Crowding out Trust and Money?

Evidence from a Community-Run Conditional Cash Transfer Program in Tanzania

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Abstract

Tanzania recently piloted a community-based conditional cash transfer (CCT) program. Rather than using central government administration, local communities identify vulnerable households and administer the program. Community management committees provide a cash stipend to households conditional on their satisfying basic requirements, including health clinic visits for children age 0-5 and for elderly age 60 and over, and school enrollment and attendance for children age 7-15. We use randomized roll-out of the program to demonstrate its impacts on trust and intra-household transfers after 18 months and after 30 months. At 18 months, the CCT significantly reduced trust in other community members, but significantly increased trust in community leaders, according to standard trust questions. Increases in trust of leaders were greatest among those rating schooling and health facilities highly at baseline—that is, in communities well-poised to implement a CCT program with schooling and health conditionalities. The program reduced transfers that program households receive from other households in the community, suggesting that program households receive a net increase in income equal to only 87% of the value of the transfer. The crowd out of private transfers was largest among relatively rich beneficiary households, in more populous communities, and in communities with more community meetings in the first year of the program. By 30 months, negative impacts of the CCT on trust of other community members had dissipated, but significant impacts on trust of community leaders continued. Crowd out of private transfers was lower than at 18 months, and persisted predominately among relatively rich beneficiaries and in communities with frequent community meetings.

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1. Introduction

Conditional cash transfers (CCTs) are increasingly employed to target the very poorest households in various societies, increasing consumption and encouraging behaviors with positive externalities. Evidence from across Latin America (and increasingly in other parts of the world) demonstrates significant impacts on poverty, food security, education, and health. Recent evidence in Africa suggests positive impacts in education (Baird et al. 2011; Akresh et al. 2013) and health (Akresh et al. 2012). There is some evidence from Mexico that poor households that receive cash transfers, in addition to increasing consumption and human capital investments, go on to offer gifts and loans to other households as part of their informal risk sharing networks (Angelucci & De Giorgi 2009).

Little is known about the potential of a community-driven development model to effectively administer a CCT program. In most Latin American CCTs, beneficiary identification is carried out using a centralized, means-tested registry of vulnerable households and key aspects of program administration are centralized. This paper examines the impact of a different model of CCT administration which relies heavily on community committees to identify vulnerable households, disburse funds, and monitor compliance with conditionalities. This program has operated in three districts of Tanzania since January 2010, providing bi-monthly transfers to nearly 1,000 households in 40 randomly selected treatment villages, but to no one in 40 control villages. The program provides a cash stipend to households conditional on their satisfying basic conditions, including health clinic visits for children age 0-5 and for elderly age 60 and over, and education enrollment and attendance for children age 7-15. The most vulnerable households in each community were identified to receive transfers through a community-based process. Following a baseline survey carried out in March – May 2009, a midline follow-up survey was carried out in August – September 2011, and an endline follow-up survey was carried out in September – October 2012.

The midline survey, carried out after 18-20 months of transfers, showed a range of significant impacts. Participating households, and especially elderly household members, were much more likely to visit health clinics in the previous year—though rates of illness were largely unaffected. The program further improved literacy, school enrollment, and grade progression, although it did not improve the frequency of school attendance. Finally, the program had some impacts on expenditures—most notably on clothing and footwear for women and children.

Given the community-run nature of this CCT, we were chiefly interested in the impacts of the program on trust—including trust in local leaders—and intra-household transfers and risk-sharing behavior. The CCT could quite plausibly change community dynamics and social networks. More evidence on these impacts is needed given that reliance on community administration may become increasingly common as a method of delivering CCTs to vulnerable groups in countries without strong central government administrations.

We find that at 18 months, the CCT significantly reduced trust in other community members, but significantly increased trust in community leaders, according to standard trust questions. Increases in trust of leaders were greatest among those rating schooling and health facilities as good or excellent at baseline—that is, in communities well-poised to implement a CCT program with schooling and health conditionalities. The program reduced transfers that program households receive from other households in the community, suggesting that program households receive a net increase in income equal to only 87% of the value of the transfer. As a result, impacts of the program may be lower than expected on treatment households, but may have positive externalities for other households in the community. The crowd out of private transfers was largest among relatively rich beneficiary households, in more populous communities, in communities with more community meetings in the first year of the program, and in communities with a relatively new and less-experienced village council leader.

At 30 months, negative impacts of the CCT on trust of other community members had dissipated, but significant impacts on trust of community leaders continued. Crowd out of private transfers was lower than at 18 months, and persisted predominately among relatively rich beneficiaries and in communities with frequent community meetings.

2. Experimental Design

2.1 Background

CCT programs provide grants to poor and vulnerable families contingent upon specific actions—usually investments in human capital such as keeping children in school or taking them to health centers regularly. There is clear evidence that successful CCT programs increase enrollment rates, improve preventive health care, and raise the household consumption of beneficiaries (Fiszbein and Schady 2009). However, the evidence base is much more limited in

Africa. That evidence is summarized in a new book on the rise of transfer programs in Sub-Saharan Africa (Garcia and Moore 2012). There is also some evidence that CCT programs benefit not only beneficiary families, but also other families living in the same communities (Angelucci and De Giorgi 2009; Rasyid 2013). This means that the benefits of CCT programs for beneficiary families represent only a share of their overall benefits. An increasing number of African countries are interested in implementing CCTs and have vulnerable populations that might benefit immensely from them.

