 36-month follow-up, or the panel sample (overall attrition). Testing these groups on baseline characteristics can assess whether the benefits of randomization are preserved at follow-up. Because youth are a target group for the evaluation outcomes, we also test for attrition among the sample of youth completing the youth module using similar methodology. Fortunately, in general, we do not find significant differential or overall attrition at the 36-month follow-up, meaning that we preserve the benefits of randomization.

Differential Attrition

We find no difference in baseline characteristics between the treatment and control households that remain in the study at the 36-month follow-up, meaning that there is no differential attrition and the benefits of randomization are preserved. Table 4.1 shows the household response rate at 36-month follow-up by treatment status for each district. The response rates are balanced between the treatment and control groups. We test the household control variables and outcome measures for statistical differences at baseline between the treatment and control groups that remain in the 36-month follow-up analysis. None of the indicators are statistically different; demonstrating that on average households missing from the 36-month follow-up sample looked the same at baseline regardless of whether they were from the treatment or control group.

The similarity of the 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 2 for the results of the tests on mean differences.

Table 4.1: Household Response Rate by Study Arm at 36-Month Follow-Up for MCTG (n =3,076)

District	Treatment	Control	N
Serenje	95.8	97.7	1,561
Luwingu	95.1	97.6	1,515
Overall	95.5	97.7	3,076

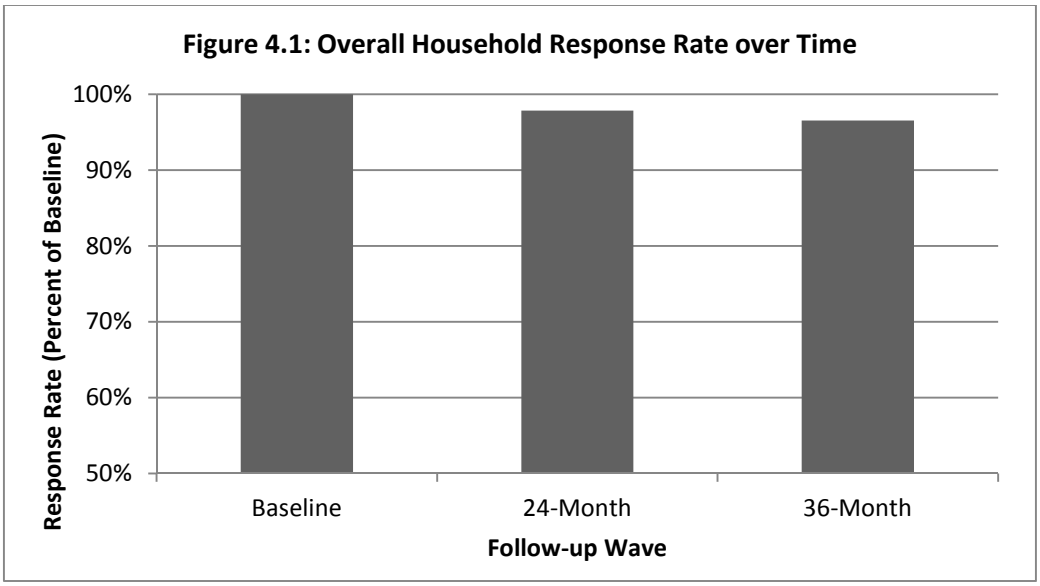
Overall Attrition

As Table 4.2 shows, over 96 percent of the households from baseline remain in the 36-month follow-up sample, which is one percentage point higher than in the 24-month sample. In addition, the attrition rate is almost the same in both districts. There are almost no statistically significant mean differences in the baseline characteristics between the remaining sample at 36-month follow-up and the sample at baseline. We found 3 out of 16 indicators to be statistically different, a result that we could expect due purely to chance. These results suggest no overall attrition. See Annex 2 for all results comparing the full baseline sample with those who remain in the 36-month follow-up.

Table 4.2: Overall Attrition for MCTG 36-Month Follow-Up: Household Response Rate by District

District	Response rate	Households at Baseline	Percent Total Missing Households (n=106)
Serenje	96.80	1,561	50.88
Luwingu	96.30	1,515	49.12
Overall	96.55	3076	100

The study also maintained a high overall household response rate over time, as Figure 4.1 illustrates.



Youth Attrition

As a target group of the MCTG, and as we conduct separate interviews among youth, they are a key study sub-group of interest. High levels of youth attrition could mitigate the effects of randomization and reduce the study's ability to attribute impacts to the program. Table 4.3 shows youth attrition, overall and by district from the original cohort who were interviewed at baseline, through the 36-month evaluation. It is important to keep in mind that different instructions regarding youth interviews were implemented across waves (e.g. age ranges and numbers of target youth per household), which may affect attrition rates. These differences and implications for analysis are described in detail in Chapter X. It is also useful to keep in mind that mobility is generally higher for youth, who may leave households for schooling, work and marriage as part of natural life cycle events, as compared to established adult household members. Thus, tracking and interviewing youth as part of panels is typically a challenge across developing countries.

The youth attrition rate was 41 percent which is higher than overall attrition. Amongst those who left between the 24-month and 36-month sample, 54 percent of missing youth left to live with other relatives, 14 percent got married and moved away, and 6 percent moved out of the household with their mother or father. There is no significant difference between the treatment and control groups in reasons for leaving the household. To preserve the number of youth in the sample, another member of the household in the age-range was surveyed when the youth from baseline was unavailable. There were 1,080 new youth who completed the youth module in the 36-month data collection (aged 16-23 years). Despite the higher rates of attrition for youth, for most variables, there is no difference in the baseline characteristics of the treatment and control groups. However, there are a few demographic variables that are statistically significant. This is not surprising given that youth are highly mobile, and therefore the remaining and full sample is likely to differ along some dimensions. See Annex 2 for all the results comparing the baseline sample with those youth who remain in the 36-month follow-up.

Table 4.3: Youth Attrition for MCTG 36-Month Follow-Up: Youth Response Rate by District

District	Response rate	Youth at Baseline	Percent Total of Missing Youth (n=819)
Serenje	58.5	1,110	56.3
Luwingu	60.8	910	43.6
Overall	59.5	2,021	100

V. Operational Performance

Zambia's MCDMCH had implemented the CGP cash transfer program for 36 months by the time AIR conducted data collection for this report. This section discusses the fidelity of program implementation from the beneficiaries' perspective. We focus on two primary areas: payments and program understanding. The first part investigates recipients' experience around three themes related to payments: access, unjust solicitations, and timeliness. Next, we examine recipients' knowledge of the program about eligibility requirements, and resources for complaints.

Overall, the ministry successfully implements the cash transfer program. Beneficiaries receive the right amount of money according to schedule, can access the money without any cost, 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 believing there are guidelines to follow. The analyses for this section includes responses from beneficiaries of the program at the three year follow up, as well as a comparison of all waves. Thus, all of the data presented here are from people who have been receiving the cash transfers for three years. Data and analyses are presented through descriptive statistics due to the cross sectional nature of the data. There are 1,141 households in the sample spread across ninety-two communities in the two MCTG districts (Serenje and Luwingu).

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 or other community members, and lack of timely payments could negatively impact 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 three themes related to payments: access to payments, unjust solicitations for payments, and timeliness.

Access: Findings from the study suggest that recipient households incur little to no cost in their travel experience to access their cash. These results help explain the low missed payments over the past three years. Almost every recipient walks to the pay point (ninety-seven percent), with under one percent reporting that they paid any money for travel. Recipients walk on average 32 minutes one-way to the pay point and wait an average of 41 minutes to receive their payment. Less than two percent of recipients report ever having to make multiple trips to receive a single payment. Therefore, pay points appear to be appropriately located, easily accessible, and reliable.

Solicitations: Solicitations were rarely reported. Less than one percent of recipients were solicited by either a pay point staff member or another community member.

On-time payments: Overall, payments during the two year period have been consistently on time for both districts. Ninety-nine percent of payments to recipients had been paid within the last three months, and 82 percent of recipients expect to receive next payment within two months. The program is phasing out, so we expect the number of households continuing on the program to decline over time.

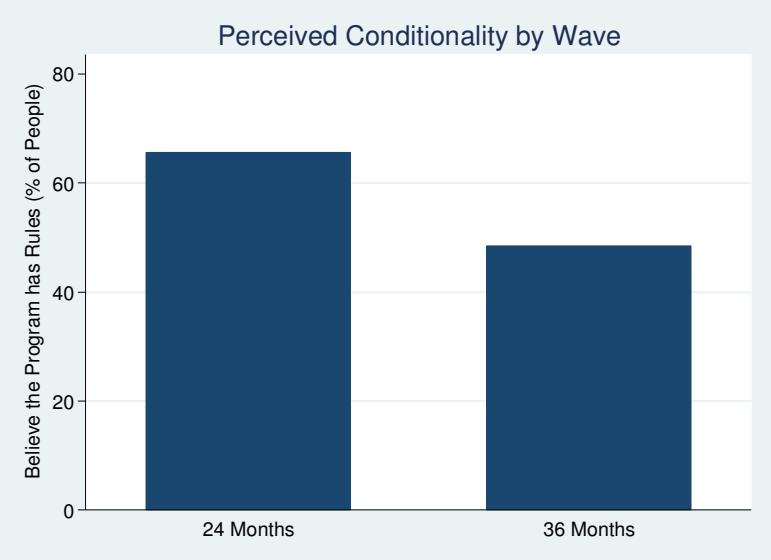
Program Understanding

Recipients demonstrate a mixed understanding of the policies for the cash transfer program. Recipients were asked various questions regarding their understanding of the program with respect to resources for complaints and eligibility requirements.

Complaints: The payment problem contacts seem largely consistent with the complaint and problem reporting mechanism of the MCTG. A complaint is first reported to a CWAC grassroots organization who then reports problem they cannot solve to the DSWO. Sixty-five percent of those recipients listed a CWAC member among their three points of contact for a payment problem, 28 percent listed a pay point staff member, and seven percent listed a DSWO. However, among the three percent of recipients (29 households) that have contacted someone about a payment problem, 67 percent contacted a CWAC member.

Eligibility: As a way to assess how the operational performance changed over time, we looked at the percentage of people who believe there are such eligibility rules in each wave. Given that this is an unconditional cash transfer, we consider an improvement in program understanding when more participants recognize that there are no rules. As the figure below shows, the number of people who believe they have to fulfill requirements to receive the cash transfers has been declining over the course of the program. In wave 3 (36 month follow-up), approximately 48 percent of recipients believe that they have to obey certain rules to continue receiving payments. This represents a drop of over 15 percentage points in perceived conditionality relative to wave 2 (24 month follow-up). In addition, roughly 20 percent of those households were able to identify a rule associated with continuing eligibility, compared to about thirty percent in the previous wave. This suggests that program understanding, while mixed, has been improving over time.

Figure 5.1



VI. Consumption Expenditures

This report contains analysis after 36 months of implementation, clarifying the impacts from the MCTG over time. Furthermore it provides a comparison to other cash transfer programs in sub-Saharan Africa, including the Ministry's Child Grant Program (CGP), which provides a transfer to any household with a child under 5 years old in Kalabo, Kaputa and Shang'ombo Districts.

Table 6.1 shows the impact estimates for total per capita expenditure and the impacts on per capita spending on other consumption items. Tables in this report follow a format that provides information about impacts at 36 months, 24 months, as well as statistics at baseline. Our explanation of the first table, Table 6.1, can be applied to all similar tables that follow. Column (1) in this table shows the impact of the MCTG between baseline and 36 months. Column (2) shows the impact of the MCTG between baseline and 24 months. Column (3) shows the difference between the impact at 36 and the impact at 24 months. Columns (4), (5), and (6) show the overall mean at baseline as well as the mean values for the treatment and control groups at 36 months. These are important in assessing the absolute levels of consumption for the two groups, because the impact estimates in column (1) indicate differences in levels between baseline and 36 months. The t-statistic, shown in parentheses under the impact estimate, is used to help determine statistical significance[9].

Incomes for households in both treatment and control areas have increased over time, which is consistent with a general trend in rural Zambia, which experienced a bumper harvest in 2012, improving households' ability to consume. However, the treatment group improved to a much greater extent and given the rigorous design of the study this difference can be entirely attributed to receipt of the MCTG. The estimate for total per capita expenditure (row 1 of Table 6.1) reveals that the MCTG increased total per capita consumption spending by ZMW 19.96 per month, which is approximately 1.66 times the per capita value of the transfer. Note that this impact estimate as well as all of the impact estimates in this report account for gains made by the control group. The additional increase of ZMW 19.96, which is greater than the transfer amount, suggests a multiplier effect of the programme working through increased economic productivity—we discuss this multiplier effect at the end of this report.

The subsequent rows of Table 6.1 show the distribution of the increased spending by category. As we found in our 24 month report, the majority of the increased spending goes to food (ZMW 16.79), which accounts for 84 percent of additional spending, followed by health and hygiene (ZMW 1.38) at 7 percent, and clothing at 3 percent. Also consistent with our 24 month report, there has been no program impact on education, domestic items, transportation/communication, or alcohol/tobacco.

Table 6.1: MCTG Impacts on Per-Capita Expenditures (ZMW 2011=100)

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Total	**19.96**	**12.23**	7.73	51.35	81.23	62.50
	(3.90)	(3.52)	(1.97)			
Food	**16.79**	**10.64**	6.15	39.51	60.70	45.80
	(4.09)	(3.92)	(1.76)			

[9] Statistical significance means that the observed impact is unlikely to be 0. The t-statistic is a standardized version of the impact estimate. When the t-statist is greater than a specified number (based on the alpha level, or level of confidence to avoid false positive results), then the underlying impact estimate is called statistically significant.

Clothing	**0.56**	**0.49**	0.07	1.02	1.69	1.14
	(2.93)	(2.61)	(0.49)			
Education	0.34	0.27	0.07	1.34	2.38	2.19
	(1.14)	(1.22)	(0.29)			
Health	**1.38**	**1.32**	0.06	2.24	4.50	3.35
	(3.68)	(3.09)	(0.14)			
Domestic	0.51	0.11	0.40	5.68	8.10	6.76
	(0.83)	(0.16)	(0.68)			
Transport/Communication	0.15	-0.23	0.38	0.75	1.19	1.00
	(0.38)	(-0.91)	(1.13)			
Other	0.12	-0.22	0.34	0.16	2.22	2.06
	(0.28)	(-0.89)	(1.11)			
Alcohol, Tobacco	0.11	-0.14	**0.25**	0.63	0.45	0.21
	(0.36)	(-0.47)	(2.48)			
N		9,056		3,077	1,490	1,479

NOTE: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

To better characterize the impacts of the MCTG program over time, Figures 6.1 and 6.2 show the level of total and food consumption across the three survey rounds by study arm. The data collection for all survey rounds occurred during the early stage of Zambia's lean season, when people start to run out of food from their previous harvest. The increase from baseline to 24 months for the control group depicts the effect of the bumper harvest in 2012; however the MCTG explains why the overall level of consumption in the treatment group is higher during these lean seasons than the level in the control group. Additionally while the treatment group experienced an increase in per capita consumption between 36 and 24 months, the control group's per capita consumption level declined slightly, increasing the difference (i.e., the vertical distance) between groups.

Figure 6.1

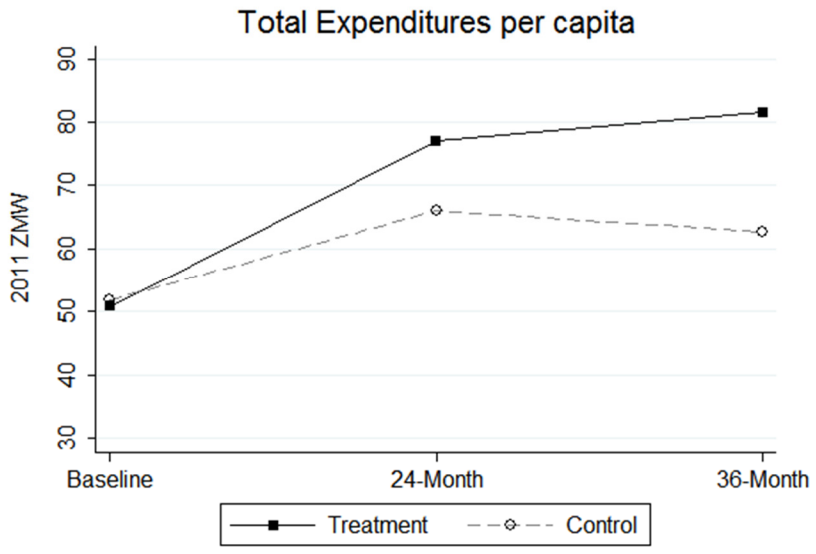
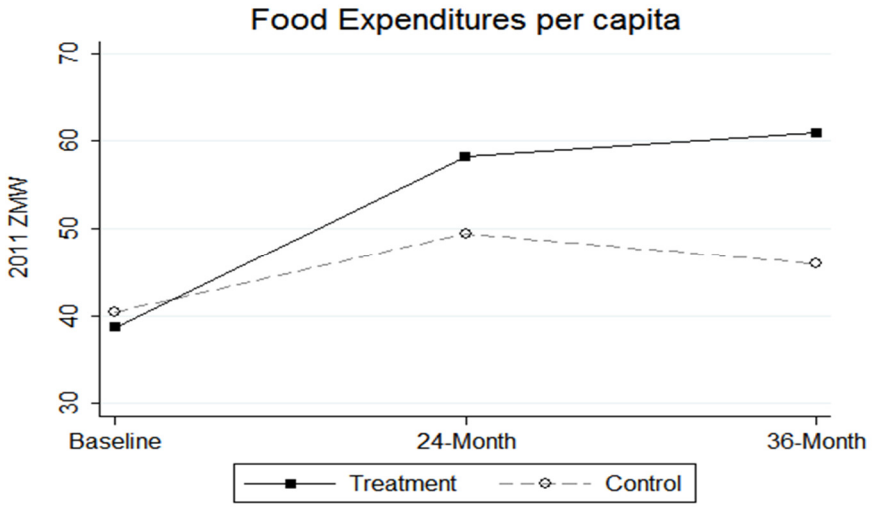


Figure 6.2



An analysis of the consumption share version of this data (contained in Table 6.2) reveals a negative impact on households' share of expenditure towards domestic items, the bulk of which is composed of firewood. The consumption share for domestic items is defined as the household's expenditure for domestic items divided by the household's total expenditure. This decrease is compensated by an increase in households' share of expenditure towards food, whose positive impact is nearly significant. That is, in addition to the increase in food expenditure levels we saw in Table 6.1, households have increased the fraction of their total expenditure spent on food. While spending (and also the spending share) on food increased upon receipt of the transfer, the level of spending on firewood remained the same. Since total expenditures have increased, there was a decrease in the fraction spent on domestic items.

Table 6.2: MCTG Impacts on Per Capita Expenditure Shares

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Food	**0.042**	0.032	0.011	0.754	0.745	0.727
	(2.305)	(1.815)	(0.797)			
Clothing	0.003	0.002	0.000	0.022	0.022	0.018
	(0.820)	(0.700)	(0.103)			
Education	-0.002	0.002	-0.005	0.029	0.033	0.038
	(-0.436)	(0.659)	(-1.066)			
Health	0.007	0.008	-0.001	0.046	0.055	0.052
	(1.476)	(1.842)	(-0.489)			
Domestic	**-0.045**	**-0.036**	-0.009	0.128	0.109	0.124
	(-3.162)	(-3.000)	(-0.926)			
Transport/Communication	-0.002	-0.003	0.001	0.010	0.010	0.010
	(-0.622)	(-1.113)	(0.417)			
Other	-0.005	**-0.006**	0.001	0.003	0.021	0.026

	(-1.620)	(-2.362)	(0.333)			
Alcohol, Tobacco	0.003	0.001	0.002	0.007	0.005	0.003
	(1.648)	(0.335)	(1.764)			
N		9,056		3,077	1,490	1,479

NOTE: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

As reported in Table 6.1, the overall increase in food spending was ZMW 16.79. Table 6.3 breaks down the program impacts to reveal an increase in spending in 5 of the 8 detailed food groups. The largest share of this spending went to meats including poultry and fish (ZMW 5.15), followed by cereals (ZMW 3.21), pulses (ZMW 2.70), fats and oils (ZMW 1.82), and sugars (ZMW 1.42); the slight increase in dairy was nearly significant. As of the 24-month report, we only observed increases in food in meats, cereals, and sugars. This expanded variety of food spending supports the continued possibility of diet diversity improvements among MCTG recipients.

Table 6.3: MCT Impacts on Per-Capita Expenditures by Food Group (ZMW 2011=100) – Levels

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Cereals	**3.21**	**3.06**	0.15	7.22	8.39	6.78
	(3.51)	(4.12)	(0.25)			
Tubers	0.79	-0.16	0.95	8.95	8.70	7.56
	(0.76)	(-0.18)	(1.33)			
Pulses	**2.70**	1.37	1.34	3.30	6.23	3.81
	(3.73)	(1.59)	(1.77)			
Fruits, Veg	1.34	0.86	0.48	9.74	16.11	14.99
	(0.85)	(0.90)	(0.30)			
Meat	**5.15**	**3.79**	1.36	4.95	13.07	7.89
	(4.48)	(2.79)	(0.84)			
Dairy	**0.37**	0.10	**0.27**	0.28	0.77	0.40
	(2.57)	(0.98)	(2.21)			
Sugars	**1.42**	**1.18**	0.23	0.92	2.34	1.17
	(4.75)	(4.95)	(0.69)			
Fats, Oil, Other	**1.82**	0.45	**1.37**	4.15	5.09	3.19
	(3.10)	(0.72)	(3.12)			
N		9,056		3,077	1,490	1,479

Notes: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

Impacts by Household Size

Recall that the MCTG provides the same cash transfer amount to all households, regardless of size. However, MCTG households vary in size: Approximately half of the households had five or fewer members at baseline, and the other half had six or more members at baseline. As such, the value of the transfer per capita within a household varies greatly, which could lead to differential program impacts. We thus investigated the possibility of differential program impacts by household size by comparing smaller households (four or fewer members) with larger households (five or more members). Throughout this report, we provide impacts by household size only when a difference existed.

As we saw in the 24-month report, after 36 months the program impacts on total per capita expenditure were larger for small households than larger households (see Tables 6.4 and 6.5, which display total expenditure impacts for small and large households, respectively); however, the discrepancy between small and larger households has narrowed. After 24 months the impact for small households on total expenditures was larger by a factor of 2.1; after 36 months the impact for small households was larger by a factor of 1.7. Nevertheless, the markup remains unsurprising since small households received the same amount of a transfer as larger households. Increases in food and health expenditures influenced the increase in total expenditures for small households; for larger households, the increase was from these same categories as well as clothing. The impact on food and health categories was larger for small households (by a factor of 2.2 times for food and 1.1 times for health and hygiene).

Table 6.4: MCTG Impacts on Per Capita Expenditures for Small Households (ZMW 2011=100)

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Total	**25.26**	**16.95**	8.31	67.30	99.69	76.44
	(3.57)	(2.81)	(1.70)			
Food	**23.50**	**16.21**	7.29	52.14	75.87	56.26
	(4.00)	(3.60)	(1.64)			
Clothing	**0.56**	**0.53**	0.02	1.24	1.93	1.32
	(2.20)	(2.04)	(0.12)			
Education	-0.04	-0.15	0.10	1.16	1.90	1.87
	(-0.12)	(-0.54)	(0.30)			
Health	**1.46**	**1.68**	-0.22	2.87	5.50	4.15
	(3.01)	(2.03)	(-0.29)			
Domestic	-0.14	0.04	-0.18	7.99	9.85	8.68
	(-0.14)	(0.04)	(-0.21)			
Transport/Communication	0.19	-0.60	0.79	0.69	1.18	0.86
	(0.39)	(-1.70)	(1.58)			
Other	-0.25	-0.35	0.10	0.15	2.87	3.07
	(-0.36)	(-0.85)	(0.20)			
Alcohol, Tobacco	-0.02	-0.42	**0.40**	1.06	0.59	0.24
	(-0.03)	(-0.67)	(2.16)			
N		4,206		1,431	701	672

Notes: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

Our expenditure share finding in the overall analysis (increased share towards food and decreased share towards domestic items) is driven by small households (see Annex Tables A3.1 and A3.2). In fact, for larger households, the changes in expenditure shares for the various categories are statistically indistinguishable from zero. For small households, who are on average richer, the per capita transfer amount may be large enough to affect a change in expenditure shares.

We found similar differences in terms of the composition of food spending impacts in small and larger households. In small households, the impact of the MCTG on food consumption was more than twice as large for cereals and pulses, 1.8 times as large for fats and oils, and 1.5 times as large for meat and sugars as it was in larger households (see Annex Tables A3.3 and A3.4). These distinct patterns are likely linked to the differences in the number of people in the household who have to share the benefits of the cash transfer.

