

# **The Savings and Investment effects of a Cash Transfer Program: Evidence from rural Zambia**

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## **Abstract**

This paper examines the impact of the Government of Zambia's Child Grant Program, an unconditional cash transfer targeted to women in households with young children, on women's savings and participation in non-farm enterprises. We use longitudinal data from a cluster randomized controlled trial in rural Zambia and find that the program enabled poor women to save more cash and increased diversification into non-farm enterprises that are traditionally operated by women. The results support the proposition that cash transfers have the potential for long-term sustainable improvements in women's financial position and household well-being by promoting savings and facilitating productive investments.

**Key words:** cash savings, unconditional cash transfers, entrepreneurship, women's empowerment, Zambia

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## **1. Introduction**

In low-income countries where access to financial services remains limited, own savings are an important mechanism for financing productive investment and smoothing consumption. The recent literature on savings in developing countries has suggested that apart from income poverty, a range of other social, psychological and organizational obstacles constrain people from saving as much as they would like. Social network pressures are one such barrier (Baland et al. 2011; Hulme and Arun 2009; Platteau 2000; Ashraf 2009), where households find it difficult to say no to requests and claims to resources from relatives or neighbors. The lack of safe and secure places to store savings, a consequence of thin financial markets, make it harder to fend off these claims--Dupas and Robinson (2013) show that even something as simple as a lock box with key can significantly increase savings rates in Kenya. Present bias and time inconsistency can also impede efforts to save (Hulme and Arun 2009; Duflo et al. 2006 in Kenya; Laibson 1997; Gul and Pesendorfer 2001; Gul and Pesendorfer 2004). Thaler and Benartzi (2004) in the United States and Ashraf et al. (2006) in the Philippines show that commitment devices such as restricting access to savings or automatically increasing savings rates promote higher savings.

A key motivation to encourage savings in resource poor rural settings is to finance entrepreneurial activity and small-scale businesses that allow poor households to diversify out of agriculture. Over the last three decades, millions of dollars have been spent on innovative programs to provide financial services to the poor. Programs vary in their design, however include provision of free or subsidized credit to start a business (micro-credit), small loans to those without collateral or access to formal banking systems (micro-finance), and more recently, incentive systems to encourage savings through dedicated savings accounts or savings associations (micro-savings). Such programs often target women and involve some type of group-based lending mechanism to encourage peer support and policing. The over-arching objective of these programs, which we refer to collectively as micro-finance initiatives (MFIs), is to raise incomes of the poor through enabling new and more productive livelihoods, to smooth consumption and to improve financial planning. Further, by focusing on women, MFIs also seek to increase women's control over resources, an important first step in empowerment. However, in the last five years a series of systematic reviews have essentially shown

that the MFI has over-promised and under-delivered in terms of both increasing incomes of the poor and improving the economic position of women.

Two recent systematic reviews synthesize existing evidence on the impact of MFIs on the poor. Duvendack et al. (2011) review 58 papers across 19 developing countries, the majority of which employed non-experimental methods or failed to identify a clean comparison group. Two randomized controlled trials (RCTs), the strongest studies in terms of internal validity, showed no impact on income or other measures of well-being, though there was some evidence of increases in business activity. The authors conclude that there is no good evidence of benefits of MFIs on the well-being of the poor. A systematic review with the same research question, but focused only on sub-Saharan Africa (SSA), identified 35 potential studies of which 15 were rigorous enough for inclusion (Stewart et al. 2010). The authors also found no evidence of a systematic positive effect of MFIs on income or accumulation of wealth among the poor. In fact, the review uncovers several instances of negative impacts of micro-credit, which are attributed to over lending coupled with high interest rates, which have the potential to result in loan default. The authors suggest that programs specifically attempting to support small business development should not target the ultra-poor, and that micro-savings are perhaps more promising in terms of their impact on savings rates, which could ultimately allow consumption smoothing. The micro-credit model has also been interrogated in a recent special issue of the *American Economics Journal: Applied Economics*, which reports impacts from similar programs in six countries (Bosnia, Ethiopia, India, Mexico, Morocco, and Mongolia) evaluated using RCTs (Banerjee et al. 2015). Results indicated that across a variety of borrower, loan and lender characteristics, the effects of micro-credit on entrepreneurship or self-employment were modest (three studies with no impacts, and three studies with impacts on the extensive margin) leading to the conclusion that there were “few transformative effects (p. 14)” of these programs.

The track record of MFIs in addressing gender inequalities is similarly weak. The explicit objective in targeting women is precisely to provide them access to and control over resources, which would otherwise accrue to a spouse or male household member in the absence of targeting. Vaessen et al. (2014) synthesize 29 rigorous studies on the effect of MFIs on women’s control over household spending and find no evidence to support a causal link, a conclusion also reached by a systematic

review conducted by Stewart et al. (2012). Yoong et al. (2012) look more broadly at interventions that put resources into the hands of women, including cash transfers, to see if those resources either raise income or are spent differently as compared to resources transferred to men (e.g. on children or family-friendly goods). They find no evidence that MFIs targeted to women as opposed to men affect spending patterns or raise incomes. The strongest links between women's access to resources and spending patterns derive from conditional cash transfers (CCTs), however the authors note that may be due to program conditions rather than the fact that women receive the money.<sup>2</sup> They also note that the evidence-base for unconditional cash transfers (UCTs) in SSA, the type of program studied in this paper, is particularly weak.

It is important to note that MFIs make up only one segment of possible savings and investment instruments. In fact, a systematic review that focuses exclusively on the effects of formal banking services on the poor is more encouraging (Pande et al. 2011). This review focused only on institutions that were licensed by the country's central bank, and so excluded the MFIs covered in the syntheses described above. Out of a pool of 226 papers that fit the initial inclusion criteria, twelve papers covering ten programs were ultimately used in the final synthesis, three of which were from SSA. The types of programs covered included policy changes to encourage financial services to the poor, bank saturation programs (primarily extensions of credit to farmers), and programs to induce savings including the use of mobile technology, all of which were in urban areas. The review concluded that these supply-side approaches did increase income in the short run, and that savings programs in particular were successful at increasing savings through commitment strategies. Despite this promise, results were context specific, programs were costly, and it was therefore difficult to propose promising generalized strategies to increase savings and investments of poor populations.

In this article we show that a poverty-targeted UCT significantly increases women's savings, as well as household ownership of livestock and participation in non-farm business activity. The types of business activity and the patterns of time-use among men and women in program households indicate that these small businesses are primarily operated by women. In addition, women's savings

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<sup>2</sup> CCTs, though they typically channel money to women, have also been criticized for disempowering women by perpetuating the traditional division of labour within the household (Molyneux, 2006).

are an important determinant of participation in business activity. The effects are large. For savings rates, the average treatment effect is 10 percentage points after three years, which represents a 100 percent increase over baseline and the average amount saved by women increased by 300 percent. Similarly, the program increases participation in business activity by 50 percent and approximately 15 percent of this increase can be linked to women's savings. The program increased consumption significantly for all participants (Handa 2016); however among beneficiaries, those with a business had consumption gains that were 30 percent higher than those who did not.

The existing evidence on MFIs makes these results thought provoking when reflecting on promising strategies to increase productive activity, permanently raise consumption and strengthen women's control over resources. Of particular interest is the relative simplicity of the UCT examined, the *Zambian Child Grant Program (CGP)*. Implemented by the Ministry of Community Development, Mother and Child Health (MCDMCH), the program is geographically targeted to all households with a child under three in three rural districts of Zambia, provides a flat, unconditional transfer of approximately USD \$12 per month (paid bimonthly) irrespective of household size, and gives the money to the child's primary caregiver of whom 99 percent are women. The findings suggest that, despite the lack of specific objectives related to productivity, unconditional cash can not only raise consumption, but also savings and investment and contribute to women's financial empowerment. The latter finding is notable, as a mixed-methods analysis of the CGP found limited meaningful impacts on women's intra-household decision-making due to entrenched gender norms in study communities (Bonilla et al. 2016).

