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Zambia's Child Grant Program: 48-Month Impact Report

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Contents

Contributors

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

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David Seidenfeld, PhD

Acronyms

AIR	American Institutes for Research
ARI	Acute respiratory illness
CGP	Child Grant Social Cash Transfer Program
CWAC	Community Welfare Assistance Committee
DD	Differences-in-differences
FAO	Food and Agricultural Organization of the United Nations
IYCF	Infant and Young Child Feeding
LCMS	Living Conditions Monitoring Survey
MCDMCH	Ministry of Community Development, Mother and Child Health (MCDMCH)
MICS	Multiple Indicators Cluster Surveys
RCT	Randomized controlled trial
UNICEF	United Nations Children's Fund
ZDHS	Zambia Demographic and Health Survey
ZMW	Zambian Kwacha

Executive Summary

Background

This report provides the 48-month follow-up results for the Child Grant cash transfer program impact evaluation. In 2010, the government of the Republic of Zambia, through the Ministry of Community Development, Mother and Child Health (MCDMCH), began implementing the Child Grant cash transfer program (CGP) in three districts: Kaputa, Kalabo, and Shangombo. The American Institutes for Research (AIR) was contracted by UNICEF Zambia in 2010 to design and implement a randomized controlled trial (RCT) for a 4-year impact evaluation of the program and to conduct the necessary data collection, analysis, and reporting.[1] This report presents findings from the 48-month follow-up study, updating results from the 24-month and 36-month impact reports, including impacts on expenditures, poverty, food security, living conditions, children, women, and productivity.

Study Design

We implemented an RCT to estimate program impacts after 48 months. This study includes 2,421 households in 90 Community Welfare Assistance Committees (CWACs) that have been randomly assigned to treatment or control conditions. As shown in the baseline report, randomization created equivalent groups. We lost less than 4 percent of households to attrition after 48 months into the study; however, 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 CGP with confidence.

The 48-month follow-up data collection occurred in September and October 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 48 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 into May. Food is least scarce toward the beginning of the cold dry season when crops are harvested. At baseline (2010), we hypothesized about where we could expect to find program effects, using the logic model and ex-ante simulations to predict impacts using the baseline data. We compared these predictions from baseline with observed impacts 24 months later.[2] In this report, we focus on differences among the 24-, 36-, and 48-month impacts to see whether earlier observed findings have persisted and new impacts have emerged.

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[1] Palm Associates was contracted by AIR to assist with all data collection.
[2] American Institutes for Research, 2013. *Zambia's Child Grant Program: 24-month Impact Report.* Washington, DC: Author.

Overall results after 4 years: The overall impacts at 48 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 CGP gives an estimated multiplier of 1.49. In other words, each Kwacha transferred is now providing an additional 0.49, or roughly 50% 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 nonfarm enterprise being managed primarily by women. The 1.49 multiplier estimate is based on program impacts and accounts for changes in the control group, thus can be entirely attributed to the CGP.

The overall results from the collection of evaluation reports over the 4-year period of 2010–2014 demonstrate unequivocally that common perceptions about cash transfers—that they are a hand-out and cause dependency, or lead to alcohol and tobacco consumption, or induce fertility—are not true in Zambia. The 1.49 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 productively to improve their overall standard of living. Labor supply to off-farm work has increased among CGP households, as has work in family enterprise. At no point during the 4-year evaluation have there been any positive impacts on alcohol and tobacco consumption, nor has there been any impact on fertility during the lengthy evaluation period. 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.

Yet there is a limit to the extent of effects that the program can produce due to factors that are beyond the control of the program itself, namely the supply of social services and infrastructure such as education, health care, and access to clean water. As a result, the CGP does not have a consistent positive impact on these domains. This lack of services is particularly the case for health and child nutrition. Our health facility survey conducted at baseline illustrated the low quality of health services in the study communities, and subsequent impact estimates show inconsistent effects on use of services, morbidity, and nutrition. It is not surprising then that the main impacts of the program occur in domains that are more in the beneficiaries' control, such as buying food, clothing, shelter, fertilizer, and labor, and items that do not rely on public service support.

We also see that program impacts persist at 24, 36, and 48 months into program implementation. The consistency of these impacts over time is impressive because Zambia experienced strong economic growth throughout the country during the study period, 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 4 years. Yet the program still demonstrated large impacts above and beyond the general improvement occurring in the country. Table 1, at the end of this executive summary, provides a list of all impacts in major programmatic objective areas.

Consumption, Food Security, and Poverty: The CGP continues to have a strong impact on household consumption, increasing consumption by 36%, with 65% of this increase going toward food. At 48 months we now see, for the first time, impacts on schooling expenditure, likely because children in these households are now entering school-going age. The program also allowed households to smooth consumption over the agricultural cycle, as well as to improve food security and diet diversity. CGP households spend more on meat and chicken and other protein, and on fats and oils. Poverty impacts remain the same as in previous rounds, with a 10 percentage point reduction in severe poverty and similar reductions in the poverty gap.

Resiliency: The CGP significantly affected many indicators commonly associated with resiliency—the ability to manage and withstand shocks. The program resulted in significant increases in both nonagricultural (housing quality and possession of durable goods) and agricultural (livestock, tools) assets, implying that households are in a stronger position to withstand a shock. CGP households also diversified their income-generating activities relative to control households, suggesting that they may also be in a better position to prevent a shock in the future, although most non-farm enterprise activity still involves agriculture to some extent. Improvements in housing quality related to sanitation may also affect the likelihood of suffering a health shock. Finally, the program has led to an improvement in the credit position of households, with fewer households taking out a loan or owing money, and among larger households, a reduction in the need to take out a loan for consumption. Together these findings suggest that CGP households are in a much better position to both cope with a shock and possibly even to prevent a shock from occurring in the first place, thus improving their overall resiliency.

Young Child Health and Development: Consistent with previous waves, there are no impacts of the CGP on most child health/nutrition indicators except for Infant and Young Child Feeding (IYCF) for children ages 6–23 months. In this round, we added additional questions on child feeding and caregiver perceptions of child health and development. The more detailed assessment of child feeding at 48 months shows the CGP children are in fact eating more protein-rich foods, which is consistent with household-level impacts on meat and poultry consumption. In addition, caregivers in the CGP have more positive perceptions about their children's well-being, an important result because caregivers are best placed to know whether their children are thriving and developing well in a holistic sense, although these perceptions do not always show up in objective indicators such as anthropometry or morbidity. In terms of challenges, the program appears to alleviate challenges related to food and clothing, items that are directly under the household's control and can be purchased using cash. On the other hand, external factors (schools, health services) are equally a challenge for both treatment and control households. Receipt of the CGP is thus not able to overcome these structural constraints facing households.

Older children: Consistent with previous waves, at 48 months the proportion of children in treatment households who have all three material needs met 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. We do not find any impacts at 48 months for children in the age groups 4–7, 8–10 and 15–17 on school enrollment and attendance. However, we do find that for children 11–14 years old, CGP increases school enrollment by 5.6 percentage points at the 48-month follow-up. We find that CGP is successful not only in increasing school enrollment with respect to baseline, but also in preventing the dropout experienced by the control group. Beneficiary households with children ages 11–14 spend, on average, 5.3 ZMW more on uniforms and 2.2 ZMW more on books than do control households. These results, taken together with the positive impacts the program has had on material needs—especially on shoes—are consistent with the hypothesis that CGP allows families to overcome out-of-pocket costs of school attendance. Overall, we do not find program impacts on participation and number of hours spent in unpaid/paid work for children above age 5. 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.

Women: The CGP continues to have a significant impact on women's savings rates and amounts saved. In addition, large impacts on nonfarm enterprise are primarily driven by businesses that are typically managed by women, such as home brewery and petty trade. Despite these "hard" signs of empowerment, there is no impact on a household decision-making scale. The program does not have an impact on maternal outcomes such as perinatal care. The program also has no impact on fertility—important given the eligibility criteria of the program and the common perception that cash transfers may induce people to have more children to maintain eligibility.

Putting the CGP 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 with low attrition 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 CGP evaluation can.

The CGP evaluation is also special for a cash transfer evaluation in that it maintains one of the largest longitudinal samples of children who started in the study under age 3. All 2,500 households in the sample had at least one child under age 3 at baseline, with new children born into the sample each year. The first 1,000 days of life are considered the most critical and formative period for child development. This study contains detailed data on thousands of children who started under age 3 at baseline as well as children born into the study during the 4-year period. In addition to data on these children, we collected detailed information about their households, creating one of the richest and most detailed longitudinal data sets of young children and their environment for rural households in Zambia and Africa.

Additionally, this study followed everyone in the sample for 4 years with five rounds of data—at baseline, 24 months, 30 months, 36 months, and 48 months after program implementation—making it one of the longest longitudinal studies of a cash transfer program in the world, especially for an RCT. There are many benefits to the multiple waves of data collection extending over 4 years, including the ability to examine the effects of the program on fertility (with no evidence that the program incentivized having more children—one concern of a child grant program), and 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).

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	48-Month Impact	Baseline Mean	48M Treated Mean	48M Control Mean
Headcount	**-0.09**	0.94	0.85	0.94
Poverty gap	**-0.10**	0.60	0.42	0.53
Per capita expenditure (ZMW 2011)	**14.83**	40.48	64.16	47.44
Does not consider itself very poor (%)	**0.28**	0.41	0.73	0.47
Better off than 12 months ago (%)	**0.23**	0.09	0.42	0.17

Food Security	48-Month Impact	Baseline Mean	48M Treated Mean	48M Control Mean
Eats more than one meal a day (%)	**0.05**	0.79	0.98	0.93
Per-Capita expenditures (ZMW 2011)	**9.75**	30.06	64.16	47.44
Food insecurity scale	**-1.88**	15.15	10.53	12.28
Is not severely food insecure (%)	0.13	0.10	0.30	0.18

Housing conditions:	48-Month Impact	Baseline Mean	48M Treated Mean	48M Control Mean
Households with toilet (%)	**0.094**	0.437	0.703	0.657
Households with cement floor (%)	**0.020**	0.030	0.051	0.027

Child well-being: health and nutrition	48-Month Impact	Baseline Mean	48M Treated Mean	48M Control Mean
Stunted (Ages 0 - 9) (%)	0.004	0.324	0.319	0.324
IYCF (Ages 0 - 9) (%)	**0.134**	0.277	0.349	0.234
Kids with fever (%,Ages 0-5)	-0.015	0.175	0.080	0.077
Kids with diarrhea (%, Ages 0-5)	-0.030	0.231	0.120	0.146

Child well-being: Schooling	48-Month Impact	Baseline Mean	48M Treated Mean	48M Control Mean
Enrollment 11- 14 years (boys), (%)	**0.069**	0.897	0.890	0.830
Enrollment 11- 14 years (girls), (%)	0.046	0.873	0.898	0.854
Enrollment 8 - 10 years (boys & girls), (%)	0.034	0.729	0.837	0.775
Amount spent on school uniforms (11-14 years) (ZMW 2011)	**5.315**	7.129	15.044	10.743

Child well-being: basic Material needs (Ages 5-17 – All)	48-Month Impact	Baseline Mean	48M Treated Mean	48M Control Mean
All needs met (%)	**0.321**	0.107	0.714	0.422

Production and economic activity:	48-Month Impact	Baseline Mean	48M Treated Mean	48M Control Mean
Household operates NFE (%)	**0.13**		0.39	0.24
Households owning chicken (%)	**0.14**	0.37	0.49	0.32
Households owning goats (%)	0.01	0.01	0.07	0.03
Proportion of women holding savings				
Any savings in previous 3 months (%)	**0.147**	0.156	0.363	0.199
Log Amount saved last month	**0.812**	0.598	1.695	0.827

Note. Estimations use difference-in-difference modeling among panel households. 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.

I. Introduction

This report provides the 48-month follow-up results for the Child Grant cash transfer program impact evaluation. In 2010, the government of the Republic of Zambia, through the Ministry of Community Development, Mother and Child Health (MCDMCH; also "the Ministry"), began implementing the Child Grant cash transfer program (CGP) in three districts: Kaputa, Kalabo, and Shangombo. The American Institutes for Research (AIR) was contracted by UNICEF Zambia in 2010 to design and implement a randomized controlled trial (RCT) for a 4-year impact evaluation of the program and to conduct the necessary data collection, analysis, and reporting.[3] This report presents findings from the 48-month follow-up study and builds on results from the 24-, 30-, and 36-month impact reports, including results for poverty, food security, health, education, and productivity.

Background

In 2010, Zambia's MCDMCH started the rollout of the CGP in three districts: Kalabo, Kaputa, and Shangombo. Zambia had been implementing cash transfer programs since 2004 in 12 other districts, trying different targeting models, including community-based targeting, proxy means testing, and categorical targeting by age (over 60 years old). The government decided to introduce a new model, the CGP, in three new districts that had never received any cash transfer program. This categorical model targets any household with a child under age 5. Recipient households receive 70 kwacha (ZMW) a month (equivalent to U.S. $11), an amount deemed sufficient by the MCDMCH to purchase one meal a day for everyone in the household for 1 month. The amount is the same regardless of household size. Payments are made every other month through a local pay point manager, and there are no conditions to receiving the money.

Locations

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

Enrollment

Only households with children under age 3 are enrolled in the program, to ensure that every recipient household receives the transfers for at least 2 years. This means that the baseline sample included only households with a child under age 3. The Ministry implements a

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

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

Objectives

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

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

II. Conceptual Framework

A conceptual framework for the evaluation was developed by the study team and presented in earlier evaluation reports. For ease of reference, this framework and an associated explanation is provided in Annex 1. The 48-month survey was implemented at the same time of year as the baseline, 24-month, and 36-month surveys, and its main purpose, therefore, is to see whether earlier impacts stay the same, whether impacts begin to appear in other domains that require longer periods of time to respond to the program (such as child height), and whether income multiplier effects occur. Specifically, the program generated important impacts at 24 months on ownership of livestock and agricultural implements, engagement in nonfarm enterprise, and even agricultural production. If livestock or agricultural output is sold, or if nonfarm enterprise is profitable, they may lead to an increase in permanent income of households beyond that of the transfer, which in turn might lead to consumption impacts that are larger than those observed at 24 months. Alternatively, this extra income may be saved or used to pay down longstanding debt, thus strengthening the household's overall financial position and increasing its overall ability to respond to shock (i.e., resilience).

III. Study Design

The CGP impact evaluation relies on a design in which communities were randomized to treatment and control groups to estimate the effects of the program on recipients. Communities designated by Community Welfare Assistance Committees (CWACs) were randomly assigned to either the treatment condition to start the program in December 2010 or to the control condition. This study reports on the effects of the program after 48 months.

Benefits of Randomization

A well-designed and well-implemented randomized controlled trial (RCT) is one of the most powerful research designs for drawing conclusions about the impacts of an intervention on specific outcomes. An RCT draws from a pool of comparable subjects and then randomly assigns some to a treatment group that receives the intervention and others to a control group that does not receive the intervention and against which comparisons can be made. An RCT permits us to directly attribute any observed differences between the treatment and control groups to the intervention; otherwise, other unobserved factors, such as motivation, could have influenced members of a group to move into a treatment or a control group.[4] Randomization helps ensure that both observed and unobserved characteristics that may affect the outcomes are similar between the treatment and control conditions of the sample. In a randomized experiment, treatment and control groups are expected to be comparable (with possible chance variation between groups) so that the average differences in outcome between the two groups at the end of the study can be attributed to the intervention. Our analysis of comparison and treatment groups finds that randomization created equivalent groups at baseline for the CGP evaluation. (See the baseline report for a complete description of the randomization process and results.)

Timing and Process of Data Collection

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

One enumerator collected data in each household, interviewing the identified potential female recipient and documenting her answers. This oral interview process was necessary because many of the recipients are illiterate. In addition to interviewing the female head of household, the enumerator collected anthropometric measures (height and weight) for every child age 9 or younger, using high-quality height boards and scales endorsed by UNICEF. Enumerators were trained in proper anthropometric measuring techniques and then supervised in the field by specialists from Zambia's National Food and Nutrition Commission. In addition to the household

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

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 48-month follow-up data collection occurred in September and October 2014, Zambia's early lean season, when people start to finish the food left from the previous harvest and hunger increases. The timing of this round of data collection occurred 48 months after the baseline study, ensuring that households were being compared in the same season as at baseline. 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 late February into May. Food is most scarce toward the beginning of the rainy season (December/January) because this is the longest period without a food harvest. The CGP aims to support poor households during this period of hunger by providing enough money to purchase a meal a day. We believe that the biggest impacts of the program are likely to be observed during this lean season; thus, the study is designed with baseline and follow-up periods of data collection during this season while also avoiding the rains to enable accurate data collection.

Data Entry

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

Analysis Approach

This study is a longitudinal, randomized, controlled evaluation with repeated measures at the individual and household levels. We estimate program impacts on individuals and households using a differences-in-differences (DD) statistical model that compares change in outcomes between baseline and follow-up and between treatment and control groups (see Annex 2 for details on this method). The DD estimator is the most commonly used estimation technique for impacts of cash transfer models and has been used, for example, in Mexico's Progresa program[5] and Kenya's Cash Transfer for Orphans and Vulnerable Children.[6] We use cluster-robust standard errors to account for clustering of households within CWACs.[7] We also use inverse probability weights to account for the under 4% attrition in the follow-up sample.[8] The CGP provides the same transfer size to a household, regardless of size. Therefore, we investigate differential impacts by household size for each outcome. We present impacts by household size only when they are different.

[5] http://wbro.oxfordjournals.org/cgi/reprint/20/1/29
[6] 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.
[7] http://www2.sas.com/proceedings/sugi23/Posters/p205.pdf
[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 from the baseline sample are missing in the follow-up sample. Mobility—the dissolution of households, death, and divorce— can cause attrition and make it difficult to locate a household for a second data collection. Attrition causes problems in conducting an evaluation because it not only decreases the sample size (leading to a 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.[9] There are two types of attrition: differential and overall. *Differential attrition* occurs when the treatment and control samples differ in types of individual who leave the sample. Differential attrition can create biased samples by eliminating the balance between the treatment and control groups achieved through randomization at baseline. *Overall attrition* is the total share of observations missing at follow-up from the original sample. Overall attrition can change the characteristics of the remaining sample and affect the ability of the study's findings to be generalized to populations outside the study. Ideally, both types should be small.

We investigate attrition at the 48-month follow-up by testing for similarities at baseline between (a) treatment and control groups for all nonmissing households (differential attrition) and (b) all households at baseline and the remaining households at the 48-month follow-up (overall attrition). Testing these groups on baseline characteristics can assess whether the benefits of randomization are preserved at follow-up. Fortunately, we do not find any significant differential or overall attrition at the 48-month follow-up, meaning that we preserve the benefits of randomization. Additionally, less than 4% of the overall sample was lost to attrition during this survey, a quite significant result after more than 4 years of program implementation. In addition to weighting for attrition, we also checked the results using unweighted regressions and find that results remain the same.

Differential Attrition

There is no difference in baseline characteristics between the treatment and control households that remain in the study at the 48-month follow-up, meaning that there is no differential attrition and the benefits of randomization are preserved. Table 4.1 shows the household response rates at the 48-month follow-up by treatment status for each district. The response rates are balanced between the treatment and control groups. We test all the household, young child, and older child outcomes measures and control variables for statistical differences at baseline between the treatment and control groups that remain in the 48-month follow-up analysis. Of the 41 indicators, we did not find any to be statistically different (see Annex 3).

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

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

Table 4.1: Household Response Rate by Study Arm at 48-Month Follow-Up for CGP (*N* = 2,518)

District	Treatment	Control	*n*
Kaputa	93.3	97.4	839
Kalabo	96.7	96.0	840
Shangombo	95.7	98.1	840
Overall	95.2	97.1	2,519

Overall Attrition

More than 96% of the households from baseline remain in the 48-month follow-up sample, which is less than 2 percentage points lower than in the 36-month sample. Table 4.2 indicates that 40% of the missing households come from Kaputa. This was also the case for the 24-month and 36-month follow-ups, where Kaputa had the highest percentage of missing households among the three districts. In particular, in the 24-month wave of data collection, most of the attrition in Kaputa occurred because Cheshi Lake was drying up, forcing households that relied on the lake for fishing and farming at baseline to move their homes as they followed the edge of the lake inward. Entire villages disbanded, with households spreading out to new areas and building new homes in remote swampy areas that are difficult to locate or reach by vehicles on land. Some households that relocated during the 24-month follow-up survey returned, so attrition was lower at the 36-month survey. This problem in Kaputa affected treatment and control households equally, as shown by the lack of differential attrition by treatment status.

Table 4.2: Overall Attrition for CGP 48-Month Follow-Up: Household Response Rate by District

District	Response Rate	Households at Baseline	Percentage of Total Missing Households
Kaputa	95.4	839	40.6
Kalabo	96.3	840	32.3
Shangombo	96.9	840	27.1
Overall	96.1	2,519	100

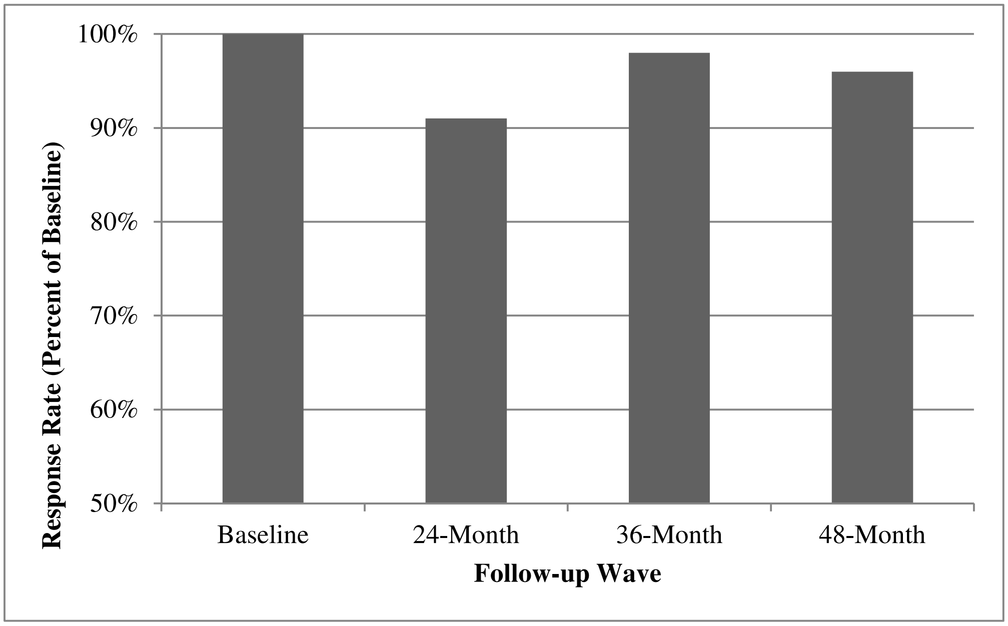
There are almost no statistically significant mean differences in the baseline characteristics between the remaining sample at 48-month follow-up and the sample at baseline. We found 5 out of 43 indicators to be statistically different, a result that we could expect due purely to chance. For the indicators that were statistically different, the mean differences between the sample remaining at 48 months and the sample at baseline were not meaningful because they represent very small differences when measured as an effect size. These results suggest no overall attrition. See Annex 3 for all results comparing the baseline sample with those who remain in the 48-month follow-up.

Attrition Across Waves

The study maintained a high response rate over time despite an initial drop at the 24-month follow-up. Figure 4.1 illustrates the drop at the 24-month follow-up attributed to the drying of Cheshi Lake and the subsequent recovery in response rates at the 36- and 48-month follow-ups.

We commend the ability of our enumerators, Palm Associates, to successfully locate and interview households that relocated during the study.

Figure 4.1: Overall Household Response Rate Over Time



V. Operational Performance

Zambia's MCDMCH had implemented the CGP cash transfer program for 4 years by the time AIR conducted the 48-month follow-up round of data collection. We used this opportunity to investigate the fidelity of program implementation from the beneficiaries' perspective. This section discusses the results of the implementation investigation. We focus on two primary areas: payments and program understanding. The first part investigates recipients' experience related to two themes related to payments: access to payments and notifications of payments. Next, we examine recipients' knowledge of the program's eligibility requirements.

Overall, the Ministry successfully implements the cash transfer program. At the time of the survey, beneficiaries receive the right amount of money according to schedule, can access the money without any cost, and do not experience unethical solicitations; and there is no attached community stigma to receiving payments. The data presented here are from people who have been receiving the cash transfers for 4 years. Data and analyses are presented through descriptive statistics to illustrate the average experience of cash transfer beneficiaries. There are 1,260 households in the sample, spread across the 45 treatment CWACs in three CGP districts (Kaputa, Kalabo, and Shangombo).

Payments

Monitoring payments provides insights into program efficiency. Ineffective payment distribution may result in underutilization of funds, missed payments, and dissatisfaction in beneficiary households. High private costs for the recipients, such as expenses to access payment, solicitations or mistreatment by program staff, and community perception could negatively impact the program's 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 related to two themes related to payments: access to payments and notifications of payments.

Access: Findings from the study suggest that recipient households incur little to no cost to access their cash. Almost all recipients (97%) walk to the payment point, with less than 3% reporting that they paid any money for travel. Less than 5% of respondents report having to make two or more trips to collect a payment.