Table 6.5: MCT Impacts on Per Capita Expenditures for Large Households (ZMW 2011=100)

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Total	**15.28**	**7.98**	7.31	37.47	64.83	50.89
	(3.51)	(3.41)	(1.90)			
Food	**10.93**	**5.75**	5.18	28.52	47.22	37.08
	(3.33)	(2.81)	(1.60)			
Clothing	**0.57**	**0.44**	0.13	0.84	1.47	0.99
	(3.12)	(2.56)	(0.82)			
Education	0.69	**0.65**	0.04	1.50	2.80	2.46
	(1.74)	(2.01)	(0.13)			
Health	**1.28**	**0.97**	0.32	1.70	3.61	2.70
	(3.48)	(4.06)	(0.95)			
Domestic	**1.09**	0.14	0.94	3.68	6.54	5.16
	(2.04)	(0.36)	(1.87)			
Transport/Communication	0.12	0.08	0.05	0.81	1.20	1.11
	(0.25)	(0.26)	(0.11)			
Other	0.37	-0.16	0.53	0.17	1.65	1.22
	(1.16)	(-1.14)	(1.67)			
Alcohol, Tobacco	**0.23**	0.12	0.12	0.26	0.34	0.18
	(2.04)	(1.12)	(1.17)			
N		4,850		1,646	789	807

Notes: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

Summary of Impacts on Expenditures

MCTG-eligible households are extremely poor, with 95 percent falling below the national extreme poverty line. Among households at such low levels of consumption, almost all of the income from the program is consumed to meet immediate basic needs. We find that total per capital consumption levels were the highest among MCTG recipient households after 36 months. In fact the per capita consumption spending increased by more than the value of the transfer, indicating that beneficiaries are able to invest and grow the transfer over time. Most of the additional consumption is on food, clothing, and health. Furthermore, beneficiary households not only have higher food expenditures but are also eating a more diverse and healthier diet as indicated by the shift away from roots and tubers toward protein (dairy, meats). This is consistent with our conceptual framework which suggests that households composed of poor and labor constrained individuals will consume almost all of the income from the transfer. There is no program impact on domestic items or alcohol/tobacco. The impacts are much bigger for smaller households than larger ones, which makes sense given that the MCTG is a flat transfer, regardless of household size, so the per capita transfer size is bigger for smaller households.

Our results related to expenditures are consistent with findings from the CGP program and other literature on unconditional transfers in sub-Saharan Africa. The CGP produced evidence of consumption

smoothing and increased total per capita consumption spending by an amount similar to the increase from the MCTG, approximately the per capita value of the transfer. Almost all the income from the MCTG was consumed, similar to the CGP and as would be expected of very poor households. The Mchinji social cash transfer in Malawi, which similarly targeted ultra-poor and labor-constrained households with unconditional cash transfers, found positive impacts on consumption levels resulting from the cash transfers.[10] However the evaluation of that program lasted for only one year, eliminating the opportunity for long term conclusions. Similarly, the Kenya CT-OVC Evaluation Study Team report that the Kenya Cash Transfer for Orphans and Vulnerable Children (CT-OVC) unconditional cash transfer also produced significant positive impacts in expenditure on health and food items and similarly improved diet diversity.[11] On the other hand, the Livelihood Empowerment Against Poverty Program (LEAP) in Ghana, which provided cash and health insurance to extremely poor households on an unconditional basis, found no impacts on household consumption except for positive expenditure on seeds.[12] The results for LEAP could be attributed to the sporadic payments during the evaluation period which did affect permanent income. Overall the existing evidence and results from the MCT support the conclusion that unconditional cash transfers have a significant impact on consumption, demonstrating that beneficiaries spend the transfer instead of using it to replace consumption.

[10] Strobbe, F. and Miller, C. (2011). Cash Transfers in an Epidemic Context: The Interaction of Formal and Informal Support in Rural Malawi. Policy Research Working Papers. The World Bank Group. Available at http://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-5824

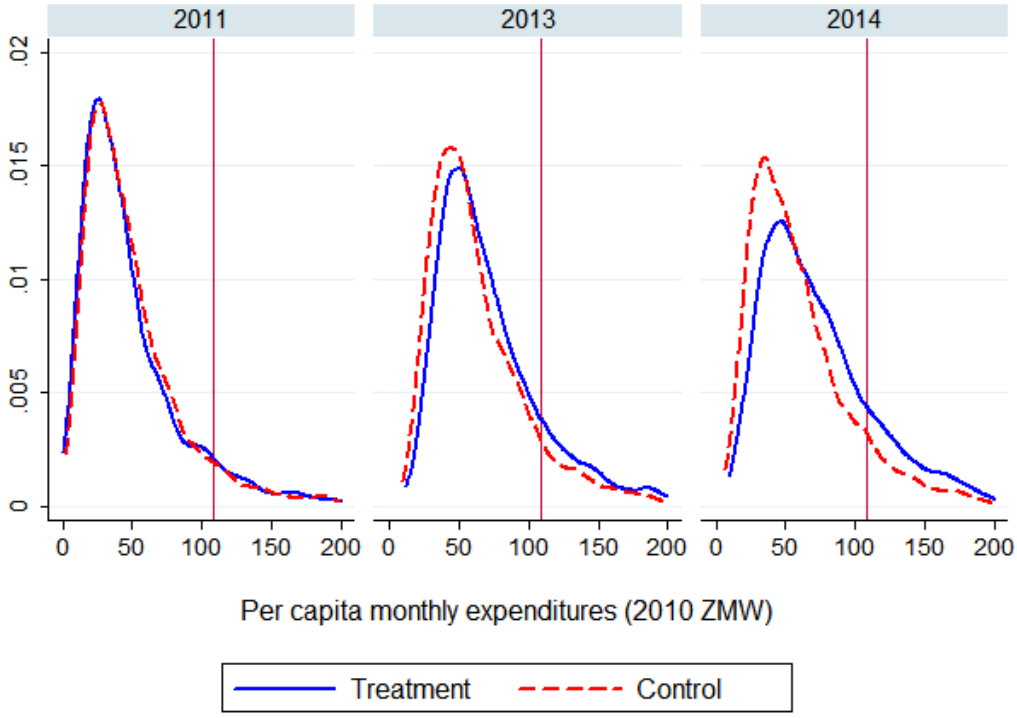
[11] Kenya CT-OVC Evaluation Study Team (2012) Impact of the Kenya CT-OVC on Spending. Journal of Development Effectiveness, 4:1, xx-xx.

[12] Handa, S., Park, M., Darko, R. O., Osei-Akoto, I., Davis, B., & Daidone, S. (2013). Livelihood Empowerment Against Poverty Program Impact Evaluation. Chapel Hill: University of North Carolina, Carolina Population Center. Available at: http://www. unicef. org/ghana/gh_resources_LEAP_Quant_impact_evaluation_FINAL_OCT _2013. pdf.

VII. Poverty and Food Security

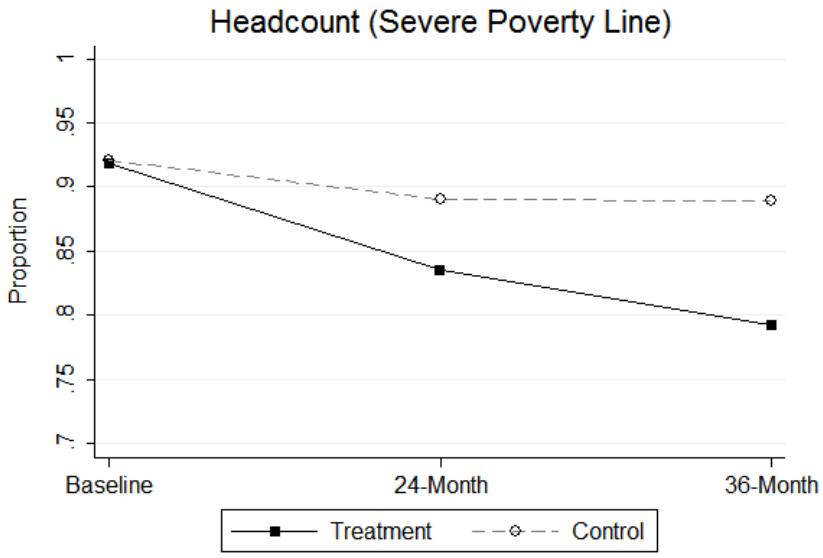
In this chapter, we provide estimates of the MCTG program's impact on measures of poverty and food security. Figure 7.1 compares the distribution of per capita monthly consumption expenditure between the treatment and control groups at baseline, after 24 months, and after 36 months. The vertical line is the severe poverty line, as defined by the Central Statistics Office in 2011 (ZMW 96.37), deflated to 2011 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 2011, the two distributions were almost identical, but by 2013 the distribution of per capita expenditure among treatment households had clearly shifted to the right relative to control households and continued to shift in that direction by 2014. These shifts indicate that over time, there have been fewer individuals in extreme poverty from the treatment sample as compared to the control sample.

Figure 7.1: Distribution of Per Capita Expenditures by Wave and Treatment Status



Correspondingly, we also observe that the proportion of households below the severe poverty line decreased for both samples over time. For the control group this decrease reflects the general reductions in poverty that occurred in Zambia during the time period, in part due to the bumper harvest of 2012. However, as we can see in Figure 7.2 the reduction in the share of households below the severe poverty line was greater in the treatment sample (as compared to the control), and the gap between groups continued to increase. In 2011 the same proportion of households (92 percent) in the treatment and control samples were below the severe poverty line. Both the treatment and control groups experienced declines in the proportion of households below the poverty line by the time of the 24 month report. However while the proportion continued to decrease after 36 months for households in the treatment group (to 79 percent), it remained relatively constant (at 89 percent) for households in the control group.

Figure 7.2



In addition to containing the baseline and 36 month proportions of households below the severe poverty line, Table 7.1 provides details on the impact of the MCTG on the three commonly used Foster-Greer-Thorbecke (FGT) poverty indicators—the headcount, poverty gap, and squared poverty gap—using both the severe and the moderate poverty lines. The severe poverty headcount rate, which measures the fraction of people who moved above the severe poverty line, corresponds to our discussion of the share of households below the poverty line. We found a 9 percentage point decrease in this measure. The other measures, which account for the distribution of individuals below the line, also improved, with the poverty gap falling by 12 percentage points and the squared poverty gap falling by 11 percentage points. 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 that a program will provide sufficient funds to lift people from the very bottom of the distribution to above the severe poverty line. However, a significant positive movement below the line will show up in the poverty gap and squared poverty gap indicators. The improvements in these indicators (which are also visible through Figures 7.3 and 7.4) are consistent with our conclusions in the 24-month report regarding the MCTG's successful targeting approach and positive impact on welfare.

Table 7.1: MCTG Impacts on poverty indicators

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
<u>Severe Poverty Line</u>						
Headcount	**-0.09**	**-0.05**	-0.04	0.92	0.79	0.89
	(-3.07)	(-2.74)	(-1.43)			
Poverty Gap	**-0.12**	**-0.08**	-0.04	0.57	0.37	0.47
	(-3.58)	(-3.63)	(-1.67)			
Sq. Poverty Gap	**-0.11**	**-0.07**	-0.03	0.39	0.21	0.29
	(-3.39)	(-3.50)	(-1.55)			
<u>Moderate Poverty Line</u>						
Headcount	**-0.03**	**-0.02**	-0.01	0.97	0.92	0.97
	(-3.03)	(-2.68)	(-1.10)			
Poverty Gap	**-0.11**	**-0.07**	-0.04	0.69	0.51	0.61
	(-3.79)	(-3.81)	(-1.83)			
Sq. Poverty Gap	**-0.11**	**-0.07**	-0.04	0.53	0.35	0.44
	(-3.61)	(-3.69)	(-1.70)			
N		9,056		3,077	1,490	1,479

Notes: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

Figure 7.3

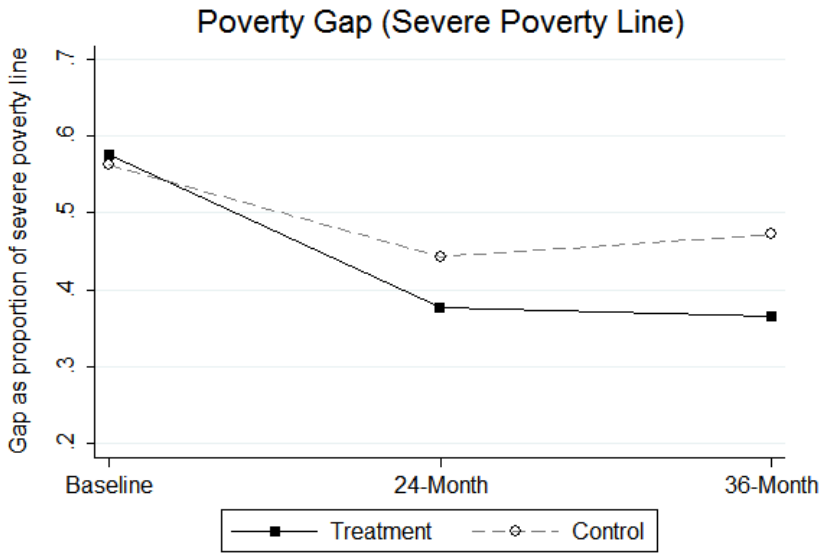
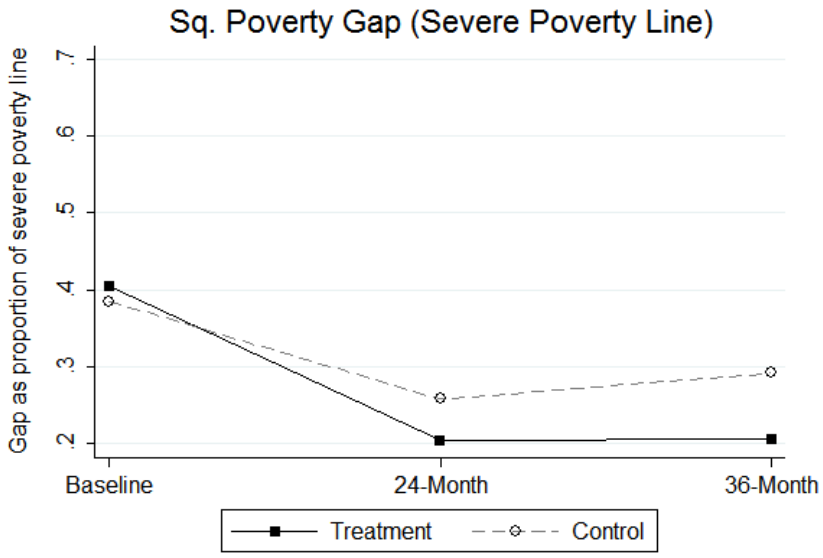


Figure 7.4



Although the impact of the program on the poverty headcount using the moderate poverty line continued to be small in magnitude (3 percentage points; see Table 7.1), it was 1.5 times the reduction experienced by 24-months. As before, the improvements in the poverty gap and squared poverty gap are larger; however this was simply because these indicators account for the distribution of individuals below the moderate poverty line, which included 92 percent of MCTG recipients at 36 months. Nevertheless, the decrease in the proportion of treatment households below the moderate poverty line (from 97 percent at baseline to 92 percent) is encouraging, especially since there was no reduction for control households.

Food Security

The MCTG continues to improve household food security. As stated earlier, the program has large impacts on consumption, with over 84 percent of additional expenditures going toward food consumption. Consistent with the results from the 24-month report and our baseline predictions, we found that these additional expenditures on food translated to greater food security. Table 7.2 shows the impacts of the program on several food security indicators. The MCTG increased the percentage of households eating two or more meals per day by 15 percentage points from baseline. However, since the fraction of individuals who eat two or more meals per day remained at 95 percent since the 24-month report (see Figure 7.5 for visualization), a ceiling effect limits the program's ability to impact this indicator. Despite this ceiling effect, the evidence suggests the transfer had strong impacts on one of the primary goals of the program—increasing the number of households eating two or more meals per day.

Other indicators corroborate the improvements in food security. We found that the program reduced a household's food insecurity score[13] by 2.7 points—a 22 percent decrease from the control group's score.

[13] We use the food security score created by the Food and Nutrition Technical Assistance Project (FANTA). FANTA is a measure of a household's food insecurity, with greater values indicating more food insecurity. The score from

The program also increased the number of households that are not severely food insecure[14] by 19 percentage points (32 percent in the treatment group versus 19 percent in the control group). The MCTG also had a strong impact on perceptions of food security. Almost twice as many MCTG households (65 percent) as control households (39 percent) reported that they do not consider themselves very poor (see Figure 7.6 for visualization). Over four times more MCTG households (42 percent) than control households (10 percent) reported being better off now than they were 12 months ago (see Figure 7.7 for visualization). These improvements are relatively similar to those experienced after 24 months with the exception that MCTG households now are 12 percentage points more likely to eat meat/fish five or more times in a month (see Figure 7.8 for visualization), a result which is borderline significant. This finding is consistent with our expenditure analysis, which implied an increase in diet diversity.

Table 7.2: MCT Impacts on Food Security

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Eats more than one meal a day	**0.15**	**0.10**	**0.05**	0.71	0.95	0.76
	(6.82)	(4.14)	(2.98)			
Ate meat/fish 5+ times last month	**0.12**	0.01	**0.10**	0.10	0.16	0.06
	(2.56)	(0.50)	(3.01)			
Ate vegetables 5+ times last week	0.03	0.02	0.01	0.89	0.90	0.86
	(1.02)	(0.60)	(0.35)			
Does not consider itself very poor	**0.30**	**0.25**	0.05	0.33	0.65	0.39
	(5.05)	(4.49)	(1.05)			
Food security scale	**2.69**	**1.78**	**0.91**	-14.67	-9.83	-12.47
	(4.94)	(3.76)	(2.11)			
Is not severely food insecure	**0.19**	**0.12**	0.07	0.17	0.32	0.19
	(2.83)	(2.04)	(1.31)			
Better off than 12 months ago	**0.41**	**0.46**	-0.05	0.08	0.42	0.10
	(8.70)	(10.15)	(-1.04)			
N		9,057		3,077	1,490	1,480

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. All estimations control for household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices

0-24 (higher indicating less food security), was created from adding the frequency which the household lacks access to food, in both quantity and type. Coates, J., Swindale, A., & Bilinsky, P. (2007). Household food insecurity access scale for measurement of food access. Washington DC: Food & Nutrition Technical Assistance Project (FANTA). Available at www.fantaproject.org

[14] Households that cut back on meal size or number of meals often, and/or experiences any of the three most severe conditions (running out of food, going to bed hungry, or going a whole day and night without eating), even as infrequently as rarely.

Figure 7.5

Figure 7.6

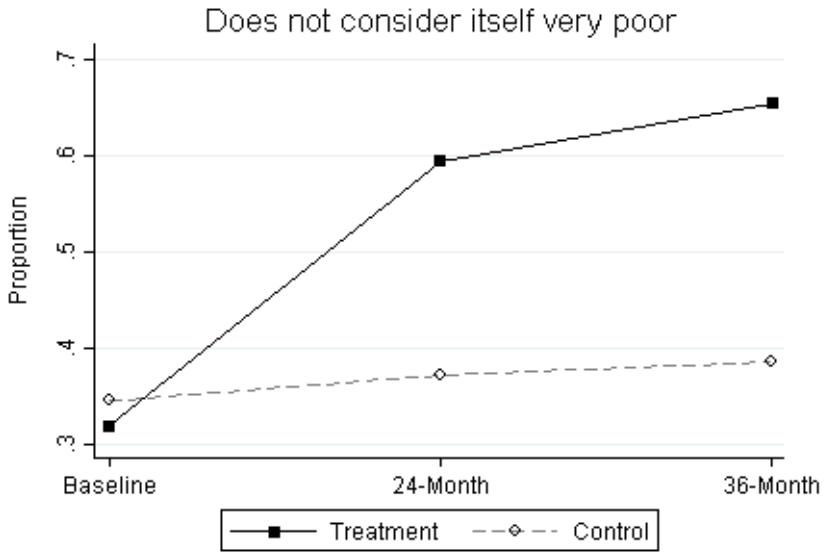


Figure 7.7

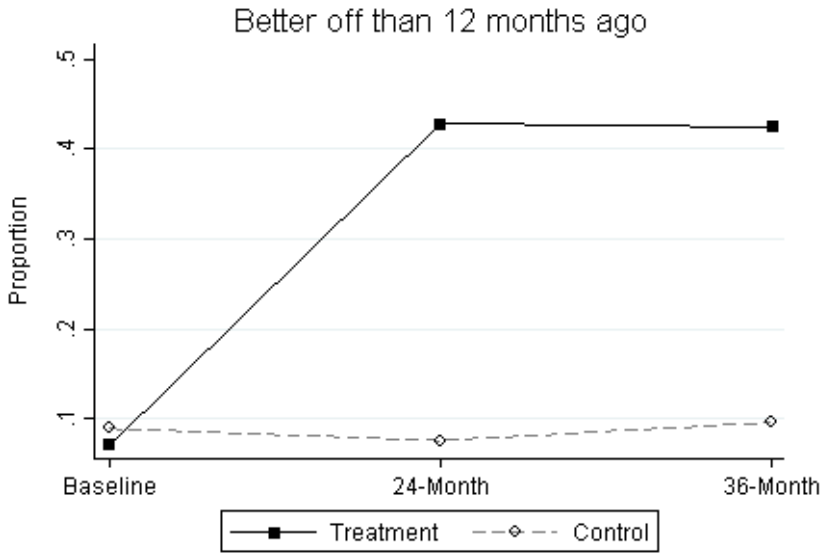
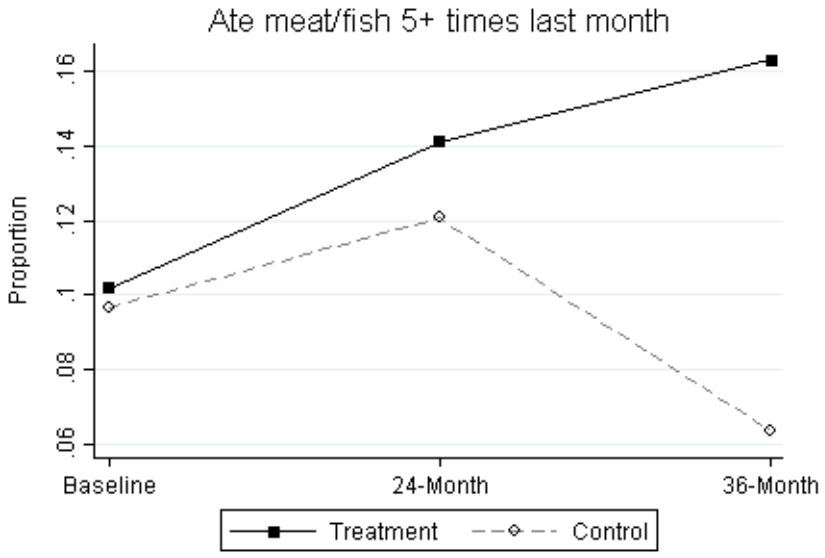


Figure 7.8



All of these impacts were virtually the same between small and large households and so are not reported by household size. However, this similarity in food security measures between small and large households is interesting considering the increase in food expenditures for small households was over twice that of larger households. This result suggests that despite the smaller per capita value of the

transfer for larger households, MCTG recipients in larger households still experienced improvements in food security.

Summary of Impacts on Poverty and Food Security

We find that the large program impacts on food consumption imply greater food security for beneficiaries, as measured by indicators on beneficiaries' perceptions of food security and poverty. More households eat at least two meals a day and increase their diet diversity.

We find that the program generates an important reduction in the headcount below the severe poverty line as well as reduction in both the linear and squared poverty gaps. The overall results show that although both treatment and control households have been improving their consumption levels over time, the MCTG beneficiary households consistently exceed the expenditure levels of the control group.

The reduction in poverty associated with the MCTG program is of similar magnitude to that found with the CGP program; after 48 months, the CGP program shows a 10 percentage point reduction in the headcount severe poverty line, compared to the MCTG reduction of 9 percentage points after 36 months. Both programs also improved food security, having increased the percentage of households eating two or more meals per day and improved beneficiaries' perceptions of food security and poverty. A similar program from the World Food Programme of UNICEF in Uganda provided food and cash transfers to households with children participating in Early Childhood Development (ECD) centers. An evaluation of that program found that cash transfers increased total household food consumption and frequency of consumption thus improving various food security measures; interestingly the study also considered food transfers only but found food transfers had no substantial improvements.[15] Other cash transfer programs which were similar in scope did not analyse effects on food security measures.

[15] Gilligan, D., Margolies, A., Quinones, E., and Roy, S. (2013). Impact Evaluation of Cash and Food Transfers at Early Childhood Development Centers in Karamoja, Uganda: Final Impact Report. WFP/UNICEF/IFPRI

VIII. Resilience (Assets, Production, and Credit)

Resilience has become a key focus of the international development community in recent years due to the increasing disruption in food supplies and agricultural productivity caused by climate change, as well as the increasing incidence of civil unrest, war, and economic crises. Consequently, this section of the report presents some preliminary findings on the impact of the MCTG on household resiliency.