## **2. The Zambian Child Grant Program and Study Design**

The CGP was originally implemented in three rural districts of Zambia, selected based on their high poverty and child malnutrition rates (Kaputa in Northern Province, and Kalabo and Shangombo in Western Province). It was established by the Zambian government in 2010 and reached 20,000 households by 2012. The target group comprised all households with at least a child under the age of three years at program initiation. Recipients are the primary care-giver or mother of the target child,

and virtually all recipients are women<sup>3</sup>. As previously mentioned, beneficiary households received approximately USD \$12 per month (paid bimonthly), irrespective of household size. The transfer represents a 27 percent increase to the household's baseline monthly expenditure and distributed through a local pay-point manager and results from an operational audit suggested that the program administration largely functioned as expected (AIR 2011).

The impact evaluation of the CGP was commissioned by the Government of Zambia and UNICEF and consisted of a longitudinal multisite cluster RCT with one baseline (2010) and four subsequent follow-ups. An experimental design was feasible because the government was not able to immediately scale-up the program in the three initial districts due to financial and human resource constraints. In each of the three districts, 30 community welfare assistance committees (CWACs – hereafter referred to as clusters) were randomly selected (out of a total of approximately 100) by lottery to appear in the study. Within these 30 CWACs all eligible households were identified and from this list, 28 households were randomly selected to enter the study sample leading to a representative sample of 2,519 households that met the targeting criteria across 90 clusters in three districts. The baseline survey was conducted in October-November 2010 prior to the start of the program. After baseline, a coin flip conducted by the Permanent Secretary of the MCDMCH determined which group of clusters would be in the early treatment or the delayed entry control (45 in each treatment and control). The treatment group received its first transfer in February 2011 and the delayed entry control group was to receive transfers after the study period. Four follow-up surveys were subsequently collected after 24-, 30-, 36- and 48-months on the original baseline panel of households (Figure A2 in the Annex presents the flowchart of the study design). This analysis uses data from the baseline, 24 and 36-month waves, as results from the 48-month wave were not officially released by the Government of Zambia at the time of writing this paper. The 30-month wave was a shorter survey to assess the impact of the program on consumption smoothing, fielded during the harvest season, and the survey instrument is thus less comparable to those from other survey rounds.

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<sup>3</sup> The CGP defines recipients as the female head of household, who can be a mother or a grandmother. If no female head of household is present, the father can be named the household recipient (AIR 2011).

The main survey instrument is extensive, and includes, among others, modules on consumption, health, education, housing, agricultural and other productive activities. During each wave, a module on women's decision-making, savings and future expectations was administered to one person in the household, typically the biological mother or primary care-giver of the target child. Our key indicator on cash savings comes from this module. The study sample size was powered to detect significant effects for child anthropometry measures accounting for non-response and attrition rates. The study underwent ethical review at the American Institutes for Research (AIR) in Washington, D.C. and at the University of Zambia. Questionnaires and reports for the CGP are available on the Transfer Project website (<http://www.cpc.unc.edu/projects/transfer>).<sup>4</sup>

### **3. Data, attrition and methodology**

#### *3.1 Data*

The full baseline sample contains 2,519 households and 14,565 individuals. Our analysis sample comprises all female respondents to the special module on savings, decision-making and time-preference administered to the program beneficiary. We exclude the one percent of male respondents who answered this module in the absence of a qualifying female respondent. In total the pooled cross-sectional sample consists of 7,189 observations, which includes all woman interviewed at least once in any of the three waves (Table 1, Column A). A slightly smaller number of women, 7,028 (Column B) were interviewed at least twice across the three waves while 2,124 women were interviewed in all three rounds representing a total sample of 6,372 (Column C). The complete (balanced) panel is the strongest in terms of internal validity and is the sample we utilize for

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<sup>4</sup> Apart from official Impact Evaluation reports (AIR 2011; 2013; 2014), several studies have already been published using these data. The full 24-month impacts are reported in Handa et al. (2016a), food security, child growth and malnutrition are in Seidenfeld et al. (2014a), schooling and child labor in Handa et al. (2016b), maternal health outcomes in Handa et al. (2016c), and fertility in Palermo et al. (2016).

subsequent analysis; however, sensitivity analysis shows that results are consistent across all three samples.

Table 1 - Samples of women answering empowerment module across waves in the Child Grant Program evaluation

	Column A Cross-sectional	Column B Unbalanced panel	Column C Panel only
Baseline	2,488	2,414	2,124
24-months follow-up	2,282	2,246	2,124
36-months follow-up	2,419	2,368	2,124
Total	7,189	7,028	6,372

Note: One woman per household, targeting the cash transfer beneficiary, answered the empowerment module. We exclude the one percent of male respondents who answered this module in the absence of a qualifying female respondent.

Table 2 reports the background characteristics of the panel of women and the households they live in. The mean age of women respondents is 30, 73 percent are married, while few are divorced or separated (10 percent), widowed (6 percent) or never married (11 percent). Women have low levels of education, approximately 30 percent have never attended school and over half did not go beyond grade four (not shown in Table). The mean household size is six and the mean number of children age 0-5 years is 1.9 per household. There are very few elderly in these household and the majority of adults (1.3 on average) are in the age range 19 to 35 years. Finally, the sample is poor with mean monthly per capita expenditure of 41 ZMW (Zambian Kwacha), or approximately USD \$0.30 per person per day. Overall, randomization was successful in producing balanced treatment and control groups. We found no significant differences between treatment and control women along a number of household and individual characteristics, including key outcomes of interest, the proportion of women savers and amount saved (see Table 2 Column 4). Only one indicator is statistically significant, women in treated communities were three percentage points less likely to be divorced or separated at baseline.



Table 2 – Baseline Characteristics of Women (Panel sample) and test for equivalence at baseline

Variable	All (1)	Treated (2)	Control (3)	Mean difference (T-C) (4)
Age (years)	29.46	29.66	29.26	0.401
Attended school	0.71	0.73	0.70	0.034
Never married	0.11	0.11	0.11	0.007
Divorced or separated	0.10	0.08	0.11	0.030**
Widowed	0.06	0.05	0.06	0.008
Women's decision-making (DM) index (0 low; 9 high)	5.60	5.56	5.65	0.093
Proportion of women with high (above the mean) DM	0.57	0.56	0.58	0.021
<u>Household characteristics</u>				
Shangombo district	0.32	0.32	0.31	0.006
Kaputa district	0.24	0.22	0.25	0.025
Consumption expenditure per capita (ZMW)	40.66	41.74	39.57	2.172
Household size	5.67	5.72	5.62	0.101
Number of members aged 0-5	1.90	1.89	1.91	-0.020
Number of members aged 6-12	1.26	1.25	1.27	-0.021
Number of members aged 13-18	0.56	0.58	0.53	0.054
Number of members aged 19-35	1.33	1.37	1.30	0.070
Number of members aged 36-55	0.53	0.54	0.52	0.012
Number of members aged 56-69	0.06	0.06	0.06	0.003
Number of members aged 70+	0.03	0.03	0.02	0.004

Note: Number of women with no missing values for all variables is 2078 (1041 in treated sample). \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

### 3.2 Attrition

Household attrition was nine percent at 24-months and two per cent at 36-months (see Table A1 in the Annex). The higher attrition rate at 24-months is driven by migration out of Kaputa District due to the drought induced drying of the Cheshi Lake, a source of livelihood for household in the area, over the initial study years. However, many of these households returned by the 36-month follow up. Household-level analysis of overall and selective attrition was conducted as part of the larger evaluation and concluded that neither is a problem (AIR, 2013; AIR, 2014). We also conduct attrition analysis at the individual level within our sample. Overall attrition is higher than that at the household level with eleven and six percent of the baseline sample lost to follow-up after 24- and 36-months respectively (see Table A2 in the Annex). We investigate differential attrition by background characteristics across treatment and control groups using the same core characteristics reported in

Table 1. Table A3 in the Annex shows differences in baseline characteristics between attritors and non- attritors using both the 24-month and 36-month panels (Table A4). Differential attrition is assessed in Column 11 of both tables, where we test for significant differences in attritor means across the two study arms. None of these differences are statistically significant, suggesting that, consistent with the household-level analysis, individual attrition does not threaten the internal validity of our results.