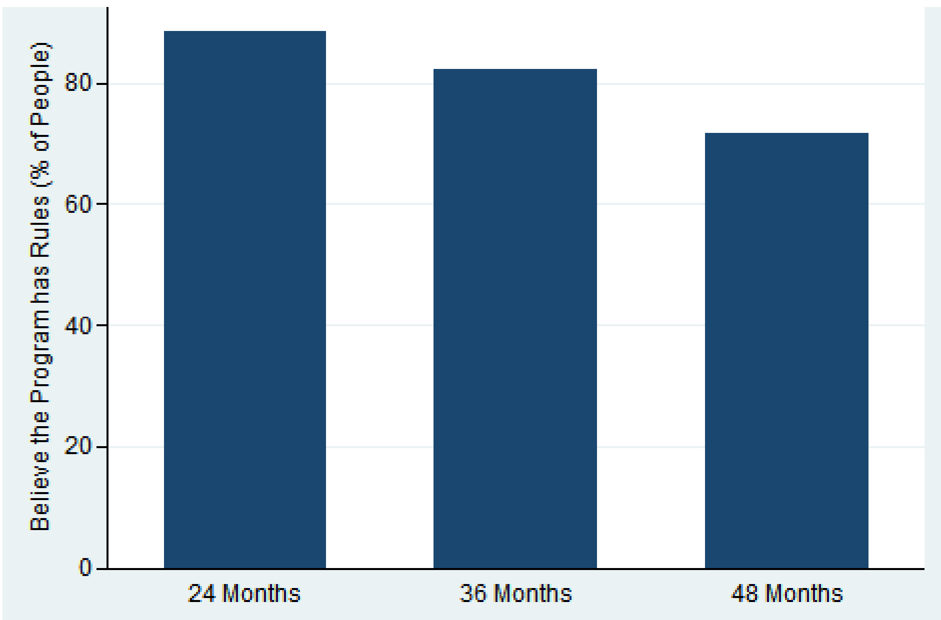
Notifications: Less than 3% of recipients missed a designated payment period, indicating that recipients are well informed about payment delivery.

Program Understanding

Although the cash transfer is unconditional, beneficiaries often believe there are conditions. This suggests that recipients have a mixed understanding of the policies for the cash transfer program. Among those who believe there are such requirements, the most commonly cited continuing eligibility rules are maintaining adequate nutrition for children and having clean, appropriate clothing for children.

As a way to assess how the operational performance has changed over time, we looked at the percentage of people in each wave who believe there are such eligibility rules. Given that this is an unconditional cash transfer, we consider it an improvement in program understanding when more participants recognize that there are no rules. As Figure 5.1 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 4 (48-month follow-up), approximately 72% of recipients believe that they have to obey certain rules to continue receiving payments. This represents a drop of more than 10 percentage points in perceived conditionality relative to Wave 3 (36-month follow-up), and more than 15 percentage points relative to Wave 2 (24-month follow-up). This suggests that program understanding, while mixed, has been improving over time.

Figure 5.1: Perceived Conditionality by Wave



VI. Expenditures, Consumption Smoothing, Poverty, and Food Security

The focus of this report is on understanding the effects of the program after 48 months of implementation and investigating whether and how program effects have varied over time. In this section, we present impact estimates on total and food consumption per capita expenditure of the CGP. We find that the impact of the CGP program on consumption level after 48 months is at the same level as in the 24- and 36-month periods for most expenditure categories. This result is noteworthy as the real per capita value of the transfer has been decreasing over time because of households having more members. Further, as reported in previous rounds, the CGP increased total per capita consumption spending by an amount that is approximately equal to the per capita value of the transfer. As expected among very poor households, almost all the income from the program is consumed. In addition, we find that the program still reduces poverty at levels similar to those found in the 24- and 36-month periods.

In this report, tables follow a format that provides information about impacts at 48, 36, and 24 months, as well as differences in impacts among these periods, and baseline and 48-month averages. Our explanation of Table 6.1 can be applied to all similar tables in this report. Table 6.1 reports results for total consumption as well as for eight categories of consumption. Column 1 in this table shows the impact of the CGP between baseline and 48 months. Columns 2 and 3 show the impacts at 36 and 24 months, respectively; therefore, the impacts reported in these two columns are similar to those presented previous reports.[10] Finally, Column 4 reports the *p* value of a test that looks at whether program impacts are equal in all three follow-up rounds. A *p* value of 0.05 or less indicates differences in program impacts between rounds. We restrict our attention to statistical significance at 0.05 because of the large sample size in this study. Column 5 shows the baseline mean value of the indicator mentioned at the beginning of each row, and Columns 6 and 7 show the mean values for the treatment and control groups at 48 months. These are important in assessing the levels of consumption for the two groups, because the impact estimates in Columns 1 through 3 only indicate differences in levels.

Table 6.1 shows estimates of program impacts on total per capita expenditure (Row 1) as well as impacts on other consumption categories. At 48 months, the CGP increased total per capita consumption spending by ZMW 14.8 per month. The next rows of Table 6.1 show the distribution of the increased spending by category. The majority of the increased spending goes to food (ZMW 9.75), which is 65% of additional spending, followed by transportation/communication at 10%, health at 6%, clothing at 5%, and education at 4%. There is no program impact on domestic items or alcohol/tobacco.

There are two expenditure categories that exhibit slightly higher impacts at 48 months. For clothing consumption, the control group is spending slightly less at 48 months than at 36 months, while beneficiaries still consume the same amount as previously. This difference in program impacts between waves is statistically different, as shown in Column 4. For education

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[10] The point estimates of impacts are not identical to those in previous reports due to adjustments for attrition. Nevertheless, there are no qualitative differences between the 24- and 36-month impacts reported here and those reported in those reports.

expenditures, we see a positive and significant effect at 48 months that was not present in other waves. Although both treatment and control households have been increasing slightly their education expenditures over time, beneficiary households increased their expenditures a bit more relative to the control group at 48 months.

Table 6.1: CGP Impacts on Per Capita Expenditures

Dependent Variable	48-Month Impact	36-Month Impact	24-Month Impact	Test (*p* value) (1)=(2)=(3)	Baseline Mean	48M Treated Mean	48M Control Mean
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Total	**14.83**	**10.47**	**15.00**	0.07	40.48	64.16	47.44
	(4.52)	(4.44)	(4.93)				
Food	**9.75**	**7.55**	**11.54**	0.17	30.06	46.95	35.71
	(3.85)	(3.85)	(4.74)				
Clothing	**0.80**	**0.54**	**0.88**	**0.05**	1.27	2.05	1.28
	(4.34)	(3.43)	(5.92)				
Education	**0.60**	0.22	0.11	0.17	0.44	1.59	0.89
	(2.52)	(1.65)	(0.43)				
Health	**0.95**	**0.60**	**1.05**	0.34	2.25	3.67	2.62
	(4.63)	(2.18)	(4.41)				
Domestic	0.83	0.50	0.52	0.69	5.18	6.02	4.97
	(1.46)	(0.90)	(0.88)				
Transport/	**1.59**	**1.15**	**0.88**	0.27	0.75	2.44	0.87
Communication	(3.88)	(3.64)	(2.61)				
Other	0.31	-0.09	0.00	0.16	0.11	1.08	0.73
	(1.63)	(-0.68)	(0.06)				
Alcohol, Tobacco	0.01	0.03	0.04	0.94	0.40	0.36	0.37
	(0.05)	(0.22)	(0.32)				
N		9,694			2,517	1,196	1,226

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. Robust *t* statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices.

Table 6.2 breaks down the program impacts by detailed food groups. The overall increase in food spending at 48 months is ZMW 9.75, as reported in Table 6.1. The largest share goes to cereals (ZMW 2.93); followed by meats, including poultry and fish (ZMW 2.39); followed by fats such as cooking oil (ZMW 1.11); and then sugars (ZMW 0.63). As indicated in previous rounds, the shift away from roots and tubers toward protein (dairy, meats) suggests a possible improvement in diet diversity among CGP recipients.

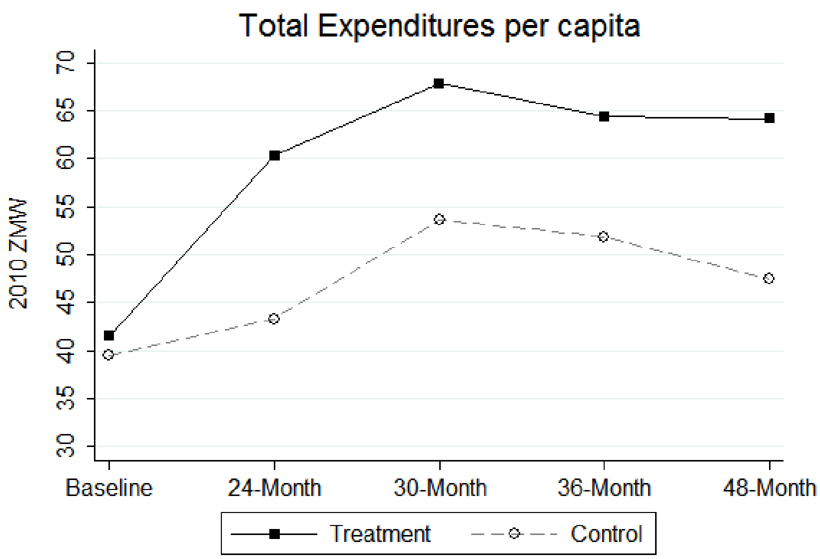
Table 6.2: CGP Impacts on Per Capita Food Expenditures

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (*p* value) (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Cereals	**2.93**	**2.59**	**4.29**	0.13	9.86	13.45	9.79
	(2.47)	(2.28)	(3.33)				
Tubers	-0.07	-0.19	-0.58	0.66	4.63	4.00	3.88
	(-0.11)	(-0.30)	(-0.91)				
Pulses	**0.98**	0.01	**1.16**	**0.00**	0.88	2.06	1.10
	(2.93)	(0.03)	(4.61)				
Fruits, vegetables	1.37	1.40	0.44	0.59	6.09	10.02	8.97
	(1.86)	(1.98)	(0.55)				
Meat	**2.39**	**2.29**	**2.56**	0.95	5.91	11.24	8.24
	(2.99)	(2.70)	(3.44)				
Dairy	**0.39**	0.16	**0.72**	**0.00**	0.74	0.92	0.55
	(2.15)	(0.72)	(3.96)				
Baby foods	0.00	0.02	0.02	0.33	0.01	0.00	0.00
	(0.01)	(0.85)	(0.99)				
Sugars	**0.63**	**0.70**	**1.22**	**0.01**	0.71	2.08	1.19
	(3.37)	(4.01)	(7.62)				
Fats, oil, other	**1.11**	**0.55**	**1.68**	**0.00**	1.26	3.18	1.98
	(4.76)	(2.52)	(6.45)				
N		9,694			2,517	1,196	1,226

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

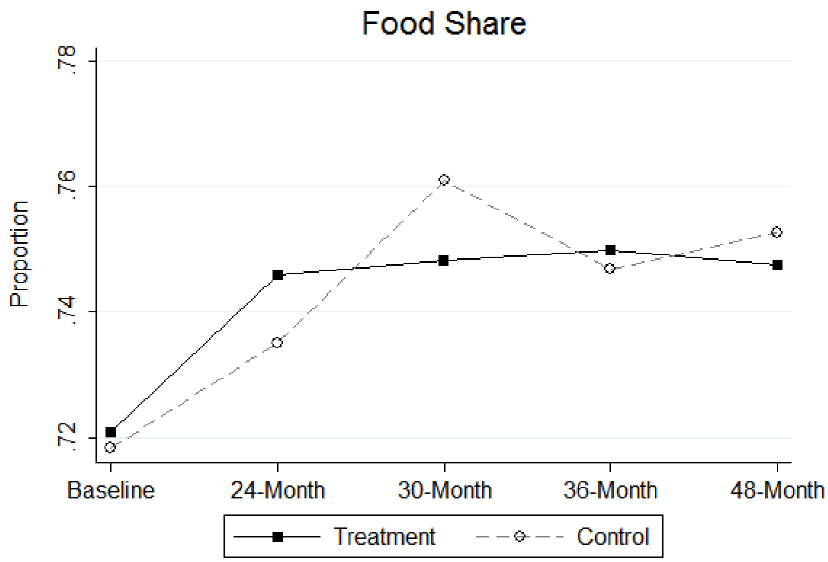
To better characterize the impacts of the CGP program over time, Figures 6.1 and 6.2 show the level of total and food consumption across the five survey rounds by study arm, including data from the 30-month round, which was collected during the harvest season. As reported in previous rounds, the *difference* (i.e., the vertical distance) in overall consumption between treatment and control groups at each wave has remained relatively constant over the course of the program. As expected, the highest level of per capita expenditures for both groups occurred at the 30-month harvest period. Interestingly, while the treatment group seems to have flattened out its overall consumption during the planting seasons (24, 36, and 48 months), the control group exhibits slightly higher variations in consumption levels. Note also that the overall level of consumption in the treatment group is higher at the planting seasons than the level in the control group at 30 months (harvest season). This indicates that the CGP allows households to achieve a consistent level of consumption, and this level is higher than the level of consumption among control households during their peak consumption period. Thus, treatment households are able to smooth their consumption over the agricultural season as a result of the program.

Figure 6.1:



We also investigate the difference in food shares over time between treatment and control groups in order to provide additional evidence on treatment households being able to smooth their consumption over time. As shown in Figure 6.2, beneficiary households devote 75% of their total expenditures to food in all four follow-up rounds, including the one at the harvest season. In contrast, the food share for the control group exhibits larger fluctuations, with the largest food share occurring at the harvest season.

Figure 6.2:



To look at this issue more formally, we tested whether food shares over time are the same for each of the two arms of the program. Whereas the food share for the treatment group remained constant in all rounds, we cannot say the same about the stability of the food shares for the control group over time (see Annex 3, Table A3.9).

The literature on consumption smoothing argues that low-income households living in risky environments find it optimal to develop a range of mechanisms in order to minimize large fluctuations in consumption.[11] Some of these mechanisms include risk pooling arrangements, building up precautionary savings, accumulating assets to serve as buffer stocks, or reducing income volatility through crop diversification. The overall conclusion of the literature is that, although most households are able to protect their consumption from the full effects of income shocks, these levels of protection are less than optimal.[12] Further, very low-income rural households in sub-Saharan Africa face fluctuations in aggregate consumption that are not only large but also closely track aggregate changes in income.[13] A minimum level of household income may be required for households to implement any of the risk coping mechanisms intended to smooth consumption.

In addition to the consumption smoothing evidence presented in this section, we show in previous reports, and in this report as well, that beneficiary households exhibit positive impacts on several outcomes that are consistent with a consumption smoothing behavior. Indeed, we

[11] Alderman, H., & C. H. Paxson (1994). Do the poor insure? A synthesis of the literature on risk and consumption in developing countries. In *Economic in a Changing World*, ed. by E. L. Bacha, vol. Development, Trade and the Environment, chap. 3, pp. 48-78. Macillan, London.
[12] Jalan, J., & M. Ravallion (1999): Are the poor less well insured? Evidence on vulnerability to income risk in rural China. *Journal of Development Economics, 58*(1), 61–81.
[13] Kazianga, H., & C. Udry (2006). Consumption smoothing? Livestock, insurance and drought in rural Burkina Faso. *Journal of Development Economics, 79*(2), 413–446.

show that the CGP program impacts crop and livestock production, the amount of land operated, and the use of agricultural inputs. Further, the program positively impacts ownership rates of farm animals and allows households to experience double the volume of purchase and sales of livestock relative to the control households. Last, we also found positive impacts on nonfarm business activity and beneficiary households being less dependent on credit sources than control households. Overall, these results indicate that the CGP allows households to smooth consumption over time by allowing them to use livestock as a buffer stock, build up precautionary savings, and invest in productive activities that allow them to better cope with adverse episodes over time.

Poverty

To investigate the poverty impacts of the program at 48 months, we use per capita household consumption as our welfare measure and compare it with the national poverty lines. Columns 1 to 3 of Table 6.3 present the results of the program on poverty indicators for the indicated follow-up rounds. In addition to the headcount rate, we also look at the poverty gap and squared poverty gap to account for reductions in poverty for very poor households. At 48 months, the CGP program shows a 10 percentage point reduction in the headcount severe poverty line as well as reduction in both the linear and squared poverty gaps. In addition, Column 4 shows that there is no change in the impact of the CGP on poverty measures across the three follow-up waves, with the exception of the headcount rate measures relative to the moderate poverty line, which shows improvements in the poverty rate at 48 months that were temporarily absent at 36 months.

Table 6.3: Impact of CGP on Poverty Indicators

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Severe Poverty Line:							
Headcount	**-0.10**	**-0.06**	**-0.09**	0.22	0.94	0.85	0.94
	(-3.84)	(-3.13)	(-3.70)				
Poverty gap	**-0.10**	**-0.09**	**-0.12**	0.22	0.60	0.42	0.53
	(-4.17)	(-4.80)	(-4.65)				
Sq. poverty gap	**-0.08**	**-0.08**	**-0.11**	0.12	0.43	0.24	0.34
	(-3.61)	(-3.94)	(-4.23)				
Moderate Poverty Line:							
Headcount	**-0.03**	-0.00	**-0.03**	**0.00**	0.98	0.95	0.99
	(-2.86)	(-0.33)	(-2.29)				
Poverty gap	**-0.10**	**-0.08**	**-0.10**	0.27	0.72	0.56	0.67
	(-4.39)	(-4.96)	(-4.82)				
Sq. poverty gap	**-0.09**	**-0.08**	**-0.11**	0.18	0.57	0.39	0.50
	(-4.12)	(-4.67)	(-4.60)				
N		9,692			2,515	1,196	1,226

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 6.3:

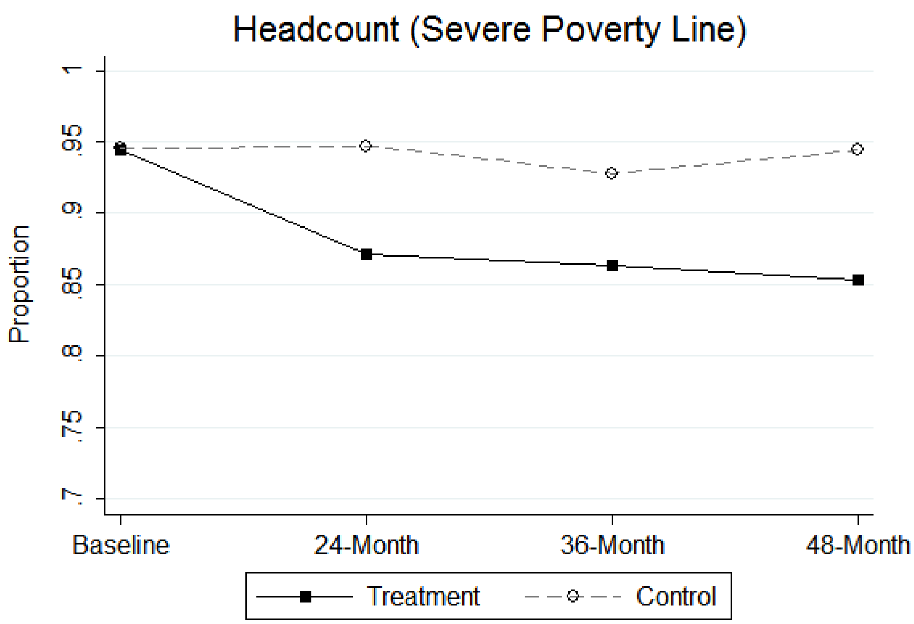


Figure 6.4:

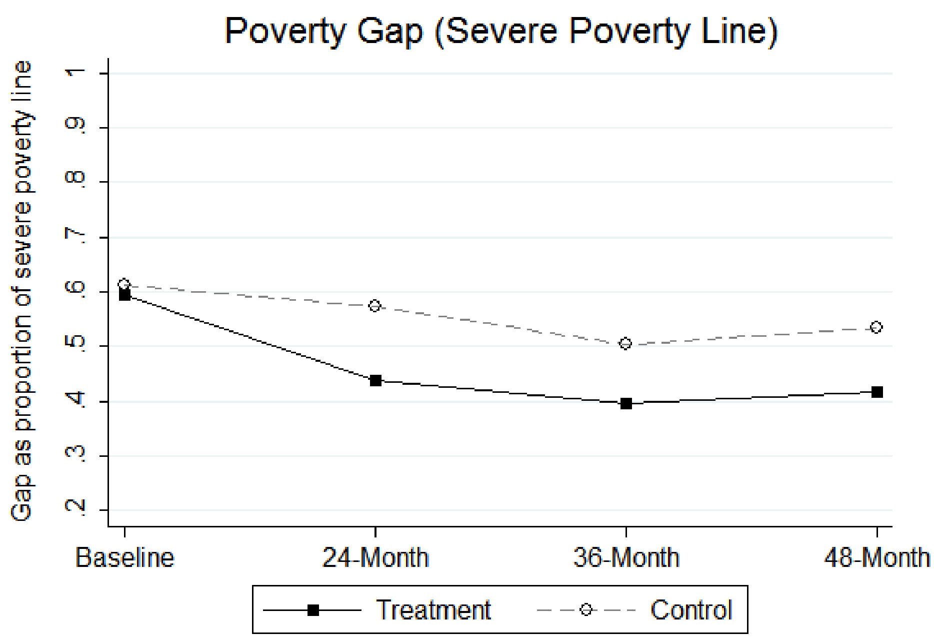
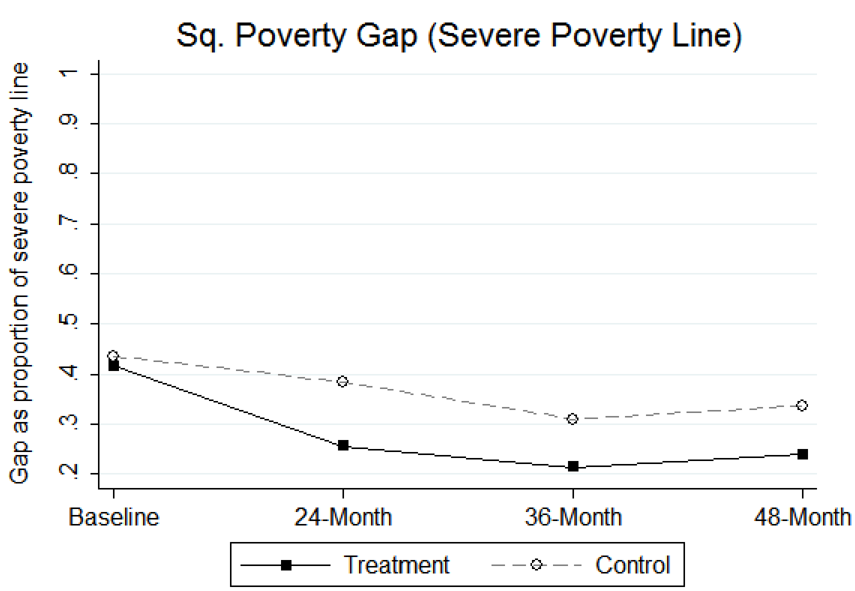


Figure 6.5:



Food Security

One of the goals of the CGP is to improve the food security of beneficiary households and specifically increase the percentage of households eating two or more meals per day. As shown, the program has large impacts on food consumption, which implies greater food security for program recipients, a finding consistent with the results at 24 and 36 months.

Table 6.4 shows the impacts of the program on several food security indicators. Column 4 shows that impacts at 36 months are similar to those at 24 months for the main food security indicators, including number of meals per day, the FANTA food security score,[14] and the number of households that are not severely food insecure. The CGP increases the percentage of households eating two or more meals per day by 5 percentage points, with 98% of recipients eating two or more meals per day as compared with 93% of the control group. Figure 6.6 shows the percentage of households eating more than one meal a day by condition.

As indicated, the treatment group almost topped out and reached its limit on this indicator. In turn, although the control households experienced an improvement in this indicator over time relative to the baseline, at 48 months these households exhibited a slight reduction as compared with the 36-month average.

[14] FANTA is a measure of a household's food insecurity, with greater values indicating more food insecurity.

Table 6.4: Impact of CGP on Food Security

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Eats more than one meal a day	**0.05**	**0.05**	**0.05**	0.92	0.79	0.98	0.93
	(3.50)	(3.48)	(5.06)				
Ate meat/fish 5+ times last month	0.08	**0.11**	0.03	0.45	0.32	0.31	0.23
	(1.63)	(2.21)	(0.56)				
Ate vegetables 5+ times last week	0.03	0.05	0.00	0.60	0.62	0.80	0.78
	(0.54)	(0.99)	(0.08)				
Does not consider itself very poor	**0.19**	**0.21**	**0.28**	**0.02**	0.41	0.73	0.47
	(4.05)	(4.58)	(5.98)				
Food insecurity scale	**-1.88**	**-2.25**	**-2.35**	0.74	15.15	10.53	12.82
	(2.61)	(3.34)	(4.00)				
Is not severely food insecure	0.13	**0.27**	**0.23**	0.08	0.10	0.30	0.18
	(1.69)	(3.99)	(3.98)				
Better off than 12 months ago	**0.23**	**0.32**	**0.49**	**0.00**	0.09	0.42	0.17
	(5.45)	(7.40)	(10.98)				
N		9,694			2,517	1,196	1,226

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 in previous waves, we continue to find large impacts on other food indicators, which provide greater depth to the program's impacts, including beneficiaries' perceptions of food security and poverty. First, we find that the program reduces the household's food insecurity scale by 1.8 points. While the point estimate is lower at 48 months relative to previous rounds, this difference is not statistically significant, as indicated in Column 4. Second, 19 percentage points more CGP households (73%) as compared with control households (47%) do not consider themselves very poor (Figure 6.7). This result is roughly 9 percentage points lower than at 24 months, but still large and significant. Third, while 42% of CGP households report they are better off than 12 months ago, 17% of control households do so (Figure 6.8). Note the estimated impact for this indicator is also lower than at 24 months. All of these results are similar regardless of household size at baseline (not shown).