What is resiliency? The Resilience Alliance defines the concept as "The capacity of a system to absorb disturbance and reorganize while undergoing change." DFID defines it as "…the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses—such as earthquakes, drought or violent conflict—without compromising their long-term prospects," while the FAO's Resilience Measurement Technical Working Group defines it as "…the capacity that ensures adverse stressors and shocks do not have long-lasting adverse development consequences."[16] The common thread through these and other definitions is the notion that resilience reflects an ability to successfully manage or withstand a shock or stress. Efforts to measure resilience are still very much in their infancy, but Alinov et al.'s (2010) Resilience Index Measurement and Analysis Model (RIMA) is perhaps the most sophisticated measure currently available.[17] The dimensions of this index include income and food access, agricultural and non-agricultural assets, access to basic services and safety nets, as well as "adaptive capacity" dimensions such as human capital.

While the MCTG evaluation was not designed with the objective to measure resiliency, the survey collected data on many of the indicators that are now commonly used to measure the concept which were used in the earlier 24-month report to provide an assessment of the MCTG's impact on resilience. As pointed out in that report, the types of households targeted by the MCTG are those that grapple with conditions that necessitate resilience to succeed. MCTG households are extremely poor, headed by widows caring for orphans or seniors caring for orphans, and/or containing people with disabilities. Many households do not have sufficient able-bodied adults to generate sufficient resources to support children, especially when living in a subsistence farming community. For instance, at baseline 75 percent of all households in the survey were headed by women and 50 percent of household heads were elderly (over the age of 60). Following the approach in the 24-month impact report, we assess the impact of the MCTG on the following five domains which are commonly associated with resilience: 1) non-agricultural assets; 2) agricultural assets; 3) livelihood diversification and strengthening sources of income; 4) access to transfers and safety nets; and 5) exposure to shocks and use of non-detrimental coping strategies. We look at each of these in turn and then provide some concluding remarks at the end of this section.

[16] Resilience Alliance. 2002. *Key concepts* (available at http://www.resalliance.org/index.php/key_concepts). DFID. 2011. *Defining disaster resilience: a DFID approach paper.* London (available at https://www.gov.uk/government/publications/defining-disaster-resilience-a-dfidapproach-paper). Food Security Information Network (FSIN) 2014 "Resilience Measurement Principles", FSIN Technical Series No.1, January 2014.

[17] Alinovi L., D'Errico M., Main E. and Romano D. (2010), *Livelihoods strategies and households resilience to food security: An empirical analysis to Kenya.*

Non-Agricultural Assets

We investigated the impact of the MCTG on owning 10 individual non-agricultural assets[18] as reported in Table 8.1. After 24 months we observed increases in the proportion of households owning two assets: a bed and a mattress. One year later at 36-months we now observe significant increases in these two assets plus mosquito nets and radios, and marginally significant (10 percent level) increases in three further assets, table, clock and charcoal iron. The impacts at 36-month are particularly large for bed and mattress (26 and 28 percentage point increases for bed and mattress ownership respectively). Additionally, there have been significant increases in the share of ownership for other assets, whose increases were insignificant at the time of the 24 month report. Specifically, the MCTG increased the proportion of households owning a mosquito net (by 9 percentage points) and a radio (by 8 percentage points). As a result, we can conclude that the MCTG had a large and significant impact on the ownership share of a variety of assets. Impacts were generally larger among smaller households, who drive the significance behind the ownership of a mosquito net. The decomposition by household size is shown as Annex Tables A4.1 and A4.2.

Table 8.1: MCT Impacts on Asset Ownership (Share)

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Bed	**0.26**	**0.13**	**0.13**	0.31	0.40	0.24
	(7.57)	(3.63)	(3.82)			
Mattress	**0.28**	**0.12**	**0.16**	0.27	0.51	0.27
	(6.54)	(3.12)	(4.80)			
Mosquito Net	**0.09**	0.05	0.05	0.74	0.89	0.82
	(2.94)	(1.17)	(1.36)			
Table	**0.05**	0.03	0.02	0.05	0.08	0.04
	(2.46)	(1.71)	(1.12)			
Sofa	0.01	0.01	-0.01	0.03	0.03	0.02
	(0.71)	(1.46)	(-0.59)			
Radio	**0.08**	0.04	**0.04**	0.07	0.12	0.07
	(3.71)	(1.90)	(2.16)			
Cell	0.01	0.01	-0.00	0.07	0.08	0.09
	(0.48)	(0.78)	(-0.22)			
Watch	0.01	0.01	-0.00	0.04	0.02	0.01
	(0.90)	(0.92)	(-0.02)			
Clock	**0.01**	0.01	0.00	0.02	0.01	0.01
	(2.05)	(1.88)	(0.24)			
Charcoal Iron	**0.05**	0.03	0.01	0.08	0.09	0.06
	(2.00)	(1.60)	(0.48)			
N		9,052		3,075	1,488	1,479

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

[18] In the 24-month analysis we reported four additional assets: TV, DVD, electric iron, and pump; however, these data were not collected at 36 months due to the low prevalence of ownership of these assets. Less than one percent of households owned these four assets at the 24 month report.

The share of households purchasing some kind of fuel for lighting continued to be the only dimension of housing quality with a significant increase (of 18 percentage points; see Table 8.2). As before the impacts were larger among smaller households (21 percentage points, versus 15 points among larger households; see Annex Tables A4.3 and A4.4).

Table 8.2: MCT Impacts on Housing Conditions

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Purchased Roof	-0.001	-0.012	0.011	0.100	0.113	0.146
	(-0.057)	(-0.869)	(1.986)			
Purchased Floor	0.005	-0.005	**0.010**	0.056	0.050	0.053
	(0.432)	(-0.472)	(2.419)			
Purchased Wall	0.029	0.030	-0.001	0.849	0.941	0.915
	(1.475)	(1.579)	(-0.267)			
Purchased Lighting	**0.175**	**0.169**	0.006	0.570	0.822	0.723
	(4.488)	(4.269)	(1.165)			
Purchased Cooking	0.008	0.013	-0.004	0.030	0.032	0.025
	(0.977)	(1.482)	(-1.732)			
Clean Water	0.055	0.058	-0.003	0.229	0.190	0.203
	(1.640)	(1.741)	(-0.323)			
Own Toilet	0.004	0.008	-0.004	0.790	0.940	0.911
	(0.113)	(0.215)	(-0.730)			
N		9,012		3,066	1,474	1,465

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

Agricultural Assets

The positive impact of the MCTG on livestock ownership has been consistent with our findings after 24 months; see Table 8.3). The share of households with goats and chickens increased by 23 and 26 percentage points, respectively. There was also a smaller impact on the share of households with pigs (which increased by 3 percentage points). Table 8.4 shows impacts on livestock ownership measured in numbers (rather than the proportion of households owning an asset). In addition to increasing the proportion of households that own livestock, the MCTG increased the number of goats owned per household by 0.57, chickens by 1.87, and pigs by 0.2, on average, in treatment households. These increases in number of animals were all of larger magnitude than the increases observed after 24 months, and in fact the difference between the 36 and 24 month impacts were significant for both goats and pigs. There were generally no differences between small and larger households in the ownership shares of livestock assets or the number of livestock assets.

Table 8.3: MCT Impacts on Livestock Ownership (Share)

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Cattle	0.00	-0.00	**0.00**	0.01	0.01	0.01
	(1.42)	(-0.52)	(2.25)			
Goats	**0.23**	**0.17**	**0.06**	0.11	0.26	0.10
	(7.88)	(5.73)	(2.03)			
Chicken	**0.26**	**0.22**	0.04	0.48	0.61	0.40
	(6.81)	(5.48)	(1.06)			
Ducks	0.01	0.01	0.00	0.01	0.02	0.01
	(1.82)	(1.96)	(0.25)			
Pigs	**0.03**	**0.05**	-0.01	0.01	0.08	0.02
	(4.50)	(3.65)	(-0.91)			
N		8,823		3,076	1,367	1,371

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 8.4: MCT Impacts on Livestock Ownership (Number)

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Cattle	0.01	-0.03	0.04	0.03	0.02	0.02
	(0.61)	(-0.83)	(1.12)			
Goats	**0.57**	**0.34**	**0.23**	0.36	0.75	0.29
	(5.56)	(3.65)	(3.24)			
Chicken	**1.87**	**1.47**	0.39	2.62	4.12	2.38
	(5.43)	(4.80)	(1.38)			
Ducks	0.05	0.04	0.01	0.05	0.12	0.04
	(1.24)	(1.04)	(0.27)			
Pigs	**0.20**	**0.07**	**0.13**	0.04	0.24	0.06
	(3.90)	(2.68)	(3.02)			
N		8,823		3,076	1,367	1,371

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

After 24-months we concluded that the MCTG tends to increase household ownership of livestock rather than tools used for agricultural implements. Examining Tables 8.5 and 8.6 suggests that while impacts on tools are not as decisive as for livestock, all point estimates are positive, several are significant at the 10 percent level, and one is significant at five percent—the number of hoes (0.30). These results are the same for small and large household alike.

Table 8.5: MCT Impacts on Agricultural Implements (Share)

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Axe	0.04	0.06	-0.03	0.74	0.80	0.76
	(1.09)	(1.84)	(-0.88)			
Pick	0.03	0.04	-0.01	0.08	0.07	0.05
	(1.45)	(1.63)	(-0.24)			
Hoe	0.02	0.02	-0.00	0.90	0.96	0.93
	(1.39)	(1.58)	(-0.31)			
Hammer	0.03	0.00	0.03	0.11	0.07	0.05
	(1.66)	(0.31)	(1.40)			
Shovel	**0.04**	-0.01	**0.05**	0.07	0.08	0.04
	(2.30)	(-0.85)	(3.66)			
N		9,046		3,070	1,490	1,478

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 8.6: MCT Impacts on Agricultural Implements (Number)

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Axe	**0.15**	**0.15**	0.00	1.02	1.12	0.97
	(2.53)	(2.28)	(0.05)			
Pick	0.05	0.05	-0.00	0.10	0.09	0.06
	(1.65)	(1.79)	(-0.03)			
Hoe	**0.30**	**0.23**	0.07	1.93	2.52	2.32
	(3.31)	(2.27)	(0.74)			
Hammer	0.05	-0.00	**0.05**	0.13	0.09	0.06
	(1.83)	(-0.08)	(2.09)			
Shovel	0.05	-0.01	**0.06**	0.09	0.09	0.04
	(1.77)	(-0.47)	(3.31)			
N		9,052		3,074	1,490	1,479

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

Livelihood Diversification and Income Strengthening

A key dimension of resilience is diversifying sources of income in order to reduce the risk associated with relying on a sole income source, as well as strengthening existing income-generating activities to allow for increased savings, which can be used when there is a negative shock to the primary source of income. The primary source of income for MCTG households is agriculture so as we did in the 24-month report we investigated whether the MCTG stimulated a move to either a more diverse set of crops or more non-farm enterprise, and whether income from agriculture increased.

The MCTG continued to strengthen existing flows of income, rather than supporting a more diverse income stream. The share of households producing maize and groundnuts each increased by 11 percentage points, although the impact for maize, which was significant at 24-months, was on the threshold for significance after 36 months. Additionally, the share of households cultivating beans increased significantly (by 17 percentage points; see Table 8.7). However, these three products were the most common items produced at baseline (aside from Cassava), meaning that the results represent an increase in existing cropping patterns rather than a movement toward new crops. In terms of the overall kilograms produced, we found a significant increase only in groundnuts (of 37 kilograms; see Table 8.8), which was not significant after 24 months. As such, the MCTG's impact on groundnut cultivation is on both the extensive margin (cultivated by more households) and the intensive margin (cultivated in larger quantities per household).

Table 8.7: Crop Production (share)

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Maize	**0.11**	**0.12**	-0.01	0.55	0.61	0.64
	(2.37)	(2.80)	(-0.35)			
Cassava	-0.08	-0.08	0.01	0.61	0.49	0.43
	(-1.43)	(-1.87)	(0.16)			
Millet	0.02	0.03	-0.01	0.14	0.07	0.10
	(1.04)	(1.75)	(-0.67)			
Groundnut	**0.11**	**0.15**	-0.03	0.33	0.36	0.26
	(2.66)	(2.85)	(-0.65)			
Sweet potatoes	0.02	0.01	0.01	0.08	0.03	0.03
	(1.00)	(0.89)	(0.31)			
Sorghum	0.00	-0.01	**0.01**	0.06	0.04	0.03
	(0.15)	(-1.37)	(2.11)			
Other beans	**0.17**	**0.11**	0.06	0.21	0.18	0.09
	(4.33)	(3.08)	(1.50)			
N		8,007		2,728	1,393	1,249

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 8.8: Crop Production (Kg)

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Maize	**127.11**	88.57	38.54	399.74	405.51	416.92
	(2.39)	(1.83)	(0.68)			
Cassava	46.59	51.06	-4.47	358.03	303.98	218.07
	(1.03)	(0.85)	(-0.09)			
Millet	**22.76**	**22.15**	0.61	31.99	16.52	18.47
	(2.58)	(2.33)	(0.11)			
Groundnut	**36.68**	23.91	12.77	63.77	73.25	46.33
	(2.91)	(1.76)	(1.62)			
Sweet potatoes	10.76	4.47	6.29	28.81	15.60	22.25
	(0.78)	(0.33)	(0.41)			
Sorghum	4.47	-2.84	**7.31**	8.42	11.34	4.48
	(1.17)	(-1.22)	(2.37)			
Other beans	**14.33**	**14.41**	-0.08	23.82	17.93	8.67
	(2.34)	(2.31)	(-0.02)			
N		8,007		2,728	1,393	1,249

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

As a result of the program's impacts on the amount of crops produced, there was a significant impact on the overall amount of the harvest, which increased by 356 kilograms (see the first row of Table 8.9). We also observed a significant impact in the value of crops consumed at home, which increased by 137 kilograms for MCTG recipients. Corresponding to the results we found in the expenditures section of this report, finding that the value of crops consumed at home increased is suggestive that the transfer facilitated an increase in diet diversity. It is interesting to consider whether the increase in crops consumed at home came at the expense of sales since a smaller fraction (20 percent) of households in the treatment group sold their crops relative to the control group (where 25 percent households sold their crops), although this difference is not statistically significant.

Tables 8.10 and 8.11 show the impacts for harvest, sales, and own consumption for small and larger households, respectively. As we found after 24 months, impacts were mostly driven by smaller households. In particular the magnitude of the impact on the value of the harvest was greater by 57.4 kilograms for smaller households (where the impact was 397.9 for small households and 340.5 for larger households). Also of note, while both small and larger households increased the value of crops consumed at home, small households did so to a lesser degree than larger households; this could be due to the increase in treatment households selling crops among small households, which may have contributed to the finding that small households increased their value of sales relative to larger households.

Table 8.9: Harvest, Sales, and Own Consumption

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Value of harvest	**355.54**	**340.87**	14.66	1,080.44	933.65	780.82
	(3.57)	(2.56)	(0.13)			
Value of sales (ZMW)	-31.62	65.38	-97.01	243.66	259.16	339.82
	(-0.24)	(1.33)	(-0.76)			
% of crops sold	-0.03	0.05	-0.08	0.15	0.20	0.25
	(-0.30)	(1.83)	(-0.80)			
Value of crops consumed at home (ZMW)	**136.52**	95.64	40.88	412.88	435.49	346.85
	(3.59)	(1.74)	(1.08)			
% of crops consumed at home	-0.06	-0.04	-0.02	0.49	0.56	0.63
	(-1.55)	(-0.80)	(-0.61)			
N		7,990		2,719	1,392	1,246

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 8.10: Harvest, Sales, and Own Consumption - Small Households

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Value of harvest	**397.94**	**426.05**	-28.12	884.39	858.70	612.01
	(4.09)	(2.03)	(-0.16)			
Value of sales (ZMW)	**111.73**	69.24	42.49	180.58	232.82	129.43
	(3.37)	(1.56)	(0.93)			
% of crops sold	**0.07**	**0.05**	0.01	0.14	0.21	0.15
	(2.69)	(2.09)	(0.52)			
Value of crops consumed at home (ZMW)	**121.81**	111.54	10.27	356.30	402.41	314.81
	(2.74)	(1.44)	(0.17)			
% of crops consumed at home	-0.06	-0.05	-0.01	0.50	0.55	0.63
	(-1.20)	(-0.84)	(-0.15)			
N		3,484		1,178	631	521

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 8.11: Harvest, Sales, and Own Consumption - Large Households

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Value of harvest	**340.53**	272.94	67.59	1,231.23	995.90	902.04
	(2.69)	(1.92)	(0.62)			
Value of sales (ZMW)	-123.84	65.14	-188.98	292.18	281.04	490.88
	(-0.58)	(0.85)	(-0.90)			
% of crops sold	-0.10	0.05	-0.14	0.15	0.20	0.32
	(-0.58)	(1.24)	(-0.89)			
Value of crops consumed at home (ZMW)	**144.76**	80.06	64.70	456.39	462.97	369.85
	(3.41)	(1.59)	(1.85)			
% of crops consumed at home	-0.07	-0.03	-0.04	0.49	0.57	0.63
	(-1.49)	(-0.62)	(-0.97)			
N		4,506		1,541	761	725

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

These agricultural impacts for small households seem counter-intuitive given that agriculture is labor intensive and these households are somewhat labor constrained. However, as we discussed in the 24 month report, the households' use of agricultural inputs clarifies this result. The MCTG had a significant impact on total operated land (by 0.16 hectares) and expenditure on inputs, primarily hired labor (see Table 8.12). While small households still have higher expenditures on hired labor relative to larger households, the gap decreased since the 24 month report. After 24 months, the MCTG's impact on hired labor was almost 2.2 times greater in small households relative to larger households; after 36 months the difference was only by a factor of 1.4 (see Annex Tables A4.5 and A4.6).

Table 8.12: Crop Input Use and Land Use

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Operated land (has)	**0.16**	**0.15**	0.02	0.68	0.60	0.52
	(3.31)	(3.42)	(0.51)			
Total crop exp	**66.22**	**48.55**	17.67	53.90	113.96	80.42
	(3.57)	(3.40)	(1.24)			
Exp seed	7.08	3.28	3.80	13.93	13.54	11.01
	(1.96)	(1.11)	(1.30)			
Exp hired labor	**19.96**	**17.57**	2.39	4.63	29.31	9.57
	(4.11)	(4.14)	(0.64)			
Exp pesticides	1.75	1.15	0.60	0.85	1.41	0.40
	(1.75)	(1.24)	(0.72)			
Exp fertilizer	**32.14**	**24.65**	7.49	27.85	61.87	53.94
	(2.45)	(2.56)	(0.76)			
Other crop exp	**27.00**	**20.62**	6.39	12.13	38.54	15.48
	(4.04)	(3.29)	(1.31)			
N		8,010		2,729	1,394	1,249

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

At 24 months, 12 percent of the households in the control group were engaged in non-farm enterprises (NFE); after 36 months, this fraction decreased to 8 percent of households in the control group. Accounting for this decline in the control group, we observe a slight increase (of 3 percentage points) in the share of households engaged in NFE as seen in row 1 of Table 8.13,[19] although this result is only on the threshold for significance. Visualized in Figure 8.1, we see that while there was a decline in the fraction of households engaged in non-farm enterprises amongst the treatment group, the decline was less than that experienced by the control group. The impacts on total revenues and profits for those engaged in NFE that we observed at 24 months are now only marginally significant, the point estimates indicating that the MCTG increasing total revenues (by 31 percent) and profits (by 34 percent).[20] Nevertheless, although the results are only marginally significant, these findings continue to support the idea that the program strengthened existing sources of income—an important component of resilience.

[19] The estimates for the 36-Month Impact are the difference in differences between 36 and 24 months because the information on NFE was only collected during the 24 and 36 months waves of data collection; the estimates for the 24-Month Impact are single difference (comparison between treatment and control at 24-Months only)

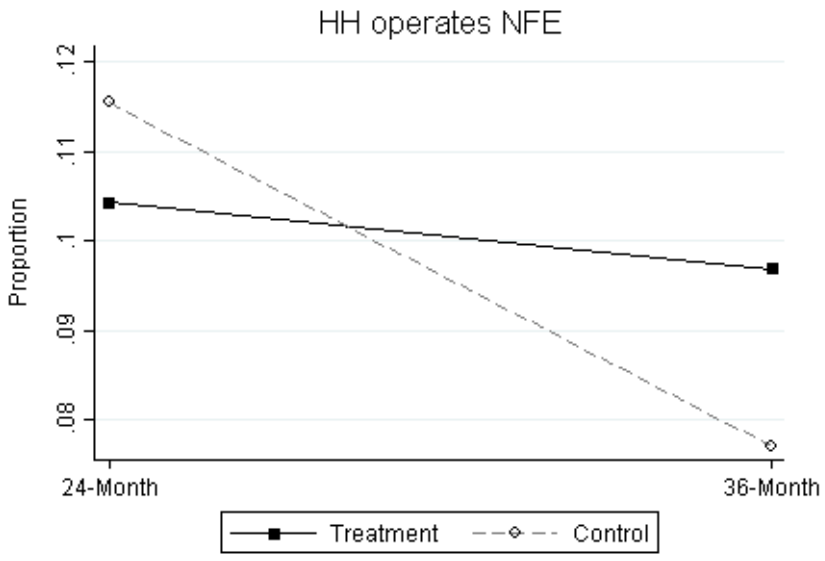
[20] When the dependent value is measured in logarithms, as it is in these two cases, the regression coefficients (when multiplied by 100) are interpreted as percent changes.

Table 8.13: MCT Impacts on Non-farm Enterprises (NFE)

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	24M Control Mean	36M Control Mean	
	(1)	(2)	(3)	(4)	(5)	N
HH operates NFE	**0.03**	0.00	0.03	0.12	0.08	5977
	(2.03)	(0.18)	(1.91)			
Months in operation	-0.73	-0.11	-0.62	6.53	7.27	587
	(-1.09)	(-0.22)	(-0.69)			
Own NFE assets	-0.14	-0.05	-0.08	0.49	0.15	588
	(-1.29)	(-1.05)	(-0.68)			
Log Total monthly revenue	**0.31**	**0.43**	-0.13	4.76	4.71	589
	(2.21)	(3.35)	(-0.59)			
Log Total monthly profit	**0.34**	**0.34**	0.00	4.12	3.88	589
	(2.40)	(2.67)	(0.01)			
Log Value of owned assets	-0.04	-0.06	0.03	1.65	0.17	588
	(-0.26)	(-0.29)	(0.11)			

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

Figure 8.1



Transfer and Safety Nets

A key component of resilience is having access to networks, whether formal or informal, in the event of an emergency. Our survey instrument gathered information on the receipt of cash transfers from both government and non-government sources (NGO as well as private individuals), while the consumption module asked about remittances sent to other individuals outside the household (Table 8.14). Households in the treatment group were obviously significantly more likely to receive assistance from a government program (i.e. the MCTG). When we exclude the MCTG program there is a slight impact, however it is not statistically significant.

Table 8.14: MCT Impacts on Receiving and Sending Transfers

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Received gov. program	**0.42**	**0.51**	**-0.08**	0.55	0.85	0.35
	(6.96)	(10.20)	(-3.78)			
Received gov. program(excluding MCTG)	**0.16**	0.00	0.16	0.55	0.43	0.33
	(2.05)	(0.03)	(1.83)			
Received NGO program	-0.03	-0.06	0.02	0.19	0.05	0.05
	(-1.03)	(-1.80)	(1.57)			
Received from individual	-0.10	-0.11	0.01	0.53	0.70	0.75
	(-1.36)	(-1.79)	(0.20)			
Sent transfers	0.00	-0.00	0.01	0.01	0.09	0.07
	(0.08)	(-0.38)	(0.38)			
N		9,057		3,077	1,490	1,480

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

Without a personal network of friends and relatives to turn to for assistance, poor rural households typically have to borrow money or seek purchases on credit in times of crisis, though this is the least preferred form of coping. During the follow-up data collection, we gathered information on households' position in the credit market (Table 8.15). At 24-months we saw an unambiguous improvement in the credit market position of recipient households, with fewer households owing money, lower amounts owed by those with a loan, and fewer households taking out a loan in the previous six months. Note that 80 percent of loans taken are for consumption purposes, including 11 percent for education and 6 percent for health.