### 3.3 Analysis methodology and key indicators

In order to estimate impacts on women savings, we estimate the following difference-in-differences (DD) model on women interviewed in all three survey rounds:

$$Y(i, t) = \alpha + \beta_T T(i) + \beta_{R2} (R2) + \beta_{R3} (R3) + \beta_{TR2} (T(i) * R2) + \beta_{TR3} (T(i) * R3) + \sum_{j=1}^J \theta_j X_j(i, t) + \varepsilon(i, t) \quad (1)$$

In this framework  $Y(i, t)$  is the the outcome indicator for the individual woman  $i$  at time  $t$ ; and is equal to one if the woman is currently saving in cash.  $T(i)$  is a binary indicator of treatment status, equal to one if in the treatment group,  $R2$  and  $R3$  are indicators for the two time periods where  $R2$  refers to the 24-month follow-up and  $R3$  to the 36-month follow-up while  $\beta_{TR2}$  and  $\beta_{TR3}$  capture the intent-to-treat (ITT)<sup>5</sup> effect at time two and three;  $X$  is a set of basic control variables that are all measured at baseline and  $\varepsilon$  is the error term. Robust standard errors are adjusted for clustering at the cluster level. The primary savings outcome is a measure of current cash savings, and the secondary savings outcome is value of cash saved in the last month (logged ZMW). We also show estimates of the program impact on business activity, an indicator that was only collected at the follow-up waves- for this indicator we use single-difference estimation, comparing mean outcomes between treatment and control groups at follow-up waves only.

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<sup>5</sup> Analysis of administrative data by the study team indicates that not only were payments made on schedule during the study period but over 95 percent of beneficiaries collected their payments on time. An operations module fielded as part of the evaluation did not reveal any indication of leakage due to bribes or requests for payments from village elders or program officials. The ITT will thus be very close to the average treatment effect on the treated.

We typically present estimates with a vector of pre-treatment control variables to increase the precision of the point estimates and to account for any residual imbalances between treatment and control. In the multivariate model, our set of basic demographic covariates include: 1) women's characteristics (age in years and its square, whether the woman has ever attended school and marital status); and 2) household characteristics (log of household size, a set of indicators capturing household composition and district of residence indicators).<sup>6</sup> Means for these variables were presented in Table 2.

Heterogenous effects by baseline decision-making power: As autonomy and control over transfers may differ by women's bargaining power inside the household, we posit that the program impact might be moderated by her baseline decision-making power, a possibility which is also raised by Stewart et al. (2012) in their review of the impact of MFIs on women's outcomes. Women were asked nine questions over different economic and social domains to assess how much say each had in the decision.<sup>7</sup> For each of these questions, the respondent had to report who participates in decision-making by selecting one of the following options: 1) the respondent herself; 2) her husband/partner; 3) respondent and partner jointly, 4) other members of the household (either alone or jointly). A value of one is given for each question if the decision is made by the respondent, either alone or jointly with her husband/partner, and a value zero if the decision is made by her husband/partner only or others in the household. In order to compute the decision-making index we summed values for the nine questions: the index therefore ranges from zero to nine with higher values indicating higher women decision-making power. In cases where the decision was not applicable (e.g. a decision about children's schooling, when no members of the household are in the school age range) the value was replaced by the sample mode<sup>8</sup>. To estimate heterogeneous impacts of the program by women's baseline decision-making, we augment equation (1) by adding a dummy

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<sup>6</sup> We experimented with a specification that includes a vector of cluster level prices measured contemporaneously since we find no inflationary impacts of the CGP at the community level. Results are consistent with those reported here.

<sup>7</sup> The nine questions are: 1) If a child is not feeling well, who decides whether to seek treatment? 2) If a child does not want to go to school who would decide whether s/he must go? 3) Who usually decides how the money you usually earn will be used? 4) Who usually decides how the money your partner earns will be used? 5) Who usually makes decisions about making major household purchases? 6) Who usually makes decisions about making purchases for daily household needs? 7) Who usually makes decisions about purchasing children's clothes or shoes? 8) Who usually makes decisions about visits to your family or friends? 9) If you are feeling sick, who usually decides whether you should seek treatment?

<sup>8</sup> Alternative women's decision-making indices were computed: 1) by assigning a value of 0.5 instead of one if the decision is made jointly (see Handa et al. 2009); 2) by using the proportion of decisions made solely or jointly out of the number of applicable questions (rather than replacing missing values by the sample mode); 3) using the z-score rather than the raw index.

variable indicating high baseline decision-making (defined as having a score above the mean) and interactions between this variable and the round dummies and the round\*treatment status dummies—these latter two variables represent the triple difference (DDD), and measure the differential effect of the program according to baseline decision-making status at 24- and 36-months.

## **4. Results**

### *4.1 Descriptive statistics*

At baseline, the proportion of women who save is balanced between the treatment and the control group and is in the 16-19 percent range (Table 3). However, after 24 months of receiving transfers, this percentage more than doubles in the treatment group from 18.6 percent to 47.4 percent. The control group also increases savings behavior, by a much smaller margin from 15.7 to 21.6 percent. After 36-months, the percentage of women holding savings in the treatment group has decreased to 35.6 percent but is still higher than the corresponding figure for the control group (22.7 percent). Additional descriptive information indicates that cash savings are typically kept at home (94 percent at baseline), confirming that these women likely do not have access to institutions or other formal saving facilities. No significant differences are found between place of saving between treatment and control groups (not shown).

Descriptive patterns for the amount saved during the last month are shown in the bottom panel of Table 3. At baseline, the amount saved does not differ between the treatment and control group (around 12 ZMW), however women in the program save approximately 35.6 and 26.6 ZMW more than at baseline after 24 and 36 months, more than a threefold increase with respect to initial levels of savings. The difference-in-difference estimates indicate that around half of the transfer is saved at

24-months (30 ZMW) and almost a third at 36-month (20 ZMW)<sup>9</sup>. Note that these statistics refer to the full sample and not just to women who saved.

Table 3 - Proportion of women savers and amount saved by treatment status and wave

		<b>Baseline</b>	<b>24-months follow-up</b>	<i>Difference (24-months-baseline)</i>	<b>36-months follow-up</b>	<i>Difference (36-months-baseline)</i>
<b>Proportion of women savers</b>	<i>Control</i>	15.7	21.6	5.9*	22.7	6.9**
	<i>N</i>	1037	1060		1062	
	<i>Treated</i>	18.6	47.4	28.8***	35.6	17.0***
	<i>N</i>	1041	1055		1061	
<i>Difference (T-C)</i>		2.9	25.8***	<b>DD 24-months 22.9***</b>	12.9***	<b>DD 36-months 10.1**</b>
<b>Amount saved (ZMW)</b>	<i>Control</i>	11.8	16.8	5.0*	20.0	8.2***
	<i>N</i>	1037	1060		1062	
	<i>Treated</i>	11.9	47.5	35.6***	38.5	26.6***
	<i>N</i>	1040	1055		1061	
<i>Difference (T-C)</i>		0.1	30.7***	<b>DD 24-months 30.6***</b>	18.5***	<b>DD 36-months 18.4***</b>

Note: N for full sample is 6316. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; Robust standard errors clustered at the cluster level.