Figure 6.6:

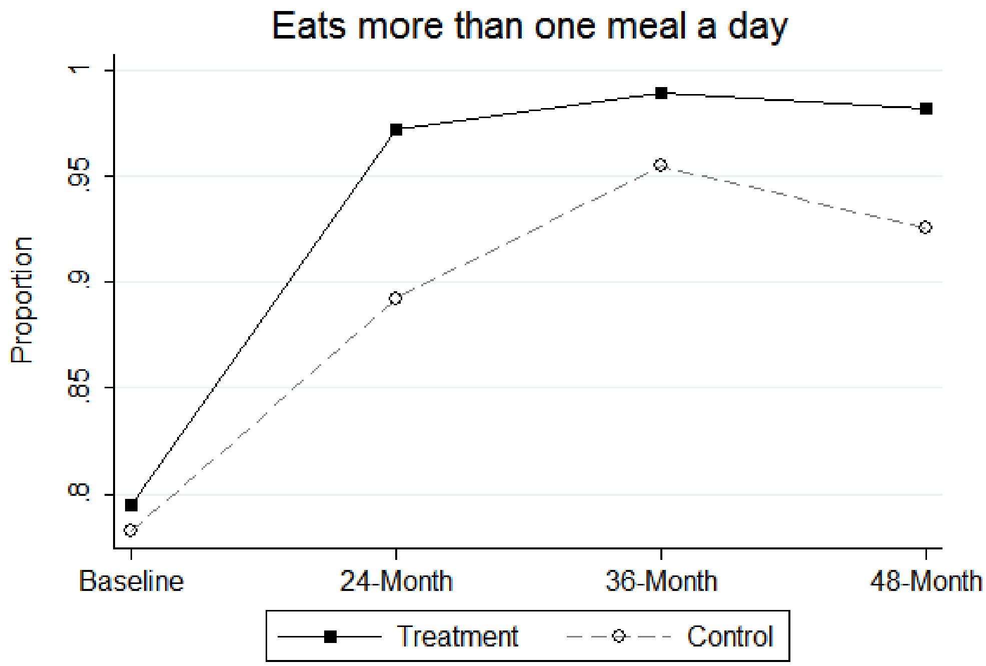


Figure 6.7:

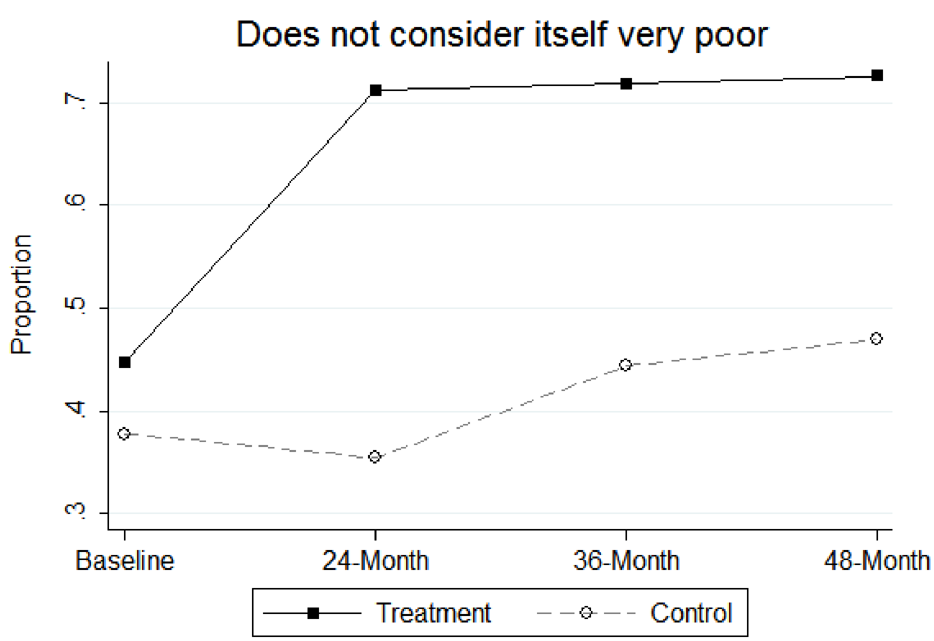
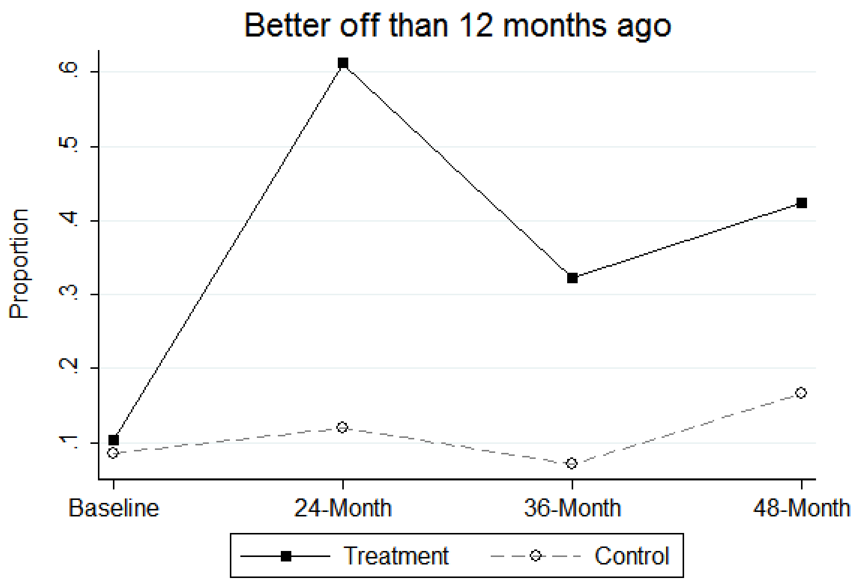


Figure 6.8:



In addition to these indicators, in this round we investigate whether the CGP has any impacts on respondent perceptions of child food security (not investigated in previous rounds). First, we look at whether in the past 4 weeks households considered that at least one child younger than age 5 did not eat healthy and nutritious foods because of a lack of money or other resources. The results in Table 6.5 show that CGP households are 7 percentage points more likely to report that their children have access to nutritious food, an impact that represents a large and significant increase relative to the average of the control group (34%). We also investigate whether children younger than age 5 were not given enough food because of a lack of money or other resources. The estimated effect is positive but not statistically different between treatment and control.

Table 6.5: CGP Impacts on Respondent Perceptions of Child Food Security

Dependent Variable	48-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	*N*
Young child has access to nutritious food (%)	**0.074** (2.266)	0.343	0.446	2,357
Young child has access to adequate amounts of food (%)	0.057 (1.731)	0.401	0.488	2,348

Note. Estimations use single difference modeling. Robust *t* statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, district, and household demographic composition.

Summary of Impacts on Poverty and Food Security

CGP-eligible households are extremely poor, with 95% 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. Indeed, the CGP has increased total per capita consumption spending by an amount that is approximately equal to the per capita value of the transfer. Consistent with the results from previous rounds, we find that the majority of the increased spending goes to food, followed by transportation/communication, health, clothing, and education. There is no program impact on domestic items or alcohol/tobacco. 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). We also see 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. In this round, we also investigate respondent perceptions of child food security and find that program recipients are more likely to report that their children have access to nutritious food.

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 CGP beneficiary households consistently exceed the expenditure levels of the control group.

Last, the evidence indicates that treatment households are able to smooth their consumption over the agricultural season as a result of the program. Whereas households in the treatment group seem to have flattened out their overall consumption during the planting seasons (24, 36, and 48 months), the control group exhibits higher variations in consumption levels between rounds. This indicates that the CGP allows households to achieve their ideal level of consumption, a level that is higher than the level of consumption among control households during the harvest season.

VII. Resilience

In this section we present findings on the impact of the CGP on a set of indicators that we think characterize a household's *resilience*. The concept of resilience is becoming important for governments and their international partners in part due to the effects of climate change on food supplies and agricultural productivity. There is no hard and fast definition of resilience, but a quick review of alternative definitions suggests a common theme of being able to manage and/or withstand shocks and other stressors. For example, the Resilience Alliance defines the concept as "The capacity of a system to absorb disturbance and reorganize while undergoing change;" while 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;" and the FAO's Resilience Measurement Technical Working Group definition is "…the capacity that ensures adverse stressors and shocks do not have long-lasting adverse development consequences."[15]

The actual measurement of resilience is also quite young, with perhaps the most sophisticated attempt at measurement contained in Alinovi et al. (2010) and known as the Resilience Index Measurement and Analysis Model (RIMA).[16] The dimensions of the index include income and food access, agricultural and nonagricultural assets, access to basic services and safety nets, as well as "adaptive capacity" dimensions such as human capital. Although the CGP evaluation was not designed with the objective of measuring resilience, many indicators that are commonly used to measure resilience are contained in our survey, allowing the opportunity to provide some insight into the impact of the program on resilience. Using the key concept of being able to manage or withstand a shock and the RIMA, we investigate five domains that are measured in our instrument and capture resilience: (a) nonagricultural assets, (b) agricultural assets, (c) livelihood diversification, (d) exposure to shocks, and (e) use of nondetrimental coping strategies. We look at each of these in turn and then provide some concluding remarks at the end of this section.

Nonagricultural Assets

For most families, housing represents their most important nonproductive asset. Table 7.1 shows that the CGP continues to enable households to invest in their physical dwelling, with positive impacts in terms of cement floors continuing at 48 months, and positive impacts on sanitation (owning a toilet), though this has declined slightly from 15 percentage points at 36 months to 9 percentage points at 48 months. Both improved sanitation and cement floors can lead to improved health outcomes because they provide a cleaner environment that is less likely to transmit parasites and pathogens, especially to young children. Intervention households are also

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[15] 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.

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

more likely to purchase fuel for lighting and cooking, though these activities are not linked to resilience per se, but reflect general improvements in living conditions and daily life. More than half of the households used open fire to light their home at baseline (58%). The CGP had a 15 percentage point impact on the number of households using a purchased method to light their home, such as candles or torches, with 85% of beneficiary households using a purchased method.

Table 7.1: CGP Impacts on Housing Conditions

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	Diff 48M–36M (3)	Baseline Mean (4)	48M Treated Mean (5)	48M Control Mean (6)
Iron sheet roof	0.011	0.010	0.000	0.054	0.070	0.070
	(0.745)	(0.792)	(0.029)			
Cement floor	**0.020**	**0.036**	-0.015	0.030	0.051	0.027
	(2.159)	(3.729)	(-1.295)			
Brick wall	0.031	0.008	0.023	0.317	0.317	0.307
	(0.563)	(0.168)	(0.382)			
Purchased lighting	**0.150**	**0.171**	-0.021	0.577	0.858	0.729
	(2.877)	(4.976)	(-0.519)			
Purchased cooking	**0.071**	**0.031**	0.040	0.051	0.146	0.056
	(4.045)	(2.261)	(1.891)			
Own toilet	**0.094**	**0.153**	-0.059	0.437	0.703	0.657
	(1.565)	(3.039)	(-1.173)			
N		7,379		2,513	1,196	1,212

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

The CGP continues to have a positive impact on the ownership of a wide variety of household assets. Households receiving the transfer are more likely to own a bed, a mattress, a sofa, a radio, and a solar panel in all follow-up waves. For some of these assets, program impacts are twice as large as baseline values. For example, the proportion of beneficiary households that own a bed and a mattress at 48 months is about 44% (Column 6), whereas it was only 20% at baseline (Column 5). There is no difference between the follow-up results, except that the CGP impacts mobile phone ownership at 36 and 48 months by 6 percentage points, with 25% of beneficiary households owning a cell phone by 48 months (Column 6) as compared with 16% among the control group. For virtually all of these assets, it appears that households acquired these within the first 24 months of the program, with no additional purchases afterward.

Table 7.2: Impacts of CGP on Nonagricultural Asset Ownership (Share)

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Assets index	**0.43**	**0.46**	**0.41**	0.68	-0.26	0.43	-0.07
	(5.76)	(6.15)	(6.80)				
Bed	**0.14**	**0.18**	**0.22**	**0.04**	0.20	0.44	0.25
	(3.78)	(4.46)	(6.60)				
Mattress	**0.17**	**0.20**	**0.25**	0.11	0.15	0.49	0.28
	(4.62)	(5.06)	(7.55)				
Mosquito net	0.03	0.05	0.03	0.58	0.80	0.92	0.89
	(1.24)	(1.62)	(0.99)				
Table	-0.00	0.03	0.05	0.20	0.16	0.15	0.11
	(-0.02)	(0.95)	(1.42)				
Sofa	**0.03**	**0.04**	**0.03**	0.66	0.03	0.08	0.04
	(2.54)	(2.85)	(2.15)				
Radio	**0.14**	**0.08**	**0.09**	0.29	0.11	0.24	0.10
	(4.10)	(3.39)	(3.21)				
TV	**0.02**	**0.02**	**0.02**	0.62	0.02	0.05	0.02
	(2.27)	(2.87)	(3.29)				
DVD	0.01	**0.02**	0.01	0.45	0.02	0.03	0.02
	(1.82)	(2.95)	(1.75)				
Mobile phone	**0.07**	**0.06**	-0.01	**0.01**	0.09	0.25	0.16
	(2.89)	(2.65)	(-0.28)				
Watch	0.02	0.01	0.01	0.70	0.03	0.02	0.01
	(1.92)	(1.43)	(1.25)				
Solar panel	**0.06**	**0.07**	**0.10**	0.28	0.03	0.11	0.06
	(3.10)	(3.89)	(5.21)				
N		9,682			2,514	1,196	1,226

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

Agricultural Assets

The CGP has a positive impact on the ownership of a wide variety of livestock (particularly cows, cattle, chickens, and ducks), both in the share of households with livestock and in the total number, resulting in a significant impact on the overall livestock index (Table 7.3). In general, the 48-month impact estimates are consistent with those at 24 and even 36 months. Note also that both large (Table 7.4) and small (Table 7.5) households have increased livestock ownership, though the impacts are particularly strong for large households at 48 months. At 48 months, large beneficiary households are 10 percentage points more likely to have cattle and 14 percentage points more likely to have chickens relative to the control group. Smaller households are 8 percentage points more likely to have ducks than control households.

Table 7.3: Impacts of CGP on Livestock Ownership (Share)

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Livestock index	**0.34**	**0.39**	**0.38**	0.81	-0.08	0.26	-0.13
	(5.31)	(5.87)	(5.29)				
Cows	**0.04**	0.01	**0.03**	0.52	0.05	0.07	0.03
	(3.90)	(0.56)	(2.12)				
Cattle	**0.10**	**0.11**	**0.10**	0.92	0.10	0.19	0.10
	(4.06)	(4.01)	(3.85)				
Goats	0.01	0.02	0.03	0.42	0.02	0.09	0.03
	(0.93)	(1.53)	(1.82)				
Chicken	**0.14**	**0.16**	**0.11**	0.46	0.43	0.49	0.36
	(1.80)	(3.81)	(2.36)				
Ducks	**0.04**	**0.03**	**0.03**	0.86	0.03	0.02	0.01
	(2.21)	(3.46)	(3.12)				
N		9,690			2,513	1,196	1,226

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 7.4: Impacts of CGP on Livestock Ownership (Share)—Large HH

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Livestock index	**0.38**	**0.43**	**0.44**	0.83	0.04	0.40	-0.06
	(4.35)	(4.64)	(4.81)				
Cows	**0.01**	**0.81**	**0.02**	**0.00**	0.06	0.08	0.04
	(3.65)	(8.63)	(2.62)				
Cattle	**0.10**	**0.09**	**0.10**	0.92	0.11	0.20	0.11
	(3.53)	(2.70)	(3.00)				
Goats	0.01	0.02	0.02	0.77	0.03	0.11	0.04
	(0.48)	(0.71)	(0.89)				
Chicken	**0.17**	**0.17**	**0.18**	0.96	0.48	0.54	0.40
	(2.95)	(3.41)	(3.23)				
Ducks	0.02	**0.03**	**0.04**	0.80	0.04	0.02	0.01
	(0.95)	(2.40)	(2.25)				
N		4,771			1,235	602	590

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 7.5: Impact of CGP on Livestock Ownership (Share)—Small HH

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Livestock index	**0.33**	**0.34**	**0.30**	0.77	-0.22	0.17	-0.16
	(4.49)	(5.33)	(4.09)				
Cows	**0.04**	-0.00	0.01	0.26	0.05	0.07	0.02
	(2.96)	(0.05)	(0.80)				
Cattle	**0.10**	**0.13**	**0.10**	0.64	0.08	0.17	0.08
	(2.96)	(3.73)	(3.25)				
Goats	0.01	0.03	0.03	0.35	0.01	0.07	0.03
	(0.93)	(1.98)	(1.86)				
Chicken	**0.12**	**0.17**	0.07	0.20	0.37	0.44	0.32
	(2.63)	(3.09)	(1.10)				
Ducks	**0.08**	**0.04**	**0.03**	0.39	0.02	0.02	0.00
	(2.54)	(2.93)	(2.49)				
N		4,919			1,278	594	636

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 7.1 Share of Households Owning Cattle

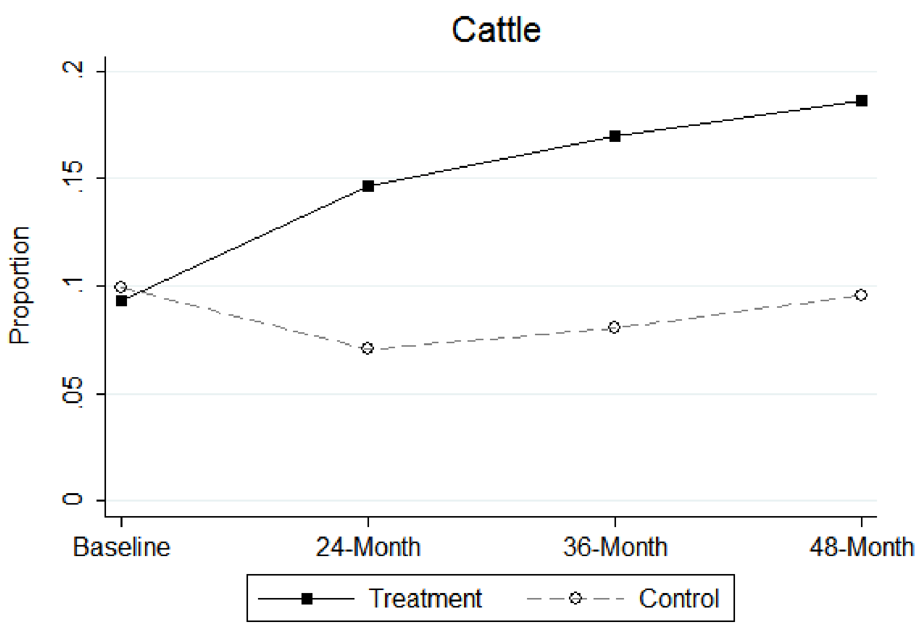
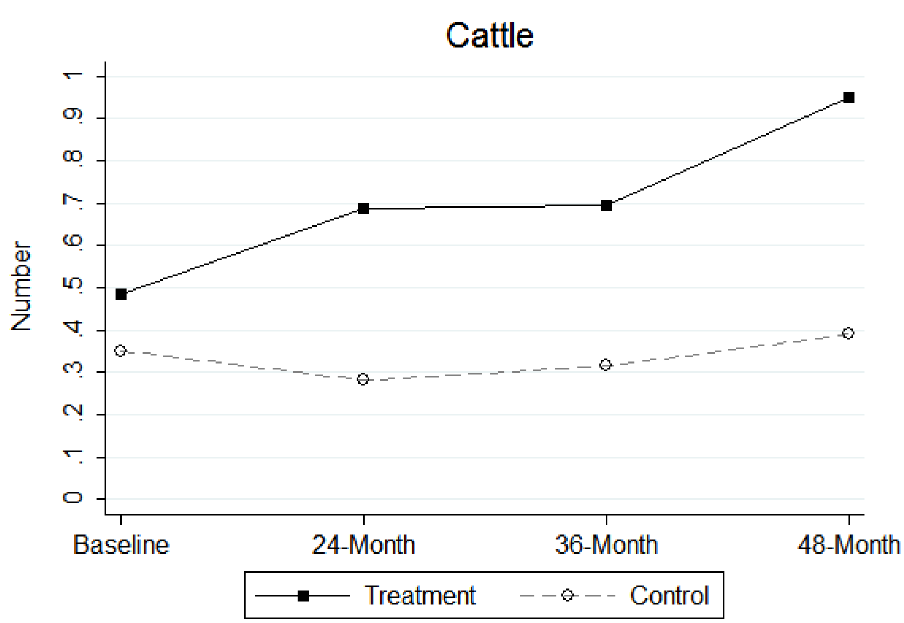


Figure 7.2 Number of Cattle Owned per Household



Turning to agricultural implements, which can also be considered a form of asset, Table 7.6 shows a new (at 48 months) impact on the number of shovels owned by CGP households. Beneficiary households continue to own more axes and hoes, though the 48-month impacts are the same as those from previous rounds, so there are no additional impacts at this wave.

Table 7.6: Impact of CGP on Agricultural Implements (Number)

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Axe	**0.26**	**0.25**	0.16	0.47	1.12	1.54	1.21
	(2.92)	(2.83)	(1.92)				
Pick	0.01	0.03	0.03	0.83	0.04	0.16	0.16
	(0.38)	(1.40)	(1.32)				
Hoe	0.13	**0.25**	**0.30**	0.36	1.53	2.65	2.47
	(1.15)	(2.37)	(3.51)				
Hammer	0.01	0.11	**0.04**	0.53	0.05	0.14	0.13
	(0.42)	(1.31)	(2.08)				
Shovel	**0.06**	0.03	0.03	0.35	0.06	0.12	0.05
	(2.83)	(1.58)	(1.07)				
Plough	0.03	0.03	0.04	0.80	0.07	0.10	0.06
	(1.45)	(1.26)	(1.94)				
N		9,693			2,517	1,196	1,226

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

Livelihood Diversification

As reported in earlier evaluation reports, the main source of livelihood for study households is agricultural, with more than 90% engaged in some kind of crop production. A key result we found at 24 months is a significant increase in nonfarm enterprise (NFE) engagement, which represents an important diversification of income source. These impacts on engagement in NFE continue at 48 months, with CGP households 13 percentage points more likely to be engaged in a NFE, an effect size that is comparable to what we found in prior waves (see Table 7.7). Further analysis shows the most important businesses to be petty trade, fish selling, and home brewery.

Table 7.7: CGP Impacts on Nonfarm Enterprises (NFE)

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	24M Control Mean (5)	36M Control Mean (6)	48M Control Mean (7)	*N*
HH operates NFE	**0.13**	**0.11**	**0.14**	0.07	0.30	0.31	0.24	7,177
	(3.34)	(2.68)	(3.58)					
Total monthly revenue (ZMW) 95%	26.81	34.80	**96.45**	**0.03**	214.81	224.21	300.56	2,443
	(0.54)	(1.32)	(3.34)					
	(0.95)	(0.36)	(1.45)					
Total monthly profit (ZMW) 95%	17.86	9.25	**33.01**	0.16	111.83	122.39	148.42	2,444
	(0.80)	(0.69)	(2.53)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

Shocks, Coping Mechanisms, and Credit

A key issue in resilience is how households cope with shocks and, in particular, whether they must rely on "negative" or irreversible coping mechanisms. Table 7.8 shows that in fact the CGP itself is the single most important coping mechanism for program households,at 13 percentage points.. Also of interest is the increased use of savings as a coping mechanism among CGP recipients, though this impact is not statistically significant.