Table 8.15: MCTG Impacts on Credit Outcomes

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	24M Control Mean (4)	36M Control Mean (5)	N
All Households:						
Owe Money	-0.01	**-0.02**	0.01	0.07	0.04	5977
	(-0.98)	(-2.35)	(0.85)			
Amount Owed	2.72	**-53.29**	56.01	136.3	90.3	229
	(0.11)	(-2.27)	(1.64)			
Borrow money last 6 months	-0.03	**-0.06**	0.03	0.18	0.15	5972
	(-1.55)	(-3.18)	(0.97)			
Loan used for Consumption	-0.06	-0.06	-0.00	0.63	0.48	862
	(-1.17)	(-1.10)	(-0.04)			
Small HH:						
Owe Money	-0.01	-0.01	-0.00	0.05	0.04	2775
	(-1.16)	(-1.13)	(-0.23)			
Amount Owed	-32.83	-24.92	-7.91	100.5	84.8	94
	(-0.73)	(-0.53)	(-0.13)			
Borrow money last 6 months	**-0.05**	**-0.07**	0.02	0.15	0.13	2773
	(-2.23)	(-3.28)	(0.50)			
Loan used for Consumption	-0.01	-0.02	0.01	0.65	0.51	333
	(-0.15)	(-0.22)	(0.06)			
Large HH:						
Owe Money	-0.00	**-0.02**	0.03	0.08	0.04	3202
	(-0.17)	(-2.73)	(1.55)			
Amount Owed	4.60	-55.39	59.99	154.7	96.1	135
	(0.14)	(-1.49)	(1.42)			
Borrow money last 6 months	-0.02	**-0.06**	0.04	0.20	0.16	3199
	(-0.55)	(-2.15)	(1.13)			
Loan used for Consumption	-0.11	-0.09	-0.01	0.62	0.47	529
	(-1.44)	(-1.19)	(-0.13)			

Notes: Estimations use single 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.

There is some evidence that MCTG households have stronger credit positions relative to control households, especially among smaller households, though results are not as strong as at 24-months. In particular, MCTG beneficiaries at 36 months are 5 percentage points less likely to have borrowed money in the last 6 months relative to the control group. This effect is similar to the one found at 24 months for these small households. Nevertheless, we do not find any effects in terms of the amounts borrowed at 36 months, which is explained to a large extent by a reduction in credit positions by the control group, as indicated in columns 4 and 5. In general, there does seem to be an overall improvement in the debt situation of MCTG households at 36 months, which somehow is in contrast with the effects found at 24 months when we saw lower levels of indebtedness both in the extensive margin (i.e., owing money or having recently borrowed) and in the intensive margin (i.e., the amount owed).

Shocks and Coping Mechanisms

Our final resilience domain was shocks and associated coping strategies. We asked the main respondent whether the household had experienced one of 21 specific shocks, whether the shock had a negative or positive effect on the household, and if negative, what coping mechanism the household employed to deal with the shock. At baseline, the most common shock—reported in 22 percent of households—was illness, an accident, or the death of a household member. The other main shocks were food price changes (16 percent) and livestock disease and drought (each of which was reported by 9 percent of households). Shocks are typically categorized as idiosyncratic or covariate. Covariate shocks are shocks that affect the entire community (such as drought, floods, or crop food price changes) and are typically considered exogenous. Idiosyncratic shocks, on the other hand, only affect the household and may have an endogenous component to them. The data indicated that very few shocks, if any, were covariate (i.e., affected all the households in a village). For example, the correlation in reporting a drought or food price change among households in the same village was only slightly higher (and not significantly so) than reporting an illness, though we must remember there may be substantial measurement errors in the reporting of shocks.

With these caveats in mind, we estimated the impact of the MCTG on different measures of shocks (Table 8.16) and found that there was no indication that MCTG households were less likely to be exposed to a shock. Indeed, when we tried to classify shocks into idiosyncratic and covariate (a difficult task, as the discussion above suggests), we found an indication that MCTG households were more likely (by 13 percentage points) to have suffered some form of idiosyncratic shock—a result that was concentrated among larger households where there are more people who are likely to suffer a shock (see Annex Tables A4.7 and A4.8).

Table 8.16: MCTG Impacts on Shocks

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Any negative shock	0.12	0.10	0.02	0.52	0.67	0.60
	(1.88)	(1.25)	(0.32)			
Any positive shock	**0.08**	0.02	0.06	0.07	0.07	0.05
	(2.34)	(0.73)	(1.81)			
Any covariate shock	0.15	0.06	0.09	0.28	0.50	0.41
	(1.91)	(0.67)	(0.99)			
Any idiosyncratic shock	**0.13**	**0.14**	-0.01	0.43	0.40	0.33
	(2.76)	(2.24)	(-0.29)			
Illness negative shock	0.02	0.05	-0.03	0.31	0.17	0.17
	(0.54)	(1.32)	(-0.81)			
N		9,057		3,077	1,490	1,480

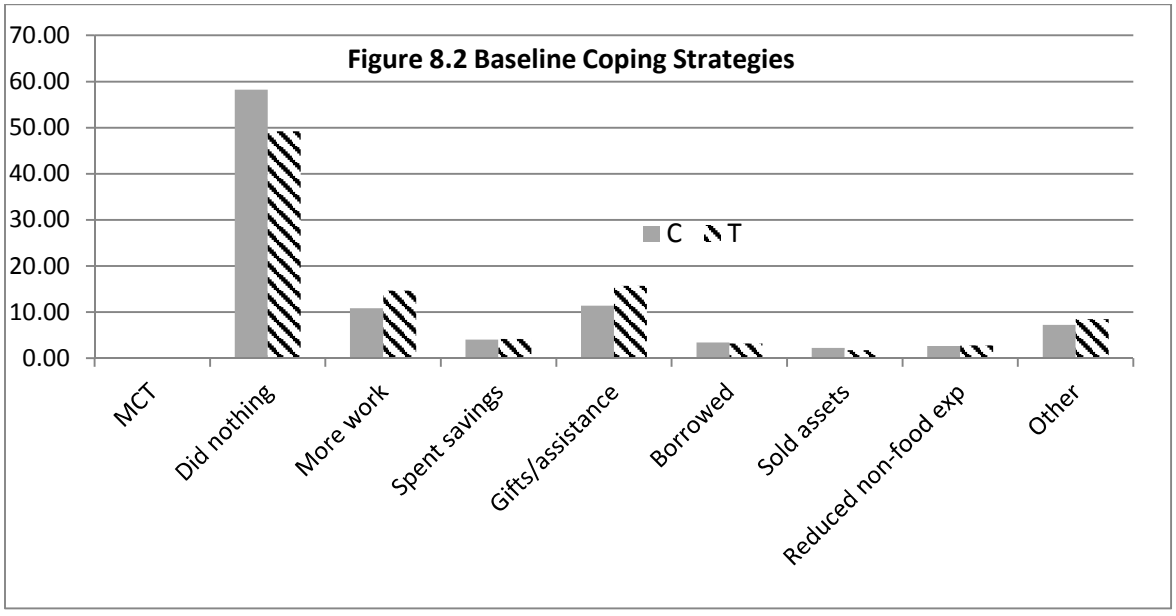
Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices

We now turn to examining how the MCTG affected coping strategies of those who suffered a negative shock. At baseline, the most common coping mechanism was to "do nothing," followed by receiving assistance from friends or relatives and working more (see Baseline data in Table 8.17 and Figure 8.2). After 24 months, the pattern of coping appeared to have changed significantly across the two groups of

households and remained similar at 36 months (see Table 8.17 and Figures 8.3 and 8.4). Both groups showed a significant reduction in "doing nothing." Among MCTG households, this decline was offset by increases in using the MCTG as a coping mechanism. Among control households, there was an increase in undertaking more work, and relying on friends and relatives for gifts and assistance, resulting in negative impacts for MCTG households on these two coping mechanisms (see Tables 8.18 and 8.19). (Note that borrowing is one of the least common forms of coping).

Table 8.17: Main Coping Strategy for Those Who Experienced Negative Shock

	Baseline		Follow-up		Endline	
	C	T	C	T	C	T
MCTG	0.0	0.0	0.4	31.1	0.3	20.4
Did nothing	58.2	49.2	3.1	2.5	5.4	3.9
More work	10.8	14.7	33.1	14.0	26.4	15.9
Spent savings	4.1	4.2	13.5	19.9	12.4	16.9
Received Gifts/assistance	11.4	15.7	17.9	9.9	23.9	14.1
Borrowed	3.4	3.2	3.2	2.8	5.2	2.1
Sold assets	2.2	1.7	2.7	3.2	3.6	4.3
Reduced non-food expenditures	2.6	2.8	13.6	6.8	8.4	9.7
Other	7.2	8.5	12.4	10.0	14.4	12.8
Number HH w/ at least 1 shock	824	764	899	984	889	995



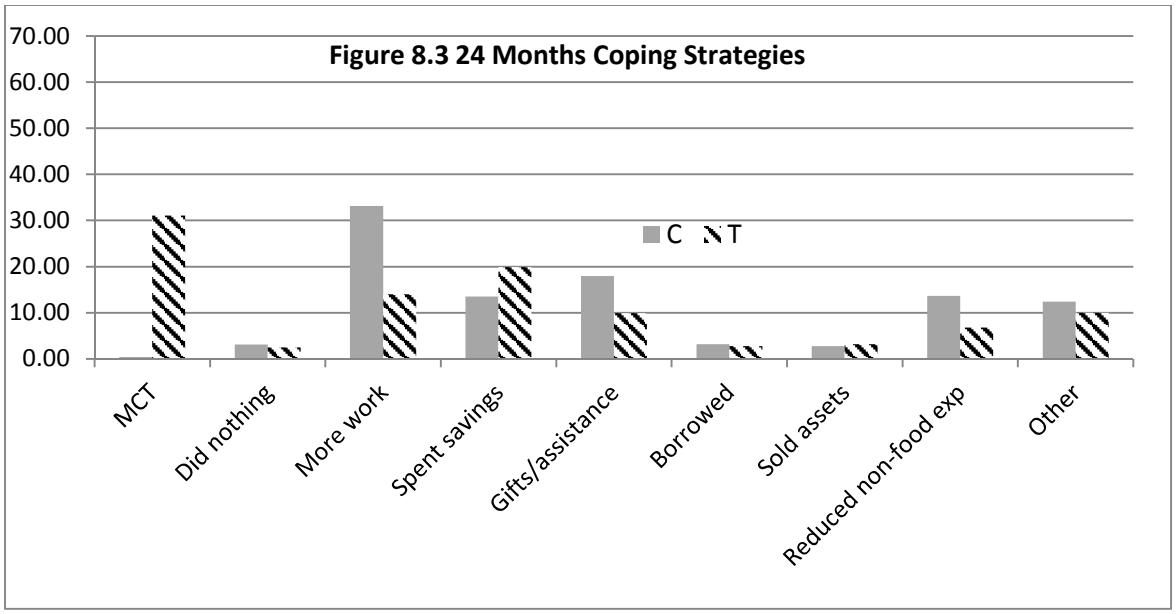


Figure 8.3 24 Months Coping Strategies
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
C
T
MCT
Did nothing
More work
Spent savings
Gifts/assistance
Borrowed
Sold assets
Reduced non-food exp
Other

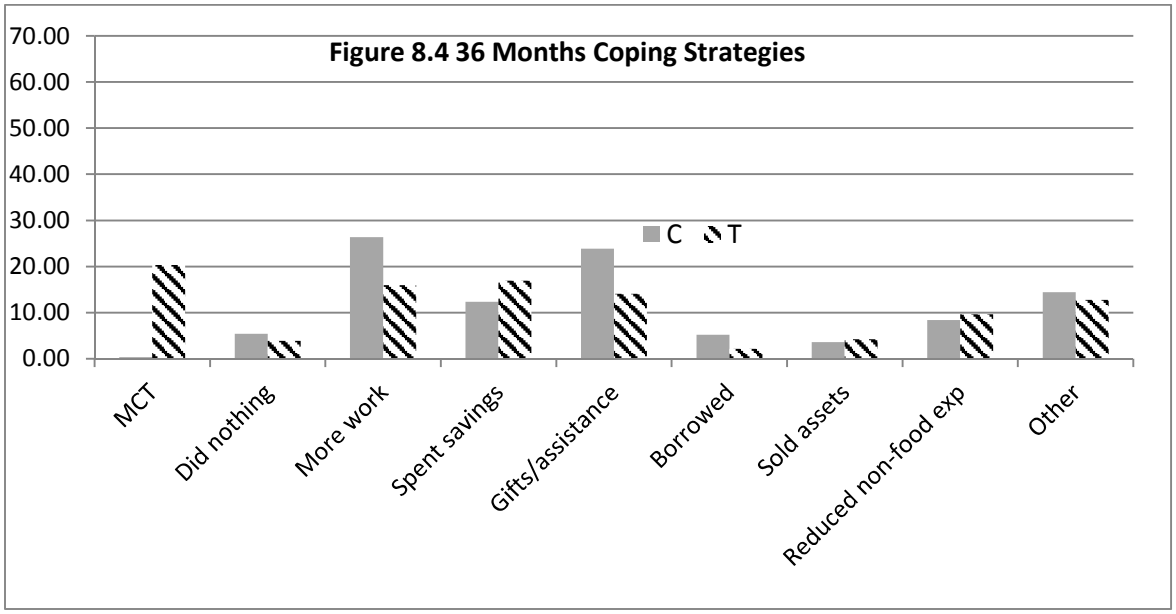


Figure 8.4 36 Months Coping Strategies
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
C
T
MCT
Did nothing
More work
Spent savings
Gifts/assistance
Borrowed
Sold assets
Reduced non-food exp
Other

Table 8.18: MCTG Impacts on Coping Strategies

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
MCTG	**0.05**	**0.14**	-0.09	0.00	0.26	0.01
	(6.92)	(9.15)	(-1.81)			
Did nothing	0.04	0.04	0.01	0.64	0.06	0.08
	(0.92)	(0.65)	(0.14)			
More work	**-0.15**	**-0.20**	0.05	0.18	0.21	0.33
	(-3.59)	(-4.59)	(1.61)			
Spent savings	0.06	0.08	-0.02	0.06	0.24	0.17
	(1.22)	(1.97)	(-0.38)			
Received gifts/assistance	**-0.14**	**-0.14**	0.01	0.19	0.22	0.33
	(-2.56)	(-2.93)	(0.18)			
Borrowed	-0.02	0.00	-0.02	0.06	0.04	0.08
	(-1.32)	(0.18)	(-1.37)			
Sold assets	0.02	0.01	0.01	0.03	0.06	0.05
	(0.76)	(0.30)	(0.48)			
Reduced non-food expenditures	0.02	-0.05	**0.07**	0.05	0.14	0.12
	(0.51)	(-1.43)	(2.32)			
Other	-0.03	-0.05	0.02	0.13	0.20	0.22
	(-0.82)	(-1.24)	(0.48)			
N		5,354		1,588	995	888

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 8.19: MCTG Impacts on Coping Strategies - Shares

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
MCTG	**0.184**	**0.294**	**-0.110**	0.000	0.204	0.003
	(4.825)	(8.700)	(-3.670)			
Did nothing	0.076	0.085	-0.009	0.539	0.039	0.053
	(1.458)	(1.562)	(-0.517)			
More work	**-0.139**	**-0.221**	0.082	0.127	0.159	0.264
	(-4.221)	(-5.667)	(1.939)			
Spent savings	0.044	0.063	-0.019	0.041	0.169	0.124
	(1.354)	(1.761)	(-0.378)			
Received gifts/assistance	**-0.137**	**-0.127**	-0.010	0.134	0.141	0.239
	(-3.162)	(-3.195)	(-0.345)			
Borrowed	-0.028	-0.002	-0.025	0.033	0.021	0.052
	(-1.843)	(-0.176)	(-1.565)			
Sold assets	0.011	0.010	0.001	0.020	0.043	0.036
	(0.603)	(0.690)	(0.038)			
Reduced non-food expenditures	0.013	**-0.067**	**0.080**	0.027	0.097	0.084
	(0.586)	(-2.802)	(2.584)			
Other	-0.025	-0.035	0.010	0.078	0.128	0.144
	(-0.848)	(-1.259)	(0.314)			
N		5,354		1,588	995	888

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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

Summary of Effects on Resilience

Similar to what we found at 24-months, we see that after 36-months the MCTG continues to have an important effect on improving the resiliency of households. The MCTG led to improvements across a number of domains that are typically associated with strengthening resilience including increased agricultural assets (mostly livestock but also small tools), non-agricultural assets (domestic items, radios, clocks), and significant strengthening of existing income generation sources. The large improvements in the credit market position we observed at 24-months seems to have weakened at 36-months, but there continues to be a shift in coping mechanisms towards more self-reliance.

These results are similar in nature to those resulting from the CGP program. Like the MCT, the CGP program has positive impacts on crop production, the amount of land operated, and the ownership rates of farm animals; however, while the CGP found positive impacts on the use of agricultural inputs, the MCTG's evidence was weaker in this dimension. The evidence from other programs is somewhat mixed, although the studies considered were both non-experimental evaluations. Ethiopia's Productive Safety Net Programme, which was a combination of a public works program and a direct transfer program, suggested that beneficiaries did not experience faster asset growth and were more likely to borrow for productive purposes, results which differed from the MCTG's.[21] However, similarly to the

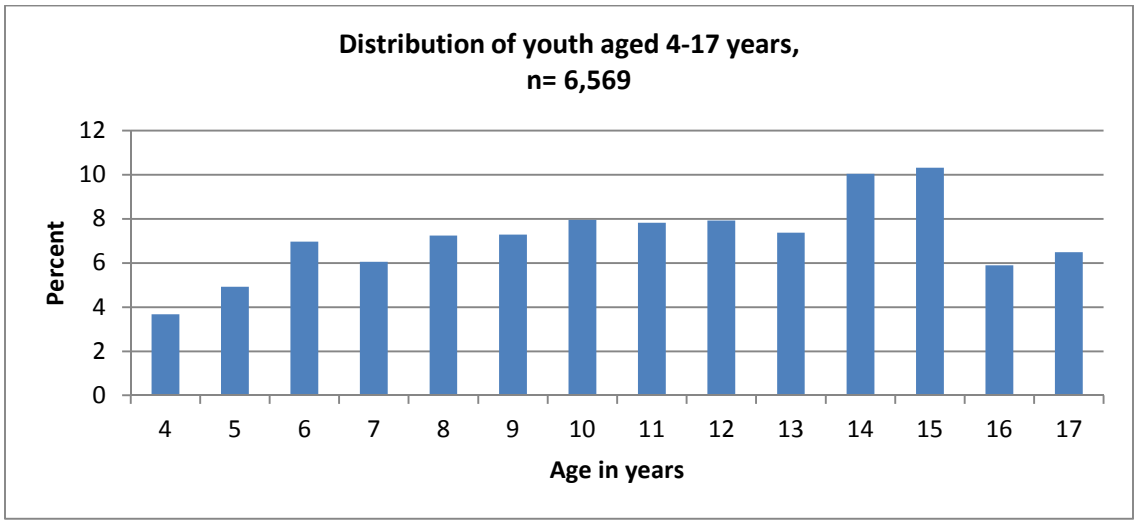
[21] Gilligan, D. O., Hoddinott, J., & Taffesse, A. S. (2009). The Impact of Ethiopia's Productive Safety Net Programme and its Linkages. The Journal of Development Studies, 45(10), 1684-1706.

MCT they found positive impacts on operating non-farm business activities and agricultural impacts, in that beneficiaries were more likely to use improved agricultural technologies (albeit this was confined to only households with access to both the programme and packages of agricultural support). In contrast, the Zimbabwe Harmonized Cash Transfer Programme (HSCT) and the Malawi Social Cash Transfer are both similar to the MCTG in terms of the target group and provision of an unconditional cash transfer that is not coupled with an agricultural intervention (as in the PSSN in Ethiopia). In both the Malawi and Zimbabwe programs, after one year of intervention the direction of effects on resiliency are the same as those observed for the MCTG, but the magnitudes are smaller, probably due to the shorter evaluation window which was only one year. What is interesting then, is the notion that an unconditional cash transfer targeted to ultra-poor rural households can significantly strengthen household resiliency in Southern Africa.

IX. Children 4-17 years old

Children, especially those of school-going age, might benefit from living in a household that receives the cash transfer, depending on how the money is spent. The conceptual framework demonstrates how the cash transfer might have an impact on certain areas, such as children's material well-being, education, and labor. 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 among older children. We did not expect impacts for other indicators related to older children, however, because the transfers were not expected to be spent in ways that would affect these outcomes. After three years, we investigated the effects of the MCTG on a number of outcomes in these areas for children aged 4 to 17. Figure 9.1 shows the distribution of youth by age for the sample in the study. The children are fairly equally spread across the ages of 6 to 15, with a slightly lower number in the early and later ages of the distribution and a particularly large number of children age 14-15.

Figure 9.1



Material Well-Being

The MCTG had a large impact on children's material well-being, indicating that recipients used some of the transfer to purchase blankets, clothing, and shoes—items deemed necessary for supporting orphans and vulnerable children.[22] The material well-being indicator uses a scale from 0 to 3; a child gets one point for having a shared blanket, one point for having a second set of clothing, and one point for having a pair of shoes. The program generated a 28 percentage point impact on the number of children who have all three material needs, with 63 percent of the treatment group meeting all three compared to 41 percent of the control group. This result is similar to that observed at 24 months, as indicated by the lack of significance in column (3). The sustained effect in the MCTG differs from the CGP, where the 36-month impact estimate was nine percentage points lower than it was at 24-months.

[22] 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

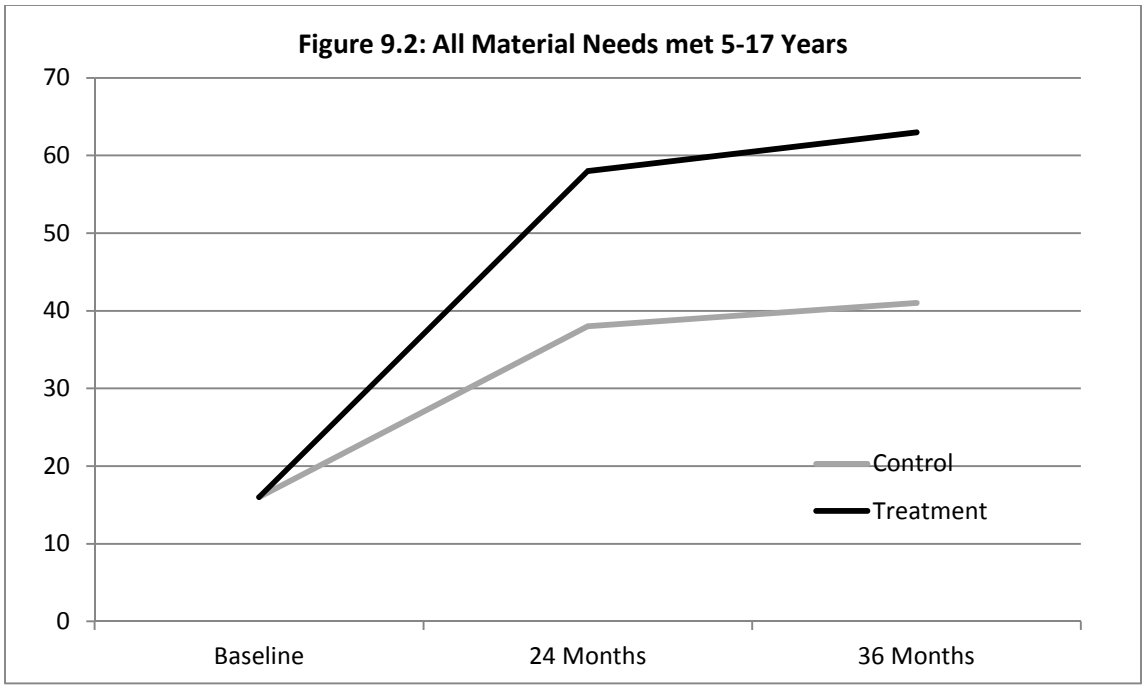
Table 9.1 shows the impact of the MCTG program on each item on the material well-being scale. The program had an impact on all three items separately, but it had the largest impact on the number of children with shoes, which increased by 27 percentage points. Additionally, the treatment households have hit a ceiling for blanket (93 percent) and two sets of clothing (97 percent) with almost everyone having these items, leaving little room for improvement. As such, there is little room for MCTG households to improve more than control group households on these indicators, yet there is still an impact, though smaller relative to shoes. The significant difference of two sets of clothing indicator between 36 and 24-month follow-up points can be explained by the differential effects of gender and household size: there was a significant difference in the impact of this indicator between the 36 and 24-month follow-up for girls and small households. These impacts remain when looking by age, gender, and household size.

Table 9.1: MCTG Impacts on Basic Needs Met, ages 5-17

Dependent	36-Month	24-Month	Diff	Baseline	36M Treated	36M Control
Variable	Impact	Impact	36M-24M	Mean	Mean	Mean
	(1)	(2)	(3)	(4)	(5)	(6)
All needs met	**0.277**	**0.240**	0.038	0.159	0.631	0.405
	(6.106)	**(4.435)**	(0.884)			
Shoes	**0.265**	**0.232**	0.033	0.211	0.655	0.438
	(5.541)	**(4.147)**	(0.774)			
Blanket	**0.156**	**0.133**	0.022	0.610	0.933	0.805
	(6.165)	**(4.659)**	(1.188)			
Two sets of clothing	**0.071**	**0.037**	**0.034**	0.770	0.973	0.916
	(4.024)	**(2.001)**	**(2.053)**			
N		19,181		6,621	3,205	3,103

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 gender, age, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Figure 9.2 illustrates graphically the evolution of the "all needs met" indicator across the survey waves to help interpret these impact estimates. The proportion of children with all material needs met jumped from 16 to 58 percent after 24 months, and then increased at 36-months but at a much slower rate. This indicator also jumped after 24 months among control households, from 16 percent to 39 percent, and continued to increase but levels off at 36-months. This indicator remained significantly higher among treatment households. The pattern observed for material needs is similar to the of the CGP program, where at the 36-month follow-up the number of both treatment and control children increased from baseline but the rate of increase started to slow down at 36-months.