#### 4.2 CGP impacts on cash savings

Columns 1 and 2 of Table 4 displays the impact estimates of the CGP on women’s savings. After 24 months the program significantly increased the proportion of women savers by around 23 percentage points, and by 10 percentage points after 36-months—the average impact across the two follow-up waves is 18 percentage points. We find a similar pattern of impacts on the amount saved (Table A6 in Annex). The right panel of Table 4 tests for heterogeneity in the treatment effect by women’s decision-making power at baseline. The triple interaction term for the 24-months follow-up is negative and statistically significant: the impact on cash savings for women with high (or above the mean) decision-making power at baseline is around 12 percentage points lower compared to the impact for low-decision-making women. Thus women with low decision-making power at baseline are those for whom the treatment effect on savings is largest. This heterogeneous impact however is

<sup>9</sup> These figures suggest that around 44 to 60 percent of the transfer is saved.

not significant at 36-months. This result is driven by the fact that women with low decision-making power at baseline saved significantly less than their counterparts; by 24-months these women catch-up and maintain these levels at 36-months. The results are not sensitive to alternative ways of combining the decision-making questions.<sup>10</sup>

Table 4 - Impact on cash savings and heterogeneous impact by decision-making power

VARIABLES	Impact on savings		Heterogeneous impacts by women's decision-making at baseline	
	(1)	(2)	(3)	(4)
	Unadjusted	Adjusted	Unadjusted	Adjusted
Treated	0.0283 (0.0317)	0.0213 (0.0304)	-0.00942 (0.0335)	-0.0172 (0.0327)
DD 24-months	0.229** (0.0460)	0.229** (0.0459)	0.296** (0.0485)	0.296** (0.0485)
DD 36-months	0.101** (0.0453)	0.101** (0.0452)	0.141** (0.0521)	0.141** (0.0521)
Treated * High DM at baseline * 24-months			-0.117** (0.0550)	-0.117** (0.0550)
Treated * High DM at baseline * 36-months			-0.0711 (0.0634)	-0.0709 (0.0634)
Observations	6,316	6,316	6,316	6,316
R-squared	0.062	0.078	0.064	0.081

Notes: Estimations use difference-in-difference modeling (DD indicates difference-in-differences estimate). Robust standard errors clustered at the cluster level are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Estimations with adjustment include woman's age, education and marital status, household size and household demographic composition, and districts—see text for details.

Poor households typically consider livestock as a form of savings given the dearth of formal savings mechanisms available in rural areas (Hulme and Arun 2009). In fact, two studies that investigate the impact of Mexico's CCT use livestock rather than actual cash as their measure of savings (Gertler et al. 2012; Rubalcava et al. 2009). Are women simply substituting cash for more traditional forms of savings such as livestock, thus leading to no net increase in this broader concept of savings? We assess this hypothesis by estimating the impact of the program on livestock ownership though for this indicator we cannot discern who the actual owner is within the household as information is only reported for the household as a whole. However there is some evidence that in most rural African

<sup>10</sup> We also tested for heterogeneous impacts using an alternative women's decision-making index; results are unchanged.

societies rearing of small animals such as goats, sheep and poultry falls under women’s domains (Njuki and Sanginga 2013; SOFA Team and Doss 2011), and Rubalcava et al. (2009) make this same argument for rural Mexico. Results in Table 5 show that the program has a positive impact on holding ducks (3 percentage points), chickens (between 11 and 16 percentage points) and even on the likelihood of owning cattle (10 percentage points). Hence the increase in cash savings by women is occurring even as program households also significantly boost their ownership of both small and large livestock.

Table 5 – Impact of the CGP on livestock ownership

Dependent variable	DD 24-months	DD 36-months	Percent ownership at baseline
Milk cows	0.0315	0.0153	5.6
	-0.023	-0.0216	
Cattle	0.0902**	0.104**	10.5
	-0.0232	-0.0291	
Goats	0.0407**	0.0177	2
	-0.0141	-0.016	
Chickens	0.113**	0.158**	43.7
	-0.0494	-0.0416	
Ducks	0.0340**	0.0318**	2.9
	-0.0117	-0.00905	
<i>Livestock index</i>	0.361***	0.389***	
	-0.0737	-0.0742	

*Note:* Estimations use difference-in-difference modeling. DD indicates difference in differences estimates at 24 and 36 months respectively. Robust standard errors clustered at the cluster level are in parentheses. N is 6316. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Impact estimates reported are from the unadjusted model; impact estimates from the adjusted model (controlling for woman’s age, education and marital status, household size and household demographic composition, and districts) are consistent. The livestock index accounts for the overall livestock ownership (score computed based on principal component analysis); all livestock variables are balanced at baseline.

#### 4.3 Why are women saving?

We next explore motives behind savings using a question from the 36-month survey which asks women savers about the three most important reasons for which they are saving. Women can choose among more than ten options, including purchasing bulk or other food items, household

consumables, agricultural inputs, assets to start a new small business and so on. We classify these reasons into precautionary versus investment reasons and create three mutually exclusive groups defined by whether the woman saves mainly for investment reasons, mainly for precautionary reasons, or for both reasons. The main reason for saving among both groups is to smooth income fluctuations (75 percent - Table 6) and the three most reported specific reasons are to purchase bulk or other food items, to purchase household consumables and for medical expenses or health care. Notably, there are significantly more women in the treatment arm that save mainly for investment purposes (six percentage point difference between arms).

Table 6 – Self-reported reasons for saving at 36-months

	Reasons for saving:			
	Mainly investment	Mainly precautionary	Investment and precautionary	No reason reported
Control	11.2	78.4	8.7	1.6
Treated	17.2	72.7	9.0	1.1
<i>Difference (T-C)</i>	6**	-5.7	0.3	-0.5

Note: N is 618 women savers. Differences between treatment and control \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. T-tests based on standard errors clustered at the cluster level.

#### 4.4 Do women’s cash savings facilitate self-employment?

The CGP facilitates saving for investment, which could lead to diversification of income through productive activities. In the 24- and 36-month surveys we implemented a non-farm enterprise (NFE) module to the household and asked the main respondent to report on up to three non-farm business activities that anyone in the household was engaged in over the last 12 months, in addition to related information on the type of business, revenues and profits. Where there were more than three NFEs that household members engaged in, the respondents were instructed to report on the three most important NFEs in economic terms.

Table 7 reports the proportion of households operating any NFE by treatment status and wave. Almost half of program participant households operate a NFE compared to less than a third in the control group (29.7 percent and 30.8 percent after 24 and 36 months respectively) and the difference between the two groups is 15 and 17 percentage points at 24- and 36-months respectively. The three



main types of NFE reported are petty trade, fish-selling and home brewery, representing about 70 percent of all reported businesses, and these are businesses that are typically operated by women in this setting. The distribution of business types is the same across the study arms indicating that the program increases the overall level of engagement in NFE but not the type of activity.

Table 7: Proportion of households engaged in non-farm enterprise by study arm and survey wave (%)

	<u>24 month follow-up</u>	<u>36 month follow-up</u>
Control	29.7	30.8
N	1060	1062
Treated	46.6	45.4
N	1055	1061
Difference (T-C)	16.9**	14.6**

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. T-tests based on standard errors clustered at the cluster level.

Comparing other characteristics of the main NFE reported between the treatment and the control group there seem to be no significant difference in terms of number of months the business was in operation in the last 12 months (around 6-7 months). However the total revenue in an average month from businesses of program households are significantly higher than those of control households (more than double after two years and almost double after three years) and so are profits (around a third higher). The value of assets that belong to the business is also higher in treatment households, as is the value of product consumed by the household.

To further understand the extent to which NFE engagement is primarily driven by women we investigate time spent in NFE by gender. Table 8 compares the participation in such activities for our female respondents and a ‘comparable’ adult male, defined as the spouse or partner of the woman, and if there is no spouse/partner, her brother or next closest adult male relative. Approximately 77 percent of households have a ‘comparable’ male so we restrict our comparisons to this smaller sample of household in order to offer a clean comparison. We define involvement for men and women if they spend at least one day per week working in the business in an average month of operation.

The first row of Table 8 shows that households are far more likely to have women engaged in NFE than men - 83 percent of households report a woman engaged in an NFE compared to 55 percent

who report a man across the two survey waves. Looking at the three most common types of activity we see the largest differences for petty trade and home breweries and more gender balance for fish selling. In home breweries for example, 92 per cent of households report a woman engaged in this activity and only 35 percent reporting a male engaged in this activity. The last two columns of Table 8 report average days in the reference week (aggregated to the household level) and tell the same story - overall women spend more days at NFE than men, particularly in petty trade and home brewery. We can also track the engagement in NFE of the individual women who responded to the savings questions rather than comparing men and women in general. This comparison shows that among these women, those in the treatment arm are more likely to be engaged in NFE compared to women in control households and spend on average 1.5 extra days per week in such activities.