Table 7.8: CGP Impacts on Shock Coping Mechanisms

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Using savings	0.06	0.03	0.03	0.75	0.11	0.30	0.26
	(1.26)	(0.55)	(0.53)				
Selling assets	-0.00	-0.01	-0.01	0.30	0.02	0.07	0.06
	(-0.07)	(-0.98)	(-1.06)				
Reducing expenses	-0.09	-0.10	-0.11	0.82	0.20	0.18	0.26
	(-1.51)	(-1.36)	(-1.40)				
Working more	-0.03	-0.11	-0.11	0.61	0.51	0.58	0.57
	(-0.50)	(-1.27)	(-1.24)				
Informal assistance	-0.02	0.00	-0.00	0.31	0.23	0.17	0.22
	(-0.38)	(0.05)	(-0.08)				
Formal assistance	0.03	0.02	0.02	0.65	0.07	0.08	0.05
	(0.84)	(0.58)	(0.66)				

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Treated Mean (6)	48M Control Mean (7)
Using CGP	**0.13**	**0.15**	**0.16**	0.11	0.00	0.14	0.00
	(5.68)	(4.93)	(5.05)				
Other	-0.02	-0.01	-0.01	0.68	0.15	0.01	0.03
	(-0.42)	(-0.26)	(-0.23)				
N		5,270			1,566	664	645

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 credit position of CGP households seems to have unambiguously improved relative to control households, with a reduction in the proportion owing money by 4 percentage points (Table 7.9), and a larger impact (7 percentage points) among larger households (Table 7.10). CGP households are also less likely to have borrowed money in the last 6 months (6 percentage point impact), and this effect is driven by smaller households (Table 7.11). Also of interest is a general tendency to not need to take out a loan for consumption for larger households (14 percentage points). So while the exact dimensions of debt reduction vary by household size, there does seem to be an overall improvement in the debt situation of GCP households.

Table 7.9: CGP Impacts on Credit Outcomes

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	Diff 48M-36M (3)	36M Control Mean (4)	48M Control Mean (5)	*N*
Owe money	**-0.04**	**-0.07**	0.02	0.12	0.12	4,884
	(-3.19)	(-4.13)	(0.90)			
Borrow money last 6 months	**-0.06**	-0.01	-0.05	0.21	0.29	4,881
	(-2.52)	(-0.35)	(-1.47)			
Loan used for consumption	-0.07	0.01	-0.09	0.84	0.67	1,089
	(-1.79)	(0.22)	(-1.31)			

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

Table 7.10: CGP Impacts on Credit Outcomes—Large HH

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	Diff 48M-36M (3)	36M Control Mean (4)	48M Control Mean (5)	*N*
Owe money	**-0.07**	**-0.09**	0.02	0.14	0.13	2,408
	(-3.73)	(-3.59)	(0.67)			
Borrow money last 6 months	-0.06	0.03	-0.08	0.21	0.29	2,406
	(-1.77)	(0.73)	(-1.83)			
Loan used for consumption	**-0.14**	0.06	**-0.21**	0.78	0.66	560
	(-2.11)	(0.78)	(-2.23)			

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

Table 7.11: CGP Impacts on Credit Outcomes—Small HH

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	Diff 48M-36M (3)	36M Control Mean (4)	48M Control Mean (5)	*N*
Owe money	-0.03	**-0.05**	0.02	0.10	0.11	2,476
	(-1.79)	(-3.27)	(0.82)			
Borrow money last 6 months	**-0.06**	-0.04	-0.02	0.20	0.28	2,475
	(-2.25)	(-1.28)	(-0.47)			
Loan used for consumption	-0.03	-0.06	0.04	0.91	0.67	529
	(-0.55)	(-0.94)	(0.47)			

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

Summary of Impacts on Resilience

While resilience is not a key research area of this evaluation, many indicators commonly associated with resiliency are captured in the survey instrument, and so we put these together to provide an overall picture of how the program might be affecting household capacity to respond to shocks. We see that the program has resulted in significant increases in both nonagricultural (housing quality and possession of durable goods) and agricultural (livestock, tools) assets, implying that they are in a stronger position to withstand a shock. CGP households have also diversified their income-generating activities relative to control households, suggesting that they may also be in a better position to prevent a shock in the future, although most NFE activity still involves agriculture to some extent. Improvements in housing quality related to sanitation may also affect the likelihood of suffering a health shock. Finally, the program has led to an improvement in the credit position of households, with fewer households taking out a loan or owing money, and among larger households, a reduction in the need to take out a loan for consumption. Together these findings suggest that CGP households are in a much better position to both cope with a shock, and possibly even to prevent a shock from occurring in the first place, thus improving their overall resiliency.

VIII. Young-Child Outcomes

As the CGP target group is children originally under age 5 at baseline, we calculate program impacts on a series of young-child indicators covering health, use of services, nutritional status, and early childhood development (ECD). For the 48-month wave, we have measured and analyzed additional indicators on perceptions of young-child health and development, as well as perceived challenges these children face. These indicators are second-round effects in that they are not affected directly by the cash transfer, but require a series of behavioral responses by the household induced by the income effect of the cash transfer in order to change. For example, nutritional status is affected by caregiving behaviors, caloric intake, and sanitation. For the CGP to affect nutritional status, it must induce a change in feeding practices or the disease environment of the household. Indeed, our ex-ante predictions using baseline data suggested that infant and young child feeding (IYCF) had the strongest direct link with household income and thus was likely to be where we would find program impacts.

The CGP continues to have limited impacts on morbidity or use of health services. Indeed, at 24 months we reported a 4-point decline in prevalence of diarrhea, but this no longer persists at 36-months or 48-months (Table 8.1). However, we observe large overall declines in the prevalence of diarrhea, fever, and cough in both the treatment and control groups between baseline and the 48-month wave. It appears that the health condition of young children improved for both groups, perhaps limiting the opportunity for the program to impact these areas beyond the already positive general trend. The lack of impact on use of health services (Table 8.2) contrasts with the positive impacts on health spending that we observed.

Table 8.1: Comparison of CGP Impacts on Young-Child Health and Morbidity by Wave, Among Children Ages 0–5

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Diarrhea	-0.015	-0.008	**-0.036**	0.120	0.175	0.080	0.077	13,329
	(-0.767)	(-0.428)	(-2.405)					
Fever	-0.030	0.004	-0.010	0.250	0.231	0.120	0.146	13,354
	(-0.943)	(0.128)	(-0.318)					
ARI (cough)	0.011	-0.026	-0.027	**0.030**	0.206	0.072	0.063	13,359
	(0.515)	(-1.292)	(-1.591)					
Preventive care	0.051	-0.009	-0.033	0.140	0.762	0.757	0.651	13,299
	(1.432)	(-0.233)	(-0.819)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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, household demographic composition, and a vector of cluster-level prices.

Table 8.2: Comparison of CGP Impacts on Curative Care if Illness Reported, Among Children Ages 0–5

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Diarrhea treated	-0.006 (-0.091)	0.117 (1.267)	0.010 (0.134)	0.440	0.753	0.689	0.695	1,379
Fever treated	-0.001 (-0.017)	0.008 (0.102)	0.015 (0.213)	0.980	0.733	0.804	0.788	1,990
ARI (cough) treated	-0.105 (-1.064)	0.072 (0.738)	-0.007 (-0.085)	0.450	0.737	0.600	0.741	1,333

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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, household demographic composition, and a vector of cluster-level prices.

Next we analyze the impact of the CGP on a series of ECD indicators that are based on the MICS4 ECD module. The MICS is an international household survey initiative developed by UNICEF to assist countries worldwide in gathering and analyzing data on household and child well-being. The child development indicators were developed for the third round of the MICS and refined in the MICS4. These include measures of access to learning materials, learning supports offered to children, care adequacy, participation in early childhood education, and an early child development index across multiple domains of learning. In Table 8.3 we report on two measures of household behaviors or resources that may improve child learning: having books or playthings in the home and a scale of activities exhibited by parents and other caregivers in stimulating activities. The activities that adults participate in with children to support learning may include diverse activities and interactions such as reading; telling stories; playing; singing; taking them outside of the household, yard, or enclosure; and counting, drawing, or naming things. We observe some positive impacts on "support for learning" and ownership of books at 24 months; however, these have disappeared at both 36 months and 48 months. Support for learning went down for both control and treatment groups across the study, suggesting less time is available for adults to spend with children overall, or they are making decisions to spend their leisure time doing other activities.

Table 8.3: Comparison of CGP Impacts on Early Child Development by Wave, Among Children Ages 3–9

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Support for learning	0.079	-0.017	**0.117**	**0.040**	0.445	0.360	0.308	16,168
	(1.656)	(-0.350)	(2.239)					
Playthings	-0.043	-0.019	-0.027	0.910	0.597	0.776	0.778	16,195
	(-0.712)	(-0.318)	(-0.465)					
Books	0.006	0.005	**0.025**	0.110	0.015	0.018	0.013	16,187
	(0.922)	(0.701)	(3.328)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

We next turn to program impacts on the anthropometric indicators of height-for-age, weight-for-age, and weight-for-height, all measured using *z* scores. Aside from the actual mean score, we also look at program impacts on the probability of being less than or equal to two standard deviations below median on each indicator as the probability of mortality is known to increase substantially beyond that threshold. Finally, we examine the IYCF indicator among children less than 24 months of age having the minimum required number of feedings .[17,18] Our analysis shows that the program continues to have no impact on child nutritional status, though the point estimate for weight-for-height is large and just outside the statistically significant range (Table 8.4). However, the program continues to have an important and positive impact on IYCF. Children in treatment households are 13 points more likely to have had the minimum required number of feedings, and although the relative magnitude of the coefficient decreases from the 24- and 36-month impact estimates, there is no significant difference between coefficients (see last row of Table 8.4). This result is consistent with the strong positive impacts on food consumption and food security that we observe at both 24 and 36 months. In addition, this indicates that the positive impacts are maintained for new children in the households, not just among the original enrolled child since this indicator is only defined for children ages 6–23 months. We performed additional analyses to see whether the impacts on nutritional status varied by sex or age (less than 24 months) of the child, and for children of large and small households, but find that the lack of results were consistent across all groups.

[17] USAID, AED, and UNICEF IFPRI. *Indicators for Assessing Infant & Young Child feeding Practices.* (2008).
[18] This group includes infants 6–8 months old who ate two or more times the day prior to the survey; breastfed children 9–23 months who ate three or more meals the day prior to the survey; and nonbreastfed children 9–23 months who at four or more meals the day prior to the survey.

Table 8.4: Comparison of CGP Impacts on Anthropometrics by Wave, Among Children Ages 0–9

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	48M Mean C (7)	*N*
Height-for-age *z* score	-0.044 (-0.527)	0.009 (0.110)	0.030 (0.465)	0.400	-1.368	-1.397	-1.361	13,743
Weight-for-height *z* score	0.132 (1.205)	0.052 (0.707)	0.100 (1.837)	0.620	-0.131	0.115	0.062	9,643
Weight-for-age *z* score	0.073 (1.023)	-0.005 (-0.099)	0.063 (1.378)	0.150	-0.817	-0.847	-0.890	18,776
Stunted	0.004 (0.167)	0.014 (0.550)	-0.014 (-0.557)	0.310	0.324	0.319	0.324	13,743
Wasted	-0.010 (-1.037)	-0.003 (-0.257)	0.000 (0.037)	0.620	0.052	0.066	0.079	9,643
Underweight	-0.008 (-0.507)	-0.000 (-0.016)	-0.015 (-0.967)	0.660	0.139	0.145	0.145	18,776
IYCF	**0.134** (2.399)	**0.175** (2.854)	**0.195** (3.505)	0.660	0.277	0.349	0.234	3,619

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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, household demographic composition, and a vector of cluster-level prices. Children who had extreme changes in height for age *z* scores (greater than absolute 2.25 over 2 years or greater than absolute 1.75 over one year) were removed from the sample in all height related indicators (height-for-age, weight-for-age, stunting, and wasting). *Under 5 years only. **6–23 months only.

Despite strong food security and expenditure impacts on the household overall, 48 months into the program we are still not finding program impacts on most nutrition outcomes. These results are consistent with a systematic review of the impact of cash transfers on child nutrition, which shows no consistent evidence of positive impacts.[19] To explore these dynamics further, we collected 24-hour dietary diversity recall for children ages 0–5, based on the Demographic and Health Survey (DHS). These measures collect information on whether the child has consumed any food and the type of food, and are based on the recall of the primary caregiver. Table 8.5 shows that the percentage of CGP recipients providing their children the recommended number of food groups, or on average more than four food groups per day is 26%, while this value is 20% in the control group. However, this relationship is not statistically significant. Despite this, we do observe an 11-point impact on the percentage of children who received protein-rich foods (eggs, meats, dairy, or legumes) in the prior day. These results suggest that the CGP provides

[19] Manley, J., Gitter, S., & Slavchevska, V. (2012). *How effective are cash transfer programmes at improving nutritional status? A rapid evidence assessment of programmes' effects on anthropometric outcomes*. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

moderate impacts on feeding practices of young children; however, overall, the dietary diversity is very low within the sample.

Table 8.5: Cross-Sectional CGP Impacts on Diet Diversity, Among Children Ages 6–59 months

Dependent Variable	48-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	*N*
Children who receive food from four or more food groups	0.047 (1.256)	0.198	0.260	2,539
Children who receive protein-rich foods	**0.117** (2.517)	0.601	0.709	2,619

Note. Estimations use single difference modeling. Robust *t* statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for age and gender of child, household size, recipient age, education and marital status, districts, and household demographic composition.

In the 48-month wave, we also measured women's perceptions of their child's health and development, as well as perceived challenges that their young children face. We asked mothers or caretakers of children ages 3–9 about whether they agreed or disagreed with the following statements: (a) they are satisfied with their child's life; (b) their child enjoys life; (c) they feel positive about their child's future; (d) they are satisfied with their child's health; and (e) their child is generally happy. Using a five-point scale for each separate outcome, we constructed a satisfaction scale, ranging from 5 to 25 points. According to respondents, there was a 0.7 increase in overall perceived satisfaction of their children's lives. When each item was explored separately, the only factor that did not seem to improve was the satisfaction of their children's health; however, even this result is marginally significant. This finding is consistent with lack of actual health impacts of the program on child health.

Table 8.6: Cross-Sectional CGP Impacts on Perceptions of Child Health and Well-Being, Among Children Ages 3–9

Dependent Variable	48-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	*N*
Satisfaction scale	**0.728** (3.154)	19.636	20.322	2,377
I am satisfied with my child's life	**0.115** (2.010)	3.905	4.003	2,378
My child enjoys life	**0.192** (3.553)	3.847	4.019	2,378
I feel positive about my child's future	**0.208** (4.089)	3.901	4.099	2,377
I am satisfied with my child's health	0.091 (1.951)	3.952	4.076	2,378
My child is generally happy	**0.128**	4.027	4.125	2,378

Dependent Variable	48-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	*N*
	(2.630)			

Note. Estimations use single difference modeling. Robust *t* statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, and household demographic composition.

To test the reliability of these perceptions (i.e., whether parents' perceptions of children's satisfaction correspond with better outcomes), we looked at nutritional and health outcomes for households that reported above-average perceptions of child health/well-being for CGP and control houses separately (see Annex 4: Tables A4.1 and A4.2 for treatment; Tables A4.3 and A4.4 for control). Households that reported "above average" on the overall child health/wellness perception scale (20 or over), did not show any decreased illness or malnutrition rates as compared with those that scored below the median threshold, for both CGP and control households. This finding suggests that even when parents report better levels of health/wellness for their children, there is no evidence that these children are actually better off. Additionally, we compared households that "strongly agree" they are satisfied with their children's health, with households that "agree," "neither agree nor disagree," "disagree," or "strongly disagree" for both CGP and control households (Tables A4.5–A4.8 in Annex 4). CGP households that strongly agree that their child is in good health show a decrease in stunting (7%), while control households had no significant results (see Table A4.5 in Annex 4). Overall, the perceptions of child health are not indicative of the actual health/nutrition status of children.

Finally, in the 48-month wave, we measured women's perceptions of challenges facing their children's future. We asked the same mothers and caretakers from the previous section about how challenging they perceive 12 issues to be for their children. On a scale of 1 to 5 ("not a challenge" to "very important challenge"), the respondents rated a number of household needs (food, clothing, housing, textbooks, and school materials) as well as a number of needs that are external to the household (access and quality of schools and health services, water, safety, friendships/relationships). We analyzed these items separately, and we also constructed three scales: (a) All Challenges (ranging from 12 to 60), (b) All Household Needs (ranging from 4 to 20), and (c) External Needs (ranging from 8 to 40). According to respondents, there were no differences for CGP households in how challenging all factors are, nor does the CGP appear to alleviate stress from external factors. In fact, the impacts on food and clothing were the only two challenges alleviated by the CGP. All other challenges are the same regardless of program status. This finding may be expected considering that money going directly to households would not likely impact external factors such as quality of and access to services. This result underscores the fact that the impact of the cash transfer is limited by the external conditions facing households.

Table 8.7: Cross-Sectional CGP Impacts on Perceptions of Challenges Children Face, Among Children Ages 3–9

Dependent Variable	48-Month Impact (1)	Control Mean (2)	Treatment Mean (3)	*N*
Challenges scale	-0.600	35.912	35.561	2,365
	(-0.685)			
Challenge scale for household needs	**-0.643**	13.375	12.764	2,365
	(-2.026)			
Food	**-0.404**	3.815	3.426	2,378
	(-3.930)			
Clothing	**-0.282**	3.723	3.420	2,378
	(-3.060)			
Housing, shelter	0.064	2.429	2.553	2,376
	(0.678)			
Textbooks, school materials	-0.017	3.408	3.373	2,377
	(-0.181)			
Challenge scale for external needs	0.043	22.538	22.797	2,365
	(0.072)			
Availability of schools	-0.034	2.982	2.981	2,375
	(-0.315)			
Quality of schools	0.010	3.002	3.004	2,378
	(0.094)			
Availability of health services	0.015	3.292	3.283	2,377
	(0.167)			
Quality of health services	0.049	3.100	3.146	2,377
	(0.428)			
Drugs, medications	0.047	3.243	3.291	2,378
	(0.465)			
Water	0.032	2.871	2.959	2,376
	(0.331)			
Safety, security	-0.030	2.142	2.184	2,378
	(-0.363)			
Friends, relationships	-0.054	1.928	1.968	2,375
	(-0.539)			

Note. Estimations use single difference modeling. Robust *t* statistics clustered at the CWAC level are in parentheses. Bold indicates that they are significant at $p < .05$. All estimations control for household size, recipient age, education and marital status, districts, and household demographic composition. Higher values indicate bigger challenge.

Heterogeneous Impacts

Despite lack of impacts overall, it is possible that young-child outcomes could improve for certain groups within the sample. The poorest of the poor at baseline, for example, may have more room for improvement with any additional funds coming into the household. Or perhaps children in small households benefit more because they have a higher transfer per capita (i.e., more "potent" treatment). As in other sections, we looked at impacts by gender as well as large versus small household size, but we also ran heterogeneous analyses for the poorest 50th percentile of the population at baseline. Additionally, access to clean water and access to a toilet in the household were subgroups tested for child health and nutrition outcomes. Overall, the results did not differ from the full sample, with a lack of impacts on nutrition and health outcomes found for all groups (results not shown).

The relationship between current height and prior height tends to be very strong,[20] so we tested to see whether CGP "breaks" or "weakens" this relationship, allowing children to "catch-up" on their linear growth. As expected, prior height was highly indicative of current height; however, the CGP appears to have only a small negative effect (not significant) on weakening this relationship (see Table A4.9 in Annex 4). In other words, children with poorer/better nutrition outcomes at prior waves continue to have poorer/better nutrition outcomes as they age, despite the CGP program.

Summary of Impacts for Young Children

Consistent with previous waves, there are no impacts of the CGP on most child health/nutrition indicators except for IYCF for children ages 6–23 months. Additionally, a more detailed assessment of child feeding at 48 months shows the CGP children are eating more protein-rich foods. However, fewer than one-quarter of children 6–59 months in our full sample are receiving food from four or more food groups, the minimum diet diversity recommended by the WHO for a toddler (6–23 months). We hypothesize that poor overall dietary diversity in the sample is a function of factors unrelated to lack of money/resources, for availability of food types in the community or perhaps poor parental nutrition. For example, even in households that report that children up to 59 months are not restricted to healthy and nutritious foods due to resources, only 26% of those children meet these minimum dietary diversity standards. In regard to parental knowledge, only two-thirds of our respondents can name an iron-rich food.

To better understand the relationship between the cash CGP and young-child outcomes, we introduced a set of questions on caregivers' perceptions of well-being of children as well as opinions about challenges facing children. Caregivers in the CGP have more positive perceptions about their children's well-being, an important result because caregivers are best placed to know whether their children are thriving and developing well in a holistic sense, though these perceptions do not show up in objective indicators such as anthropometry or morbidity. In terms of challenges, the program appears to alleviate challenges related to food and clothing, items that are directly under the household's control and that can be purchased using cash. On the other hand, external factors (e.g., schools, health services) are equally a challenge for both treatment

[20] Handa, S., & Peterman, A. (2015). *Is there catch-up growth? Evidence from three continents* (Innocenti Working Paper No.2015-04). UNICEF Office of Research, Florence.

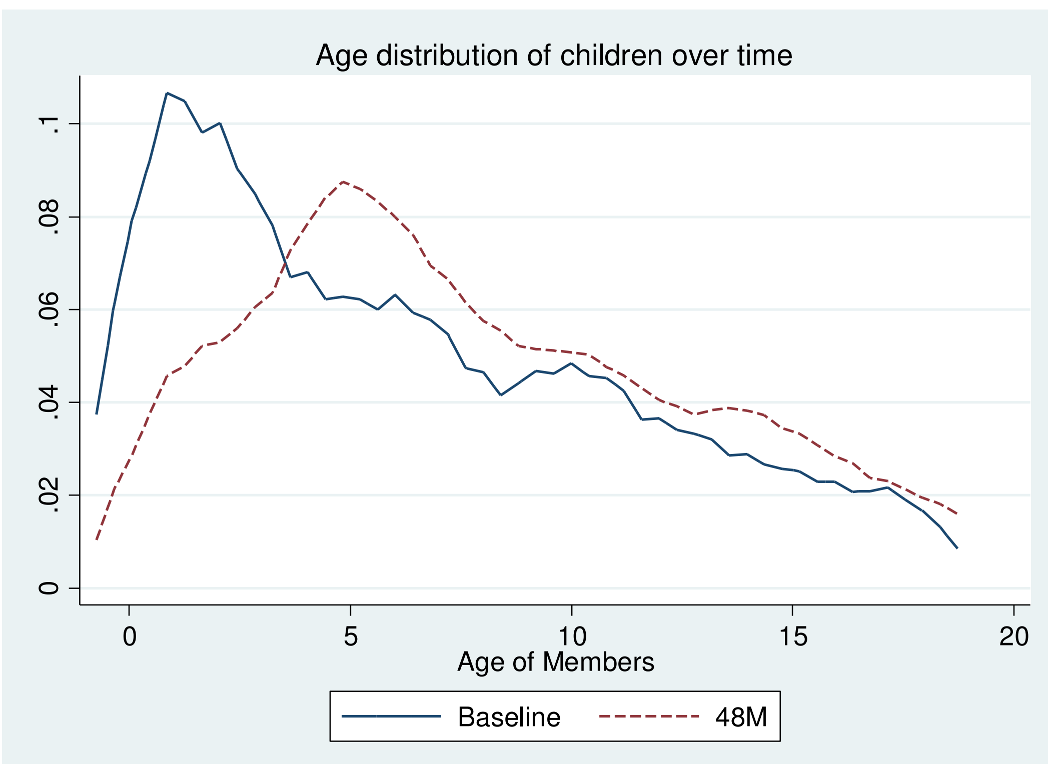
and control households. Receipt of the CGP is thus not able to overcome these structural constraints facing households.

IX. Children Over Age 5

In this section, we present evidence of impacts of the CGP on children over the age of 5. Although the program is focused on improving outcomes for younger children, the grant is given to families and is not explicitly tied to any particular child. Therefore, it is possible for children of any age to benefit from the cash transfer. Indeed, in all past reports, the CGP had positive impacts on material well-being among older children as well as impacts on primary schooling for some waves. We continue to investigate impacts on older children after 48 months of program implementation and compare these results across waves.

As mentioned earlier, the CGP is targeted to families with very young children and its primary objectives relate to young-child health and nutrition. There are 2,515 households and 14,565 people in the evaluation study, including 4,793 children ages 5 and under, with the largest number under 1 year old (1,427). Figure 9.1 below captures the age distribution of children ages 0–17 at baseline and after 4 years. These density graphs show indeed that the majority of children in these beneficiary households are very young at baseline, and even by Wave 4 (4 years after program initiation) the model age is less than 5. In contrast, there are very few children over age 13 and two-thirds of households actually have no members ages 14–17 in the household. Thus, we would not expect much of the transfer to be targeted toward older children.

Figure 9.1



Material Well-Being

The proportion of children in treatment households who have all three materials needs (71%) continues to be significantly higher than those in the control households (42%), with a program impact of 32 percentage points at 48 months. *All material needs* is defined as a pair of shoes, a blanket, and a change of clothes—this is the UNGASS-recommended indicator for OVC material needs. As in the previous wave, the treatment households have hit a ceiling for a blanket and two sets of clothing, with nearly everyone (96% and 98%, respectively) having these items, leaving little room for improvement. Nonetheless, control group children (83% and 91%, respectively) did not catch up with treatment children on these indicators, and so the impact remains significant after 4 years of program implementation.

At the 48-month follow-up, the impact estimate of the CGP on having all three material needs is 32 percentage points, and it is not statistically different from the impact at 36 months. The impact of the program remains statistically equal between the 36- and 48-month waves for the indicators "Child has shoes" and "Child has a blanket," but not for the indicator of possession of two sets of clothes. The CGP's impact on this latter outcome is statistically significant again at 48 months after being nonsignificant at 36 months. Table 9.1 presents the results of the program on all needs met as well as on each individual item.