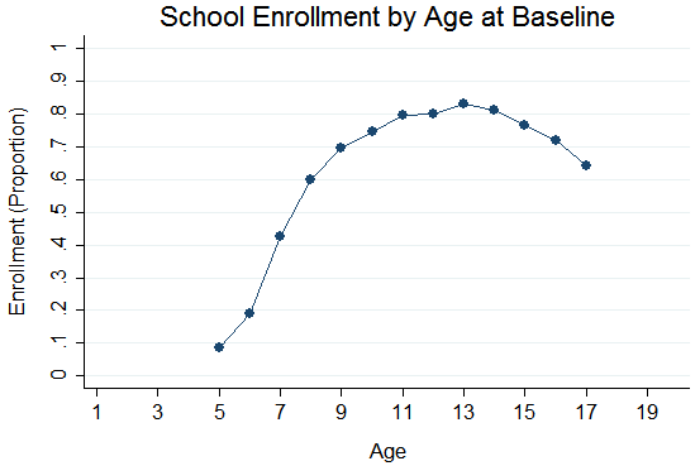


Schooling

Unlike CGP (which targets households with children under five years old), MCTG households have a large number of school-aged children. The theory of change shows ways in which the cash transfer might have positive impacts on schooling, specifically enrollment and attendance. The previous 24-month report investigated impacts on two groups of children, divided into primary school ages of 7-14 and secondary school ages of 15-17. For the 36-month final report, we considered additional evidence on how to determine the age groups of children.

First, we took into account the structure of the Zambian education system to shed light on how the school system varies in its effects on children at different ages. Zambia's school system consists of a primary level (7 years) and a secondary level (5 years). Children are expected to enter primary school no later than age 7 and complete lower basic (grades 1-4) at age 11 and middle basic (grades 5-7) by age 13. Students take common examinations at the end of the primary cycle and successful pupils are awarded a Certificate of Primary Education and allowed to continue onto secondary education. Secondary education is divided into junior secondary (or upper basic) – grades 8 and 9 – and senior secondary (or high school) – which corresponds to grades 10 to 12. Again, there are common examinations at the end of grade 9 (Junior Secondary School Certificate) and successful students are allowed to continue onto senior secondary. Due to the common examinations at grades 7 and 9, these are threshold levels at which significant drop-out occurs. Figure 9.3 below shows that age 13 (grade 7) is the turning point in which school enrollment starts decreasing.

Figure 9.3



Second, the impact of the MCTG on schooling also depends on the income elasticity of the demand for schooling. The income elasticity of the demand for schooling is positive[23] for the age groups of 4-7 and 11-14. Interestingly, the latter age group is precisely the one in which we see the turning point in school enrolment at baseline. These results suggest that MCTG has the potential to either support on time school enrolment for children 4-7 or to prevent drop out for children 11-14.

Taking into account Handa et al. findings as well as the structure of the Zambian education system, the rest of this section will investigate MCTG impacts on schooling for children of four different age groups: 4-7, 8-10, 11-14 and 15-17.

These findings fill important gaps in existing literature on the impact of cash transfers on education. Although many African countries have had social transfer programs for years, there are not many unconditional cash transfers that also have a randomized controlled trial study design, so robust evidence on how these programs impact education outcomes is needed. The available evaluations of unconditional cash transfers suggest that these programs benefit schooling outcomes; however, impacts seem to be different by age group and gender.

In general, the existing evidence increased enrollment and attendance for some age groups but no studies have extensive multi-year longitudinal data to test the lasting effects of these results. Miller et al (2012)[24] estimate that Malawi's social cash transfer scheme increases school enrolment for children 6-18 by five percentage points one year after the transfer. When looking at disaggregated results by gender and age group, the program's impact is only significant for boys between 16-18 years old. Robertson et al (2013)[25] evaluate an unconditional cash transfer in Zimbabwe. The authors find the

[23] Sudhanshu Handa, Luisa Natali, David Seidenfeld, Gelson Tembo and the Zambia Cash Transfer Evaluation Team, *The Impact of Zambia's Unconditional Child Grant on Schooling and Work: Results from a Large-Scale Social Experiment*. 2014

[24] Miller, C., & Tsoka, M. (2012). Cash Transfers and Children's Education and Labour among Malawi's Poor. Development Policy Review, 30(4), 499-522

[25] Robertson, L., Mushati, P., Eaton, J. W., Dumba, L., Mavise, G., Makoni, J., ... & Gregson, S. (2013). Effects of unconditional and conditional cash transfers on child health and development in Zimbabwe: a cluster-randomised trial. The Lancet, 381(9874), 1283-1292.

program increases the probability of attending school at least 80 percent of the time by 7.2 percentage points for children 6-12 years old, and by 7.9 percentage points for children 13-17 years old. Finally, Akresh et al (2013)[26] find no impacts on enrolment after 12 months of implementation of an unconditional cash transfer in Burkina Faso, but they do find impacts on enrolment for boys age 7-15 at the 24-month follow-up.

Children ages 4-7

At the 36-month follow-up, we do not find any impacts on education for children 4-7 years old, which is consistent with findings at 24-months. This result is inconsistent with what we expected to find with increased enrollment given results of income elasticity in relation to enrollment. There are no heterogeneous impacts of the program on education by gender, household size, or access to school for this age group at the 36-month follow-up. This result is also consistent with the results at 24 months. The enrollment and attendance levels for the treatment group at 36-months are higher than the control levels, but are not statistically significant. Results are shown below in Table 9.2. The overall enrollment rate of students in this age group is low, at 20.5 percent in the treatment group and 18.7 percent in the control group. Figure 9.4, below, shows the trend in enrollment from baseline to 36 months. Though there has been some movement in both treatment and control groups, overall enrollment rates have not increased over baseline by any meaningful amount.

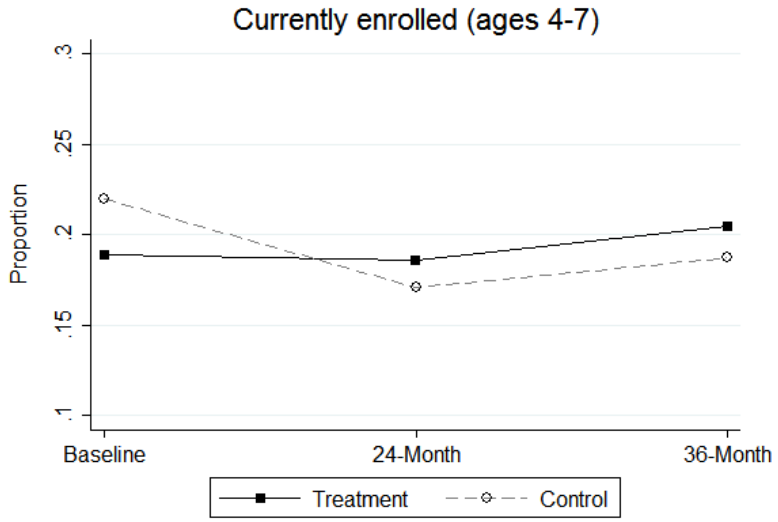
Table 9.2: MCP Impacts on Education, ages 4-7

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Currently enrolled (%)	0.041 (1.209)	0.045 (1.192)	-0.004 (-0.117)	0.203	0.205	0.187
Full attendance prior week (%)	0.078 (0.887)	-0.096 (-1.082)	0.174 (1.547)	0.826	0.740	0.639
Number of days in attendance prior week (0–5)	0.145 (0.980)	0.048 (0.328)	0.096 (0.649)	0.887	0.795	0.713
Number of days in attendance prior week (0–5) if enrolled	0.342 (1.497)	-0.149 (-0.581)	0.491 (1.438)	4.629	4.675	4.333
N		805		340	117	111

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 gender, age, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

[26] Akresh, Richard and de Walque, Damien and Kazianga, Harounan, Cash Transfers and Child Schooling: Evidence from a Randomized Evaluation of the Role of Conditionality (January 1, 2013). World Bank Policy Research Working Paper No. 6340.

Figure 9.4



Children ages 8-10

There is no impact of the program for ages 8-10 on enrolment, full attendance, and days in attendance in prior week at 36-months. At 24-months, there was a positive impact detected on current enrollment but that impact did not persist to 36-months. There are no heterogeneous impacts of the program on education by gender, household size, or access to school for this age group at the 36-month follow-up. School enrolment and days in attendance have increased for both groups with respect to the baseline mean.

This lack of impact in enrolment is expected as the income elasticity of schooling for this age group in CGP is not statistically significantly different from zero so control and treatment group households will equally invest (or not) in their children's education regardless of the transfer. In other words, household schooling decisions for children in this age group are not sensitive to changes in income. This fact may be related to structural features of the Zambian school system, as ages 8-10 correspond to intermediate years in which the child has not yet finalized the primary level and therefore there is not a natural threshold in the system that would make drop out more appealing.

Table 9.3: MCP Impacts on Education, ages 8-10

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Currently enrolled (%)	0.041 (1.159)	**0.059** (2.009)	-0.018 (-0.618)	0.680	0.758	0.757
Full attendance prior week (%)	-0.013 (-0.178)	-0.063 (-1.113)	0.050 (0.600)	0.821	0.684	0.649

Number of days in attendance prior week (0–5)	0.182 (0.810)	0.067 (0.312)	0.115 (0.437)	3.079	3.303	3.223
Number of days in attendance prior week (0–5) if enrolled	-0.047 (-0.245)	-0.257 (-1.309)	0.210 (0.821)	4.573	4.480	4.403
N		3,109		983	533	459

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 gender, age, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Children Ages 11-14

For children between 11-14 years old MCTG has a significant impact on enrollment: at 36-months, the program increases school enrollment by 7.4 percentage points, persisting from 7.7 percentage points at 24-months[27]. Figure 9.5 shows that the overall trend for enrollment of children from this age group steadily decreased from baseline to 36-months for the control group. The treatment group increased from baseline, though the 24-month high of 83 percent enrollment fell to 80 percent one year later. The cash transfer not only increased enrollment from baseline but prevented the dropout seen in the control group. The improvement in enrollment seems to be driven by boys, as heterogeneous analysis reveals that boys have an improvement in enrollment for this age group while girls do not. Tables 9.4, 9.5, and 9.6 below show these impacts. Figure 9.5 shows the trends in enrollment for this age group over time: rates have steadily decreased for the control group but increased and then declined for the treatment group over the three year period.

At 36-months, there is also a positive significant impact on school attendance. Students in households receiving the cash transfer are, on average, attending school by a half a day more per week because of the program. This impact was not found at 24-months. The impact on school attendance holds for girls but disappears for boys. The impact is consistent for both large and small households.

Children ages 11-14 are either transitioning into middle basic (age 11) or transitioning into secondary school (ages 13-14), and therefore they are facing threshold levels in which significant dropout usually occurs (as previously shown in Figure 9.3). There are several reasons for why dropout increases at these ages. From the supply side, there are financial barriers such as secondary school fees, uniform[28], shoes and book expenditures. However, as shown in the Expenditure section, MCTG does not have an impact on education expenditures. When limited the sample to households that have children aged 11-14, there is still no impact on education expenditures. From the demand side, the opportunity cost of children attending school increases as they grow older since children in poor households engage in more paid/unpaid work (mainly domestic and agricultural chores) as they grow up. As described in the next section, there has not been an impact of the program on the incidence of paid labor except for small households where the program increased the number of unpaid work hours. So even though the program does not appear to be impacting the household expenditure on education nor the children's paid labor, it is still preventing dropout for this age group.

[27] According to coefficient tests, we cannot say that these magnitudes are statistically different from each other.

[28] "Although uniforms and shoes are not compulsory at primary level, there is a social stigma attached to not owing these items – even at primary level". Handa et al, p 6.

Table 9.4: MCP Impacts on Education, ages 11-14

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Currently enrolled (%)	**0.074** (3.033)	**0.077** (3.496)	-0.003 (-0.156)	0.809	0.805	0.773
Full attendance prior week (%)	0.002 (0.039)	-0.039 (-0.840)	0.041 (0.557)	0.802	0.684	0.681
Number of days in attendance prior week (0–5)	**0.508** (2.882)	0.291 (1.459)	0.217 (0.962)	3.591	3.575	3.351
Number of days in attendance prior week (0–5) if enrolled	0.159 (0.990)	-0.091 (-0.482)	0.250 (1.086)	4.476	4.562	4.469
N		5,078		1,785	786	725

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 gender, age, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Table 9.5: MCP Impacts on Education, boys ages 11-14

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Currently enrolled (%)	**0.079** (2.417)	**0.091** (3.257)	-0.011 (-0.422)	0.805	0.808	0.772
Full attendance prior week (%)	-0.028 (-0.431)	-0.021 (-0.365)	-0.007 (-0.089)	0.795	0.690	0.694
Number of days in attendance prior week (0–5)	0.394 (1.751)	0.362 (1.440)	0.031 (0.124)	3.567	3.581	3.392
Number of days in attendance prior week (0–5) if enrolled	-0.038 (-0.223)	-0.078 (-0.347)	0.039 (0.163)	4.471	4.536	4.529
N		2,628		935	390	361

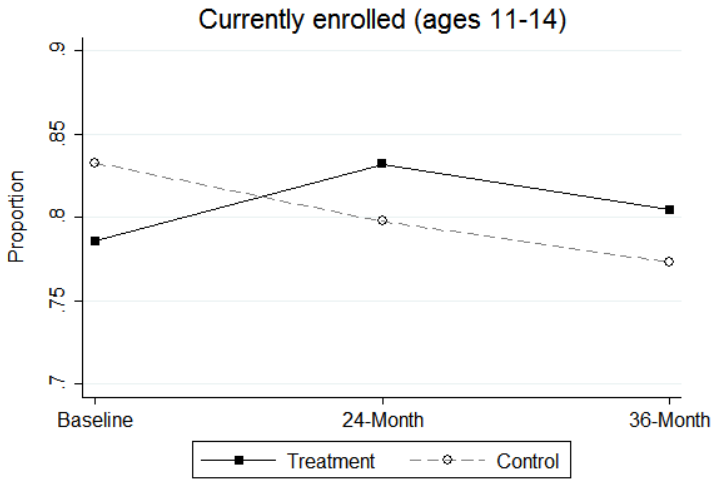
NOTE: Estimations use difference-in-difference modeling among panel households. Robust t-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at p < .05. All estimations control for gender, age, household size, recipient age, education and marital status,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

Table 9.6: MCP Impacts on Education, girls ages 11-14

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Currently enrolled (%)	0.069 (1.951)	0.059 (1.740)	0.010 (0.431)	0.814	0.807	0.778
Full attendance prior week (%)	0.043 (0.655)	-0.058 (-1.111)	0.101 (1.275)	0.810	0.690	0.673
Number of days in attendance prior week (0–5)	**0.639** (2.879)	0.191 (0.823)	0.449 (1.743)	3.618	3.627	3.345
Number of days in attendance prior week (0–5) if enrolled	**0.361** (2.015)	-0.118 (-0.593)	**0.479** (1.994)	4.482	4.626	4.437
N		2,407		850	374	343

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 gender, age, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Figure 9.5



Children Ages 15-17

The program impacts that we see for children ages 11-14 continue to ages 15-17 (Table 9.7). There are positive impacts on enrollment (of 11.1 percentage point increase for treatment households over control households) and attendance (of an additional 0.58 days in the last week). Unlike the 11-14 year-olds, these impacts do not differ by gender. The sample size for this age group is much smaller than for the younger age groups, so it is harder to detect impact in subgroup analysis.

Table 9.7: MCP Impacts on Education, ages 15-17

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Currently enrolled (%)	**0.111** (2.358)	**0.145** (3.521)	-0.035 (-1.042)	0.712	0.568	0.497
Full attendance prior week (%)	0.063 (0.911)	-0.010 (-0.162)	0.073 (1.098)	0.804	0.648	0.582
Number of days in attendance prior week (0–5)	**0.581** (2.338)	**0.581** (2.580)	0.000 (0.002)	3.200	2.344	1.929
Number of days in attendance prior week (0–5) if enrolled	0.141 (0.809)	-0.100 (-0.539)	0.241 (1.027)	4.613	4.562	4.427
N		2,290		926	333	295

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 gender, age, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

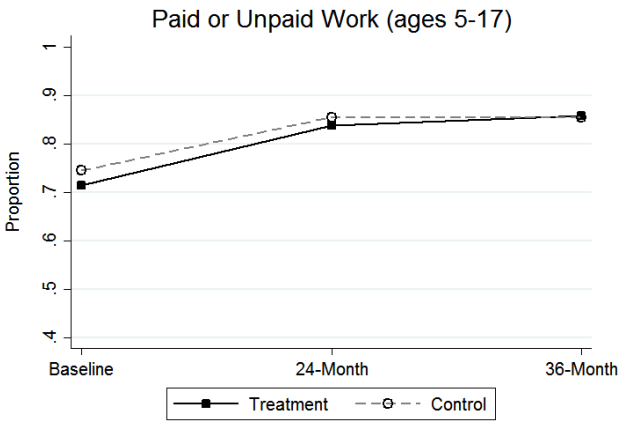
Child Labor

Children ages 5-17

There are no impacts on child labor for children between 5 and 17 years old at 36 months, consistent with findings at 24 months. Additionally, there are no impacts for subgroups by child gender or household size. Subgroup analysis that looks at age groups of children five to seven years old, eight to 10, 11 to 14 and finally 15-17 both individually and then by gender and household size also do not find impacts. See Note that unpaid work includes domestic chores. For this age group, we also see impacts on school enrollment and attendance.

Child labor increased for both control and treatment groups from baseline to the 36-month follow-up. While 73 percent of children were engaged in labor activities at baseline, at 36-months 86 percent of children in the treatment group and 85 percent in the control group participate in paid or unpaid work. Figure 9.6 below illustrates the trend from baseline to 36 months.

Figure 9.6



Summary of Effects on Children

Consistent with previous waves, at 36 months the proportion of children in treatment households who have all three materials needs continues to be significantly higher than that of the control households. Additionally, a more detailed analysis showed that results were consistent across all age groups, suggesting that treatment households are spending on material well-being for all household children regardless of their age.

The program continues to impact school enrolment and attendance for children age 11-14 and 15-17. The 11-14 age range is interesting with the enrolment effect mostly driven by boys, while the attendance effect is mostly driven by girls. School enrolment for these households tends to decrease at age 13, so the program is having a positive effect on children during the ages when they are more prone to dropout.

We do not find program impacts on participation and number of hour spent in unpaid/paid work for children above 5 years old. This is a positive result because it suggests that the program's positive impact on agricultural productivity - reported previously – is not occurring because of an increase in child labor.

X. Adolescents

The MCTG targets labor-constrained households caring for orphans and vulnerable children (OVCs) and a key question of the evaluation is whether or not the program affects the safe transition into adulthood among youth. Globally, there is increasing evidence to suggest a protective effect of SCTs, however, the topic remains an understudied area, particularly in relation to unconditional SCTs and in sub-Saharan Africa. Conceptually, there are a number of pathways through which the MCTG may influence youth outcomes, including decreases in household poverty, increases in household spending and changes in household time-allocation decisions—which may in turn decrease stress, increase overall investment in youth (including investment in education) and decrease exposure of the youth to risky environments. Characteristics such as household size, gender of the MCTG recipient, aspirations of the youth themselves, and environmental factors such as distance to schools and health facilities may moderate impacts. We examine impacts on four broad categories of youth outcomes, including: 1) sexual debut, marriage, and pregnancy, 2) risky sexual behaviors among youth who have ever had sex, including experience of forced sex, 3) mental health and well-being (including future aspirations and expectations), and 4) social support. This section complements findings on education and child labor reported in the previous section. Impacts on education and child labor may be situated more proximally on the casual impact chain, which may, over time, affect outcomes examined here, such as sexual debut or marriage transitions, even if impacts on the latter are not evident in the short term as presented here.

Data on outcomes for youth were collected through a dedicated youth interview, which was administered to up to two youth per household aged 13 to 17 at baseline and again during the 24-month follow-up data collection (when youth were aged approximately 15 to 19). During the 36-month follow-up, to increase the sample size of youth respondents, the age range was expanded to include 16 to 23 year olds and interviews were conducted with up to three youth per household. The interviews were held in private and enumerators could only interview individuals of the same sex in order to be culturally sensitive given the private nature of the questions. Interviews were not conducted if privacy could not be assured. Informed consent was obtained from parents of youth aged 17 and under, and assent was also obtained from these youth. For youth aged 18 and above, informed consent was obtained directly from the youth. Additionally, information on marriage and pregnancy was obtained from the main household questionnaire, which was administered to the main household respondent and collected information on all household members.

The sample for analysis included youth residing in households interviewed at any wave (though youth may have been interviewed at only one wave). Impacts were estimated using DD modelling for time variant measures (e.g., mental health, self-assessment of HIV risk, or those with 12-month recall periods). Further, for outcomes that were lifetime measures or only collected at the 36-month follow-up (e.g., ever had sex, ever experienced forced sex, social support indicators), we analyzed a sample of youth who had not reported experiencing the outcome at baseline. For these outcomes, we performed cross-sectional analyses using follow-up waves comparing C and T groups. The rationale is that youth who have already sexually debuted (or experienced other lifetime outcomes) had no likelihood of being influenced by the program with respect to this outcome. Thus, there would be no variation in their outcomes over the panel period.

Controls used were the same as in the household-level models, however we also controlled for contemporaneous sex and age in years of the youth. In addition to overall impacts, we explore findings stratified by: 1) sex of the youth and 2) household size (small indicating four or fewer members and

large indicating over four members). Finally, we performed analysis on the sub-set of those individual youths in the age cohort (following the original 13 to 17 age range at baseline who were then 16 to 20 at the 36-month follow-up), as well as the youth who appear in the panel (participate in all three waves of data collection).

The total sample sizes responding to the youth model were 2,020 at baseline, 1,765 at 24-month and 2,279 at 36-month. The total possible number of youth in qualifying age ranges residing in households was 2,466 at baseline, 2,139 at 24-month and 2,795 at 36-month for a response rate of 82 to 83 percent at each wave. However, note that due to sampling instructions, whereby only up to two or three youth per household were surveyed, the effective response rates were 100 percent, 98 percent and 91 percent across the three waves respectively. Approximately 49 percent (987 youth) appear in all three waves of the survey.

Sexual Debut, Pregnancy and Marriage

Poverty and early sexual debut, pregnancy, and marriage are intertwined in a cycle that heightens vulnerability to each condition, decreasing future potential productivity and well-being. McQueston and colleagues (2013)[29] identified SCTs as one of three promising strategies for reducing adolescent childbearing in low- and middle-income countries. In addition, evidence from existing SCTs (including two in Africa—in Malawi and Kenya) demonstrated the programs' abilities to delay sexual debut[30,31], childbearing[32,33] and marriage[1,3] among youth and young adults.

We first present results of impact on sexual debut (Table 10.1). For this analysis we drop 13.6 percent of the baseline sample who reported already debuting at baseline, and conducted a cross-sectional analysis with the remaining sample (n=3,249). At the 24-month approximately 33.7 percent of the sample report sexual debut, and this increases to 43.6 at the 36-month follow-up. There are no program impacts on sexual debut in either follow-up round. In addition, although the percentage of females reporting debut is higher at 36-months as compared to boys (48.9 versus 39.1 percent), there are no differential impacts within subgroups.

[29] McQueston, K., Silverman, R., & Glassman, A. 2013. The Efficacy of Interventions to Reduce Adolescent Childbearing in Low- and Middle-Income Countries: A Systematic Review. *Studies in Family Planning*, *44*(4): 369–388.

[30] Baird, S., et al.,*"The short-term impacts of a schooling conditional cash transfer programme on the sexual behavior of young women.* Health Economics, 2010. **19**(S1): p. 55-68.

[31] Handa, S., et al., *The Government of Kenya's Cash Transfer Programme Reduces the Risk of Sexual Debut among Young People Age 15-25.* PloS one, 2014. **9**(1): p. e85473.

[32] Gulemetova-Swan, M., *Evaluating the impact of conditional cash transfer programs on adolescent decisions about marriage and fertility: the case of oportunidades.* 2009.

[33] Handa, S. et al. 2015. "Impact of the Kenya Cash Transfer for Orphans and Vulnerable Children on girls early pregnancy and marriage." *Social Science & Medicine* (forthcoming).