Table 8: Proportion of female respondents and ‘comparable’ males engaged in Non-Farm Enterprises at 24- and 36- months (%)

	Female respondents engaged in NFE	Comparable males engaged in NFE	<u>Mean days worked</u>	
			Female respondents	Comparable males
Full Sample				
Any NFE	82.7	54.5	3.9	2.4
Fish selling	63.1	62.2	3.5	3.1
Petty trader	86.9	31.8	4.7	1.8
Home brewery	92.1	35.1	4.2	1.4
Treatment				
Any NFE	83.4	56.3	4.0	2.6
Fish selling	65.6	62.9	3.8	3.4
Petty trader	86.8	36.4	4.7	1.8
Home brewery	92.2	36.5	4.3	1.7
Control				
Any NFE	81.7	51.7	3.8	2.5
Fish selling	58.9	60.9	3.1	3.3
Petty trader	87.0	23.1	4.6	1.6
Home brewery	92.0	33.0	4.1	1.6

Figures give the percent of female respondents and comparable males that are engaged in the activity in the first column. Results are averaged across the 24- and 36-month survey rounds and reported only for households where a comparable adult male exists—see text for explanation.

These descriptive statistics suggest that the program has led to engagement in NFE and more women are now participating in business activities in the treatment group relative to the control group. The first two columns of Table 9 show that at 36-months, treatment households are 14 percentage points more likely to be engaged in any type of NFE—this is similar to the descriptive statistics presented in Table 6 for both the 24- and 36-month waves. Note that these are cross-sectional regression estimates and rely on the randomized design to estimate the causal effect of the CGP on NFE<sup>11</sup>.

Are women's cash savings financing the expansion into NFE? In order to understand the potential role of women's savings in increasing NFE among the treatment group, we add our indicator of savings to the equation estimating the program effect on NFE to see if it soaks up some of the direct effect of the program on NFE. This causal mediation strategy relies on the sequential ignorability assumption, that treatment status is exogenous to savings and savings are exogenous to NFE. The first assumption is satisfied since randomization is done with respect to treatment status, but the second is not since randomization is not done with respect to savings. We thus require the assumption that there is no unobserved factor that affects both savings and NFE (Angrist and Pischke 2009). We address this potential endogeneity in two ways. First we use lagged savings (at 24 months) in the regression predicting NFE at 36-months—this solves the problem of temporal precedence. However there can still be some fixed (time invariant) factor that affects both savings and the propensity to engage in NFE and which therefore biases the coefficient of even lagged savings. Keele et al. (2015) suggest that pre-treatment measures of the mediator could be a useful approach to account for the fixed unobserved heterogeneity related to both the mediator and outcome so we also present specifications that include baseline savings.

Columns (3) and (4) of Table 9 add lagged savings at 24-months to the regression to assess both its direct effect on the probability of engaging in NFE at 36-months and to see whether it attenuates the treatment effect in the first row. The direct effect ranges from 11 to 12 percentage points depending on whether or not controls are added to the model and is statistically significant; meanwhile the

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<sup>11</sup> Cross-sectional/ single-difference estimates of the impact of the program on women's savings are the same as the DD estimates reported in Table 4. For example at 24-months the DD estimate is 22.9 vs 25.4 from the cross-sectional estimator. At 36-months the point estimates are 10.1 vs 12.2 respectively. These provide some confidence in the cross-sectional estimates for engagement in NFE.

‘total’ effect of the program in row one is reduced from 21 (column 3) to 13 (column 4) percent indicating that there is partial mediation of the program effect on NFE through women’s cash savings. In order to more fully account for potential confounding between the mediator and NFE via time invariant unobservables we include baseline cash savings to the model in columns (5) and (6) in Table 9. The inclusion of baseline savings attenuates very slightly the direct effect of lagged (24-month) cash savings on NFE, but also attenuates the ‘total’ effect in row one, so that the percent of the total effect from columns (1) and (2) that works through cash savings is now 23 and 15 percent respectively for the unadjusted and adjusted models.<sup>12</sup>

Table 9: Impact of CGP and lagged cash savings on Non-Farm Enterprise at 36-months<sup>13</sup>

Outcome	NFE		NFE including 24 month savings		NFE including baseline and 24-month savings	
	(1) Unadjusted	(2) Adjusted	(3) Unadjusted	(4) Adjusted	(5) Unadjusted	(6) Adjusted
VARIABLES						
Treated	0.146** (0.0522)	0.139** (0.0323)	0.116** (0.0515)	0.121** (0.0320)	0.113** (0.0512)	0.119** (0.0323)
24-month savings			0.112** (0.0300)	0.0678** (0.0241)	0.107** (0.0320)	0.0648** (0.0257)
Baseline savings					0.0546 (0.0375)	0.0182 (0.0292)
Observations	2,123	2,123	2,114	2,114	2,069	2,069
R-squared	0.023	0.168	0.033	0.172	0.034	0.170

Notes: Estimations use single difference modeling. Robust standard errors clustered at the cluster level are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Estimations with adjustment include woman’s age, education and marital status, household size and household demographic composition, and districts.

<sup>12</sup> Keele et al. (2015) also recommend including pre-treatment values of potential confounders in the model but also recommend that if a confounder exists it must be controlled using its pre-treatment values. We have estimated this model controlling for pre-treatment values of variables that might affect both NFEs and savings: consumption per capita, time discounting, attitudes towards the future (capturing expectations) and inflation (to capture uncertainty). Demographics are also a potential confounder but are already part of our controls. The results we report in Table 9 are robust to these inclusions.

<sup>13</sup> Results – and the partial mediation - hold also when we redefine our dependent variable to focus only on those NFEs that we believe to be predominantly female, namely petty trading and home brewing. Since non-farm enterprises, and in particular home brewing and petty trading, are typically women’s investments, this suggests that the use of the cash transfer and women’s savings for NFEs might reflect women’s control over the transfer.

#### *4.5 Robustness checks*

Are we really capturing savings in our data? The bimonthly payments in the CGP would mechanically generate a large stock of cash on-hand which may be reported as savings though it is actually meant for consumption. However, the survey question we use is quite explicit about distinguishing money for current versus future consumption: “Some people try to save some money for emergencies or to buy something special in the future. Are you currently saving (in cash)?” “How much have you saved in cash in the last one month?” Our household questionnaire also asked beneficiary households when they received their last payment. Across the two follow-up waves 57 percent of household received their payment within the last month of the interview and the rest two or more months before the interview. Reported mean savings rates are no different between these two groups of treatment households. The DD impact estimate on savings at 24-months is 25 percentage points for households who received the payment within the last two months and 22 percentage points for those who received the payment more than two months ago. At 36-months the point estimates for these two sub-samples are 13 and 11 percentage points respectively. Finally, we compare consumption among savers and non-savers and find that within both the treatment and control groups, mean consumption of savers is always higher than that of non-savers at each survey round. For example among the treatment group only and averaging across all three rounds (baseline, 24- and 36-months) mean consumption among savers is ZMW 69 compared to ZMW 48 for non-savers. Together these results suggest that we are indeed capturing cash savings in our data.<sup>14</sup>

There is a sizeable drop in the impact of the CGP on savings from 23 percentage points at 24-months to 10 percentage points at 36-months (these effects are significantly different from each other). One concern might be that initially beneficiaries viewed the cash transfer as transitory and boosted savings as a precautionary measure, but then over time considered it a permanent increase in their income and reduced savings. This would imply that the long-term savings effect of the CGP are closer to 10 percentage points. At both follow-up waves we asked recipients the following question: “For how long in the future do you expect to continue receiving the money?” At 24-months 15 percent of respondents believed they would receive the money for less than two years compared to 27 percent at 36-months.

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<sup>14</sup> We do not have a comprehensive measure of income and so cannot compute savings by subtracting consumption from income.