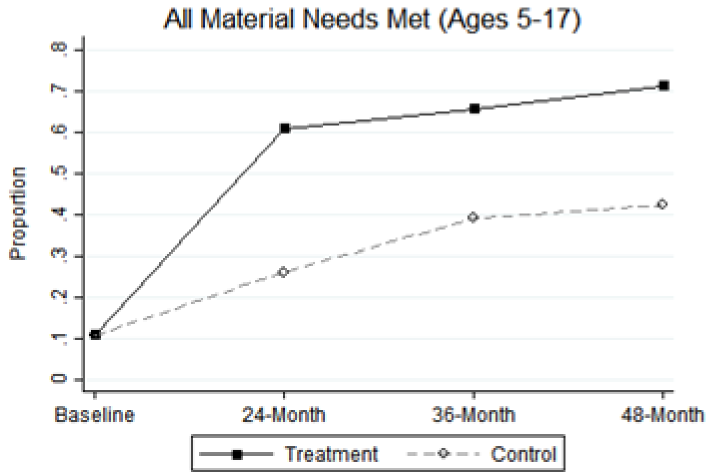
Table 9.1: Comparison of CGP Impacts on Material Needs by Wave, Ages 5–17—All

Dependent Variable	48M Impact	36M Impact	24M Impact	Test (1)=(2)=(3)	Baseline Mean	48M Mean		*N*
						T	C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
All needs met	**0.321** (5.425)	**0.295** (5.143)	**0.385** (5.765)	0.060	0.107	0.714	0.422	22,068
Child has shoes	**0.292** (5.011)	**0.275** (5.159)	**0.351** (5.405)	0.130	0.138	0.726	0.449	22,089
Child has a blanket	**0.107** (4.226)	**0.112** (4.944)	**0.118** (5.890)	0.320	0.559	0.961	0.833	22,090
Child has two sets of clothing	**0.067** (3.389)	0.035 (1.733)	**0.064** (4.838)	**0.030**	0.637	0.981	0.910	22,078

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 material needs met" indicator across the survey waves to help interpret these impact estimates. The proportion of treatment children with all material needs met jumped from 11% to 61% after 24 months, and then increased in subsequent rounds but at a much slower rate. This indicator also increased steadily for control households between baseline and the 36-months survey round, but then started to flatten out by the 48-month round, at 29 percentage points lower than the treatment group.

Figure 9.2



We investigate differential impacts on the "all needs met" outcome by gender, household size, and age group.[21] Separate regressions show significant impacts across all age groups (see Annex 5), so treatment households seem to be spending on material well-being for all household children regardless of their age. Although the point estimates of separate regressions suggested that the program's effect was larger for children ages 5–7 and 11–14 than for children 8–10 and 15–17, we did not find any statistically significant difference in impacts between age groups when running a joint regression and testing differences between impact coefficients for each age group at the 48-month wave.[22] This result was also the case when we tested heterogeneous impacts by gender. CGP impact on the "all needs met" indicator are the same for both females and males.

[21] We have split the sample into four different age groups: 5–7, 8–10, 11–14, and 15–17 years. The rationale for these age groups is explained in the following subsection on Education and Labor Outcomes.
[22] We did find some heterogeneous impacts in previous waves: At the 24-month follow-up, CGP impact on children ages 15–17 was 15 percentage points lower than on kids ages 5–7; and at the 36-month follow-up, the program's impact on kids ages 8–10 was 14 percentage points lower than on children ages 5–7.

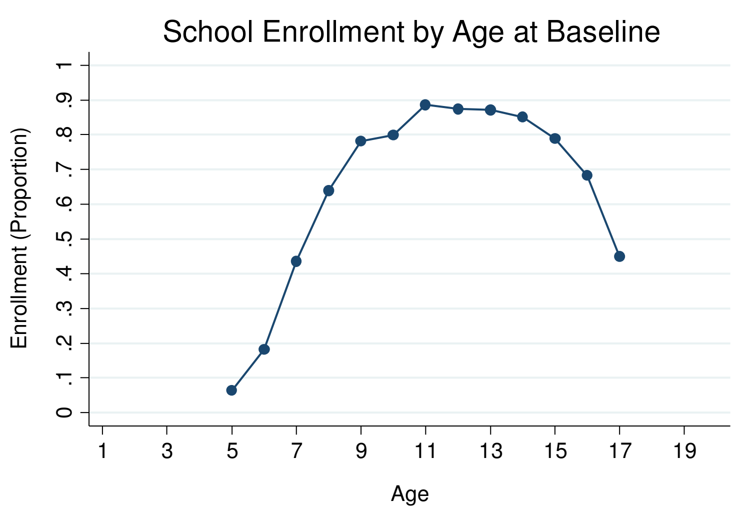
Education and Labor Outcomes

All previous reports have investigated CGP impacts on education and labor by dividing the sample of older children into two age groups: 7–14 and 15–17. However, for the 48-month report, we considered additional evidence on how to better split the sample by age when investigating program impacts.

First, we took into account the structure of the Zambian education system to shed light on how it may affect children in different ages differently. According to their age, children are either facing an education threshold level, such as the end of middle basic or end of primary, or are in intermediate school years. Depending on whether children are facing an education threshold level, incentives for school dropout may be different, and so the space for the CGP to improve schooling outcomes may vary. In this sense, it is interesting to investigate differential impacts taking into account such thresholds.

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) – which comprises 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 (to receive a 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 dropout occurs. Figure 9.3 below shows that ages 11–13 are the turning point at which school enrollment starts decreasing.

Figure 9.3



Second, because the impact of the CGP on schooling also depends on the income elasticity of the demand for schooling, we took into account Handa et al.'s (2014)[23] analysis of the ex-ante (prior to CGP) income elasticity of schooling decisions of CGP households. According to their results, the income elasticity of the demand for schooling is positive[24] for the age groups 4–7 and 11–14. Interestingly, the latter age group is precisely the one in which we see the turning point in school enrollment at baseline. Their results suggest that CGP has the potential to either support on-time school enrollment for children ages 4–7 or to prevent dropout among children ages 11–14.

Taking into account the Handa et al. (2014) findings as well as the structure of the Zambian education system, the rest of this section will investigate CGP impacts on schooling and labor for children of four different age groups: 4–7, 8–10, 11–14, and 15–17.

Children Ages 4–7

At the 48-month follow-up, we do not find any impacts on education for children 4–7 years old. There are no heterogeneous impacts of the program on education by gender and household size for this age group at the 48-month follow-up. This result is consistent with the results from previous waves.

At the 24-month wave, there were heterogeneous impacts by household size in the attendance indicators. It seemed that small households were driving the impact because indicators were significant and larger for small households than for larger households (Annex 5), and impact on days in attendance continued to be positive and significant until the 36-month follow-up.

Table 9.2: Comparison of CGP Impacts on Child Education by Wave, Ages 4–7

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Currently enrolled in school	0.029 (0.947)	0.015 (0.665)	0.050 (1.974)	0.400	0.179	0.212	0.192	10,454
Full attendance in prior week	-0.014 (-0.219)	0.015 (0.247)	**0.121** (2.742)	**0.040**	0.790	0.776	0.801	1,785
Days in attendance in prior week	0.081 (0.771)	0.085 (0.812)	**0.244** (2.137)	0.340	0.727	0.772	0.747	10,207

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

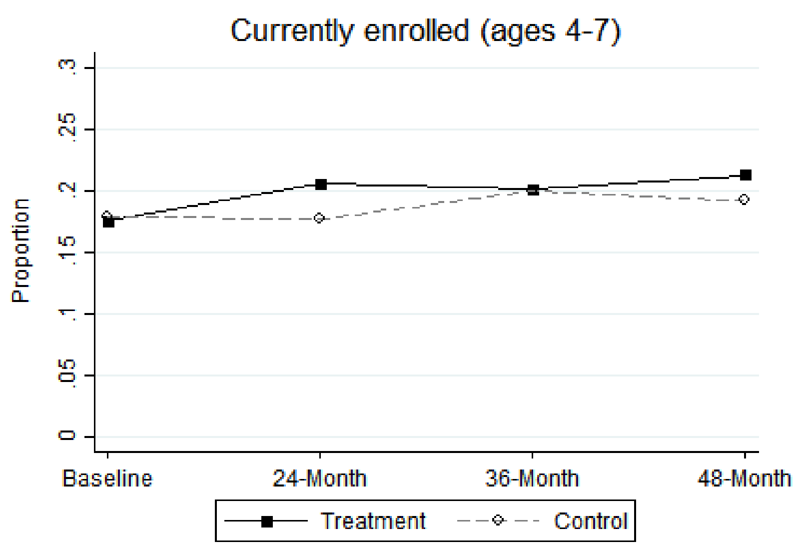
[23] Handa, S., Natali, L., Seidenfeld, D., Tembo, G., & Zambia Cash Transfer Evaluation Team. (2014). *The impact of Zambia's unconditional child grant on schooling and work: Results from a large-scale social experiment*.
[24] This means that changes in income (such as a cash transfer) may increase school enrollment or prevent school dropout for children in those age groups.

Table 9.3: Comparison of CGP Impacts on Child Education by Wave, Ages 4–7 (Small HH Size)

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	48M Mean C (7)	*N*
Currently enrolled in school	0.016	0.055	0.066	0.350	0.160	0.185	0.195	4,392
	(0.452)	(1.569)	(1.877)					
Full attendance in prior week	0.102	0.142	**0.170**	0.480	0.808	0.764	0.793	694
	(1.154)	(1.686)	(2.196)					
Days in attendance in prior week	0.109	**0.298**	**0.396**	0.090	0.669	0.673	0.784	4,291
	(0.903)	(2.224)	(2.486)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 9.4



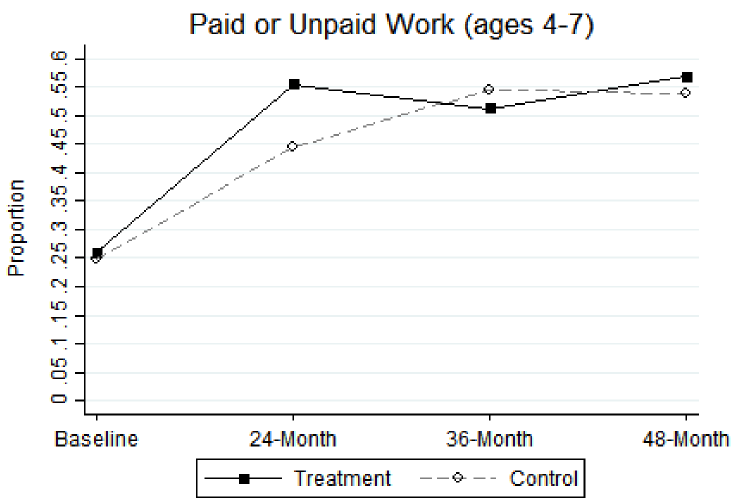
There are no impacts of CGP on child labor for children between 5 and 7 years old at 48 months. Child labor has increased for both control and treatment groups from baseline to the 48-month follow-up. While 25% of children were engaged in labor activities at baseline, at 48 months 57% of children in the treatment group and 55% in the control group participate in paid or unpaid work. Since participation in paid work is almost nonexistent at lower ages (0.05% of sample – 3 children), children have increased their participation in unpaid work, which mainly corresponds to domestic chores and agricultural labor.

Table 9.4: Comparison of CGP Impacts on Child Labor by Wave, Ages 5–7

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Paid or unpaid work	0.033	-0.042	0.118	**0.020**	0.248	0.573	0.546	7,349
	(0.413)	(-0.637)	(1.687)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 8–10

There is no impact of the program for ages 8–10 on enrollment, full attendance, and days in attendance in prior week. School enrollment and days in attendance have increased for both groups with respect to the baseline mean.

This lack of impact on enrollment is expected as the income elasticity of schooling for this age group 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 dropout more appealing.

At 48 months, the CGP has no impacts on child labor. Although control and treatment children have increased their labor participation—which mainly corresponds to unpaid labor as only 0.6% of the sample does paid work—hours spent in unpaid labor have diminished. More importantly, children 8-10 years old average about 6.5 hours per week of labour, which is well below the 28 hours a week benchmark used to define child labour.

Table 9.5: Comparison of CGP Impacts on Child Education by Wave, Ages 8–10

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	48M Mean C (7)	*N*
Currently enrolled in school	0.034	0.016	-0.009	0.390	0.729	0.837	0.775	5,705
	(1.032)	(0.469)	(-0.258)					
Full attendance in prior week	0.032	0.082	0.098	0.220	0.812	0.738	0.750	4,471
	(0.613)	(1.655)	(1.986)					
Days in attendance in prior week	0.183	0.267	0.163	0.760	3.306	3.664	3.427	5,664
	(0.818)	(1.310)	(0.817)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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: Comparison of CGP Impacts on Child Labor by Wave, Ages 8–10

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	48M Mean C (7)	*N*
Paid or unpaid work	0.060	-0.010	**0.090**	0.060	0.586	0.896	0.862	5,664
	(1.507)	(-0.186)	(2.648)					
Any paid work last two weeks	-0.003	-0.000	-0.002	0.620	0.009	0.004	0.010	5,655
	(-1.087)	(-0.070)	(-0.702)					
# unpaid hrs L2 weeks	-0.764	-0.783	-1.909	0.740	20.535	14.207	13.316	4,498
	(-0.242)	(-0.247)	(-0.560)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 ages 11–14, the CGP increases school enrollment by 5.6 percentage points at 48-month follow-up, and by 5.0 percentage points at 36-month follow-up.[25] Figure 9.6 shows that both control and treatment children increased their enrollment rates at 24 months. However, this

[25] According to coefficient tests, we cannot reject that these magnitudes are statistically equal.

trend was reversed for the control group for subsequent survey rounds (36 and 48 months) so that at the 48-month follow-up there is a lower percentage of control children enrolled in school than there was at baseline. The story for treatment children is the opposite because the CGP has been successful not only in increasing their school enrollment with respect to baseline—especially for the 24-month and 36-month waves—but also in preventing the dropout experienced by the control group. Impact estimates were not statistically different between males and females.

We did not investigate this age group in previous reports; however, as shown in Table 9.7, positive schooling effects for children 11–14 years old started to occur at 36 months. A possible explanation for why we see impacts on schooling for this age group starting at the 36th month wave and not previously is because households at very low levels of consumption will first spend almost all of their income on basic needs: food, clothing, and shelter. Once immediate basic needs are met, and possibly after a period of time, the influx of new cash may trigger other household economic decisions such as freeing up older children to attend school or incurring school-related expenditures. The amount of time needed for households to be able to invest in second-order needs such as sending older children to school is context-specific.

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 RCT evaluations of unconditional cash transfers suggest that these programs benefit schooling outcomes; however, impacts seem to be different by age group and gender.

Miller et al. (2012)[26] estimated that Malawi's social cash transfer scheme increases school enrollment for children ages 6–18 by 5 percentage points. When looking at disaggregated results by gender and age group, the program's impact is only significant for boys between 16–18 years old. Follow-up data was collected approximately after 1 year of program implementation. Robertson et al. (2013)[27] evaluated an unconditional cash transfer in Zimbabwe for which baseline data was collected in 2009 and follow-up occurred 2 years later. The authors found the program increases the probability of attending school at least 80% 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)[28] found no impacts on enrollment after 12 months of implementation of an unconditional cash transfer in Burkina Faso, but they did find impacts on enrollment for children ages 7–15 at the 24-month follow-up. According to their results, the impact appears to be present for boys but not for girls.

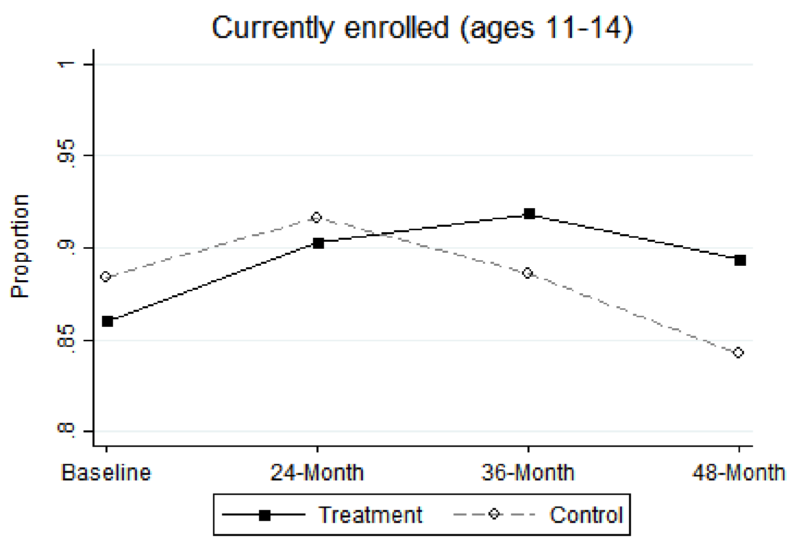
[26] Miller, C., & Tsoka, M. (2012). Cash transfers and children's education and labour among Malawi's poor. *Development Policy Review, 30*(4), 499–522.
[27] Robertson, L., Mushati, P., Eaton, J. W., Dumba, L., Mavise, G., Makoni, J., et al. (2013). Effects of unconditional and conditional cash transfers on child health and development in Zimbabwe: A cluster-randomised trial. *The Lancet, 381*(9874), 1283–1292.
[28] Akresh, R., de Walque, D., & Kazianga, H. (2013, January 1). *Cash transfers and child schooling: Evidence from a randomized evaluation of the role of conditionality*. (World Bank Policy Research Working Paper No. 6340). Washington, DC: World Bank.

Table 9.7: Comparison of CGP Impacts on Child Education by Wave, Ages 11–14

Dependent Variable	48M Impact	36M Impact	24M Impact	Test (1)=(2)=(3)	Baseline Mean	48M Mean		*N*
						T	C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Currently enrolled in school	**0.056**	**0.050**	0.011	**0.040**	0.884	0.894	0.842	5,886
	(2.708)	(2.702)	(0.476)					
Full attendance in prior week	-0.053	-0.009	0.023	0.360	0.757	0.742	0.754	5,153
	(-1.000)	(-0.178)	(0.527)					
Days in attendance in prior week	0.274	0.283	0.182	0.780	3.909	3.921	3.721	5,794
	(1.295)	(1.639)	(1.003)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 9.6



With regard to labor outcomes, the program increases the probability of participating in any work by 4.8 percentage points after 48 months of implementation. This impact is driven by participation in unpaid work since just 2.7% of the sample in this age range does any paid work—32 individuals at the 48-month follow-up. Although increased labor is potentially problematic, the program has no impact on the number of hours that children spend performing unpaid/paid activities. Also, children in this age range average about 9 hours of work per week (both treatment and control) which is well under the 28 hours a week benchmark used to define child labour. Thus, the program increased the number of children in this age range participating in unpaid work but did not affect the amount of time spent conducting the work and the amount of time is well under the benchmark used to define child labour.

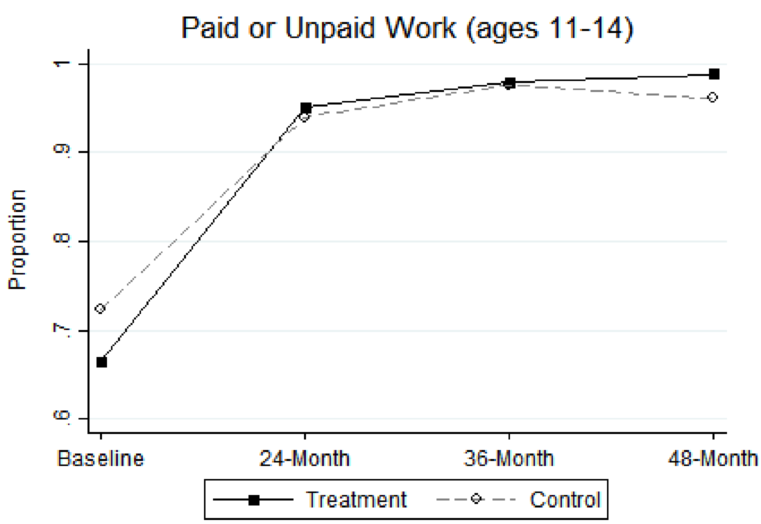
Separate regressions for females and males suggest that CGP's impact on paid/unpaid labor participation was driven by males for the 36-months results but that we were not able to statistically differentiate impacts between both genders for the 48-month follow-up.[29]

Table 9.8: Comparison of CGP Impacts on Child Labor by Wave, Ages 11–14

Dependent Variable	48M Impact	36M Impact	24M Impact	Test (1)=(2)=(3)	Baseline Mean	48M Mean T	48M Mean C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	*N*
Paid or unpaid work	**0.048**	0.024	0.026	0.070	0.724	0.988	0.960	5,839
	(3.263)	(1.205)	(1.464)					
Any paid work last two weeks	-0.011	-0.014	**-0.017**	0.620	0.039	0.017	0.020	5,829
	(-1.058)	(-1.257)	(-2.286)					
# unpaid hrs L2 weeks	0.411	-1.692	-2.513	0.270	22.566	18.709	17.193	5,280
	(0.116)	(-0.458)	(-0.634)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 9.7



[29] Also, when running a joint regression for females and males and testing coefficient differences between genders, we were able to conclude that at the 36-month follow-up, males tend to have a larger impact than females. Moreover, impact for girls was, on average, negative.

Table 9.9: Comparison of CGP Impacts on Child Labor by Wave, Ages 11–14, Females

Dependent Variable	48M Impact	36M Impact	24M Impact	Test (1)=(2)=(3)	Baseline Mean	48M Mean		*N*
						T	C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Paid or unpaid work	0.032	-0.002	0.011	0.280	0.695	0.985	0.965	2,965
	(1.628)	(-0.081)	(0.514)					
Any paid work last two weeks	-0.011	**-0.022**	-0.012	0.190	0.045	0.020	0.026	2,960
	(-1.191)	(-2.497)	(-1.640)					
# unpaid hrs L2 weeks	1.046	-1.150	-0.529	0.400	22.857	18.998	17.989	2,689
	(0.314)	(-0.315)	(-0.141)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 9.10: Comparison of CGP Impacts on Child Labor by Wave, Ages 11–14, Males

Dependent Variable	48M Impact	36M Impact	24M Impact	Test (1)=(2)=(3)	Baseline Mean	48M Mean		*N*
						T	C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Paid or unpaid work	**0.056**	**0.042**	0.031	0.090	0.752	0.990	0.955	2,874
	(3.275)	(2.306)	(1.636)					
Any paid work last two weeks	-0.007	-0.000	**-0.017**	0.140	0.034	0.015	0.014	2,869
	(-0.480)	(-0.016)	(-2.009)					
# unpaid hrs L2 weeks	-0.120	-2.205	-4.550	0.210	22.300	18.417	16.337	2,591
	(-0.028)	(-0.510)	(-0.966)					

NOTE. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 are either transitioning into middle basic (age 11) or transitioning into secondary (ages 13–14); therefore, they are facing threshold levels in which significant dropout usually occurs (as previously shown in Figure 9.6). There are several reasons for why dropout increases at these ages. From the supply side, there are financial barriers such as secondary school fees and expenditures for uniforms,[30] shoes, and books. From the demand side, the opportunity cost of them 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. Therefore, there are at least two possible ways in which CGP can impact schooling outcomes: by covering the cost of freeing adolescent labor or by enabling beneficiary households to pay for school-related expenditures. Regarding the former, as we reported previously, there

[30] "Although uniforms and shoes are not compulsory at primary level, there is a social stigma attached to not owning these items—even at primary level." Handa et al. (2014), p. 6.

has not been an impact of the program on the number of unpaid labor hours; thus this may not be the channel at work. However, the program does have a positive impact on school-related expenditures, particularly on uniforms and books.

Beneficiary households with children ages 11–14 spend, on average, ZMW 5.3 more on uniforms and ZMW 2.2 more on books than control households.[31] These results, taken together with the positive impacts the program has had on material well-being—especially need for shoes—are consistent with the hypothesis that CGP allows families to overcome out-of-pocket costs of school attendance.

Table 9.11: CGP Impacts on Education Expenditures, Ages 11–14 (in ZMW)

Dependent Variable	48M Impact	36M Impact	24M Impact	Test (1)=(2)=(3)	Baseline Mean	48M Mean T	48M Mean C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	*N*
Total	**8.280**	**7.006**	**8.403**	0.930	18.922	35.796	30.538	5,166
	(2.330)	(2.179)	(2.910)					
Fees	0.451	2.186	1.512	0.760	4.959	5.472	6.665	5,204
	(0.194)	(1.193)	(0.945)					
Uniforms	**5.315**	**4.061**	**5.976**	0.590	7.129	15.044	10.743	5,204
	(2.871)	(2.187)	(4.045)					
Books	**2.177**	1.278	0.093	**0.030**	4.792	10.458	8.710	5,204
	(3.080)	(1.508)	(0.122)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 15–17

Because we are seeing CGP impacts on schooling for children ages 11–14, it would be interesting to know whether such positive effects continue through secondary school. However, we continue to find no significant impacts on either schooling or labor for children ages 15–17. Nonetheless, it is important to note that our ability to detect any impacts for this age group is constrained by the sample size. Given the demographic profile of eligible households, just over 11% of children of school age are in this age range, which is less than half of the sample size that we have for children 11–14. In particular, for the 48-month follow-up, we have 1,699 children ages 11–14 while we only have 871 children ages 15–17. Therefore, this study is not powered to detect effects for this subgroup of beneficiaries.