Table 10.1: MCTG Impacts on Sexual Debut Among a Cross-section of Youth who had not Debuted at Baseline

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	24M Control Mean (4)	36M Control Mean (5)
Ever had sex	0.008	0.022	-0.014	0.337	0.436
	(0.260)	(0.639)	(-0.366)		
N		3,249		823	917

Notes: Estimations are cross-sectional modeling among panel households and youth who had not debuted at baseline. Robust t-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at p < .05. All estimations control for youth's gender and age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Next we examine the MCTG on first pregnancy and total fertility of females (Table 10.2), utilizing an expanded sample from the household questionnaire of young adult women ages 13 to 24 at baseline (16 to 27 at 36-month follow-up). Similar to sexual debut, we limit the sample to those females who report never having been pregnant at baseline (dropping 16.3 per cent of the sample). Note that since we do not collect retrospective information on age at first pregnancy, we can only drop those who have ever been pregnant from the sample of youth who appear in the baseline. Among the resulting sample of n=2,612 females, approximately 11.8 percent and 16.0 percent of the control sample reports ever giving birth at the 24 and 36-month follow-up surveys respectively. Further, among those reporting ever giving birth, total fertility is approximately 1.7 and 2.1 live births per female at the 24 and 36-month follow-ups. There are no overall impacts at the 36-month follow-up, however there is a 5.8 percentage point increase in the probability of ever being pregnant at the 24-month follow-up (p<0.10), driven by females in large households. There are no other impacts on sub-groups examined.

Table 10.2: MCTG Impacts on Pregnancy Among Cross-section of Females aged 13 - 24 Never pregnant at Baseline

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	24M Control Mean (4)	36M Control Mean (5)	N
Ever pregnant	0.016	**0.058**	-0.038	0.118	0.160	2612
	(0.923)	(2.536)	(-1.746)			
Total fertility (overall)	0.033	0.085	-0.051	0.168	0.280	2611
	(0.566)	(1.921)	(-0.746)			
Total fertility (among those ever given birth)	0.004	0.136	-0.132	1.746	2.116	317
	(0.014)	(0.449)	(-0.330)			

Notes: Notes: Estimations are cross-sectional modeling among panel households and youth who had never had a pregnancy at baseline. Robust t-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at p < .05. All estimations control for youth's age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Finally, we examine impacts on ever being married or co-habiting in Table 10.3. For this analysis we again utilize indicators from the household questionnaire of youth aged 13 to 24 at baseline (16 to 27 at 36-month follow-up), and drop approximately 5.5 percent of the sample who report ever being married

at baseline. Note that since we do not collect retrospective information on age at first marriage, we can only drop those who have ever been married from the sample of youth who appear in the baseline. Among the resulting sample of n=6,450 youth, approximately 3.0 percent and 3.9 percent report ever being married at the 24 and 36 month follow-ups. These percentages are higher for females (8.9 percent and 12.7 percent) as compared to males (2.4 percent and 2.8 percent) at the 24 and 36 month follow-ups respectively. There are no impacts on ever being married at either wave of the follow-up surveys or among any of the sub-groups. It should be noted that the data tracking protocol of the quantitative survey may not be set up to capture dynamics around marriage for young people—particularly for females who typically move to reside with their new partners or partner's households. Thus, the current analysis may be underestimating the program impact on early marriage. However, when we account for those youth who were specifically indicated in tracking as having "left for marriage," although overall rates increase (6.0 percent and 7.8 percent in 24 and 36 month control samples respectively), results remain unchanged.

Table 10.3: MCTG Impacts on Marriage Among Cross-section of Youth aged 13 - 24 Never married at Baseline

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	24M Control Mean (4)	36M Control Mean (5)
Ever married or co-habited	0.001 (0.398)	0.002 (0.540)	-0.000 (-0.131)	0.030	0.039
N		6,450		1,752	1,591

Notes: Estimations are cross-sectional modeling among panel households and youth who had never been married at baseline. Robust t-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at p < .05. All estimations control for youth's gender and age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Risky Sexual Behaviors

Literature linking cash transfers to reproductive health and HIV has grown substantially in the last five years. Pettifor and colleagues (2012) review 10 completed studies and six ongoing studies of cash payments specifically for HIV prevention, the majority of which focused on structural factors, such as poverty among adolescents in developing countries. The review indicated that cash payments, primarily in Africa, have the potential to reduce risky sexual behavior among young women in particular, with 9 of the 10 completed studies finding positive impacts on behavioral outcomes, although much of this evidence comes from small-scale studies. Further, recent evidence from a quasi-experimental evaluation from South Africa shows that the Government's cash transfer program reduced the odds of transactional and age-disparate sex among girls aged 10-18, however had no impact for boys.[34] Therefore, there is potential for the incidence of forced and exploitative sex to decrease among youth in beneficiary households if the program lowers incentives to engage in risky sexual behaviors (e.g., transactional sex or engaging in relationships with unequal power dynamics).

[34] Cluver L, Boyes M, Orkin M, Pantelic M, Molwena T, & Sherr L. 2013. Child-focused state cash transfers and adolescent risk of HIV infection in South Africa: a propensity-score-matched case-control study. *The Lancet Global Health, 1*(6), e362-e370.

We examine indicators of risky sexual behaviors among the sample reporting having engaged in sex, including: 1) characteristics surrounding first sex (own age, partner's age is greater than ten years older than respondent[35], and condom use), 2) characteristics of recent sexual activity (number of sex acts in last three months, condom never used in last three months, number of sexual partners in last 12 months, and condom never used in last 12 months) and 3) lifetime measures of forced and transactional sexual experiences.

Table 10.4 shows indicators of first sexual experiences among cross-sections in the 24 and 36-month surveys of youth who had not debuted at baseline (n=1,070). Trends indicate that age at first sex among the control group was approximately 14.9 years at 24 months and 16.6 years at 36 months. Approximately 5.2 percent and 7.1 percent of youth report that their first sexual experience was with an individual more than ten years older than them. Only 17.3 percent of youth at 24 months and 30 percent of youth at 36 months used a condom during their first sexual experience. There is only one significant impact of the program, showing that the MCTG increased the percentage (by 3.9 percentage points, $p<0.10$) of youth who had their first sexual experience with an individual more than 10 years their age, driven by males. However, it should be cautioned that sample sizes are small.

Table 10.4: MCTG Impacts on First Sex Experiences Among a Cross-section of Youth who Report No Debut at Baseline

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	24M Control Mean (4)	36M Control Mean (5)
Age at first sex (years)	-0.101	-0.005	-0.096	14.892	16.635
	(-0.573)	(-0.033)	(-0.425)		
Partner age at first sex >10 years older	**0.039**	0.018	0.023	0.052	0.071
	(2.107)	(0.987)	(0.816)		
Condom use at first sex	0.010	0.007	0.003	0.173	0.300
	(0.245)	(0.141)	(0.055)		
N		1,070		272	300

Notes: Estimations are cross-sectional modeling among panel households and youth who had not debuted at baseline. Robust t-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for youth's gender and age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Next we turn to recent sexual experiences, using all youth across three waves who report ever sexually debuting. Table 10.5 shows that among youth who have ever had sex, on average at baseline they engaged in 1.2 sex acts in the last three months, and this rose to 2.6 acts by the 36 month follow-up (this is not unexpected, since the 36-month sample includes older youth). Of those, approximately 46.8 percent never used a condom at baseline and 42 – 44 percent never used a condom at follow-up. On average, among those reporting ever sexually debuting, youth had approximately 0.66 partners and 1.2 – 1.3 partners at baseline and 36 month follow-up, respectively. Condom use was similarly low in the 12 month recall, with 50.9 percent and 44 – 46 percent reporting never having used a condom in the last 12 months. There are no impacts on any of the recent sex outcomes.

[35] Age of first sexual partner was collected in the following categories: 1) younger, 2) about same age, 3) up to 10 years older, 4) over 10 years older. There is no change in results if the last two categories are combined, instead of a binary indicator for the last category (e.g. up to and over 10 years older).

Table 10.5: MCTG Impacts on Recent Sexual Experiences Among Youth Reporting Debut

Dependent Variable	36M Impact (1)	24M Impact (2)	Test 36M=24M (3)	Baseline Mean (4)	36M Mean T (5)	C (6)	N
Number of sexual acts last 3 months	-0.236	1.038	-1.274	1.198	2.578	2.241	2087
	(-0.347)	(0.640)	(-0.752)				
Condom never used last 3 months (among those with any acts)	-0.032	0.075	-0.107	0.468	0.422	0.438	1077
	(-0.210)	(0.562)	(-0.677)				
Number of sexual partners last 12 months (among those with any partners)	-0.332	-0.159	-0.173	0.659	1.185	1.316	2089
	(-0.887)	(-0.775)	(-0.677)				
Condom never used last 12 months	-0.018	0.070	-0.088	0.509	0.439	0.461	1422
	(-0.124)	(0.585)	(-0.328)				

Notes: Estimations use difference-in-difference among panel households and youth who reported debut. Robust t-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at p < .05. All estimations control for youth's gender and age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Lastly, we explore impacts on lifetime experience of forced and transactional sex (defined as ever giving or receiving money, gifts or favors in return for sex). For this analysis, we drop those from the sample who at baseline report never having these experiences previously (approximately 27.6 percent for transactional sex and approximately 14.0 percent among youth who have sexually debuted). Table 10.6 shows that among those experiencing sexual debut and no forced sex at baseline, approximately 4.6 percent and 5.1 percent of the 24 and 36 month control samples report ever being forced to have sex. There is a positive program impact at 24 months indicating the program increased experience of forced sex by 3 percentage points (p<0.05), driven by the sample of females. In addition, among those experiencing sexual debut and no transactional sex at baseline, approximately 24.1 percent and 17.2 percent of the samples report transactional sex at 24 and 36 month follow-ups respectively. There are no program impacts on transactional sex (Table 10.7).

Table 10.6: MCTG Impacts on Experience of Lifetime Forced Sex Among a Cross-section of Youth Reporting no Forced Sex at Baseline

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	24M Control Mean (4)	36M Control Mean (5)
Ever experienced forced sex	-0.007	**0.030**	-0.030	0.046	0.051
	(-0.755)	(2.684)	(-2.540)		
N		1,789		327	609

Notes: Estimations are cross-sectional modeling among panel households and youth who reported no forced sex at baseline. Robust t-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at p < .05. All estimations control for youth's gender and age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Table 10.7: MCTG Impacts on Experience of Transactional Sex Among a Cross-section of Youth Reporting no Transactional Sex at Baseline

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	24M Control Mean (4)	36M Control Mean (5)
Ever experienced transactional sex	0.016 (0.369)	0.000 (0.010)	0.016 (0.244)	0.241	0.172
N		1,756		320	600

Notes: Estimations are cross-sectional modeling among panel households and youth who reported no transactional sex at baseline. Robust t-statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at p < .05. All estimations control for youth's gender and age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Mental Health, Expectations and Aspirations

Mental health is a key component of the World Health Organization's (WHO's) definition of health[36] and is important for enabling youth to reach their full potential in terms of education and productivity. A study from Malawi in Zomba demonstrated the ability of a SCT to improve female adolescent mental health outcomes, and the authors concluded these impacts were mediated through physical health, increased schooling and family support for education, as well as higher levels of individual consumption and leisure.[37] The Kenyan Government's Cash Transfer for Orphans and Vulnerable Children (CT-OVC) program had positive impacts on mental health (both Hope scale and not experiencing depressive symptoms), however impacts were largely found among males.[38] In addition to being an important component of health and well-being, mental health may be an important mediator—the Kenyan CT-OVC has also shown mental health to be strongly protective among girls in relation to sexual debut.[39]

We measured mental health using the Centre for Epidemiological Studies-Depression Scale (CES-D).[40] We used a 10-item short-form of the CES-D scale, based on a longer 20-item scale that has been validated internationally[41,42,43] and implemented in Africa.[44] The CES-D has high internal consistency and

[36] World Health Organization. [cited 2014 5 December]; Available from: http://www.who.int/about/definition/en/print.html.

[37] Baird, S., J. De Hoop, and B. Özler, *Income shocks and adolescent mental health.* Journal of Human Resources, 2013. **48**(2): p. 370-403.

[38] Kilburn, K., et al. (2014). *Effects of a large-scale unconditional cash transfer program on mental health outcomes of young people in Kenya: a cluster randomized trial*, University of North Carolina at Chapel Hill.

[39] Handa S, Palermo T, Rosenberg M, Pettifor A, Tucker Halpern C, Thirumurthy H. "How does a national poverty program influence sexual debut among Kenyan adolescents?" University of North Carolina.

[40] Radloff, L.S., *The CES-D scale a self-report depression scale for research in the general population.* Applied Psychological Measurement, 1977. **1**(3): p. 385-401.

[41] Boey, K.W., *Cross K.Widation of a short form of the CES-D in Chinese elderly.* International Journal of Geriatric Psychiatry, 1999. **14**(8): p. 608-617.

[42] Bojorquez Chapela, I. and N. Salgado de Snyder, *Psychometric characteristics of the Center for Epidemiological Studies-depression Scale (CES-D), 20-and 10-item versions, in women from a Mexican rural area.* Salud Mental, 2009. **32**(4): p. 299-307.

[43] Cheung, Y.B., K.Y. Liu, and P.S. Yip, *Performance of the CES-D, and its short forms in screening suicidality and hoplessness in the Community.* Suicide and Life-Threatening Behavior, 2007. **37**(1): p. 79-88.

[44] Onuoha, F.N., et al., *Negative mental health factors in children orphaned by AIDS: natural mentoring as a palliative care.* AIDS and Behavior, 2009. **13**(5): p. 980-988.

reliability in household surveys across a variety of demographic characteristics.[45] Questions were asked on a Likert scale regarding feelings and behaviors in the past seven days. To calculate the scale, scores are summed for all 10 questions and can range from 10 to 30, with higher scores reflecting more depressive symptoms. We further constructed a binary outcome variable indicating whether the respondent scored above a validated threshold for depressive symptoms (score > 20). The CES-D has high consistency among our sample, with alpha values of 0.72 (baseline and 24-month) and 0.70 (36-month), meeting the rule of thumb cut off of 0.70 for high consistency.

In addition to the CES-D, we report on indicators of the expectations that life will improve in the next one, three and five years, as well as self-rated health being very good or excellent. Finally we analyze measures of future aspirations (ideals) across four different domains: 1) level of educational attainment, 2) monthly earnings, 3) age at first marriage and 4) number of lifetime children.

Table 10.8 shows the levels and impacts of the mental health, expectations and self-rated health indicators. At baseline approximately 1/3 of youth are classified as exhibiting depressive symptoms and this increases to approximately 45 percent at the 36-month follow-up. At baseline 52 percent, 66 percent and 79 percent of youth believe that life will be better in one, three and five years respectively and there are few, but small upward trends over the 36-month period. Finally, 63 percent of youth believe they have very good or excellent health. There are no impacts on any of the outcomes in any wave, and across any of the examined sub-groups.

Table 10.8: MCTG Impacts on Mental Health and Self-Assessed Wellbeing among all Youth

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
CES-D	-0.54	0.00	-0.54	17.89	19.24	19.50
	(-0.84)	(0.00)	(-0.95)			
Depressed (>=20 on CES-D index)	-0.02	0.03	-0.05	0.33	0.45	0.46
	(-0.36)	(0.34)	(-0.74)			
Believes life will be better in 1 year	0.01	0.02	-0.02	0.52	0.57	0.58
	(0.09)	(0.38)	(-0.33)			
Believes life will be better in 3 year	0.01	-0.00	0.01	0.66	0.69	0.70
	(0.13)	(-0.03)	(0.15)			
Believes life will be better in 5 year	0.01	-0.02	0.03	0.79	0.79	0.78
	(0.13)	(-0.59)	(0.57)			
Self-rated health: Very good or excellent	0.10	0.05	0.05	0.63	0.74	0.66
	(1.43)	(0.75)	(0.96)			
N		6,002		2,020	1,040	1,177

Notes: Estimations use difference-in-difference 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 youth's gender and age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

[45] Andresen, E.M., et al., *Screening for depression in well older adults: Evaluation of a short form of the CES-D.* American Journal of Preventive Medicine, 1994.

Table 10.9 shows levels and impacts on youth aspirations at the 36-month follow-up. Youth on average aspire to have approximately 13 years of completed education, get married at age 27 (among those who were not already married or never planned to get married) and have approximately 4.6 children. There are no significant impacts across any of the aspirations indicators, overall or by sub-sample.

Table 10.9: MCTG Impacts on Aspirations among all Youth

Dependent Variable	36-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	N
Ideal years of education completed	-0.14	13.44	13.32	2213
	(-1.19)			
Ideal one month earnings (logged ZMW)	-0.02	7.37	7.32	2213
	(-0.26)			
Ideal age at first marriage	-0.05	27.56	27.54	2157
	(-0.20)			
Ideal number of children in lifetime	0.13	4.57	4.63	2213
	(1.16)			

Notes: Estimations are cross-sectional 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 youth's gender and age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Social Support

Social support, or perceptions of social support, can be a key factor in young peoples' transitions to adulthood. Social support may provide resources to cope with stress, increase mental health and provide youth with positive role models. There is a possibility that the MCTG could have an impact on social support, if we think that overall cohesion of the household increases and stress decreases with receipt of the transfer. However, the main role of social support may be in moderating program impacts—that is, youth who perceive higher social support may be better able to translate increases in material resources to favorable outcomes. We investigate perceived social support using the Multidimensional Scale of Perceived Social Support (PSS).[46] The measures investigate two aspects of perceived support: 1) the number of people in peer and family networks, and 2) the perceived level of social support among friends and family. The level of social support is assessed through an eight-item positively worded scale, and operationalized using an index created through principal component analysis (PCA) (alpha = 0.80). For example, questions regarding level of support include statements such as: *"I can talk about my problems with my friends"* or *"I get the help and support I need from my family."* Responses vary from one (strongly disagree) to five (strongly agree) for each item. In addition to the index, we operationalize a measure of "high support" indicating a ranking in the top third (tercile) of the index. Since these measures were only collected at the 36-month follow-up, we report results on the cross-sectional analysis comparing T and C youth.

Table 10.10 shows that youth identify 6 to 7 close family members and approximately 4 friends. The individual scores on levels of support across the eight questions ranged from 3.2 to 3.8 (not shown), indicating that, on average, youth either were neutral or agreed to positive statements about their peer or family networks. There are significant program impacts on PSS scale (coeff: 0.29, t=2.16), driven by

[46] Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The multidimensional scale of perceived social support. *Journal of personality assessment*, *52*(1), 30-41.

adolescents in small households as well as the indicator of low PSS, driven by female youth and youth in small households (7 percentage point decrease in probability of being in the lowest PSS tercile). There were no overall program impacts on number of friends in subgroup analysis, however among youth in large households there was a significant impact on number of self-reported family members (coeff: 1.09, t=2.27).

Table 10.10: MCTG Impacts on Social Support among all Youth using 36-month cross-section

Dependent Variable	36-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	N
Number of family members (regular contact)	0.67 (1.64)	6.90	7.71	2188
Number of friends	0.14 (0.82)	4.03	4.17	2188
Perceived Social Support scale (PSS)	**0.29** (2.16)	-0.12	0.10	2172
Low tercile of Perceived Social Support scale (PSS)	**0.07** (2.00)	0.31	0.35	2172

Notes: Estimations are cross-sectional 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 youth's gender and age in years, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices.

Adolescent Summary

We examine a range of youth-specific outcomes using a unique survey module administered to youth ages 13 to 17 at Baseline (16 to 23 at 36-month follow-up). Overall, we find that the MCTG had little impact on the range of outcomes examined here. These findings are in contrast to similar evaluations completed in Kenya and ongoing in Malawi and Zimbabwe. However, there are large, positive impacts on education, as noted in Chapter IX, and education is a strong protective factor for many of the outcomes examined in this Chapter, including early sexual debut.[47,48] Thus, while we do not find impacts on these outcomes here, it is possible that over time the program may indirectly impact these outcomes through the education pathway. In addition, the program may directly and indirectly (again, through increased educational attainment) impact other outcomes not directly measured here, including quality of marriage matches and HIV risk.[49, 50]

[47] Zuilkowski, S. S., & Jukes, M. C. (2012). The impact of education on sexual behavior in sub-Saharan Africa: A review of the evidence. *AIDS care, 24*(5), 562-576.
[48] Doyle, A. M., Mavedzenge, S. N., Plummer, M. L., & Ross, D. A. (2012). The sexual behaviour of adolescents in sub-Saharan Africa: patterns and trends from national surveys. *Tropical Medicine & International Health, 17*(7), 796-807.
[49] Behrman, J. A. (2015). The effect of increased primary schooling on adult women's HIV status in Malawi and Uganda: Universal Primary Education as a natural experiment. *Social science & medicine, 127*, 108-115.
[50] De Neve, J-W, Fink, G., Subramanian, S.V., Moyo, S. and J. Bor. (2015). Length of secondary schooling and risk of HIV infection in Botswana: evidence from a natural experiment. Lancet Global Health (*forthcoming*).

XI. Women

The MCTG targets female-headed households and because in most cases cash is given directly to women, there is the potential for specific impacts on women's empowerment outcomes. As demonstrated in the conceptual framework, these impacts depend on many factors, including the balance of power within households and women's individual characteristics (such as their level of education, or how forward looking they are when determining consumption patterns). The following section explores trends and the impact of the MCTG on women's ability to save, future outlook on their lives and the lives of their children, and having appropriate social support. In addition, we analyze program impacts on opinions of violence and alcohol use in the community to investigate potential negative spillover effects of transfers. In addition to the indicators reported here, we examined indicators of women's decision-making and health (including self-reported morbidity, care seeking and activities of daily living) in the 24-month impact evaluation. We found limited impacts on women's sole decision making (across three of six domains), however no impacts on women's health. Since these indicators were not collected in the 36-month evaluation, we refer to past findings on these domains.

Savings and Future Outlook

We investigated indicators of savings and future outlook, as reported by the female respondents. Results indicate that at baseline, approximately 13 percent of respondents had accumulated savings in the previous three months. Three years later, MCTG respondents were 18 percentage points more likely to report any savings than respondents in the control group. In addition, MCTG respondents reported greater amounts of savings, as measured in logged kwacha. When we examined future outlook, we found upward trends in beliefs that life would be better in one, two, and three years, although program impacts were only weakly significant after 36 months, with only significance at p<.05 for believing life will be better in two years. The results are consistent with the 24 month evaluation. Table 11.1 shows the impacts of the program on women's savings and future expectations.

Table 11.1: MCTG Impacts on Women's Savings and Future Expectations, Main Respondents

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Any savings last three months	**0.18** (4.23)	**0.12** (2.87)	0.06 (1.03)	0.13	0.26	0.10
Log amount saved last month (ZMW)	**0.70** (3.15)	**0.62** (2.98)	0.07 (0.35)	1.26	1.09	0.42
Believes life will be better 1 year	0.04 (0.97)	0.03 (0.64)	0.01 (0.31)	0.57	0.67	0.57
Believes life will be better 2 years	**0.07** (2.03)	0.08 (1.89)	-0.01 (-0.30)	0.66	0.80	0.73
Believes life will be better 3 years	0.06 (1.84)	0.07 (1.86)	-0.01 (-0.17)	0.70	0.84	0.77
N		8,693		3,055	1,396	1,386

Notes: 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. The female head of household or primary caregiver of

OVCs at baseline is targeted for questions throughout the panel. However, if this woman is not available, a substitute mother or primary caregiver may respond to questions.

At 36 months, we asked the same women about aspirations on education and marital age for their children (aged less than 18; up to three selected per respondent). In addition to controlling for household characteristics, we also controlled for the age and gender of the child. On average across the sample, respondents hoped their children would have 13 years of schooling. They also hoped their children would be married at 26.4 and 26.6 years of age (control and treatment respectively). We find no significant impacts on aspirations for children's future (Table 11.2). These results are also consistent with results from the MCTG youth module which found no significant impacts on aspirations of youth themselves across a number of domains, including educational attainment and age at marriage.

Table 11.2: Cross-Sectional MCTG Impacts on Women's Aspirations for Children, Main Respondents

Dependent Variable	36-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	N
Ideal highest education level for child	-0.109	13.120	13.021	5322
	(-0.935)			
Ideal age of marriage for child	0.225	26.449	26.630	5304
	(0.809)			

Notes: 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 age and gender of child, household size, recipient age, education and marital status, districts, and household demographic composition.

Social Support

In the 36-month wave, we use two new measures to evaluate cross-sectional impacts on women's social support systems. We asked the same respondents who answered questions on savings and future expectations about their social support network, using modified versions of modules from the Personal Resource Questionnaire (PRQ)[51]. The PRQ85 and PRQ2000 both measure multidimensional characteristics of social support. The PRQ85 consists of 10 life situations which a person may need assistance[52]. Five of the situations were selected for the MCTG 36 month survey (urgent needs, support for caring for sick family members, financial problems, loneliness, and illness). For each situation, the respondent was asked who was available to help them, if anyone. These were grouped into family, friends, and community members for the analysis. We looked at if they had support for any of the five situations. Additionally, we looked to see if anyone was available out of the three groups. The original PRQ2000 consists of 15 positively worded questions that measure the level of perceived social support[53]. Seven of these questions were used in the survey.[54] Using a five-point scale for each separate

[51] Weinert, C. and P. A. Brandt (1987). "Measuring social support with the Personal Resource Questionnaire." West J Nurs Res 9(4): 589-602.