This is consistent with the eligibility requirement of having a child under the age of five—over time households would be more likely to have children age out of the program and so the cash would appear to be increasingly more transitory. The effect sizes we report here are thus the reverse of what we would expect if savings were purely being driven by expectations about the transitory nature of the transfer (permanent income hypothesis). Our measure of savings is from the last month so there is likely to be some fluctuation over the course of the year although all three survey rounds were conducted during the same period.

#### *4.6 Non-financial savings constraints*

As mentioned in the Introduction the recent literature on savings in developing countries has highlighted the importance of non-financial constraints to saving such as present bias, mental accounting, access to a safe place to store money or social pressures. Here we exploit additional information available in our survey instrument to understand whether these constraints are operating in our population and how the cash transfer might be able to further encourage savings.

At the 30-month survey wave we administered an 8-item Raven’s progressive matrices test to each main respondent in our sample. The Raven’s test is a measure of logical reasoning and we use the total number of correct answers as a measure of mental accounting. We interact this variable with our treatment and survey round indicators to construct a triple difference estimator.<sup>15</sup> While each additional correct answer does lead to an increase of about 1pp in the propensity to save, there is no significant differential impact of the program by test score.

In each wave we also administered a set of six questions involving an inter-temporal choice task (without incentives) as follows: “Suppose you suddenly win the Lotto. If you could choose between these two options which would you choose? ZMW 200 today or ZMW X in one month?” where X varied from 200 up to a high of 800. Using the baseline data, we code as ‘impatient’ women who

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<sup>15</sup> We assume logical reasoning among the adults in our sample is a permanent trait, or at least, that the cash transfer itself does not affect logical reasoning ability. In fact the mean score on the test is balanced across the two study arms.

would never wait for any value of future money and use this as a measure of present bias. As with the Raven's measure, we estimate triple difference models to see if the CGP had differential effects on savings depending on whether or not the woman was impatient at baseline. Surprisingly, the average effect of being impatient is to increase the treatment effect on savings at 36-months by 11 percentage points, an effect that is statistically significant at five percent. This result is driven by impatient women starting from a low rate of savings at baseline and 'catching up' to other women. Our inter-temporal choice task is capturing all factors that would lead one to prefer money today over money tomorrow—what Frederick et al. (2002) refer to as time-discounting—rather than just an innate time preference trait. The results suggest that the cash transfer has loosened the pressure for those needing money immediately and allowed them to increase their capacity to save.

In each survey round we asked those who reported positive savings where they kept their money. About ten percent of savers kept their money in a place other than their house, the most common places being an informal savings scheme (such as a rotating savings and credit association-ROSCA) or a bank or post office. We compared the treatment effect on savings among women who at baseline had a safe place to keep their money versus those who kept their money at home. The sample size for women savers who kept their money in a safe place is extremely small so we have low power to detect statistical significance. Nevertheless the point estimate of the differential impact of the CGP on those who used a ROSCA or bank at baseline is 10 pp larger, suggesting that coupling the cash transfer with the opportunity to save in a safe place might boost savings even more.

Finally, we look at the possibility of social pressures through a set of questions in our survey which ask beneficiaries if they had ever been asked for money by members of the community, or if they have been asked to take care of any relatives or friends as a result of receiving the cash transfer. Across the two follow-up survey rounds less than five percent of recipients reported ever being asked for money, and less than one percent reported taking on new members.

## 5. Discussion and conclusion

Our headline results, that a large-scale national UCT enables poor women to save in cash and invest in small business, have implications for several strands of the development policy literature. The CGP was not designed to specifically affect savings nor to encourage entrepreneurship or ‘empower’ women; the evidence that unconditional cash given directly to women can potentially affect all these outcomes is novel. On savings specifically, two other studies (Gertler et al. 2012; Rubacalva et al. 2009), both from Mexico’s CCT, report positive impacts on livestock holdings which the authors argue is the main form of savings in rural Mexico because poor households have no mechanism to safely store cash. The absence of safe savings mechanisms is just as acute in the remote districts of rural Zambia, and 90 percent of women who save keep their money at home. The CGP has enabled poor women to save in cash, even in the absence of inclusive financial systems, and this behavior has not come at the cost of other additional forms of savings such as assets and livestock accumulation. Cash savings are of course easier to mobilize than bulky assets, which is particularly important in an emergency as the women in this sample themselves recognize:<sup>16</sup>

*“My savings are very important because it helps solve problems like sickness. Hospitals don’t have medicine here, mostly we are told to buy. So I can use that money to buy medicine. I can also use the same money to buy food.”* Quote from married female beneficiary recorded in the qualitative interviews.

The evidence of the impacts of a UCT on *liquid* savings are the first of its kind, and seem to indicate that women value liquidity<sup>17</sup> which is consistent with some of the advantages of cash savings, for example the fact that in the face of a negative shock, it is easier to spend cash than to liquidate bulky assets. These results point to the fact that households and women tend to autonomously save and that income remains a key constraint to savings. We also provide some evidence that is in line with

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<sup>16</sup> Quotes are taken from transcripts of in-depth interviews conducted among women in treatment and control communities alongside focus-group discussions as part of the impact evaluation of the CGP. For further details see Bonilla et al. (2016).

<sup>17</sup> *“It is me that saves money and he doesn’t even know about it. If it is my money I save myself and use it without telling him. When it is his he keeps and I won’t see it. When I force him through his relatives he gives me, even ZMW 12 if it is school fees. If I want money for food he doesn’t give me cash . . . My savings are very important because it helps solve problems like sickness. Hospitals don’t have medicine here, mostly we are told to buy. So I can use that money to buy medicine. I can also use the same money to buy food.”* Quote from married female beneficiary recorded in the qualitative interviews.



research on the non-monetary barriers to savings. For example, those who score higher on the Raven's test are more likely to save, though there is no heterogeneous treatment effect for this group. We also see larger program effects among women who had access to a safe place to store money at baseline, though results are not statistically significant due to low power (small samples). One interesting finding is a larger program effect on women who care more about current money. Here the likely mechanism is the alleviation of short-term liquidity constraints which allows this group to think more about the future (Handa et al. 2016d).

The effects of the CGP on self-employment stand in contrast to the evidence on MFIs reviewed earlier. In this rural sample where households are primarily engaged in agriculture, the cash transfer and women's savings help households to diversify to non-agricultural activities. Though we only observe NFEs at the household level, the types of NFE in expansion suggest that women's savings are partly channeled to investment in women-operated, rather than merely household operated, enterprises. And those involved in NFEs are significantly better off—for example by 36-months recipients with a NFE had 30 percent higher consumption relative to recipients without an NFE. The link between increases in cash savings and the effect of those savings on NFE, which are primarily operated by women, offers a compelling story of the potential for UCTs directed to women to foster self-employment. This link is an important finding in light of the rather bleak evidence on the ability of the MFI to bring about sustained increases in self-employment and consumption for women. Again, this result raises questions about how it is that a simple, predictable, unconditional sum of money can succeed where a more complex and directly focused suite of interventions appear to have largely failed at delivering sustained impacts.

Does the CGP “empower women”? Women's empowerment is not a prime objective of the program, and empowerment is interpreted to mean many different things. The classic definition of empowerment defines a process of gaining agency to make strategic life choices, and access to resources could be an important facilitator in this process. Yet, when women in these households are asked directly about how they themselves would define or describe “empowerment” within their own communities, financial resources to spend how they wish are the consistent focus in their conceptualizations:

*“To me to be empowered means I can do what I want and have what I long to have, money. I can buy what I want.”* (female, married, treatment).