[31] Significance is maintained when using the logarithm of expenditures.

Table 9.12: Comparison of CGP Impacts on Child Education by Wave, Ages 15–17

Dependent Variable	48M Impact	36M Impact	24M Impact	Test (1)=(2)=(3)	Baseline Mean	48M Mean		N
						T	C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Currently enrolled in school	-0.032	-0.031	-0.049	0.910	0.596	0.721	0.665	2,959
	(-0.615)	(-0.611)	(-0.960)					
Full attendance in prior week	-0.063	-0.001	-0.029	0.510	0.777	0.803	0.829	2,026
	(-0.817)	(-0.019)	(-0.530)					
Days in attendance in prior week	-0.353	0.009	-0.243	0.320	2.576	3.041	2.954	2,812
	(-1.208)	(0.036)	(-1.012)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 9.13: Comparison of CGP Impacts on Child Labor by Wave, Ages 15–17

Dependent Variable	48M Impact	36M Impact	24M Impact	Test (1)=(2)=(3)	Baseline Mean	48M Mean		
						T	C	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	N
Paid or unpaid work	0.032	0.022	0.014	0.520	0.832	0.976	0.957	2,903
	(1.844)	(1.035)	(0.674)					
Any paid work last two weeks	-0.028	-0.041	-0.033	0.770	0.106	0.062	0.083	2,898
	(-1.149)	(-1.732)	(-1.420)					
# unpaid hrs L2 weeks	-0.505	-2.428	-2.862	0.550	25.932	22.346	20.107	2,671
	(-0.117)	(-0.548)	(-0.638)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

Summary of Impacts on Older Children (ages 5-17)

Consistent with previous waves, at 48 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.

We do not find any impacts at 48 months for children in age groups 4–7, 8–10, and 15–17 on school enrollment and attendance. However, we do find that for children ages 11–14, CGP increases school enrollment by 5.6 percentage points at the 48-month follow-up. This positive result has been present since the 36-month follow-up, when the program impact was 5.0 percentage points. By comparing the school enrollment trends of beneficiary children with control children, we find that CGP is successful not only in increasing school enrollment with respect to baseline—especially for the 24-month and 36-month waves—but also in preventing the dropout experienced by the control group.

Economic theory suggests that an income transfer, such as the CGP, can impact schooling outcomes by enabling beneficiary households to pay for school-related expenditures. Further analyses of education expenditures show that beneficiary households with children ages 11–14 spend, on average, ZMW 5.3 more on uniforms and ZMW 2.2 more on books than do control households. These results, taken together with the positive impacts the program has had on material needs —especially need for shoes—are consistent with the hypothesis that CGP allows families to overcome out-of-pocket costs of school attendance.

Overall, we do not find program impacts on participation and number of hour spent in unpaid/paid work for children above age 5. 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. Women

Although the CGP is targeted toward children under age 5, there is potential for CGP impacts on women-level outcomes because cash is given primarily to women. Impacts depend on factors such as power relations in households and individual characteristics of women, including how future looking they are in determining consumption patterns (see Annex 1: Conceptual Framework). The following section explores trends and the impact of CGP on bargaining power as proxied by household decision making indicators, savings, future outlook, women's health, perceived stress, and fertility-related outcomes. In addition, we analyze program impacts on opinions of violence and alcohol use in the community to investigate potential negative spillover effects of transfers.

Bargaining Power

To explore bargaining power among sample households, we asked decision making questions across nine domains: (a) children's health, (b) children's schooling, (c) spending of own income, (d) spending of partner's income, (e) major household purchases, (f) daily household purchases, (g) spending on children's clothes and shoes, (h) visits to family and relatives, and (i) own health.[32] These questions were asked of one woman per household (typically a mother or caregiver of a target child), and they allowed the respondent to answer whether a decision is typically made by herself, by her partner, jointly, or by someone else in the household. The same woman was targeted throughout the baseline, 24-month, 36-month, and 48-month surveys; however, if she was no longer in the household or unable to be interviewed, she could be replaced by another woman in the household who met the interviewing criteria. Routinely collected in the DHS and other large-scale surveys, these types of decision making questions are widely used as a proxy for women's empowerment.

To explore impacts, we construct two indicators for each decision making domain. First, we construct a binary indicator if a woman indicates sole decision making power over the domain. Second, we construct a binary indicator if a woman indicates she has sole or joint decision making power over the domain. In addition, we construct two composite measures representing the count or summation of the decision making domains: in the first, giving 1 point for each domain over which the woman reports having sole decision making power, and in the second, summing across the domains over which the woman reports sole or joint decision making power (range from 0 to 9).[33]

Results indicate that the program has no measurable impact on any of the sole decision making domains, within the 24-, 36-, or 48-month impact framework. Women's sole decision means were higher in the treatment group at 48 months than the baseline means in four domains (children's schooling, own income, daily purchases, children's clothes and shoes, and own health) and lower in three domains (children's health, partner's income, and major purchases). At

[32] Because some decisions are not applicable to all women, individual decision making domains have different sample sizes. For example, not all women work for wages or income, and thus there is no decision made around spending of her own income.
[33] Results are robust to use of a more sophisticated composite measure constructed by factor analysis, which weights indicators differently on the basis of their variation within the sample and correlation between each other.

48 months, mean values among treatment women for these domains range from a low of 12% for decisions on partner's income to a high of 69% for decisions on woman's own health. Table 10.1 shows results for indicators of sole decision making by domain. Mean values at baseline for these indicators range from a low of 37% for decisions on partner's income to a high of approximately 55% for decisions on children's health and 53% for decisions on own health.

Table 10.1: Effects on Women's Sole Decision Making by Domain

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	48M Mean C (7)	*N*
Children's health	-0.013	-0.015	0.016	0.780	0.552	0.538	0.544	9,649
	(-0.295)	(-0.384)	(0.326)					
Children's schooling	0.026	-0.005	0.019	0.690	0.430	0.445	0.429	9,646
	(0.473)	(-0.114)	(0.457)					
Own income	0.044	-0.051	-0.021	**0.040**	0.406	0.478	0.454	8,949
	(0.931)	(-1.410)	(-0.545)					
Partner's income	0.014	0.034	0.034	0.860	0.372	0.118	0.121	7,488
	(0.480)	(0.768)	(1.220)					
Major purchases	0.006	0.011	0.022	0.920	0.411	0.306	0.321	9,644
	(0.153)	(0.282)	(0.543)					
Daily purchases	0.018	-0.062	0.011	0.120	0.477	0.651	0.629	9,647
	(0.352)	(-1.534)	(0.248)					
Children's clothes or shoes	0.037	-0.009	0.024	0.640	0.439	0.511	0.481	9,648
	(0.723)	(-0.219)	(0.487)					
Family visits	0.001	0.065	0.033	0.320	0.399	0.401	0.408	9,646
	(0.020)	(1.481)	(0.646)					
Own health	0.021	0.014	0.054	0.420	0.525	0.692	0.661	9,646
	(0.480)	(0.273)	(1.316)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 10.2 shows parallel results for women's indicators of sole or joint decision making. The means for these indicators ranged from a low of 57% for decisions on partner's income to a high of 71% for decisions on children's health at baseline. Means were still substantially higher at 48 months as compared with baseline, particularly for decisions on woman's own income and health and daily purchases. Treatment women's means on these indicators ranged from a low of 62% for decisions on partner's income to a high of 92% for daily purchases at 48 months. Impact results show that while there are significant impacts on these joint measures found at the 36-month panel on decisions regarding own and partner income, major purchases, and family visits, impacts on all domains except partner's income had dissipated.

Table 10.2: Effects on Women's Sole or Joint Decision Making by Domain

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Children's health	-0.018	0.040	0.007	0.390	0.712	0.857	0.875	9,649
	(-0.493)	(1.218)	(0.194)					
Children's schooling	0.035	0.046	0.025	0.910	0.605	0.788	0.757	9,646
	(0.743)	(0.999)	(0.601)					
Own income	0.023	**0.088**	0.017	0.080	0.603	0.883	0.875	8,949
	(0.604)	(3.013)	(0.478)					
Partner's income	0.005	**0.151**	0.069	**0.000**	0.573	0.615	0.633	7,488
	(0.105)	(3.552)	(1.292)					
Major purchases	-0.042	**0.084**	0.019	**0.000**	0.611	0.660	0.718	9,644
	(-0.961)	(2.208)	(0.438)					
Daily purchases	0.007	0.004	0.012	0.970	0.654	0.919	0.913	9,647
	(0.216)	(0.154)	(0.441)					
Children's clothes or shoes	0.006	0.034	0.021	0.710	0.632	0.882	0.877	9,648
	(0.176)	(1.284)	(0.652)					
Family visits	-0.016	**0.087**	0.049	0.130	0.585	0.737	0.758	9,646
	(-0.332)	(2.144)	(1.024)					
Own health	-0.002	0.002	0.034	0.370	0.641	0.883	0.882	9,646
	(-0.060)	(0.056)	(1.125)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

Average levels of sole decision making decreased slightly from 3.79 at baseline to 3.23 (i.e., less than one half of a dimension) at follow-up among treatment women. Conversely, the average number of sole or joint decisions increased among treatment women from 5.5 at baseline to 7.0 at follow-up. Consistent with the 36-month impact findings, the composite indicators as well as the domain indicators show that, overall, women in both program and control communities are trending toward making more joint and sole decisions. Further, at 48 months, treatment women appear to be making more sole decisions than at 36 months (with the exception of own income and partner's income). Although we see significant program impacts on 36-month measures of sole or joint decision making, these are not seen in the 48-month survey. Given that recent reviews of decision making and women's empowerment have demonstrated few large impacts on women's decision making or bargaining power, even in programs that were designed to explicitly empower women, our overall lack of measureable impact on the decision making indicators are not unexpected.[34, 35] However, it is unclear why program impacts on the joint and sole decision making indicator found at 36 months may have dissipated by 48 months. Further in-depth analysis is currently being conducted on the decision making indicators, utilizing additional information collected in the 48-month follow-up, refined modeling, as well as planned qualitative work in June 2015, to answer these questions. Table 10.3 shows results for the composite decision making indicators for sole as well as sole and joint decision making.

Table 10.3: Effects on Composite Measures of Women's Sole and/or Joint Decision Making

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Count of sole decision making	0.323 (1.039)	-0.130 (-0.540)	0.280 (1.080)	0.150	3.790	3.232	2.871	7,176
Count of sole or joint decision making	-0.006 (-0.018)	**0.644** (2.135)	0.402 (1.088)	**0.050**	5.507	6.958	7.021	7,176

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

Savings and Future Outlook

We investigate indicators of savings and future outlook as reported by the main female respondents for each household. Results indicate that at baseline approximately 16% of households had done any saving in the previous 3 months, and this increased to 36% of treatment households at 48 months. As a result of the program, treatment households were 14.7 percentage points more likely to have any savings in the previous 3 months, and this impact is consistent with findings from 24 and 36 months (though impacts did not reach traditional significance levels at 36 months). Further, when we examine the amount of savings, we see strong program impacts across all three follow-up periods. The percentage of women reporting that they often or always think about the future when spending money increased from 49% at baseline to 71% among treatment women at 48 months; however, increases in this particular outcome were not attributable to the program. When we examine future outlook, we find upward trends in beliefs that life will be better in 1, 2, and 3 years; however, the only significant program impacts are on 3-year expectations after 24 months (but not at later waves). Table 10.4 shows the results of these analyses.

[34] Doss, C. (2013). Intrahousehold bargaining and resource allocation in developing countries. *World Bank Research Observer, 28*(1).

[35] van den Bold, M., Quisumbing, A., & Gillespie, S. (2013). *Women's empowerment and nutrition: An evidence review* (Discussion Paper No. 01294). Washington, DC: International Food Policy Research Institute.

Table 10.4: Effects on Women's Savings and Future Expectations, Main Respondents Only

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Any savings previous 3 months	**0.147** (2.686)	0.098 (1.806)	**0.226** (3.944)	**0.050**	0.156	0.363	0.199	9,691
Log amount saved last month	**0.812** (4.384)	**0.575** (3.331)	**1.101** (6.051)	**0.020**	0.598	1.695	0.827	9,677
Thinks of future when spending often/always	0.055 (0.833)	0.075 (1.051)	0.093 (1.404)	0.700	0.490	0.712	0.646	9,619
Believes life will be better in 1 year	0.106 (1.487)	**0.168** (2.413)	**0.133** (2.190)	0.340	0.530	0.597	0.515	9,680
Believes life will be better in 2 years	0.089 (1.694)	0.060 (1.230)	0.076 (1.721)	0.790	0.554	0.758	0.672	9,680
Believes life will be better in 3 years	0.076 (1.970)	0.059 (1.732)	**0.106** (3.247)	0.200	0.617	0.848	0.772	9,678

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

Women's Health

Health outcomes for women age 18 and older that we investigated included morbidity in the previous 2 weeks, chronic illness in the previous 6 months, and care seeking among those who reported being sick in the previous 2 weeks. At baseline, 16% of women reported having been sick in the last 2 weeks, and approximately 71% of those who were sick sought care. At 48 months, fewer women (10%) in the treatment group reported having been sick in the last 2 weeks; however, the proportion reporting care seeking remained the same. At baseline, only 3% of women reported having been chronically ill in the last 6 months, and this decreased to 2% at 48 months. Despite positive trends over the 48-month period, there are no program impacts on any of these health outcomes. Table 10.5 shows the estimated impacts for these indicators.

Table 10.5: Effects on Women's General Health, Ages 18 and Older

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Sick last 2 weeks	-0.009 (-0.509)	-0.017 (-0.877)	-0.014 (-0.673)	0.860	0.157	0.098	0.111	9,951
Consult	0.083 (1.119)	0.122 (1.598)	0.018 (0.219)	0.390	0.714	0.705	0.669	1,053
Chronically ill 3 of last 12 months	0.007 (0.783)	-0.004 (-0.734)	0.005 (0.783)	0.070	0.033	0.021	0.017	9,951

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

Next we examined program impacts on women's fertility and related outcomes. It is hypothesized that cash transfers may have impacts on fertility through a range of pathways, but the expected impacts are ambiguous. On the one hand, policymakers often worry that an unintended consequence of cash transfer programs targeted to families with children may be that women have more children either to qualify for the program or maintain eligibility. On the other hand, cash transfers may empower women to achieve their ideal family size by increasing ability to access modern methods of contraceptives or increasing their ability to negotiate family size with their partner. Data from Zambian DHS indicates that more than one in four women aged above 35 years had more than her ideal number of children, indicating unmet need for contraception and gaps in achieving ideal family size.[36] In addition, evidence indicates that men in Zambia have higher ideal family sizes as compared with women. At 24, 36, and 48 months (fertility data were not collected at baseline), we examined program impacts on the following outcomes among all women in the sample ages 18–49 (as reported by the main household respondent): (a) total number of children ever born alive (including those who later died); (b) whether the woman was currently pregnant; (c) had ever been pregnant; or (d) ever had a miscarriage, abortion, or stillbirth. Results presented in Table 10.6 indicate that after 48 months, there were no differences between treatment and control women on any total number of children and pregnancy (current or lifetime). The average number of children ever born to treatment women by 48 months was 4.06. Approximately 7% of treatment and control women were pregnant at the time of the 48-month survey, and 93% and 94% of treatment and control women, respectively, had ever been pregnant. After 24 months, treatment women had fewer children but were more likely to be currently pregnant. Although we cannot say conclusively, this may reflect an increased ability to delay or space births. After 36 months, treatment women in the sample

[36] Upadhyay, U. D., & Karasek, D. (2012). Women's empowerment and ideal family size: An examination of DHS empowerment measures in sub-Saharan Africa. *International Perspectives on Sexual and Reproductive Health*, 78–89.

were still less likely to have ever been pregnant compared with control women, but these impacts disappeared at 48 months, at which time treatment women were less likely to have reported a miscarriage, abortion, or stillbirth. Further analysis is currently being conducted on fertility outcomes with refined modeling, as well as planned qualitative work in June 2015 to provide a more in-depth understanding of how the program may have impacted fertility. From the analysis here and further ongoing quantitative analysis, we find no evidence that the program leads to an overall increase in fertility.

Table 10.6: Effects on Women's Fertility Outcomes, Ages 18–49

Dependent Variable	48-Month Impact (1)	36-Month Impact (2)	24-Month Impact (3)	48M Treatment Mean (5)	48M Control Mean (4)	*N*
Total #children ever born alive	0.022	-0.066	**-0.137**	4.061	4.017	2,411
	(0.276)	(-0.910)	(-1.993)			
Currently pregnant	-0.000	0.004	**0.029**	0.069	0.068	2,408
	(-0.025)	(0.339)	(2.141)			
Ever pregnant	0.008	**-0.020**	**-0.025**	0.933	0.937	2,411
	(0.924)	(-2.348)	(-2.023)			
Ever miscarried, aborted, had stillbirth	**-0.023**	0.001	-0.027	0.078	0.101	2,409
	(-2.169)	(0.051)	(-1.785)			

Note. Estimations use cross-sectional probit models (marginal effects reported) for binary outcomes and ordinary least squares for continuous outcome with a treatment indicator, and marginal effects are reported. Robust *z* and *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.

At 36 and 48 months, we included questions on stress using the validated Cohen Perceived Stress Scale (PSS).[37] If cash transfers are able to alleviate some stress related to procuring food and other household needs, 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.[38, 39, 40] This means that reductions in stress may have long-term implications for health and well-being. At 48 months, 38% and 45% of women in treatment and control groups, respectively, reported high levels of stress (defined as top third of Perceived Stress Scale distribution). The means of a six-item summation scale were 15.8 and 16.3 among treatment and

[37] Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior,* 385–396

[38] Dowd, J. B., & Aiello, A. E. Immunosenescence: Psychosocial and Behavioral Determinants. In: Bosch JA, Phillips AC, Lord JM, editors. New York: Springer; 2012.

[39] Glaser, R., & Kiecolt-Glaser, J. K. Stress-induced immune dysfunction: Implications for health. (2005). *Nature Reviews Immunology, 5*(3):243–51.

[40] Kiecolt-Glaser, J. K., & Glaser, R. (2001). Stress and immunity: Age enhances the risks. *Current Directions in Psychological Science, 10*(1), 18–21.

control groups, respectively (possible range 0–30). Although the coefficient is in the expected direction, we find that the program did not have an impact on perceived levels of stress.

Table 10.7: Effects on Women's Perceived Stress, Main Respondents Only

Dependent Variable	36-Month Impact (1)	48-Month Impact (2)	48 M Control Mean (3)	48 M Treatment Mean (4)	*N*
Perceived Stress Scale	0.124	-0.701	16.305	15.815	2,300
	(0.369)	(-1.549)			
High perceived stress	-0.003	-0.067	0.447	0.378	2,300
	(-0.091)	(-1.581)			

Note. Estimations use cross-sectional probit models with a treatment indicator, and marginal effects are reported. Robust z 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.

Finally, we measured women's perceptions of problems in their villages surrounding intimate partner violence (domestic violence) and alcohol consumption. We asked main respondents whether they agreed or disagreed with the following statements: (a) domestic violence is common in their village; (b) domestic violence has increased in their village over the past year; (c) alcohol consumption is common in the village; and (d) alcohol consumption has 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 39% and 42% of treatment and control women, respectively, agreed/strongly agreed that domestic violence was common; and 68 and 73% of treatment and control women, respectively, agreed/strongly agreed that alcohol consumption was common. Approximately 35% of treatment women and 41% of control women believed that domestic violence increased over the past year. Further, a majority of women reported that alcohol consumption increased in the last year (59% and 63% of treatment and control women, respectively). There were no program impacts on any of these perceptions. Results from these analyses are presented in Table 10.8. 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.

Table 10.8: Effects on Women's Perceptions of Community Problems, Main Respondents Only, 48 Months

Dependent Variable	48-Month Impact (1)	48M Treatment Mean (3)	48M Control Mean (2)	*N*
Agree/strongly agrees domestic violence common in village	-0.027 (-0.986)	0.394	0.419	2,402
Strongly agrees domestic violence common in village	-0.019 (-1.019)	0.113	0.149	2,402
Believes domestic violence increased over last year in village	-0.047 (-1.423)	0.346	0.409	2,404
Believes alcohol consumption common	-0.047 (-1.511)	0.680	0.725	2,406
Believes alcohol consumption increased last year	-0.036 (-0.907)	0.585	0.631	2,404

Note. Estimations use cross-sectional probit models with a treatment indicator, and marginal effects are reported. Robust *z* 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.

XI. Birth Outcomes

The CGP may also impact health care utilization at birth, including quality and quantity of antenatal care (ANC) and skilled attendance at birth through pathways such as direct health care spending or reallocation of resources through increases in women's bargaining power. We examine a range of health care utilization outcomes, for children born in the 15 months prior to the baseline and 24-month follow-up and 12 months prior to the 36- and 48-month follow-up. These cut points ensure that mothers giving birth to children during the panel period would have received the transfer for all 9 months of her pregnancy, and that births are not double counted for two rounds. Since the CGP initially targets women and households with children under age 5, the baseline sample is larger as compared with the subsequent waves.

We examine seven indicators of ANC: (a) any skilled ANC (with doctor or nurse), (b) ANC within the first trimester, (c) at least four ANC visits, (d) tetanus vaccination during ANC, (e) malaria prevention during ANC, (f) voluntary counseling and testing (VCT) for HIV, and (g) an indicator of high quality of ANC (received services related to tetanus, malaria, and VCT during ANC). We do not analyze any ANC (skilled or unskilled), as this percentage is approaching 99% in our sample. In addition, we analyze skilled attendance at birth (with doctor or nurse).

We find no significant impacts across all ANC and skilled attendance indicators. For several indicators, including tetanus vaccination and malaria prevention, it is unlikely we would observe impacts, due to high baseline averages (more than 90%). Despite the lack of impacts, there are several trends that are worth discussing. Approximately 75% of the baseline sample report any ANC with a doctor or a nurse, and only 25% report the first visit within the first trimester of pregnancy. By 48 months, 81% of treatment women reported receiving antenatal care from a doctor or nurse; however, the percentage of treatment women reporting antenatal care within the first trimester decreased from 25% at baseline to 20% at 48 months. Only 40% of births at baseline were attended by a doctor or a nurse, and this increased to 46% among treatment women; large increases were also seen in the control group (54% skilled attendance at birth). Lack of findings may reflect a number of issues: (a) constraints in supply of some services (e.g., skilled care) or access to health facilities; (b) high baseline performance on some of the measures such as malaria prevention and tetanus vaccination, which leaves little room for improvement attributable to the program; and (c) low sample sizes (i.e., new births) in the 36- and 48-month rounds with which to identify impacts. Table 11.1 shows the results of our analysis. Despite the lack of impacts summarized here, a more in-depth analysis of program impacts in the first 24 months of the program did in fact find positive program impacts on skilled attendance of birth among women living in communities with access to higher quality health care services,[41] and this speaks to the need for complementary supply-side investment and interventions.

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[41] Handa, S., Peterman, A., Seidenfeld, D., & Tembo, G. (2015). Income transfers and maternal health: Evidence from a national randomized social cash transfer program in Zambia. *Health Economics*. Published online ahead of print 9 January 2015.

Table 11.1: Effects on Health Care Utilization at Birth (Among Children 0–15 Months)

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Received antenatal care from doctor or nurse	0.060 (0.740)	0.060 (0.615)	0.016 (0.245)	0.870	0.746	0.814	0.795	2,314
Antenatal care within first trimester	-0.051 (-0.717)	0.099 (0.975)	0.027 (0.662)	0.340	0.251	0.200	0.244	2,314
At least four antenatal care visits	-0.109 (-1.222)	0.037 (0.378)	-0.090 (-1.316)	0.380	0.655	0.455	0.577	2,314
Tetanus vaccination during pregnancy	0.018 (0.650)	0.046 (1.477)	0.014 (0.495)	0.610	0.913	0.910	0.872	2,314
Malaria preventative medication during pregnancy	-0.009 (-0.420)	0.015 (0.530)	0.028 (1.482)	0.230	0.929	0.931	0.929	2,314
VCT during pregnancy	-0.033 (-0.756)	-0.062 (-0.937)	0.032 (1.009)	0.230	0.849	0.855	0.885	2,314
Quality of antenatal care: received VCT, tetanus vaccination and malaria prevention	-0.008 (-0.156)	-0.034 (-0.483)	0.046 (1.189)	0.500	0.767	0.807	0.801	2,314
Birth attended by doctor or nurse	0.017 (0.225)	0.098 (0.772)	0.065 (1.298)	0.790	0.398	0.464	0.544	2,313

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

XII. Discussion and Conclusion

We find that the CGP consistently produces large effects on the primary needs of households after 48 months of implementation. Beneficiary households continue to be much more food secure, eat more diversified diets, and live in improved housing with better access to latrines and mosquito nets; and their children have more access to shoes, blankets, and a change of clothing. In addition to improving their condition on these basic necessities, beneficiary households also improved their economic condition with reduced debt, greater agricultural production, and increased nonfarm enterprise activities. Thus, the program continues to be both protective and productive for beneficiary households.