[52] Weinert, C. (1987). "A social support measure: PRQ85." Nurs Res 36(5): 273-277.

[53] Weinert, C. (2003). Measuring social support: PRQ-2000. Measurement of nursing outcomes: Volume (3), self care and coping. O. Strickland and C. Dilorio. New York, NY, Springer: 161-172.

[54] 1." People let me know that I do well at my work" 2. "There are people who are available if I need help over an extended number of time" 3. "Among my group of friends we do favors for each other" 4. "I have relatives or friends that will help me out even if I can't pay them back" 5. "I know that others appreciate me as a person" 6. "There is someone who loves and cares about me" 7. "I have people to share social events and fun activities with".

outcome, we constructed a support scale, ranging from 7 to 35 points. With a possible low of 7 points (strongly disagree to all seven statements), the mean of 24 for the modified PRQ2000 scale suggests the respondents generally feel supported overall. The respondents report high levels of familial support– 95.5 percent of all respondents can turn to a spouse or family member in at least one of the five situations–and nearly all (99.7 percent) are able to go to family, friends, or community members in at least one situation. However, there is no difference in social support networks for MCTG households as compared to the control in our sample. However, the main role of social support may be in moderating program impacts—that is, women who have higher levels of social support may be better able to translate increases in material resources to favorable outcomes. Therefore, further in-depth analysis will utilize this indicator as a program moderator, rather than outcome.

Table 11.3: Cross-Sectional MCTG Impacts on Women's Social Support, Main Respondents

Dependent Variable	36-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	N
Modified PRQ2000 support scale (7-35)	0.600	23.738	24.105	2939
	(1.949)			
Any support from family	0.007	0.951	0.963	2944
	(0.512)			
Any support from friends	0.037	0.742	0.789	2944
	(1.304)			
Any support from community	0.003	0.587	0.584	2944
	(0.107)			
Any support (all sources)	-0.002	0.997	0.996	2944
	(-0.753)			

Notes: 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 age and gender of child, household size, recipient age, education and marital status, districts, and household demographic composition. The female head of household or primary caregiver of OVCs in baseline is targeted for questions throughout the panel. However, if this woman is not available, a substitute mother or primary caregiver may respond to questions.

Stress

At 36 months, we included questions on stress using the validated Cohen Perceived Stress Scale (PSS)[55]. If cash transfers are able to alleviate some stress related to procuring food and other household needs on a day to day basis, then general well-being may increase. Further, poverty-induced stress has been linked to adverse health outcomes for both adults and children, including compromised immune function[56] [57] [58]. This means that reductions in stress may have long-term implications for health and well-being. At 36 months, 29 percent in treatment and control groups, reported high levels of stress (defined as top third of perceived stress scale distribution). Means of a six-item summation scale were 15.6 and 15.9 among treatment and control groups, respectively (possible range 5-30). Although the coefficient is in the expected direction, we find that the program did not have an impact on perceived

[55] Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of health and social behavior*, 385-396

[56] Dowd JB, Aiello AE. Immunosenescence: Psychosocial and Behavioral Determinants. In: Bosch JA, Phillips AC, Lord JM, editors. New York: Springer; 2012.

[57] Glaser R, Kiecolt-Glaser JK. Stress-induced immune dysfunction: implications for health. *Nature Reviews Immunology*. 2005; 5(3):243-51.

[58] Kiecolt-Glaser JK, Glaser R. Stress and immunity: Age enhances the risks. *Current Directions in Psychological Science.* 2001; 10(1):18-21.

levels of stress.

Table 11.4: Cross-Sectional MCTG Impacts on Women's Perceived Stress, Main Respondents

Dependent Variable	36-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	N
Perceived Stress Scale	-0.400 (-1.216)	15.868	15.612	2841
High Perceived Stress	-0.008 (-0.353)	0.286	0.290	2841

Notes: 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.

Finally, we measured women's perceptions of problems in their villages surrounding domestic violence and alcohol consumption. We asked main respondents whether they agreed or disagreed with the following statements 1) domestic violence is common in their village; 2) domestic violence increased in their village over the past year; 3) alcohol consumption is common in the village; and 4) alcohol consumption increased over the last year in their village. For analysis purposes, we dichotomized these measures and examined the program impacts on likelihood of agreeing or strongly agreeing with these statements. Approximately 33 and 35 percent of treatment and control women agreed/strongly agreed that domestic violence was common; and 71 and 69 percent of treatment and control women, respectively agreed/strongly agreed that alcohol consumption was common. Approximately 29 percent of women (both treatment and control) believe that domestic violence increased over the past year. Further, a majority of women reported that alcohol consumption increased in the last year (63 percent of both treatment and control women). There were no program impacts on any of these perceptions. Results from these analyses are presented in Table 11.5. It should be noted that these are women's perceptions of behaviors at the aggregate (community-level), results should be interpreted with caution, and not taken as indicators of actual individual level experiences. However, according to the 2013-14 DHS[59], nearly half (47 percent) of Zambian women aged 15-49 believe wife beating is justified in some situations and almost as many (43 percent) report having been a victim of domestic violence at least once since age 15, suggesting that domestic violence is a relevant problem in Zambia.

Table 11.5: Cross-Sectional MCTG Impacts on Women's Perceptions of Community Problems, Main Respondents

Dependent Variable	36-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	N
Agree/Strongly agree that domestic violence common in village	-0.030 (-0.895)	0.348	0.334	2841
Believes domestic violence increased over last year	0.014 (0.495)	0.285	0.287	2842

[59] Central Statistical Office (CSO) [Zambia], Ministry of Health (MOH) [Zambia], and ICF International. 2014. Zambia Demographic and Health Survey 2013-14. Rockville, Maryland, USA: Central Statistical Office, Ministry of Health, and ICF International.

Alcoholism consumption common	0.010	0.688	0.709	2840
	(0.307)			
Alcoholism consumption increased last year	0.012	0.627	0.633	2841
	(0.335)			

Notes: 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.

XII. Community Overview

Along with the household survey, we administered 92 community surveys in the two study districts: Serenje and Luwingu. The survey was administered by a team of Zambian enumerators experienced in household surveys and fluent in the local language. The enumerators interviewed key informants, which included the village head, Area Coordinating Committee/CWAC members, government officials, and teachers. This section includes two types of information: We begin by reporting on community-level indicators that might be affected by the program through local economy effects (e.g. prices), and we then present descriptive information about each community. Some of these measures (e.g. shocks and access to facilities) might modify the program's ability to impact outcomes of interest, thus it is important to understand the community context[60].

Prices

There is a concern that in the villages of Zambia where cash transfers operate, that a large influx of cash may lead to inflation if supply cannot adequately respond to the new increase in demand for goods and services. We tracked 12 key consumption items to investigate this hypothesis. We deflated the reported values from the 24-month and 36-month data to 2011 units using the all-Zambia consumer price index (CPI). Reported values from the baseline 2011 data were rebased to ZMW[61].

We found little evidence that the program affects prices. The only statically significant difference between mean prices in the treatment and control communities at the time of the 36-month survey concerned the price of dry fish. In fact, the vast majority of households that report selling fish as a household business reside in treatment communities (92 percent), suggesting that this change in price is due to an increase in availability of fish in these communities. The increase in the price of toilet soap at 24-months is no longer found at 36-months. Table 12.1 reports difference-in-difference estimates that effectively compare the changes in price over this period between treatment and control households in a manner similar to program impact estimates, however utilize unadjusted models.

[60] Additional community characteristics were reported in the 24 MCTG Impact Report (2014). As these characteristics are time-invariant we did not collect them at 36 months. For more information on local community representation, access and quality of schools and health centers, and cultural norms of the study population, please see http://www.cpc.unc.edu/projects/transfer/countries/zambia/Zambia_MCTG_24month_Report_2014.pdf.

[61] CPI was obtained from the Central Statistical Office of Zambia. All monetary values from this report have been deflated to 2011 units and baseline values have been rebased to ZMW.

Table 12.1: MCTG Impacts on community prices, by wave

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Maize grain price	1.21	-1.61	2.82	18.51	23.51	21.27
	(0.68)	(-1.08)	(1.82)			
Rice price	-0.60	6.37	-6.97	5.19	4.75	4.94
	(-1.13)	(1.31)	(-1.43)			
Bean price	0.02	-0.20	0.23	4.17	4.53	4.40
	(0.06)	(-0.44)	(0.44)			
Dry fish price	**-2.21**	-0.19	**-2.01**	4.33	3.60	5.13
	(-2.07)	(-0.23)	(-2.15)			
Chicken price	-0.44	-1.02	0.58	22.79	26.23	26.67
	(-0.19)	(-0.52)	(0.30)			
Cooking oil price	-0.21	-0.39	0.18	10.92	10.39	10.07
	(-0.36)	(-0.67)	(0.55)			
Sugar price	-0.08	-0.11	0.03	7.60	8.12	7.91
	(-0.18)	(-0.35)	(0.08)			
Table salt price	0.05	0.18	-0.13	3.34	4.32	4.40
	(0.14)	(0.51)	(-0.39)			
Toilet soap price	0.26	**0.42**	-0.16	4.49	4.59	4.59
	(0.98)	(2.09)	(-0.71)			
Laundry soap price	0.01	-0.02	0.03	4.79	5.92	5.84
	(0.03)	(-0.09)	(0.10)			
Panadol price	-0.24	-0.79	0.55	3.18	3.22	3.12
	(-0.69)	(-1.67)	(1.68)			
Secondary school fee	-148.75	-15.02	-133.73	524.93	863.99	930.52
	(-0.82)	(-0.13)	(-0.74)			
N		275		92	46	46

Notes: Estimations use difference-in-difference modelling. Robust t-statistics clustered at the CWAC level are in parentheses. The units of items in the price module were selected based on the most common packaging for how items are sold in villages and vary between items.

Shocks

The community survey included questions on both positive and negative shocks, which may affect the program's ability to impact outcomes. Beneficial shocks include the building of a school, road, or health facility in the last 12 months, and a new employment or development project that began in the last 12 months. Detrimental shocks include the loss of key social services, massive job lay-offs, a sharp price change, human, livestock, or crop disease, and flood or drought in the last two years.

Communities experienced few beneficial (positive) shocks, however detrimental (negative) shocks were common (see Table 12.2). Less than 10 percent of communities experienced at least one beneficial shock, while a majority (84 percent) experienced at least one detrimental shock. Although we do not analyze the impact of MTCG on shocks and facilities, as we believe there is no scope for the program to impact these outcomes, we note that MTCG communities were 13 percent points more likely to have new employment opportunities than control communities in the last 12 months, however no other significant differences were found between treatment and control.

Table 12.2: Shocks Reported in the Community in last 12 months

Shocks	Pooled mean
Beneficial shocks	
School constructed	0.02
Road constructed	0.01
Health facility constructed	0.00
New employment opportunities	0.07
Development project started	0.00
Any beneficial shock (from above)	0.09
Detrimental shocks	
Loss of key social services	0.01
Massive job lay-offs	0.01
Sharp price changes	0.78
Human disease or epidemic	0.25
Livestock disease	0.61
Crop disease	0.21
Flood	0.04
Drought	0.10
Any detrimental shock (from above)	0.84
N	92

Health and schooling facilities

We briefly describe community access to health and school facilities. Health facilities are on average 11 kilometers away from a community, and about 30 percent of communities are within three kilometers of a health facility. A health facility includes hospitals and clinics but does not include pharmacies that have no other health services. When asked about their level of satisfaction with their local health facility, about half of communities said they were satisfied or very satisfied with the quality of the facility. Nearly all communities have a primary school (85 percent), but less than 10 percent of communities have a secondary school, which illustrates how difficult it is for a demand-side intervention such as the MCTG to have an impact on schooling outcomes of children entering adolescence.

XIII. Discussion and Conclusion

We find that the MCTG continues to produce large effects on the primary needs of households after 36 months of implementation. In the *protective* domain, the program significantly increases food security, overall consumption, and diet diversity and enables households to engage in positive coping strategies in the face of shocks. It further leads to improvements in the material well-being of children in terms of possession of clothes, shoes and blankets. In the *social* domain, the MCTG generates large increases in school enrollment among secondary school-age children. Indeed the impacts produced by the MCTG are some of the largest schooling effects reported for any cash transfer program, whether conditional or unconditional. For example, the now-famous Progresa program in Mexico, one of the first conditional cash transfer programs in the world and one that is commonly cited by advocates of conditional programs, generated impacts in the range of 6-8 percentage points on secondary school enrollment, compared to 8-11 percentage points reported here. Finally, in the productive domain, the MCTG inspires agricultural activity, increases agricultural assets such as livestock, and strengthens non-farm enterprise. The combination of impacts thus improved the overall *resiliency* of households to manage and cope with shocks.

A noteworthy feature of the overall impacts of the MCTG is that in aggregate they represent a value that is actually much greater than the transfer size itself. The program was designed to transfer an amount equal to roughly one additional meal a day for the average family for one month, and impact results indicate that 95 percent of recipients do indeed eat more than one meal per day. However the program does much more than assure basic food security, triggering productive investments that have enabled the household to raise its overall spending by much more than the transfer value.

We provide an estimate of this total impact of the MCTG in Table 13.1 by aggregating the different consumption and non-consumption expenditures increases generated by the program. The estimates are derived from the econometric results presented in this report and only consider statistically significant impacts. Where multiple impact estimates are available (for different years), we average them. All figures are annualized in 2011 ZMK. We stress that our survey instrument does not allow us to derive a comprehensive measure of household income; rather its focus is on tracking expenditure. Row 1 shows the total annual transfer value to the household of ZMK720 (the value of the transfer was ZMK60 in 2011), while the sum total of spending impacts that we can track and observe in our data is ZMK1207, implying a multiplier of 1.68.[62]

Table 13.1: Multiplier Effect of MCTG (2011 ZMK – Annual)

Multiplier Effect of MCTG (2011 ZMW)	
Annual value of transfer per household (60 ZMW by 12 months)	720
Expenditure	
Savings	10
Loan repayment	23
Consumption (own produced and purchased)	966
Livestock	183
Productive tools	25
Total Expenditure (consumption + non consumption)	1207

[62] The table does not show the value of household assets that increased due to the program as these are captured in our comprehensive consumption module.

Estimated expenditure multiplier	1.68

Note: Impacts are based on estimated econometric results from all evaluation reports. Where multiple estimates are available from different years, impacts are averaged. Estimate for productive tools is derived by multiplying the average increase in number of tools by estimated prices. Only statistically significant impact estimates are considered. Impacts account for other sources of income besides the MCTG since they are derived from the RCT design. Thus, impacts are entirely attributable to the CGP. Everything is reported per household per year and deflated to 2011 ZMW, thus accounting for inflation.

Unconditional cash transfer programs such as the MCTG are often criticized for being a handout, leading to dependency and inducing perverse incentives such as reducing work and increasing consumption of alcohol and tobacco—these arguments are why development agencies such as the World Bank and Inter-American Bank typically insist that developing countries pursue conditional cash transfer programs rather than unconditional ones. However the multiplier effect of 1.68 generated by the MCTG appears to put to rest the concern that unconditional transfers are a "handout" or that the poor do not use their money wisely. These multiplier effects, of course, are derived from underlying investments into productive activities that yield extra income to the household, which in the case of the MCTG, derive from increased livestock and non-farm activity, and purchases of agricultural inputs that in turn increased crop production. The MCTG also managed to deliver large increases in school enrollment, just as large or larger than those reported from well-established conditional programs such as Colombia's *Familias en Accion* and Mexico's *Progresa* (now called *Prospera*). Moreover, in no survey round did we ever find an increase in alcohol or tobacco consumption as a result of the program. Most of the consumption effect of the MCTG goes to food, and in fact allows households to increase their diet diversity by adding more protein to it. All in all, the MCTG, similar to the CGP, demonstrates that the common criticisms of cash transfers are simply not true in Zambia. The results also suggest that advocates of conditional cash programs may do an injustice to poor families by imposing conditions; the results from the CGP and MCTG in Zambia demonstrate how families effectively use unconditional transfers to increase current consumption and to invest in the future of themselves and their children. In other words, the results from the evaluations of the MCTG and CGP suggest that in sub-Saharan Africa, poverty-targeted unconditional programs can lead to both economic productivity and human capital development, a 'win-win' for development policy. This is an important message for development policy practitioners in the continent.

We also see that program impacts persist at 24 and 36 months into program implementation. The consistency of these impacts over time is impressive because Zambia experienced strong economic growth throughout the country during two years of the study, meaning that the program had to outperform the control group during a period when the control group was experiencing greater food security and economic improvement. The control group demonstrates consistent gains across most indicators during the period of the study, as seen in figures throughout this report that show control group status over the 3 years. Yet the program still demonstrated large impacts above and beyond the general improvement occurring in the country.

Putting the MCTG Evaluation in Context: In addition to the large and consistent impacts of the program, this study is notable and differs from other cash transfer studies within Zambia and across Africa for its technical design, size, and length. Previous studies of cash transfer programs in Zambia faced challenges demonstrating program impacts due to weak, quasi-experimental designs or poorly implemented RCTs. This study does not suffer from those threats to validity because it is a well-implemented randomized experiment that maintained the control group and benefits of randomization throughout the study period. This study is one of the first RCTs of a national-scale, government-run cash transfer program in Africa. Few evaluations of cash transfer programs can make such strong causal claims with as much certainty as the Zambia MCTG and CGP evaluations can.

Additionally, this study followed everyone in the sample for 3 years, with three rounds of data: at baseline, 24 months, and 36 months after program implementation—making it one of the longer longitudinal studies of a cash transfer program in the world, especially for an RCT. There are several benefits to the multiple waves of data collection extending over 3 years, including the ability to observe that beneficiaries do not become complacent over time, but instead find ways to be more productive and grow the value of the transfer while maintaining the protective benefits of the transfer such as food security and overall consumption (thus reducing poverty).

Limitations: This study benefited from a rigorous experimental design with very low attrition that minimizes threats to internal validity. However, the study faces some challenges to its external validity, or ability to generalize results to a wider population. The MCDMCH identified the first targeted districts in this study by going to those with the greatest rates of poverty and malnutrition. Not surprisingly, these districts are located in some of the most remote parts of Zambia with limited access to paved roads that reach the capital, Lusaka. These conditions could potentially moderate the effects of the program in ways that would be different in other locations. The very great poverty at baseline means that there is a lot of potential for the program to have effects, potential that might not exist if the program were implemented in less poor areas where people are better off. For example, we saw that the program had large impacts on the material needs of children (shoes, blanket, and clothing); however, the impact decreases over time as children gain these items and there is less opportunity for the program to demonstrate new effects. The impact of the program on these items would be limited if the program were implemented in a less poor area where children already own these items. Similarly, the remote location of the districts in this study mean households have below-average access to services such as health care and education, and to supplies that accompany these services (e.g., medicines, trained staff). These conditions limit the ability of the program to affect health and education domains; however, perhaps the program would demonstrate greater impacts in these domains if implemented in districts with better access and quality of health and education services. This study is unable to adequately state how the program would affect beneficiaries in districts with conditions that differ from the two in this study. More research is needed on the types of impacts that the MCTG can produce in areas with better services and greater access to them.

This is the last official evaluation report for the MCTG. However, a wealth of data have been collected through this study, which can be used to understand in much more detail the sector-specific behavioral pathways of the program that could not be explored in the evaluation reports due to the need to cover the full breadth of potential impacts. This additional research can provide valuable information to the Government of Zambia on how and why cash transfers have the impact that they do in specific domains, information that in turn will be of interest to policymakers and researchers around the world who seek information about cash transfer programs. In other words, the data collected here, if managed appropriately and made accessible for further use, can be a source of information and contribute to Zambian and global knowledge for years to come.

Annex 1: Difference-in-Differences Estimation

The statistical approach we take to derive average treatment effects of the MCTG 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 A1.1 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 A1.1, is the difference-in-differences or double-difference estimator.

Figure A1.1: The Difference-in-Differences (DD) Estimator

	Baseline (2011)	Post (2013)	1st difference
Treatment (T)	Y^{T}_{2011}	Y^{T}_{2013}	$\Delta Y^{T}=(Y^{T}_{2013}-Y^{T}_{2011})$
Comparison (C)	Y^{C}_{2011}	Y^{C}_{2013}	$\Delta Y^{C}=(Y^{C}_{2013}-Y^{C}_{2011})$
			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 A1.1 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 2: Mean Differences at Baseline for Attrition Analysis

Differential Attrition

Table A2.1: Baseline Household Level Comparisons Among Background Characteristics (Control Versus Treatment for Panel Households)

Variables	Control Mean	Control N1	Treatment Mean	Treatment N2	T-C Diff	Diff SE	p-value	Effect Size
Household size	5.020	2,996	4.991	3,051	-0.028	0.208	0.892	-0.011
Number of children ages 0 - 5	0.690	2,996	0.730	3,051	0.040	0.062	0.522	0.041
Distance to food market	27.580	2,121	34.386	2,110	6.806	7.001	0.334	0.216
Distance to health facility	11.920	2,756	13.047	2,803	1.127	1.891	0.553	0.068
Yes/no whether household was affected by drought	0.110	2,998	0.082	3,051	-0.028	0.023	0.217	-0.097
Yes/no whether household was affected by flood	0.030	2,998	0.039	3,051	0.009	0.021	0.680	0.047
Yes/no whether household was affected by any shocks	0.593	2,998	0.514	3,051	-0.079	0.051	0.121	-0.160

Notes: Diff is the average difference between Treatment and Control, and SE is the standard error of this difference clustered at the CWAC level.

Table A2.2: Baseline Household Level Comparisons Among Food Security Outcome Indicators (Control Versus Treatment for Panel Households)

Variables	Control Mean	Control N1	Treatment Mean	Treatment N2	T-C Diff	Diff SE	p-value	Effect Size
Cereal share	0.192	2,996	0.167	3,041	-0.025	0.024	0.296	-0.144
Roots tubers share	0.232	2,996	0.250	3,041	0.018	0.037	0.624	0.078
Pulses legumes share	0.072	2,996	0.066	3,041	-0.007	0.008	0.400	-0.062
Fruits vegetable share	0.268	2,996	0.283	3,041	0.015	0.012	0.219	0.090
Meat poultry fish share	0.101	2,996	0.098	3,041	-0.003	0.010	0.781	-0.021
Total household expenditure per person in the household	51.702	2,996	50.483	3,051	-1.219	2.921	0.677	-0.027
Food security	14.649	2,939	14.697	2,966	0.048	0.448	0.914	0.009

Notes: Diff is the average difference between Treatment and Control, and SE is the standard error of this difference clustered at the CWAC level.

Overall Attrition

Table A2.3: Baseline Household Level Comparisons Among Background Characteristics (Baseline Full Sample Versus Sample Remaining at 36-month Follow-up)

Variables	Full Sample		Remaining Sample		Mean Diff			Effect
	Mean	N1	Mean	N2	Diff	SE	p-value	Size
Household size	4.997	3,076	5.014	2,970	0.017	0.010	0.100	0.007
Number of children ages 0 - 5	0.710	3,076	0.710	2,970	-0.001	0.003	0.851	-0.001
Distance to food market	30.821	2,153	31.105	2,077	0.283	0.126	0.028	0.009
Distance to health facility	12.442	2,828	12.507	2,730	0.065	0.050	0.201	0.004
Yes/no whether household was affected by drought	0.095	3,076	0.096	2,970	0.001	0.001	0.421	0.002
Yes/no whether household was affected by flood	0.034	3,076	0.035	2,970	0.001	0.000	0.256	0.003
Yes/no whether household was affected by any shocks	0.553	3,076	0.554	2,970	0.001	0.002	0.626	0.002

Notes: Diff is the average difference between full and the remaining samples, and SE is the standard error of this difference clustered at the CWAC level.

Table A2.4: Baseline Household Level Comparisons Among Food Security Outcome Indicators (Baseline Full Sample Versus Sample Remaining at 36-month Follow-up)

Variables	Full Sample		Remaining Sample		Mean Diff			Effect
	Mean	N1	Mean	N2	Diff	SE	p-value	Size
Total expenditure per capita (ZMW)	39.515	3,076	39.094	2,970	-0.421	0.162	0.011	-0.012
Total expenditure per capita share	0.754	3,076	0.755	2,970	0.000	0.000	0.403	0.003
Cereal share	0.180	3,071	0.180	2,965	-0.000	0.001	0.733	-0.001
Roots tubers share	0.241	3,071	0.242	2,965	0.001	0.001	0.120	0.005
Pulses legumes share	0.069	3,071	0.069	2,965	-0.000	0.000	0.774	-0.001
Fruits vegetable share	0.275	3,071	0.275	2,965	-0.000	0.001	0.551	-0.002
Meat poultry fish share	0.099	3,071	0.100	2,965	0.000	0.000	0.362	0.003
Total household expenditure per person in the household	51.356	3,076	50.818	2,970	-0.537	0.196	0.007	-0.012
Food security	14.671	3,004	14.677	2,900	0.006	0.018	0.755	0.001

Notes: Diff is the average difference between full and the remaining samples, and SE is the standard error of this difference clustered at the CWAC level.