*“If I had a business it can give me strength to keep my children well. They would dress well and they can be taken to school without difficulty. . . Women who are empowered are able to do these things. Even in this community, they are there.”* (female married, control)

*“It means cash, to be given money. I feel I can get money from the same CWAC [cash transfer] program. There are women in this village who manage to do things on their own like taking children to school. They do businesses, mostly selling maize. They run around, they are able to buy pots, plates and bicycles.”* (female, married, treatment)

These quotes illustrate themes that are repeated through the in-depth qualitative interviews conducted by the evaluation team. In the eyes of the beneficiaries themselves, the cash transfer allows choices, in terms of both consumption and investment, which makes them feel empowered. Of particular interest is the quantitative finding that the largest impacts on cash savings occur among women with lower decision-making power at baseline. The literature is mixed on the ability of cash transfers to meaningfully empower women using a variety of different indirect and direct outcomes indicators (Peterman et al., 2015; van den Bold et al., 2013). Indeed, in a companion paper which directly looks at impacts on decision-making, we find positive but relatively inconsequential effects of the CGP on decision-making due to the marginal size of changes, which seem at odds with the large direct effects reported here on other dimensions of financial empowerment (Bonilla et al. 2016). This apparent inconsistency could be because one-off questions about decisions do not fully capture the subtle nuances of negotiations which can influence decisions, and are hard to capture and interpret in a quantitative questionnaire (Peterman et al. 2015). In this sense the more direct measures used here - cash savings, employment - may be better able to capture meaningful components of financial empowerment.

The impacts on savings and NFE occur within an overall context of improved consumption and material well-being, so that the CGP can be viewed as truly transformative for these households. As such the results would appear to support a growing group of researchers who advocate for ‘just

giving cash' (Hanlon et al. 2010), or argue that UCTs should be considered the benchmark with which to measure the success of any alternative intervention (Faye et al. 2015). An earlier paper by the study team based on the 24-month results argues that though transformative, the CGP does not resolve all development bottlenecks for these households because of the severe lack of social infrastructure, particularly in health, and that the impacts of the CGP could be greatly leveraged with associated supply side initiatives in the same communities (Handa et al. 2016a). In addition, although our results are positive, we do not know for example, if the financial and productive impacts we identify would be sustained if households were to graduate from the program.

There are several limitations to this analysis. First, we do not have a direct measure of which individual in the household manages the NFE so we cannot make a direct link at the woman-level of saving and engagement in specific business activity. Second, our impact estimates for NFE rely on baseline equivalence as we did not measure this at baseline; the randomization into study arm and the overall balance across treatment and control arms mitigates the risk of there being large baseline differences in this one single indicator. Finally, we cannot provide a direct comparison between cash savings under the control of men and women, or compare to overall household-level reported cash savings, as we did not collect these data in our instrument.

Nonetheless, we find that a national UCT that provides benefits to women increases their cash savings and involvement in NFE, and these effects are large. Among program beneficiaries, those with an NFE attain 30 percent higher consumption than those that do not. These results are noteworthy in light of the increasing body of evidence on the inability of micro-credit and other targeted MFIs to improve these very outcomes. We conjecture that the key design features that would appear to support the main results is that the cash is unconditional (thus allowing households to decide how best to use it), and is paid to women (thus increasing her savings and engagement in economic activity). Programs with similar design features are currently part of national social protection strategies in over a dozen countries in SSA - the results from Zambia suggest that women's economic and financial empowerment might also be added to the long list of positive impacts being documented in these programs.

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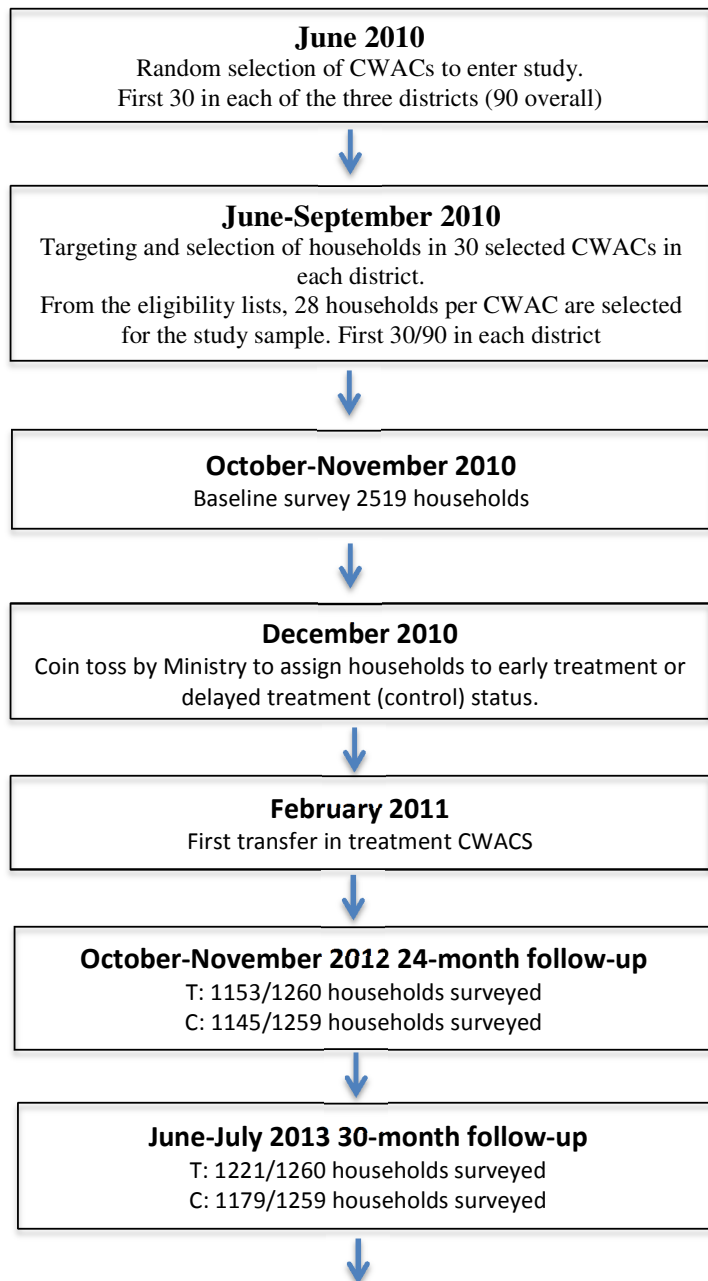
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**Annex**

**Figure A1** – Study Flow Chart for Impact Evaluation of Child Grant Program





**October-November 2013 36-month follow-up**

T: 1221/1260 households surveyed

C: 1238/1259 households surveyed

**Tables**

**Table A1 – Number of households interviewed by wave and household overall attrition**

	<b>Households</b>	<b>Household overall attrition</b>
Baseline	2519	
24-month follow-up	2298	9%
36-month follow-up	2459	2%
Total	7276	

**Table A2 – Number of female respondents interviewed by wave and individual attrition rates**

	<b>Female respondents to women’s empowerment module</b>			<b>Individual attrition rates</b>			T-test for mean difference (T-C)	Robust p-value
	All	Treated	Control	All	Treated	Control		
Baseline	2488	1244	1244					
24-months	2208	1110	1098	0.11	0.11	0.12	-0.01	0.675
36-months	2330	1153	1177	0.06	0.07	0.05	0.0193*	-0.0716

T-tests based on standard errors clustered at the CWAC level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A3 - Testing individual differential attrition (from baseline to 24-month follow-up) by baseline characteristics**