Perhaps the most impressive aspect of the effects of the program is that they aggregate to a value greater than the transfer size and generate much more than expected. 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. Thus, the beneficiaries use the transfer effectively and efficiently to produce results across many domains whose combined value is greater than the size of the transfer.

We provide an estimate of this total impact of the CGP in Table 12.1 by aggregating the different consumption and nonconsumption expenditures and increases in income to the household. The estimates are derived from the econometric results presented in this and previous reports and only consider statistically significant impacts. Where multiple impact estimates are available (for different years), we average them. All figures are annualized in 2010 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 ZMK660 (the value of the transfer was ZMK55 in 2010), while the sum total of spending impacts that we can track and observe in our data is ZMK986, implying a multiplier of 1.49.[42] This is significantly larger than the multiplier for beneficiaries simulated by the FAO through the local economy model.[43]

[42] 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.

[43] The differences in results are due to the different methodologies employed by the local economy study and our estimates. The estimates provided here are actual estimated impacts from observed data on beneficiary households, while the FAO model is a simulation that focuses on the interaction between supply and demand of goods in local markets.

Table 12.1: Multiplier Effect of CGP (2010 ZMK – Annual)

Annual value of transfer	**660**
Expenditure	
Savings	61
Loan repayment	27
Consumption	800
Livestock	48
Productive tools	50
Total spending (consumption + non consumption)	986
Estimated expenditure multiplier	1.49

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.

Unconditional cash transfer programs such as the Child Grant 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. The multiplier effect of 1.49 appears to put to rest the concern that transfers are a "handout." These multiplier effects, of course, are derived from underlying investments into productive activities that yield extra income to the household. The increase of income comes from "nontraditional" sources, non-farm enterprise, which itself provides an additional insurance against agricultural shocks by allowing for diversified income sources. Far from inducing dependency, the CGP has thus allowed households to become more productive and ultimately increase their total expenditure by an amount greater than the transfer itself.

We note that in no survey did we ever find an increase in alcohol or tobacco consumption as a result of the program. Most of the consumption effect of the program goes to food, and in fact allows households to increase their diet diversity by adding more protein to it. A final concern that policymakers might have is that a program targeted to families with children under age 5 might lead to increases in fertility in order to remain eligible for the program. Table 10.6 of this report shows that there are no effects of the CGP on fertility. Indeed, an important benefit of such a long evaluation period is that we are more likely to find effects on fertility if they existed, thus making this result even more robust. All in all, the CGP evaluation demonstrates that many of the common criticisms of unconditional cash transfers are simply not true in Zambia.

Yet there is a limit to the extent of effects that the program can produce, due to factors that are beyond the control of the program itself—namely, the supply of social services and infrastructure such as education, health care, and access to clean water. As a result, the CGP does not have a consistent positive impact on these domains. This lack of services is particularly the case for health and child nutrition. Our health facility survey conducted at baseline illustrated the low quality of health services in the study communities, and subsequent impact estimates show inconsistent effects on use of services, morbidity, and nutrition. It is not surprising then that the main impacts of the program occur in domains that are more in the beneficiaries' control, such as buying food, clothing, shelter, fertilizer, and labor, and items that do not rely on public service support.

We also see that program impacts persist at 24, 36, and 48 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 4 years. Yet the program still demonstrated large impacts above and beyond the general improvement occurring in the country.

Putting the CGP 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 with low attrition 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 CGP evaluation can.

The CGP evaluation is also special for a cash transfer evaluation in that it maintains one of the largest longitudinal samples of children who started in the study under age 3. All 2,500 households in the sample had at least one child under age 3 at baseline, with new children born into the sample each year. The first 1,000 days of life are considered the most critical and formative period for child development. This study contains detailed data on thousands of children who started under age 3 at baseline as well as children born into the study during the 4-year period. In addition to data on these children, we collected detailed information about their households, creating one of the richest and most detailed longitudinal data sets of young children and their environment for rural households in Zambia and Africa.

Additionally, this study followed everyone in the sample for 4 years, with five rounds of data: at baseline, 24 months, 30 months, 36 months, and 48 months after program implementation—making it one of the longest longitudinal studies of a cash transfer program in the world, especially for an RCT. There are many benefits to the multiple waves of data collection extending over 4 years, including the ability to (a) examine the effects of the program on fertility (with no evidence found that the program incentivized having more children—one concern about a child grant program) and (b) 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 child morbidity and malnutrition. Not surprisingly, these districts are located in the most remote parts of Zambia, along the DRC and Angola border, 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 and poor conditions for young children at baseline mean that there is a lot of potential for the program to have effects, potential that might not be there if the program were implemented in less poor areas where children 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 three in this study. More research is needed on the types of impacts that the CGP can produce in areas with better services and greater access to them. Additionally, the evaluation occurred during a time period when Zambia's economy experienced above average growth that affected many poor households in positive ways. The improvement of the control group over time across most indicators demonstrates the positive affects of the economy. The CGP demonstrates impacts above the growth of the economy (the economy effects are controlled for by the randomized design of the study). It is possible that we would observe larger impacts of the program across many domains related, especially those related to poverty and food security, if the study occurred during a period when the economy was not experiencing such a large boom. Thus we believe the effects of the CGP in this report represent the lower bound of potential programmatic impacts.

In closing, it is worth reminding readers that although this represents the last official evaluation report for the CGP impact evaluation, the data collected under this study can provide a wealth of information about detailed, sector-specific behavioral impacts and pathways that are yet to be explored through the evaluation reports because of 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: Conceptual Framework

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

Figure A1.1 brings together these ideas into a conceptual framework that shows how the CGP can affect household activity, the causal pathways involved, and the potential moderator and mediator factors. The diagram is read from left to right. We expect a direct effect of the cash transfer on household consumption (food security, material well-being), on the use of services, and possibly even on productive activity after some time. Sociological and economic theories of human behavior suggest that the impact of the cash may work through several mechanisms (mediators), including a woman's bargaining power within the household (because the woman receives the cash directly) and the degree to which the woman receiving the cash is forward looking. Similarly, the impact of the cash transfer may be weaker or stronger depending on local conditions in the community. These moderators include access to markets and other services, prices of goods and services, and shocks. Moderating effects are shown with dotted lines that intersect with the solid lines to indicate that they can influence the strength of the direct effect.[44]

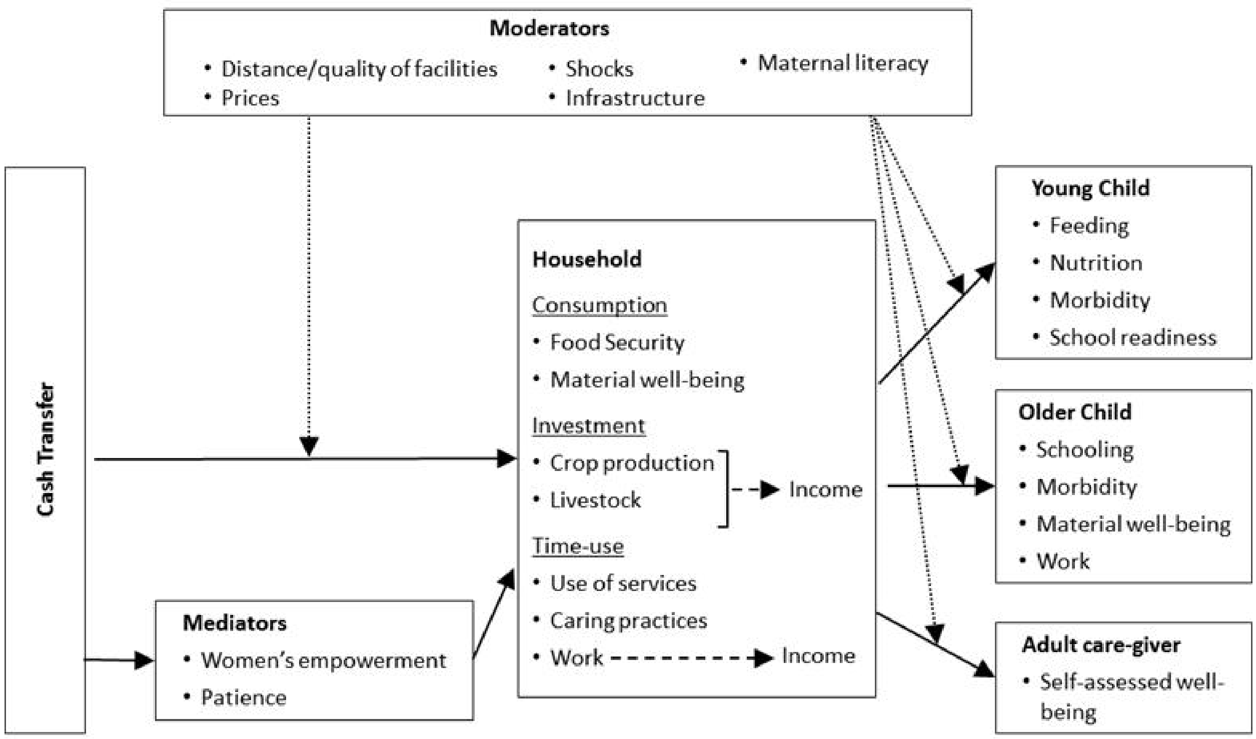
The next step in the causal chain is the effect on children, which we separate into effects on older and younger children because of the program's focus on very young children and because the key indicators of welfare are different for the two age groups. It is important to recognize that any potential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

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

for moderation versus mediation through established statistical techniques,[45] and this information will be important to help us understand the actual impact of the program on behavior.

Figure A1.1 identifies some of the key indicators along the causal chain that we analyze in the evaluation of the CGP. These are consistent with the log frame of the project and are all measured using established items in existing national sample surveys such as the Living Conditions Monitoring Survey (LCMS) and the Zambia Demographic and Health Survey (ZDHS). The only exception is the school readiness indicator, which is a relatively new index developed by UNICEF to be rolled out as part of its global Multiple Indicators Cluster Surveys (MICS) Program.

Figure A1.1 Conceptual Framework for Impact Evaluation of Child Grant Program

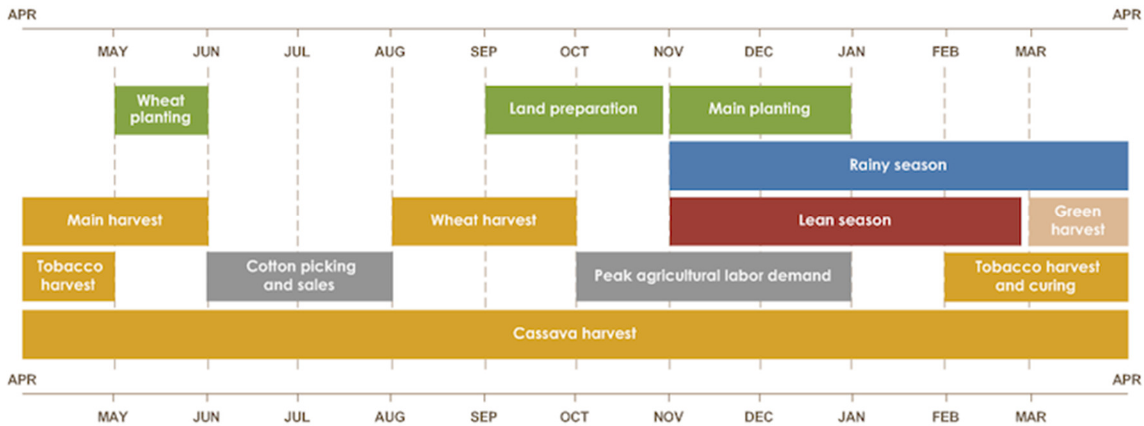


We expect the effects of the program on some outcomes to depend on the time of year because lifestyle in the rural Zambian villages varies by the farming season, including how people spend their time and how much money they have available. The average subsistence farmer in rural Zambia has the fewest resources and food security in the lean season, from November to March, and the greatest amount of food and resources during the harvest season in May and June. Figure A1.2 shows the seasonal agricultural calendar with planting, rain, lean season, and harvest season. We expect a smaller difference in consumption and food security between beneficiaries and the control group during the harvest season than during the lean season because the control group members have food from their harvest. Therefore, we may not see programmatic impacts

[45] 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.

to food-related outcomes during the harvest time. Similarly, we may observe smaller impacts to items such as clothing and shoes, because this is the time of year when farmers have some money from the harvest and purchase necessities. Instead, we are more likely to observe impacts for more expensive items, such as assets or livestock.

Figure A1.2: Seasonal Agricultural Calendar for a Typical Year in Zambia



Source: http://www.fews.net/southern-africa/zambia [FEWS Net—Family Early Warning System Net]

Annex 2: Difference-in-Differences Estimation

The statistical approach we take to derive average treatment effects of the CGP is the difference-in-differences (DD) estimator. This method entails calculating the change in an indicator (Y), such as food consumption, between baseline and follow-up periods for treatment and comparison group units and comparing the magnitude of these changes.

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 only on the basis of 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 treatment and control groups. For example, if the treatment group changes its preference for schooling over time but the control group does not, then we would attribute a greater increase in schooling in the treatment group to the program rather than to this unobserved time-varying change in characteristic. In practice, the random assignment to treatment and control groups is the geographical proximity of the samples, and the rather short duration between pre- and postintervention measurements will make this assumption quite reasonable.

Table A2.1 illustrates how the estimate of differences in differences between treatment (T) and control (C) groups is computed. The top row shows the baseline and postintervention values of the indicator (Y), and the last cell in that row depicts the change or difference in the value of the outcome for T units. The second row shows the value of the indicator at baseline and postintervention for comparison group units, and the last cell illustrates the change or difference in the value of this indicator over time. The difference between these two differences (treatment vs. control), shown in the shaded cell in Table A2.1, is the difference-in-differences or double-difference estimator.

Table A2.1: The Difference-in-Differences (DD) Estimator (Post = 24-Month Follow-Up)

	Baseline (2010)	Post (2012)	1st difference
Treatment (T)	Y^T_0	Y^T_{24}	$\Delta Y^T_{24}=(Y^T_{24}-Y^T_0)$
Comparison (C)	Y^C_0	Y^C_{24}	$\Delta Y^C_{24}=(Y^C_{24}-Y^C_0)$
			Difference in differences DD_{24} = $(\Delta Y^T_{24} - \Delta Y^C_{24})$

A convenient way to implement the DD methodology is through an ordinary least squares regression. In particular, the DD estimator presented in Table A1.1 can be specified as follows:

$$Y_{i,g,wave} = \alpha_{24} + \beta_{1,24} * d_{g=Treat} + \beta_{2,24} * d_{wave=24} + \beta_{3,24} * d_{g=Treat} * d_{wave=24} + \varepsilon_{i,g,wave}$$

where

- $d_{g=Treat}$ is an indicator variable equal to 1 if observation ***i*** belongs to the treatment condition and equal to zero otherwise;
- $d_{wave=24}$ is an indicator variable equal to 1 if observation ***i*** belongs to the 24-month wave and equal to zero for a variable measured at baseline (i.e., 2010); and
- $\beta_{3,24}$ is equivalent to DD_{24} in Table A2.1, the effect of the program after 24 months of being implemented.

The differences in differences estimator can also be applied to different follow-up waves to estimate the effects of the program at a given point in time. That is, instead of using the 24-month follow-up as in Figure A2.1, we can use data from the 30-month wave collected in 2013 to estimate CGP impacts at the harvest season. Table A2.2 presents DD impact estimation at the 30-month wave (i.e., $DD_{30} = \Delta Y^{T}_{30} - \Delta Y^{C}_{30}$), which essentially differences out the average change in the outcome between the 30-month and baseline waves for both the treatment (i.e., ΔY^{T}_{30}) and control groups (i.e., ΔY^{c}_{30}).

Table A2.2: The Difference-in-Differences (DD) Estimator (Post = 30-Month Follow-Up)

	Baseline (2010)	Post (2013)	1st difference
Treatment (T)	Y^{T}_{0}	Y^{T}_{30}	$\Delta Y^{T}_{30}=(Y^{T}_{30}-Y^{T}_{0})$
Comparison (C)	Y^{C}_{0}	Y^{C}_{30}	$\Delta Y^{C}_{30}=(Y^{C}_{30}-Y^{C}_{0})$
			Difference in differences DD_{30} = ($\Delta Y^{T}_{30} - \Delta Y^{C}_{30}$)

Note that the DD_{30} can also be estimated using the following linear regression framework:

$$Y_{i,g,wave} = \alpha_{30} + \beta_{1,30} * d_{g=Treat} + \beta_{2,30} * d_{wave=30} + \beta_{3,30} * d_{g=Treat} * d_{wave=30} + \varepsilon_{i,g,wave}$$

where

- $d_{g=Treat}$ is an indicator variable equal to 1 if observation ***i*** belongs to the treatment condition and equal to zero otherwise;
- $d_{wave=30}$ is an indicator variable equal to 1 if observation ***i*** belongs to the 30-month wave and equal to zero for a variable measured at baseline (i.e., 2010); and
- $\beta_{3,30}$ is equivalent to DD_{30} in Figure A1.2, the effect of the program after 30 months of being implemented.

Note also that both DD_{24} and DD_{30} can be estimated simultaneously using a combined linear regression specified as follows:

$$Y_{i,g,wave} = \alpha + \beta_1 * d_{g=Treat} + \beta_{2,24} * d_{wave=24} + \beta_{2,30} * d_{wave=30} + \beta_{3,24} * d_{g=Treat} * d_{wave=24} + \beta_{3,30} * d_{g=Treat} * d_{wave=30} + \varepsilon_{i,g,wave}$$

where

- $\beta_{3,24}$ is equivalent to DD_{24} in Figure A1.1 and
- $\beta_{3,30}$ is equivalent to DD_{30} in Figure A1.2.

This last specification is the one used throughout this report to estimate the effects of the program. The combined specification allows us to test for differential impacts of the program between the 24- and 30-month waves by testing whether $\beta_{3,24} = \beta_{3,30}$.

Note also that one of the advantages of using a linear regression specification is the ability to control for other determinants of the outcomes of interest in order to obtain program impacts that are more precisely estimated. For example, when estimating outcomes at the household level, such as food expenditures, we control for household size, recipient's age, education and marital status, district fixed effects, household demographic composition, and a vector of cluster-level prices.

Annex 3: Mean Differences at Baseline for Attrition Analysis

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

Variable	Control Mean	N1	Treatment Mean	N2	T–C Diff	Diff SE	*p* value	Effect Size
Household size	5.614	1,226	5.771	1,197	0.157	0.177	0.377	0.074
Number of children ages 0–5	1.919	1,226	1.893	1,197	-0.026	0.055	0.635	-0.034
Distance to food market	24.715	859	19.936	824	-4.779	5.924	0.422	-0.149
Distance to health facility	14.088	1,177	14.665	1,153	0.577	2.641	0.828	0.025
Yes/no whether household was affected by drought	0.053	1,226	0.049	1,197	-0.004	0.020	0.852	-0.017
Yes/no whether household was affected by flood	0.074	1,226	0.033	1,197	-0.041	0.027	0.134	-0.180
Yes/no whether household was affected by any shocks	0.192	1,226	0.179	1,197	-0.013	0.060	0.830	-0.033

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

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

Variable	Control Mean	N1	Treatment Mean	N2	T–C Diff	Diff SE	*p* value	Effect Size
Exp_food_pc	29,348.151	1,226	30,539.369	1,197	1,191.218	2,237.249	0.596	0.045
Exp_foodshare_pc	0.718	1,226	0.719	1,196	0.000	0.013	0.975	0.003
Cereal_share	0.312	1,226	0.345	1,194	0.033	0.039	0.400	0.127
Roots_tubers_share	0.171	1,226	0.152	1,194	-0.019	0.035	0.593	-0.083
Pulses_legumes_share	0.029	1,226	0.028	1,194	-0.001	0.005	0.799	-0.019
Fruits_vegetables_share	0.227	1,226	0.207	1,194	-0.020	0.017	0.238	-0.112
Meat_poultry_fish_share	0.174	1,226	0.183	1,194	0.009	0.012	0.470	0.054
Total household expenditure per person in the household	39,529.721	1,226	41,085.240	1,197	1,555.519	2,644.386	0.558	0.048
Food security scale	15.394	1,207	15.031	1,173	-0.364	0.575	0.529	-0.064

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

Table A3.3: Individual-Level Control Comparisons (Control vs. Treatment for Respondent Households)

	Control		Treatment		T–C	Diff	*p*-value	Effect
Variable	Mean	N1	Mean	N2	Diff	SE		Size
Person's age in months	26.627	2,058	26.155	2,005	-0.473	0.438	0.283	-0.030
Female	0.500	2,058	0.524	2,005	0.025	0.015	0.113	0.049
BCG, a vaccination against tuberculosis	0.960	2,033	0.960	1,972	0.000	0.007	0.970	0.001
Oral polio vaccine (OPV)	0.957	2,032	0.951	1,966	-0.007	0.008	0.425	-0.031
DPT	0.945	2,028	0.945	1,960	0.000	0.009	0.989	0.001

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

Table A3.4: Individual-Level Outcome Comparisons (Control vs. Treatment for Respondents)

	Control		Treatment		T–C	Diff	*p*-value	Effect
Variable	Mean	N1	Mean	N2	Diff	SE		Size
Weight in kilograms. for children 0–3 months	11.770	1,977	11.699	1,912	-0.071	0.325	0.828	-0.008
Height in centimetres. [for children 0-3 months	80.243	1,863	78.809	1,800	-1.434	1.151	0.216	-0.076
Has [name] received a vitamin a dose in the last 6 months?	0.758	1,726	0.803	1,680	0.045	0.032	0.168	0.109
Has [name] had diarrhea in the past 2 weeks?	0.177	2,030	0.203	1,967	0.026	0.021	0.226	0.066
Has [name] been ill with fever in the last 2 weeks?	0.231	2,042	0.240	1,983	0.009	0.030	0.755	0.022

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

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

Variable	Control Mean	Control N1	Treatment Mean	Treatment N2	T–C Diff	Diff SE	*p*-value	Effect Size
Child's Height-for-Age: *z* score (according to WHO)	-1.421	1,726	-1.415	1,624	0.006	0.085	0.943	0.004
Child's Weight-for-Age: *z* score (according to WHO)	-0.881	1,940	-0.933	1,862	-0.051	0.060	0.392	-0.040
Child's Weight-for-Height: *z* score (according to WHO)	-0.152	1,722	-0.194	1,621	-0.043	0.061	0.485	-0.034

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

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

Variable	Control Mean	Control N1	Treatment Mean	Treatment N2	T–C Diff	Diff SE	*p*-value	Effect Size
Development Scale 1—played with items	1.466	962	1.493	873	0.027	0.066	0.686	0.034
Care scale—family engagement activities	2.453	962	2.210	873	-0.244	0.172	0.159	-0.112
Development Scale 2—various skills/behaviors	4.036	962	4.087	873	0.051	0.161	0.754	0.024

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

Table A3.7: Older Child (Ages 5–17) Characteristics at Baseline (Control vs. Treatment for Respondent Households)

	Control		Treatment		T–C	Diff	*p-value*	Effect
Variable	Mean	N1	Mean	N2	Diff	SE		Size
Female	0.492	2,360	0.517	2,393	0.025	0.016	0.121	0.049
Morph	0.071	2,360	0.082	2,393	0.012	0.017	0.498	0.043
Porph	0.156	2,360	0.173	2,393	0.016	0.022	0.472	0.044
OVC	0.200	2,360	0.222	2,393	0.022	0.027	0.427	0.054
Mneed	0.777	2,360	0.766	2,393	-0.011	0.037	0.770	-0.026
1 if ever enrolled in school	0.639	2,344	0.652	2,379	0.013	0.022	0.562	0.027
1 if currently enrolled in school	0.579	2,344	0.588	2,379	0.010	0.023	0.675	0.019
1 if full attendance in prior week	0.783	1,322	0.799	1,347	0.016	0.029	0.590	0.039
1 if paid or unpaid work	0.529	2,323	0.507	2,332	-0.022	0.040	0.580	-0.044
# unpaid hrs L2 weeks	20.927	1,210	22.544	1,151	1.617	2.886	0.577	0.074

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

Table A3.8: Household-Level Control Comparisons (Full Sample vs. Remaining Sample at 48-Month Follow-Up)

	Full Sample		Remaining Sample		Mean	Diff		Effect
Variable	Mean	N1	Mean	N2	Diff	SE	*p-value*	Size
Household size	5.697	2,518	5.692	2,423	-0.005	0.009	0.592	-0.002
Number of children ages 0–5	1.903	2,518	1.906	2,423	0.003	0.003	0.373	0.004
Distance to food market	22.176	1,756	22.376	1,683	0.200	0.187	0.290	0.006
Distance to health facility	14.171	2,421	14.373	2,330	**0.202**	**0.084**	**0.018**	**0.009**
Yes/no whether household was affected by drought	0.050	2,518	0.051	2,423	0.001	0.001	0.283	0.003
Yes/no whether household was affected by flood	0.054	2,518	0.054	2,423	0.000	0.001	0.940	0.000
Yes/no whether household was affected by any shocks	0.186	2,518	0.185	2,423	-0.001	0.002	0.741	-0.001