Youth Attrition

Table A2.5: Baseline Youth Module Differential Attrition on Control Variables (Control Versus Treatment for Youth Panel Individuals)

	Control		Treatment		T-C	Diff	p-value	Effect
Variables	Mean	N1	Mean	N2	Diff	SE		Size
Male	0.529	533	0.557	454	0.028	0.033	0.396	0.057
Age (years)	14.947	533	14.824	454	-0.124	0.077	0.114	-0.096
Log of household size	1.898	533	1.921	454	0.023	0.033	0.478	0.072
Recipient is widow	0.538	533	0.546	454	0.008	0.044	0.860	0.016
Recipient never married	0.030	533	0.020	454	-0.010	0.014	0.458	-0.065
Recipient divorced	0.069	533	0.075	454	0.005	0.019	0.770	0.021
Recipient highest grade completed or grade currently enrolled	3.851	533	3.652	454	-0.199	0.313	0.526	-0.062
Recipient age (years)	54.818	533	54.903	454	0.085	1.611	0.958	0.005
Log of distance to food market	2.612	533	2.943	454	0.331	0.277	0.236	0.250
Serenje	0.501	533	0.493	454	-0.008	0.114	0.947	-0.015
Number of people ages 0 - 5	0.660	533	0.760	454	0.099	0.078	0.205	0.105
Number of people ages 6 - 12	1.306	533	1.430	454	0.124	0.103	0.234	0.106
Number of people ages 13 - 18	1.887	533	1.846	454	-0.042	0.067	0.534	-0.051
Number of people ages 19 - 35	0.848	533	0.786	454	-0.062	0.095	0.518	-0.065
Number of people ages 36 - 55	0.683	533	0.676	454	-0.007	0.062	0.914	-0.010
Number of people ages 56 - 69	0.345	533	0.381	454	0.036	0.048	0.461	0.064
Number of people ages 70 or older	0.304	533	0.295	454	-0.009	0.050	0.860	-0.017
Maize grain price	17.995	533	19.205	454	1.210	0.905	0.185	0.287
Rice price	4.857	533	5.361	454	0.504	0.508	0.324	0.222
Bean price	4.110	533	4.217	454	0.107	0.343	0.755	0.069
Dry fish price	3.753	533	4.657	454	0.904	0.772	0.245	0.271
Chicken price	22.932	533	22.640	454	-0.293	1.933	0.880	-0.035
Cooking oil price	10.774	533	11.354	454	0.579	0.618	0.351	0.211
Sugar price	7.517	533	7.851	454	0.334	0.260	0.202	0.276
Table salt price	3.469	533	3.343	454	-0.127	0.303	0.677	-0.091
Toilet soap price	4.638	533	4.386	454	-0.252	0.190	0.189	-0.288
Laundry soap price	4.784	533	4.942	454	0.158	0.210	0.455	0.169
Panadol price	3.046	533	3.356	454	0.310	0.326	0.345	0.213
Secondary school fee	488.950	533	552.610	454	63.660	120.134	0.597	0.124

Notes: Diff is the average difference between Treatment and Control, and SE is the standard error of this difference clustered at the CWAC level.

Table A2.6: Baseline Youth Module Differential Attrition on Mental Health Outcomes (Control Versus Treatment for Youth Panel Individuals)

	Control		Treatment		T-C	Diff	p-value	Effect
Variables	Mean	N1	Mean	N2	Diff	SE		Size
CES-D index	17.484	527	17.882	441	0.398	0.560	0.479	0.086
Depressed (>=20 on CES-D index)	0.300	527	0.336	441	0.036	0.053	0.503	0.077
Believes life will be better in 1 year	0.533	531	0.501	453	-0.032	0.050	0.528	-0.064
Believes life will be better in 3 year	0.662	533	0.632	454	-0.030	0.042	0.479	-0.063
Believes life will be better in 5 year	0.782	532	0.778	454	-0.004	0.034	0.897	-0.011
Self rated health: Very good or excellent	0.636	533	0.634	454	-0.002	0.052	0.975	-0.003

Notes: Diff is the average difference between Treatment and Control, and SE is the standard error of this difference clustered at the CWAC level

Table A2.7: Baseline Youth Module Differential Attrition on HIV Risk Outcomes (Control Versus Treatment for Youth Panel Individuals)

	Control		Treatment		T-C	Diff	p-value	Effect
Variables	Mean	N1	Mean	N2	Diff	SE		Size
Ever had sex	0.130	517	0.142	438	0.012	0.024	0.624	0.035
Age at sexual debut (years)	13.910	67	13.967	61	0.057	0.407	0.890	0.025
Used condom at first sex	0.219	64	0.279	61	0.060	0.073	0.412	0.138
Ever forced to have sex	0.111	63	0.180	61	0.069	0.065	0.293	0.196
Number of sexual partners in last 3 months	1.149	67	1.226	62	0.077	0.360	0.832	0.044
Condom never used last 3 months	0.424	33	0.594	32	0.170	0.139	0.229	0.336
Number of sexual partners last 12 months	0.667	66	0.871	62	0.204	0.175	0.246	0.201
Condom never used last 12 months	0.414	29	0.485	33	0.071	0.132	0.593	0.142
Ever forced to have sex	0.111	63	0.180	61	0.069	0.065	0.293	0.196
Ever given or received money, favors or gifts for sex	0.231	65	0.323	62	0.092	0.092	0.324	0.205

Notes: Diff is the average difference between Treatment and Control, and SE is the standard error of this difference clustered at the CWAC level.

Table A2.8 Baseline Youth Module Overall Attrition on Control Variables (Baseline Full Sample Versus Sample Remaining at 36-month Follow-up)

	Full Sample		Remaining Sample		Mean Diff			Effect
Variables	Mean	N1	Mean	N2	Diff	SE	p-value	Size
Male	0.525	1,480	0.542	987	0.017	0.022	0.432	0.034
Age (years)	14.963	1,479	14.891	987	-0.072	0.065	0.270	-0.051
Log of household size	1.978	1,486	1.909	987	-0.070	0.017	0.000	-0.206
Recipient is widow	0.506	1,487	0.542	987	0.036	0.022	0.114	0.071
Recipient never married	0.028	1,487	0.025	987	-0.002	0.008	0.784	-0.014
Recipient divorced	0.091	1,487	0.072	987	-0.020	0.013	0.139	-0.070
Recipient highest grade completed or grade currently enrolled	3.585	1,487	3.760	987	0.174	0.153	0.258	0.055
Recipient age (years)	54.829	1,487	54.857	987	0.028	0.876	0.974	0.002
Log of distance to food market	2.801	1,487	2.764	987	-0.036	0.098	0.711	-0.027
Serenje	0.582	1,487	0.497	987	-0.084	0.035	0.017	-0.169
Number of people ages 0 - 5	0.750	1,486	0.706	987	-0.043	0.039	0.267	-0.045
Number of people ages 6 - 12	1.517	1,486	1.363	987	-0.155	0.054	0.006	-0.128
Number of people ages 13 - 18	2.129	1,486	1.868	987	-0.261	0.047	0.000	-0.267
Number of people ages 19 - 35	0.897	1,486	0.820	987	-0.077	0.051	0.130	-0.075
Number of people ages 36 - 55	0.692	1,486	0.680	987	-0.012	0.035	0.736	-0.017
Number of people ages 56 - 69	0.347	1,486	0.362	987	0.015	0.028	0.595	0.028
Number of people ages 70 or older	0.320	1,486	0.300	987	-0.020	0.029	0.483	-0.038
Maize grain price	18.252	1,487	18.552	987	0.300	0.287	0.298	0.068
Rice price	5.421	1,487	5.089	987	-0.332	0.158	0.038	-0.140
Bean price	4.149	1,487	4.159	987	0.010	0.105	0.924	0.006
Dry fish price	4.754	1,487	4.169	987	-0.585	0.249	0.021	-0.172
Chicken price	23.763	1,487	22.798	987	-0.965	0.493	0.053	-0.123
Cooking oil price	10.929	1,487	11.041	987	0.112	0.170	0.512	0.043
Sugar price	7.346	1,487	7.671	987	0.325	0.125	0.011	0.251
Table salt price	3.204	1,487	3.411	987	0.207	0.086	0.018	0.148
Toilet soap price	4.443	1,487	4.522	987	0.079	0.066	0.233	0.085
Laundry soap price	4.777	1,487	4.856	987	0.079	0.069	0.256	0.084
Panadol price	3.086	1,487	3.189	987	0.103	0.098	0.297	0.068
Secondary school fee	523.657	1,487	518.232	987	-5.424	41.753	0.897	-0.011

Notes: Diff is the average difference between full and the remaining samples, and SE is the standard error of this difference clustered at the CWAC level.

Table A2.9: Baseline Youth Module Overall Attrition on Mental Health Outcomes (Baseline Full Sample Versus Sample Remaining at 36-month Follow-up)

	Full Sample		Remaining Sample		Mean Diff			Effect
Variables	Mean	N1	Mean	N2	Diff	SE	p-value	Size
CES-D index	18.110	1,010	17.665	968	-0.445	0.242	0.069	-0.093
Depressed (>=20 on CES-D index)	0.345	1,010	0.316	968	-0.028	0.024	0.235	-0.060
Believes life will be better in 1 year	0.520	1,030	0.518	984	-0.002	0.023	0.929	-0.004
Believes life will be better in 3 year	0.668	1,034	0.648	987	-0.020	0.020	0.328	-0.042
Believes life will be better in 5 year	0.807	1,032	0.780	986	-0.027	0.018	0.131	-0.067
Self rated health: Very good or excellent	0.625	1,034	0.635	987	0.011	0.023	0.655	0.022

Notes: Diff is the average difference between full and the remaining samples, and SE is the standard error of this difference clustered at the CWAC level.

Table A2.10: Baseline Youth Module Overall Attrition on HIV Risk Outcomes (Baseline Full Sample Versus Sample Remaining at 36-month Follow-up)

	Full Sample		Remaining Sample		Mean Diff			Effect
Variables	Mean	N1	Mean	N2	Diff	SE	p-value	Size
Ever had sex	0.136	1,070	0.135	955	-0.001	0.017	0.935	-0.004
Age at sexual debut (years)	13.841	145	13.938	128	0.096	0.284	0.736	0.040
Used condom at first sex	0.206	136	0.248	125	0.042	0.047	0.377	0.101
Ever forced to have sex	0.136	140	0.145	124	0.009	0.043	0.826	0.027
Number of sexual partners last 3 months	1.611	144	1.186	129	-0.425	0.310	0.174	-0.195
Condom never used last 3 months	0.440	75	0.508	65	0.068	0.095	0.479	0.135
Number of sexual partners last 12 months	0.681	141	0.766	128	0.085	0.135	0.532	0.076
Condom never used last 12 months	0.571	56	0.452	62	-0.120	0.091	0.195	-0.239
Ever forced to have sex	0.136	140	0.145	124	0.009	0.043	0.826	0.027
Ever given or received money, favors or gifts for sex	0.277	141	0.276	127	-0.001	0.062	0.987	-0.002

Notes: Diff is the average difference between full and the remaining samples, and SE is the standard error of this difference clustered at the CWAC level.

Annex 3: Poverty and Food Security

Table A3.1: MCP Impacts on Per Capita Expenditure Shares for Small Households

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Food	**0.075**	**0.057**	0.018	0.760	0.756	0.726
	(3.268)	(2.832)	(1.139)			
Clothing	0.000	0.001	-0.001	0.021	0.020	0.018
	(0.005)	(0.220)	(-0.445)			
Education	-0.005	-0.003	-0.002	0.018	0.023	0.027
	(-1.107)	(-0.857)	(-0.589)			
Health	0.003	0.005	-0.003	0.045	0.056	0.055
	(0.488)	(1.068)	(-0.646)			
Domestic	**-0.060**	**-0.046**	-0.014	0.139	0.110	0.131
	(-3.471)	(-3.228)	(-1.297)			
Transport/Communication	-0.003	-0.004	0.001	0.007	0.008	0.009
	(-0.739)	(-1.311)	(0.380)			
Other	**-0.010**	**-0.009**	-0.001	0.002	0.022	0.031
	(-2.271)	(-2.433)	(-0.331)			
Alcohol, Tobacco	0.000	-0.001	0.002	0.008	0.005	0.004
	(0.177)	(-0.534)	(1.136)			
N		4,206		1,431	701	672

NOTE: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

Table A3.2: MCP Impacts on Per Capita Expenditure Shares for Large Households

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Food	0.014	0.010	0.004	0.749	0.735	0.728
	(0.803)	(0.567)	(0.283)			
Clothing	0.005	0.004	0.001	0.023	0.023	0.019
	(1.527)	(1.080)	(0.515)			
Education	0.000	0.007	-0.006	0.039	0.042	0.048
	(0.062)	(1.248)	(-1.016)			
Health	0.010	**0.011**	-0.001	0.047	0.054	0.051
	(1.968)	(2.029)	(-0.177)			
Domestic	**-0.030**	**-0.027**	-0.003	0.119	0.107	0.118
	(-2.322)	(-2.216)	(-0.388)			
Transport/Communication	-0.002	-0.003	0.001	0.013	0.013	0.012
	(-0.377)	(-0.692)	(0.279)			
Other	-0.001	-0.004	0.003	0.003	0.020	0.021
	(-0.458)	(-1.853)	(0.878)			
Alcohol, Tobacco	**0.004**	0.002	0.002	0.007	0.005	0.003
	(2.258)	(1.090)	(1.334)			
N		4,850		1,646	789	807

NOTE: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

Table A3.3: MCT Impacts on Per Capita Food Expenditures for Small Households

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Cereals	**4.70**	**4.37**	0.33	8.84	9.67	7.53
	(3.98)	(3.82)	(0.39)			
Tubers	2.09	0.18	1.91	12.26	11.67	9.82
	(1.14)	(0.13)	(1.75)			
Pulses	**3.97**	2.25	1.72	4.65	8.14	4.74
	(3.30)	(1.83)	(1.66)			
Fruits, Veg	1.85	1.59	0.26	13.07	20.43	19.13
	(0.82)	(0.97)	(0.12)			
Meat	**6.36**	**5.53**	0.83	6.46	15.98	9.24
	(3.86)	(2.50)	(0.34)			
Dairy	0.40	-0.05	**0.45**	0.36	0.97	0.52
	(1.81)	(-0.32)	(2.21)			
Sugars	**1.72**	**1.69**	0.03	1.17	2.84	1.52
	(4.26)	(4.89)	(0.08)			
Fats, Oil, Other	**2.40**	0.65	**1.75**	5.33	6.17	3.77
	(2.80)	(0.68)	(2.84)			
N		4,206		1,431	701	672

Notes: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

Table A3.4: MCT Impacts on Per Capita Food Expenditures for Large Households

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Cereals	**1.96**	**1.96**	0.00	5.81	7.26	6.16
	(2.28)	(3.11)	(0.00)			
Tubers	-0.32	-0.39	0.07	6.08	6.06	5.68
	(-0.54)	(-0.62)	(0.13)			
Pulses	**1.59**	0.60	0.98	2.13	4.52	3.03
	(3.55)	(0.73)	(1.20)			
Fruits, Veg	0.84	0.19	0.65	6.83	12.26	11.54
	(0.67)	(0.23)	(0.46)			
Meat	**4.05**	**2.14**	1.90	3.64	10.48	6.76
	(3.62)	(2.18)	(1.33)			
Dairy	**0.34**	**0.23**	0.11	0.21	0.58	0.31
	(2.91)	(2.74)	(1.04)			
Sugars	**1.14**	**0.73**	0.41	0.70	1.91	0.88
	(2.91)	(2.52)	(0.89)			
Fats, Oil, Other	**1.34**	0.29	**1.06**	3.12	4.14	2.72
	(2.58)	(0.48)	(1.99)			
N		4,850		1,646	789	807

Notes: Estimations use difference-in-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, household demographic composition and a vector of cluster-level prices.

Annex 4: Resilience

Table A4.1: MCT Impacts on Asset Ownership (Share) - Small Households

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Bed	**0.31**	**0.19**	**0.13**	0.29	0.40	0.21
	(6.67)	(4.01)	(3.15)			
Mattress	**0.32**	**0.19**	**0.13**	0.23	0.49	0.22
	(6.32)	(3.71)	(3.29)			
Mosquito Net	**0.13**	0.06	0.07	0.72	0.91	0.82
	(3.41)	(1.16)	(1.74)			
Table	0.03	0.01	0.02	0.04	0.07	0.03
	(1.73)	(0.95)	(0.92)			
Sofa	0.00	0.00	0.00	0.02	0.02	0.01
	(0.25)	(0.07)	(0.17)			
Radio	**0.07**	**0.05**	0.02	0.05	0.09	0.04
	(2.75)	(2.25)	(0.64)			
Cell	0.00	0.01	-0.00	0.04	0.05	0.05
	(0.17)	(0.63)	(-0.36)			
Watch	0.00	0.01	-0.00	0.03	0.01	0.01
	(0.46)	(0.77)	(-0.26)			
Clock	0.00	0.01	-0.00	0.01	0.01	0.00
	(1.05)	(1.28)	(-0.11)			
Charcoal Iron	0.02	0.04	-0.02	0.06	0.06	0.05
	(1.01)	(1.85)	(-0.85)			
N		4,203		1,430	699	672

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 A4.2: MCT Impacts on Asset Ownership (Share) - Large Households

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Bed	**0.22**	**0.08**	**0.14**	0.34	0.40	0.26
	(5.80)	(2.12)	(3.07)			
Mattress	**0.25**	0.06	**0.19**	0.30	0.53	0.31
	(5.02)	(1.50)	(4.25)			
Mosquito Net	0.06	0.03	0.03	0.77	0.86	0.81
	(1.42)	(0.80)	(0.74)			
Table	**0.07**	0.04	0.02	0.07	0.09	0.04
	(2.40)	(1.80)	(0.91)			
Sofa	0.01	**0.03**	-0.02	0.04	0.04	0.03
	(0.70)	(2.06)	(-0.99)			
Radio	**0.09**	0.02	**0.07**	0.10	0.15	0.09
	(3.02)	(0.92)	(2.58)			
Cell	0.01	0.01	0.00	0.10	0.11	0.12
	(0.52)	(0.48)	(0.01)			
Watch	0.01	0.01	0.00	0.05	0.02	0.01
	(0.84)	(0.67)	(0.07)			
Clock	0.02	0.01	0.01	0.03	0.01	0.01
	(1.80)	(1.26)	(0.40)			
Charcoal Iron	**0.07**	0.03	0.04	0.10	0.12	0.08
	(2.17)	(1.16)	(1.15)			
N		4,849		1,645	789	807

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 A4.3: MCT Impacts on Housing Conditions - Small Households

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Purchased Roof	0.007	-0.007	0.014	0.096	0.099	0.104
	(0.337)	(-0.359)	(1.736)			
Purchased Floor	0.015	0.003	**0.012**	0.043	0.042	0.035
	(1.111)	(0.233)	(2.289)			
Purchased Wall	0.043	0.040	0.003	0.819	0.931	0.892
	(1.430)	(1.324)	(0.674)			
Purchased Lighting	**0.208**	**0.200**	0.008	0.483	0.815	0.674
	(3.928)	(3.709)	(1.220)			
Purchased Cooking	0.001	0.007	**-0.006**	0.028	0.026	0.032
	(0.116)	(0.654)	(-2.568)			
Clean Water	0.017	0.022	-0.005	0.210	0.177	0.209
	(0.478)	(0.632)	(-0.516)			
Own Toilet	0.012	0.024	-0.012	0.771	0.927	0.902
	(0.349)	(0.710)	(-1.706)			
N		4,188		1,426	695	666

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 A4.4: MCT Impacts on Housing Conditions - Large Households

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Purchased Roof	-0.003	-0.013	0.010	0.104	0.125	0.182
	(-0.133)	(-0.684)	(0.978)			
Purchased Floor	-0.002	-0.012	0.010	0.068	0.058	0.069
	(-0.126)	(-0.828)	(1.790)			
Purchased Wall	0.015	0.020	-0.005	0.874	0.950	0.934
	(0.867)	(1.192)	(-0.996)			
Purchased Lighting	**0.146**	**0.142**	0.004	0.646	0.829	0.763
	(4.030)	(3.956)	(0.451)			
Purchased Cooking	0.016	0.017	-0.001	0.032	0.037	0.019
	(1.919)	(1.951)	(-0.122)			
Clean Water	**0.089**	**0.090**	-0.001	0.245	0.202	0.199
	(2.178)	(2.166)	(-0.068)			
Own Toilet	-0.002	-0.006	0.004	0.807	0.951	0.917
	(-0.051)	(-0.142)	(0.612)			
N		4,824		1,640	779	799

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 A4.5: Crop Input Use and Land Use - Small Households

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Operated land (has)	**0.15**	**0.10**	0.05	0.58	0.55	0.45
	(3.03)	(2.18)	(1.31)			
Total crop exp	**67.43**	**55.93**	11.50	36.95	93.73	58.19
	(3.24)	(3.11)	(0.99)			
Exp seed	**5.83**	3.41	2.42	8.53	11.23	8.10
	(2.13)	(1.17)	(0.79)			
Exp hired labor	**23.35**	**24.71**	-1.36	2.97	31.94	9.19
	(4.92)	(5.09)	(-0.32)			
Exp pesticides	0.40	0.08	0.32	0.26	1.02	0.62
	(0.53)	(0.06)	(0.24)			
Exp fertilizer	34.96	28.89	6.07	20.60	42.49	37.29
	(1.81)	(1.70)	(0.70)			
Other crop exp	**26.64**	**23.62**	3.01	7.82	40.01	12.80
	(3.56)	(3.06)	(0.58)			
N		3,499		1,187	632	522

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 A4.6: Crop Input Use and Land Use - Large Households

Dependent Variable	36-Month Impact	24-Month Impact	Diff 36M-24M	Baseline Mean	36M Treated Mean	36M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Operated land (has)	**0.17**	**0.18**	-0.01	0.77	0.64	0.57
	(2.74)	(3.32)	(-0.16)			
Total crop exp	**66.55**	**42.22**	24.33	66.95	130.74	96.38
	(3.10)	(2.28)	(1.15)			
Exp seed	7.91	3.01	4.90	18.08	15.46	13.09
	(1.45)	(0.65)	(1.29)			
Exp hired labor	**17.10**	**11.43**	5.67	5.91	27.13	9.84
	(2.62)	(2.00)	(1.02)			
Exp pesticides	2.75	1.89	0.86	1.29	1.74	0.24
	(1.62)	(1.00)	(0.76)			
Exp fertilizer	**31.49**	21.60	9.88	33.43	77.95	65.89
	(2.33)	(1.76)	(0.69)			
Other crop exp	**27.16**	**17.60**	9.55	15.45	37.33	17.40
	(3.17)	(2.15)	(1.34)			
N		4,511		1,542	762	727

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 A4.7: MCT Impacts on Shocks - Small Households

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Any negative shock	0.10	0.05	0.05	0.47	0.66	0.61
	(1.39)	(0.56)	(0.65)			
Any positive shock	**0.09**	0.01	0.07	0.07	0.06	0.04
	(2.05)	(0.37)	(1.85)			
Any covariate shock	0.16	-0.01	0.17	0.25	0.52	0.41
	(1.97)	(-0.06)	(1.73)			
Any idiosyncratic shock	0.09	0.11	-0.02	0.38	0.37	0.34
	(1.66)	(1.55)	(-0.40)			
Illness negative shock	-0.00	0.04	-0.04	0.28	0.16	0.19
	(-0.07)	(0.76)	(-0.87)			
N		4,206		1,431	701	672

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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 A4.8: MCT Impacts on Shocks - Large Households

Dependent Variable	36-Month Impact (1)	24-Month Impact (2)	Diff 36M-24M (3)	Baseline Mean (4)	36M Treated Mean (5)	36M Control Mean (6)
Any negative shock	0.13	0.13	-0.00	0.55	0.67	0.59
	(1.96)	(1.67)	(-0.02)			
Any positive shock	**0.07**	0.03	0.04	0.08	0.08	0.05
	(1.99)	(0.90)	(1.22)			
Any covariate shock	0.13	0.11	0.02	0.31	0.47	0.41
	(1.53)	(1.21)	(0.18)			
Any idiosyncratic shock	**0.15**	**0.16**	-0.01	0.47	0.43	0.33
	(3.06)	(2.39)	(-0.12)			
Illness negative shock	0.04	0.07	-0.03	0.34	0.18	0.16
	(0.91)	(1.40)	(-0.54)			
N		4,851		1,646	789	808

Notes: Estimations use difference-in-difference modeling. Robust t-statistics clustered at the CWAC level are in parentheses. Numbers in bold 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