Variable	Treated				Control				Among attriters	
	Attriters	Non-attriters	T-test for mean difference	P-value	Attriters	Non-attriters	T-test for mean difference	P-value	T-test for mean difference	P-value
			Col(1)-Col(2)				Col(5)-Col(6)		Col(1)-Col(5)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(11)	(12)	
Age (years)	31.41	29.69	1.722**	0.0417	31.05	29.43	1.616*	0.0979	0.363	0.783
Attended school	0.78	0.73	0.0525	0.162	0.75	0.70	0.0471	0.241	0.0354	0.507
Never married	0.10	0.11	-0.0149	0.636	0.09	0.11	-0.0160	0.522	0.00809	0.841
Divorced	0.13	0.08	0.0458	0.163	0.12	0.12	0.00158	0.955	0.0106	0.801
Widowed	0.14	0.06	0.0777***	0.00702	0.08	0.06	0.0208	0.411	0.0526	0.170
Shangombo district	0.15	0.31	-0.164***	0.00362	0.14	0.30	-0.159***	0.00151	0.00542	0.944
Kaputa district	0.38	0.23	0.146**	0.0228	0.53	0.26	0.271***	0.00	-0.147	0.205
Expenditure per capita (ZMW)	40.48	41.61	-1.122	0.739	38.67	39.70	-1.024	0.743	1.810	0.686
Household size	5.98	5.73	0.251	0.362	5.73	5.62	0.117	0.621	0.245	0.519
Number of members aged 0-5	1.89	1.88	0.00428	0.959	2.04	1.91	0.134**	0.0470	-0.153	0.136
Number of members aged 6-12	1.31	1.26	0.0513	0.652	1.24	1.26	-0.0226	0.863	0.0737	0.672
Number of members aged 13-18	0.70	0.59	0.112	0.122	0.47	0.53	-0.0529	0.465	0.229**	0.0329
Number of members aged 19-35	1.33	1.36	-0.0275	0.760	1.25	1.30	-0.0567	(0.459)	0.0818	0.460
Number of members aged 36-55	0.61	0.54	0.0732	0.246	0.59	0.53	0.0608	0.353	0.0229	0.790
Number of members aged 56-69	0.10	0.07	0.0303	0.360	0.12	0.06	0.0527	0.119	-0.0194	0.670
Number of members aged 70+	0.04	0.03	0.00758	0.614	0.03	0.03	0.00190	0.879	0.00992	0.621
Women's decision making index (0 low; 9 high)	6.32	5.51	0.814**	0.0340	6.15	5.63	0.517	0.172	0.170	0.761
Proportion of savers	0.21	0.18	0.0304	0.392	0.18	0.16	0.0184	0.573	0.0365	0.521
Amount saved	15.99	11.89	4.103	0.376	14.19	11.47	2.717	0.561	1.800	0.778

Note: Overall N for treated is 1244 (In study=1110; Attrited=134). Overall N for control is 1244 (In study=1098; Attrited=146).

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 T-tests based on standard errors clustered at the CWAC level.

**Table A4 - Testing individual differential attrition (from baseline to 36-month follow-up) by baseline characteristics**

Variable	Treated				Control				Among attriters	
	Attriters	Non-attriters	T-test for mean difference Col(1)-Col(2)	P-value	Attriters	Non-attriters	T-test for mean difference Col(5)-Col(6)	P-value	T-test for mean difference Col(1)-Col(5)	P-value
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(11)	(12)
Age (years)	30.78	29.80	0.975	0.467	32.52	29.46	3.062**	0.0454	-1.741	0.401
Attended school	0.71	0.74	-0.0293	0.548	0.79	0.70	0.0910	0.145	-0.0832	0.272
Never married	0.13	0.11	0.0241	0.519	0.11	0.10	0.00241	0.949	0.0273	0.607
Divorced	0.13	0.08	0.0501	0.251	0.15	0.11	0.0377	0.368	-0.0182	0.757
Widowed	0.13	0.06	0.0726**	0.0327	0.14	0.06	0.0760*	0.0615	-0.00303	0.956
Shangombo district	0.21	0.30	-0.0939*	0.0571	0.18	0.29	-0.111**	0.0237	0.0297	0.750
Kaputa district	0.31	0.25	0.0622	0.209	0.33	0.29	0.0429	0.433	-0.0207	0.855
Expenditure per capita (ZMW)	39.45	41.65	-2.195	0.390	44.33	39.31	5.029	0.282	-4.884	0.351
Household size	5.80	5.75	0.0528	0.828	5.93	5.61	0.313	0.407	-0.123	0.797
Number of members aged 0-5	1.84	1.89	-0.0530	0.550	1.87	1.93	-0.0604	0.498	-0.0305	0.809
Number of members aged 6-12	1.26	1.27	-0.00426	0.972	1.40	1.25	0.151	0.499	-0.139	0.591
Number of members aged 13-18	0.75	0.59	0.157	0.147	0.52	0.52	0.00327	0.974	0.225	0.130
Number of members aged 19-35	1.25	1.36	-0.108	0.330	1.27	1.30	-0.0296	0.805	-0.0159	0.921
Number of members aged 36-55	0.56	0.55	0.0149	0.866	0.69	0.53	0.160	0.165	-0.126	0.364
Number of members aged 56-69	0.11	0.07	0.0431	0.225	0.12	0.07	0.0523	0.228	-0.00951	0.865
Number of members aged 70+	0.03	0.03	0.00261	0.897	0.06	0.02	0.0359	0.228	-0.0267	0.446
Women's decision-making index (0 low; 9 high)	6.00	5.56	0.437	0.238	6.40	5.65	0.749*	0.0871	-0.403	0.514
Proportion of savers	0.19	0.18	0.00846	0.835	0.17	0.16	0.00726	0.877	0.0265	0.688
Amount saved	16.01	12.03	3.98	0.550	9.32	11.93	-2.614	0.508	6.690	0.379

Note: Overall N for treated is 1244 (In study=1153; Attrited=91). Overall N for control is 1244 (In study=1177; Attrited=67).

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 T-tests based on standard errors clustered at the cluster level.

Table A6 - Impact on amount saved (logged) and heterogeneous impact by women's decision-making at baseline

VARIABLES	Impact on amount saved		Heterogeneous impacts by women's decision-making at baseline	
	(1)	(2)	(3)	(4)
	Unadjusted	Adjusted	Unadjusted	Adjusted
DD 24-months	1.075*** (0.173)	1.077*** (0.172)	1.320*** (0.191)	1.320*** (0.191)
DD 36-months	0.508*** (0.175)	0.509*** (0.174)	0.693*** (0.221)	0.692*** (0.220)
Triple interaction term (Treated * High DM at baseline * 24-months)			-0.430* (0.218)	-0.427* (0.218)
Triple interaction term (Treated * High DM at baseline * 36-months)			-0.332 (0.272)	-0.329 (0.272)
Observations	6,324	6,324	6,324	6,324
R-squared	0.072	0.092	0.074	0.095

Notes: Estimations use difference-in-difference modeling (DD indicates difference-in-differences estimate). Robust standard errors clustered at the cluster level are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Estimations with adjustment include woman's age, education and marital status, household size and household demographic composition, and districts.

Annex Table A7 - Heterogeneous impacts on NFE: Moderator model using baseline women's decision-making at 24 months (cross-section)

VARIABLES	Impact on NFE		Heterogeneous impact by baseline women's decision-making	
	(1)	(2)	(3)	(4)
	Unadjusted	Adjusted	Unadjusted	Adjusted
Treated	0.169*** (0.0469)	0.169*** (0.0400)	0.200*** (0.0526)	0.194*** (0.0463)
High DM at baseline			0.0267 (0.0313)	-0.000853 (0.0323)
Interaction term (Treated * High DM at baseline)			-0.0528 (0.0419)	-0.0431 (0.0377)
Observations	2,115	2,115	2,115	2,115
R-squared	0.030	0.093	0.031	0.094

Notes: Estimations use single difference modeling. Robust standard errors clustered at the cluster level are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Estimations with adjustment include woman's age, education and marital status, household size and household demographic composition, and districts.

Annex Table A8 - Heterogeneous impacts on NFE: Moderator model using baseline women's decision-making at 36 months

VARIABLES	Impact on NFE		Heterogeneous impact by baseline women's decision-making	
	(1)	(2)	(3)	(4)
	Unadjusted	Adjusted	Unadjusted	Adjusted
Treated	0.146*** (0.0522)	0.139*** (0.0323)	0.143** (0.0557)	0.128*** (0.0414)
High DM at baseline			0.0658** (0.0304)	0.0269 (0.0307)
Interaction term (Treated * High DM at baseline)			0.00897 (0.0417)	0.0186 (0.0390)
Observations	2,123	2,123	2,123	2,123
R-squared	0.023	0.168	0.028	0.169

Notes: Estimations use single difference modeling. Robust standard errors clustered at the cluster level are in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Estimations with adjustment include woman's age, education and marital status, household size and household demographic composition, and districts.