Note. 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 A3.9: Household-Level Outcome Comparisons (Full Sample vs. Remaining Sample at 48-Month Follow-Up)

	Full Sample		Remaining Sample		Mean	Diff		Effect
Variable	**Mean**	**N1**	**Mean**	**N2**	**Diff**	**SE**	***p-value***	**Size**
Exp_food_pc	30,044.459	2,518	29,936.631	2,423	-107.828	121.971	0.379	-0.004
Exp_foodshare_pc	0.719	2,517	0.719	2,422	-0.000	0.001	0.387	-0.003
Cereal_share	0.326	2,515	0.328	2,420	0.002	0.001	0.064	0.007
Roots_tubers_share	0.161	2,515	0.161	2,420	-0.000	0.001	0.932	-0.000
Pulses_legumes_share	0.029	2,515	0.029	2,420	0.000	0.000	0.918	0.000
Fruits_vegetables_share	0.217	2,515	0.217	2,420	-0.000	0.001	0.493	-0.002
Meat_poultry_fish_share	0.179	2,515	0.179	2,420	-0.000	0.001	0.552	-0.002
Total household expenditure per person in the household	40,442.636	2,518	40,298.172	2,423	-144.464	156.621	0.359	-0.004
Food Security scale	15.145	2,474	15.215	2,380	**0.070**	**0.028**	**0.015**	**0.012**

Note. 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 A3.10: Individual-Level Control Comparisons (Full Sample vs. Remaining Sample at 48-Month Follow-Up)

	Full Sample		Remaining Sample		Mean	Diff		Effect
Variable	**Mean**	**N1**	**Mean**	**N2**	**Diff**	**SE**	***p-value***	**Size**
Person's age in months	26.437	4,215	26.394	4,063	-0.043	0.032	0.185	-0.003
Female	0.510	4,215	0.512	4,063	0.001	0.002	0.397	0.003
Highest grade level the primary care giver completed or is currently enrolled	5.468	3,015	5.461	2,901	-0.007	0.016	0.664	-0.003
BCG, a vaccination against tuberculosis	0.960	4,152	0.960	4,005	-0.000	0.000	0.340	-0.002
Oral polio vaccine (OPV)	0.955	4,145	0.954	3,998	**-0.001**	**0.000**	**0.005**	**-0.006**
DPT	0.946	4,135	0.945	3,988	**-0.001**	**0.000**	**0.011**	**-0.005**

Note. 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 A3.11: Individual-Level Outcome Comparisons (Full Sample vs. Remaining Sample at 48-Month Follow-Up)

	Full Sample		Remaining Sample		Mean	Diff		Effect
Variable	Mean	N1	Mean	N2	Diff	SE	*p-value*	Size
Weight in kilograms. for children 0–3 months copy birth weig	11.766	4,037	11.735	3,889	-0.031	0.039	0.422	-0.003
Height in centimetres. [for children 0–3 months]	79.550	3,803	79.539	3,663	-0.012	0.070	0.868	-0.001
Has [name] received a vitamin a dose in the last 6 months?	0.779	3,539	0.780	3,406	0.001	0.002	0.510	0.003
Has [name] had diarrhea in the past 2 weeks?	0.189	4,148	0.190	3,997	0.000	0.001	0.893	0.000
Has [name] been ill with fever in the last 2 weeks?	0.234	4,175	0.235	4,025	0.001	0.001	0.582	0.002

Note. 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 A3.12: Children Under Age 5 Anthropometrics (Full Sample vs. Sample Remaining at 48-Month Follow-Up)

	Full Sample		Remaining Sample		Mean	Diff		Effect
Variable	Mean	N1	Mean	N2	Diff	SE	*p-value*	Size
Child's height-for-age: *z* score (according to WHO)	-1.419	3,479	-1.418	3,350	0.001	0.006	0.801	0.001
Child's weight-for-age: *z* score (according to WHO)	-0.908	3,946	-0.907	3,802	0.001	0.005	0.760	0.001
Child's weight-for-height: *z* score (according to WHO)	-0.172	3,470	-0.172	3,343	0.000	0.004	0.982	0.000

Note. 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 A3.13: Children (Ages 3–7) Development Scores (Full Sample vs. Sample Remaining at 48-Month Follow-Up)

	Full Sample		Remaining Sample		Mean	Diff		Effect
Variable	**Mean**	**N1**	**Mean**	**N2**	**Diff**	**SE**	***p-value***	**Size**
Development Scale 1—played with items	1.475	1,909	1.478	1,835	0.004	0.004	0.272	0.005
Care scale—family engagement activities	2.332	1,909	2.337	1,835	0.005	0.011	0.648	0.002
Development Scale 2—various skills/behaviors	4.056	1,909	4.060	1,835	0.004	0.010	0.653	0.002

Note. 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 A3.14: Older Child (Ages 5–17) Characteristics at Baseline (Full Sample vs. Sample Remaining at 48-Month Follow-Up)

	Full Sample		Remaining Sample		Mean	Diff		Effect
Variable	**Mean**	**N1**	**Mean**	**N2**	**Diff**	**SE**	***p-value***	**Size**
Person's age in years	9.715	4,949	9.717	4,753	0.001	0.008	0.877	0.000
Female	0.504	4,949	0.504	4,753	0.000	0.001	0.899	0.000
Morph	0.078	4,949	0.077	4,753	-0.001	0.001	0.262	-0.005
Porph	0.165	4,949	0.165	4,753	-0.001	0.001	0.697	-0.001
OVC	0.212	4,949	0.211	4,753	-0.001	0.001	0.717	-0.001
Mneed	0.774	4,949	0.772	4,753	-0.002	0.002	0.251	-0.005
1 if ever enrolled in school	0.645	4,919	0.645	4,723	0.000	0.001	0.949	0.000
1 if currently enrolled in school	0.584	4,919	0.584	4,723	-0.000	0.002	0.836	-0.001
1 if full attendance in prior week	0.791	2,782	0.791	2,669	-0.000	0.002	0.909	-0.001
1 if paid or unpaid work	0.519	4,849	0.518	4,655	-0.000	0.002	0.887	-0.001
# unpaid hrs L2 weeks	21.595	2,462	21.715	2,361	0.120	0.109	0.275	0.005

Note. 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 4: Young Children

Table A4.1: Impacts on Anthropometrics by High Satisfaction of Child Health and Well-Being at 48 Months (Treatment)

Dependent Variable	48M Impact	Baseline Mean	48M Mean		
			High	Low	*N*
	(1)	(2)	(3)	(4)	(5)
Height-for-age *z* score	0.110 (0.895)	-1.373	-1.327	-1.449	6,538
Weight-for-height *z* score	-0.052 (-0.502)	-0.201	0.103	0.121	4,575
Weight-for-age *z* score	0.047 (0.544)	-0.853	-0.785	-0.898	8,996
Stunted	-0.055 (-1.818)	0.306	0.303	0.332	6,538
Wasted	0.019 (1.343)	0.056	0.071	0.061	4,575
Underweight	-0.002 (-0.071)	0.140	0.144	0.144	8,996

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 age and gender of child, household size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices. Children who had extreme changes in height for age *z* scores (greater than absolute 2.25 over 2 years or greater than absolute 1.75 over 1 year) were removed from the sample in all height-related indicators (height-for-age, weight-for-age, stunting, and wasting). "High" satisfaction includes all children in households that caretakers that are above the 50th percentile on the Satisfaction Scale (>20). "Low" includes all children in households that caretakers that are equal or less than the 50th percentile on the Satisfaction Scale (<=20). *Under 5 years only; other indicators are for children ages 0–9.

Table A4.2: Impacts on Health Outcomes by High Satisfaction of Child Health and Well-Being at 48 Months (Treatment)

Dependent Variable	48M Impact	Baseline Mean	48M Mean		
			High	Low	*N*
	(1)	(2)	(3)	(4)	(5)
Diarrhea	-0.010 (-0.405)	0.216	0.064	0.093	6,400
Fever	-0.023 (-0.787)	0.238	0.107	0.131	6,415
ARI (cough)	0.002 (0.104)	0.209	0.071	0.073	6,417
Preventive care (check-ups)	0.005 (0.130)	0.806	0.754	0.759	6,404

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 age and gender of child, household size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices. "High" satisfaction' includes all children in households with caretakers that are above the 50th percentile on the Satisfaction Scale (>20). "Low" includes all children in households that caretakers that are equal or less than the 50th percentile on the Satisfaction Scale (<=20). Child health outcomes for children under 5 years.

Table A4.3: Impacts on Anthropometrics by High Satisfaction of Child Health and Well-Being at 48 Months (Control)

Dependent Variable	48M Impact	Baseline Mean	48M Mean		
			High	Low	*N*
	(1)	(2)	(3)	(4)	(5)
Height-for-age *z* score	-0.012	-1.365	-1.369	-1.366	6,833
	(-0.139)				
Weight-for-height *z* score	0.059	-0.138	0.103	0.059	4,739
	(0.454)				
Weight-for-age *z* score	0.079	-0.824	-0.827	-0.930	9,274
	(0.985)				
Stunted	0.009	0.333	0.314	0.330	6,833
	(0.323)				
Wasted	-0.010	0.049	0.071	0.083	4,739
	(-0.754)				
Underweight	-0.010	0.143	0.136	0.151	9,274
	(-0.471)				

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 age and gender of child, household size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices. Children who had extreme changes in height for age *z* scores (greater than absolute 2.25 over 2 years or greater than absolute 1.75 over 1 year) were removed from the sample in all height related indicators (height-for-age, weight-for-age, stunting, and wasting). "High" satisfaction' includes all children in households that caretakers that are above the 50th percentile on the Satisfaction Scale (>20). "Low" includes all children in households that caretakers that are equal or less than the 50thpercentile on the Satisfaction Scale (<=20). *Under 5 years only, other indicators are for children ages 0–9.

Table A4.4: Impacts on Health Outcomes by High Satisfaction of Child Health and Well-Being at 48 Months (Control)

Dependent Variable	48M Impact	Baseline Mean	48M Mean		
			High	Low	*N*
	(1)	(2)	(3)	(4)	(5)
Diarrhea	-0.014	0.184	0.063	0.089	6,483
	(-0.733)				
Fever	0.050	0.225	0.177	0.126	6,494
	(1.337)				
ARI (cough)	-0.016	0.200	0.059	0.065	6,496
	(-0.818)				
Preventive care (check-ups)	0.073	0.775	0.681	0.628	6,451
	(1.934)				

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 age and gender of child, household size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices. 'High Satisfaction' includes all children in households that caretakers that are above the 50th%ile on the Satisfaction Scale (>20). 'Low' includes all children in households that caretakers that are equal or less than the 50th%ile on the Satisfaction Scale (<=20). Child health outcomes for children under 5 years.

Table A4.5: Impacts on Anthropometrics by Perceptions of Child Health at 48 Months (Treatment)

Dependent Variable	48M Impact	Baseline Mean	48M Mean Strongly Agree Children in Good Health	48M Mean Other	*N*
	(1)	(2)	(3)	(4)	(5)
Height-for-age *z* score	0.100	-1.375	-1.331	-1.423	6,538
	(0.862)				
Weight-for-height *z* score	0.120	-0.201	0.227	0.056	4,575
	(0.987)				
Weight-for-age *z* score	0.072	-0.861	-0.733	-0.901	8,996
	(0.771)				
Stunted	**-0.071**	0.311	0.290	0.333	6,538
	(-2.404)				
Waste	0.001	0.052	0.062	0.067	4,575
	(0.043)				
Underweight	-0.016	0.143	0.130	0.151	8,996
	(-0.738)				

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 age and gender of child, household size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices. Children who had extreme changes in height for age *z* scores (greater than absolute 2.25 over 2 years or greater than absolute 1.75 over 1 year) were removed from the sample in all height related indicators (height-for-age, weight-for-age, stunting, and wasting). 'Strongly agree' includes all children in households where caretakers 'strongly agree' their children are in good health at the 48-month follow-up. 'Other' includes all children in households where caretakers 'agree', 'neither agree nor disagree', 'disagree', or 'strongly disagree' that their children are in good health at the 48-month follow up.
*Under 5 years only, other indicators are for children ages 0–9.

Table A4.6: Impacts on Health Outcomes for Children by Perceptions of Child Health at 48 Months (Treatment)

Dependent Variable	48M Impact	Baseline Mean	48M Mean		
			Strongly Agree Children in Good Health	Other	*N*
	(1)	(2)	(3)	(4)	(5)
Diarrhea	-0.012	0.210	0.062	0.088	6,400
	(-0.472)				
Fever	-0.017	0.239	0.110	0.124	6,415
	(-0.580)				
ARI (cough)	0.032	0.219	0.078	0.069	6,417
	(1.330)				
Preventive care (check-ups)	-0.046	0.802	0.726	0.772	6,404
	(-1.318)				

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 age and gender of child, household size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices. 'Strongly agree' includes all children in households that caretakers 'strongly agree' their children are in good health at the 48 month follow up. 'Other' includes all children in households that caretakers 'agree', 'neither agree nor disagree', 'disagree', or 'strongly disagree' that their children are in good health at the 48-month follow-up. Child health outcomes for children under 5 years.

Table A4.7: Impacts on Anthropometrics by Perceptions of Child Health at 48 Months (Control)

Dependent Variable	48M Impact	Baseline Mean	48M Mean		
			Strongly Agree	Other	*N*
	(1)	(2)	(3)	(4)	(5)
Height-for-age *z* score	0.018	-1.368	-1.322	-1.380	6,838
	(0.198)				
Weight-for-height *z* score	-0.057	-0.141	0.029	0.090	4,743
	(-0.387)				
Weight-for-age *z* score	0.103	-0.828	-0.764	-0.932	9,283
	(1.181)				
Stunted	-0.026	0.323	0.300	0.331	6,838
	(-0.775)				
Wasted	0.019	0.051	0.095	0.072	4,743
	(1.211)				
Underweight	-0.012	0.144	0.124	0.152	9,283
	(-0.594)				

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 age and

gender of child, household size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices. Children who had extreme changes in height for age *z* scores (greater than absolute 2.25 over 2 years or greater than absolute 1.75 over 1) were removed from the sample in all height related indicators (height-for-age, weight-for-age, stunting, and wasting). 'Strongly agree' includes all children in households that caretakers 'strongly agree' their children are in good health at the 48-month follow-up. 'Other' includes all children in households that caretakers 'agree', 'neither agree nor disagree', 'disagree', or 'strongly disagree' that their children are in good health at the 48 month follow up.
*Under 5 years only, other indicators are for children ages 0–9.

Table A4.8: Impacts on Health Outcomes by Perceptions of Child Health at 48 Months (Control)

Dependent Variable	48M Impact	Baseline Mean	48M Mean Strongly Agree	Other	*N*
	(1)	(2)	(3)	(4)	(5)
Diarrhea	-0.029	0.181	0.051	0.088	6,491
	(-1.391)				
Fever	0.004	0.229	0.149	0.145	6,502
	(0.136)				
ARI (cough)	-0.032	0.200	0.051	0.067	6,504
	(-1.657)				
Preventive care (check-ups)	-0.023	0.769	0.614	0.663	6,459
	(-0.514)				

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 age and gender of child, household size, recipient age, education and marital status, districts, household demographic composition, and a vector of cluster-level prices. 'Strongly agree' includes all children in households that caretakers 'strongly agree' their children are in good health at the 48 month follow up. 'Other' includes all children in households that caretakers 'agree', 'neither agree nor disagree', 'disagree', or 'strongly disagree' that their children are in good health at the 48-month follow-up. Child health outcomes for children under 5 years.

Table A4.9: Impacts of Prior Height on Current Height

	Impacts on Current Height-for-Age *z* Score
Prior height-for-age *z* score	0.75
	(0.01)
Treatment	-0.02
	(0.04)
Prior height-for-age *z* score *treatment	-0.02
	(0.02)
Constant	0.03
	(0.21)
N	5,831

Note. Standard errors in parenthesis clustered at the community level. All estimations control for child age in months and gender, household size, recipient age, education and marital status, districts, household demographic composition and a vector of cluster-level prices. Bold indicates that they are significant at $p < .05$.

Annex 5: Children Over Age 5

Heterogeneous Impacts:

Material Well-Being

Table A5.1: Comparison of CGP Impacts on Material Needs by Wave, Ages 5–7

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
All needs met	**0.356**	**0.368**	**0.433**	0.300	0.085	0.672	0.363	7,350
	(5.128)	(5.610)	(5.753)					
Child has shoes	**0.327**	**0.346**	**0.413**	0.240	0.120	0.680	0.388	7,357
	(4.899)	(5.651)	(5.770)					
Child has a blanket	**0.133**	**0.155**	**0.151**	0.130	0.506	0.953	0.816	7,360
	(4.040)	(5.331)	(6.339)					
Child has two sets of clothing	**0.074**	**0.053**	**0.068**	0.550	0.631	0.975	0.898	7,356
	(3.241)	(2.387)	(3.738)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 A5.2: Comparison of CGP Impacts on Material Needs by Wave, Ages 8–10

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
All needs met	**0.273**	**0.208**	**0.363**	**0.010**	0.074	0.696	0.403	5,672
	(4.027)	(3.029)	(4.678)					
Child has shoes	**0.235**	**0.184**	**0.314**	**0.030**	0.092	0.709	0.426	5,675
	(3.649)	(2.978)	(4.218)					
Child has a blanket	**0.114**	**0.103**	**0.117**	0.370	0.563	0.961	0.814	5,676
	(3.832)	(3.831)	(5.151)					
Child has two sets of clothing	**0.077**	0.024	**0.082**	**0.000**	0.599	0.981	0.898	5,673
	(3.002)	(0.881)	(4.840)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 A5.3: Comparison of CGP Impacts on Material Needs by Wave, Ages 11–14

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
All needs met	**0.378**	**0.332**	**0.404**	0.260	0.124	0.741	0.449	5,827
	(5.127)	(4.451)	(4.881)					
Child has shoes	**0.349**	**0.315**	**0.370**	0.410	0.157	0.756	0.477	5,834
	(4.663)	(4.473)	(4.534)					
Child has a blanket	**0.095**	**0.092**	**0.098**	0.830	0.579	0.966	0.850	5,832
	(3.642)	(3.122)	(4.259)					
Child has two sets of clothing	**0.060**	0.024	**0.050**	0.060	0.635	0.986	0.923	5,830
	(3.062)	(1.058)	(3.576)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 A5.4: Comparison of CGP Impacts on Material Needs by Wave, Ages 15–17

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
All needs met	**0.236**	**0.241**	**0.245**	0.980	0.219	0.812	0.573	2,892
	(3.322)	(3.415)	(3.273)					
Child has shoes	**0.198**	**0.198**	**0.177**	0.930	0.248	0.826	0.606	2,894
	(2.978)	(3.004)	(2.323)					
Child has a blanket	**0.068**	**0.069**	**0.070**	0.760	0.693	0.975	0.874	2,893
	(3.610)	(3.287)	(3.980)					
Child has two sets of clothing	**0.051**	**0.038**	**0.038**	0.490	0.734	0.991	0.932	2,893
	(3.222)	(2.220)	(2.652)					

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 A5.5: Comparison of CGP Impacts on Material Needs by Wave, Small Household

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
All needs met	**0.219** (3.063)	**0.261** (3.757)	**0.381** (4.763)	**0.030**	0.080	0.681	0.416	6,088
Child has shoes	**0.217** (3.129)	**0.264** (4.290)	**0.369** (4.910)	**0.050**	0.102	0.699	0.446	6,090
Child has a blanket	**0.090** (3.021)	**0.108** (3.358)	**0.112** (4.801)	0.290	0.538	0.961	0.843	6,094
Child has two sets of clothing	**0.052** (2.428)	**0.040** (2.223)	**0.049** (2.896)	0.690	0.649	0.978	0.901	6,089

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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 A5.6: Comparison of CGP Impacts on Material Needs by Wave, Large Household

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
All needs met	**0.356** (5.458)	**0.303** (4.536)	**0.371** (4.953)	0.210	0.115	0.731	0.424	15,653
Child has shoes	**0.319** (4.978)	**0.274** (4.439)	**0.327** (4.457)	0.340	0.146	0.741	0.449	15,670
Child has a blanket	**0.111** (3.888)	**0.111** (4.407)	**0.115** (4.977)	0.730	0.569	0.962	0.825	15,667
Child has two sets of clothing	**0.075** (3.487)	0.036 (1.483)	**0.068** (4.431)	**0.030**	0.631	0.983	0.913	15,663

Note. Estimations use difference-in-difference modeling among panel households except for column (4) which is an F-test for mean differences across waves. 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.

Education

Table A5.7: Comparison of CGP Impacts on Child Education by Wave, Ages 11–14, Females

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	48M Mean C (7)	*N*
Currently enrolled in school	0.046 (1.795)	0.031 (1.125)	-0.010 (-0.307)	0.090	0.872	0.898	0.854	2,991
Full attendance in prior week	-0.009 (-0.156)	0.045 (0.893)	0.050 (0.980)	0.490	0.785	0.733	0.740	2,630
Days in attendance in prior week	0.461 (1.817)	0.353 (1.684)	0.266 (1.176)	0.680	3.976	3.933	3.689	2,940
Days in attendance in prior week if enrol	0.210 (1.006)	0.228 (1.462)	**0.319** (2.190)	0.770	4.578	4.392	4.345	2,617

Table A5.8: Comparison of CGP Impacts on Child Education by Wave, Ages 11–14, Males

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	48M Mean C (7)	*N*
Currently enrolled in school	**0.069** (2.493)	**0.066** (2.660)	0.030 (1.103)	0.220	0.897	0.890	0.830	2,895
Full attendance in prior week	-0.097 (-1.498)	-0.067 (-0.991)	-0.000 (-0.000)	0.380	0.730	0.751	0.769	2,523
Days in attendance in prior week	0.092 (0.356)	0.205 (0.899)	0.084 (0.415)	0.730	3.844	3.909	3.755	2,854
Days in attendance in prior week if enrol	**-0.409** (-1.993)	-0.221 (-1.342)	-0.106 (-0.613)	0.230	4.297	4.399	4.542	2,511

Table A5.9: Comparison of CGP Impacts on Child Labor by Wave, Ages 11–14, Females

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Paid or unpaid work	0.033 (1.622)	-0.002 (-0.070)	0.010 (0.431)	0.270	0.695	0.985	0.965	2,965
Any paid work last 2 weeks	-0.011 (-1.170)	**-0.023** (-2.524)	-0.012 (-1.656)	0.180	0.045	0.020	0.026	2,960
# paid hrs L2 weeks	0.019 (0.003)	-2.840 (-0.508)	5.002 (1.073)	0.240	7.389	6.556	7.667	135
# unpaid hrs L2 weeks	1.102 (0.332)	-1.076 (-0.297)	-0.720 (-0.193)	0.390	22.857	18.998	17.989	2,689

Table A5.10: Comparison of CGP Impacts on Child Labor by Wave, Ages 11–14, Males

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Paid or unpaid work	**0.056** (3.365)	**0.042** (2.234)	0.030 (1.531)	0.060	0.752	0.990	0.955	2,874
Any paid work last 2 weeks	-0.007 (-0.499)	0.000 (0.011)	**-0.017** (-2.030)	0.130	0.034	0.015	0.014	2,869
# paid hrs L2 weeks	-7.938 (-1.251)	-9.981 (-1.210)	-9.615 (-1.245)	0.960	3.933	5.100	7.636	115
# unpaid hrs L2 weeks	-0.038 (-0.009)	-2.127 (-0.496)	-4.518 (-0.960)	0.210	22.300	18.417	16.337	2,591

Household Size

Ages 4–7

Table A5.11: Comparison of CGP Impacts on Child Education by Wave, Ages 4–7, Small HH Size

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Currently enrolled in school	0.019 (0.536)	0.058 (1.663)	**0.079** (2.128)	0.310	0.160	0.185	0.195	4,432
Full attendance in prior week	0.104 (1.190)	0.140 (1.671)	**0.174** (2.323)	0.450	0.811	0.764	0.793	699
Days in attendance in prior week	0.122 (1.027)	**0.311** (2.309)	**0.441** (2.749)	0.080	0.671	0.673	0.784	4,331
Days in attendance in prior week if enrol	0.227 (0.743)	0.428 (1.515)	0.683 (1.928)	0.290	4.585	4.472	4.622	699

Table A5.12: Comparison of CGP Impacts on Child Education by Wave, Ages 4–7, Large HH Size

Dependent Variable	48M Impact (1)	36M Impact (2)	24M Impact (3)	Test (1)=(2)=(3) (4)	Baseline Mean (5)	48M Mean T (6)	C (7)	*N*
Currently enrolled in school	0.049 (1.217)	-0.009 (-0.338)	0.040 (1.242)	0.140	0.191	0.235	0.188	6,127
Full attendance in prior week	-0.077 (-0.955)	-0.064 (-0.880)	0.084 (1.508)	0.140	0.774	0.784	0.811	1,102
Days in attendance in prior week	0.114 (0.798)	-0.050 (-0.384)	0.165 (1.149)	0.240	0.764	0.855	0.712	5,980
Days in attendance in prior week if enrol	-0.382 (-1.404)	-0.233 (-1.010)	0.009 (0.041)	0.290	4.263	4.414	4.568	1,101

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