The community-driven development approach gives control over planning resources and investment decisions to community groups and local governments. In the Tanzanian case, the capacity of many local communities has already been strengthened by the Tanzania Social Action Fund (TASAF). TASAF's first phase of work (TASAF I) began in 2000 and has involved overseeing community-run sub-projects (e.g., construction/rehabilitation of basic health-care facilities, schools and other small-scale infrastructure) which give local communities experience in managing funds, employing contractors and labor, monitoring, and reporting.

2.2 Sampling

The CCT pilot operates in three districts – Bagamoyo (70 km from Dar es Salaam), Chamwino (500 km from Dar), and Kibaha (35 km from Dar). It covers 80 communities (40 treatment and 40 control) and around 1,800 households, for a total of approximately 7,000 individuals at the time of the baseline survey. All 80 communities within the three districts have community management committees (CMCs) that received financial training from TASAF during TASAF I, and have successfully managed at least one TASAF-supported project.

The communities were randomized into treatment and control groups, stratified on community size and district. The selection of treatment and control households for the evaluation followed the following process (where treatment households on which data were collected for the evaluation are a subset of households participating in the program).

To identify eligible households, CMCs and Village Councils prepared ranked lists of households based on the criteria for vulnerable households that had been determined in discussions with TASAF communities *before* the communities were assigned to treatment and control. These lists informed the selection of recipient households in treatment communities and

of households for data collection in control communities. Once the eligible households were identified in all 80 program communities, the 40 treatment communities were selected at random. Once all communities were assigned into the treatment or control groups, sampling for data collection began. Twenty-five households were interviewed per community.

2.3 Experimental Treatment

In the community-based CCT pilot, the community organizations handle many of the activities related to implementation and operation of the CCT (activities usually assumed by a centralized administration in other CCT programs). These organizations screen potential beneficiaries, communicate program conditionalities, transfer funds, and impose and enforce conditionalities.

Prior to randomization of villages into treatment and control or targeting of beneficiaries, an extensive communications and training program on the CCT program was conducted by TASAF at the regional, district, and community levels. The targeting process aimed at identifying, selecting, and prioritizing the poorest and most vulnerable households. TASAF did a village census and then used a means tested system to propose a ranking of households within each community by poverty level to the community. Vulnerable children were defined as being abandoned or chronically ill, having one parent or both parents deceased, or having one or two chronically ill parents (e.g., HIV/AIDS). Vulnerable elderly were defined as those with no caregivers, in poor health, or very poor. Within these broad definitions, communities selected those households that seemed most to fit these descriptions, given the maximum number of beneficiaries that TASAF permitted their community. Lists of households to target as beneficiaries were prepared in both treatment and control communities.

Targeting was done by Community Management Committees (CMCs) under the oversight of the Village Council (VC) and with the endorsement of the Village Assembly (VA). The CMC was democratically elected by potential beneficiaries. Validation of the list of eligible households produced by the CMC and TASAF was done by the VA, allowing for community buy-in. Random selection of the control and treatment communities was done *after* vulnerable households were identified in all 80 communities, to ensure comparability between vulnerable households identified in the treatment and control communities.

Payments to beneficiary households are made bimonthly (every two months); in January 2010, the amount of each transfer ranged from a $12 minimum to a $36 maximum, depending on the number of people in the household. These figures were based on the food poverty line[1], and provide US$ 3 per month for orphans and vulnerable children up to 15 years of age (approximately 50% of the food poverty line) and US$ 6 per month for elderly at least 60 years of age (100% of the food poverty line). The first payments were made in January 2010, and have continued every two months since then. They are anticipated to continue through June 2013. Funds are routed to communities through the local government authorities. The community management committees are then responsible for making payments to beneficiary households. Conditionalities require that children age 7-15 go to primary school, and that both the elderly (age 60+) and children age 0-5 visit health facilities each year. Monitoring of conditionalities and compliance occurs every four months. After two warnings are issued, beneficiaries that fail to comply are suspended indefinitely, but allowed to return to the program after review and approval by the communities and TASAF. The community management committees play a key role in monitoring conditionalities, as they are responsible for collecting monitoring forms from the schools and health clinics and conducting regular awareness sessions . They also make home visits to stay abreast of developments in beneficiary households, update records as necessary, and deliver warnings when conditionalities are not being met. As of September 2011, over 86% of beneficiary households reported that a member of the CMC had visited their household at some point since the program began. Only 1.5% of beneficiary households reported that a member of the CMC asked them to give part of their transfer to them.

[1] The food poverty line in Tanzania, based on minimum caloric requirement for 28 days is T.Sh. 6,631 or approx. US$6 (2006 figures) (Gassmann and Behrendt 2006).

3. Data

Our dataset consists of a baseline survey (March – May 2009), a midline follow-up survey (August – September 2011), and an endline follow-up survey (September – October 2012). For the baseline survey, 1,764 households comprised of 6,996 individuals were selected. Of these, 487 were located in Chamwino, 771 in Bagamoyo, and 506 in Kibaha.

In the baseline survey, the average number of elderly people and children in each household far outweighs the average number of working-age adults. 83% of the households are headed by an elderly person, and in over 40% of households, there is no working-age adult present. Of those working-age adults that are present, almost 10% have a permanent disability.

In each round, we collected standard measures of consumption, health-seeking behavior, health, education, and intra-household transfers. Given the community-based nature of the program, we further gathered data on levels of trust in community leaders, community members, and people in general. At midline (after 18-20 months of transfers), we were able to administer a full survey to 92 percent of baseline households; at endline (after 30-33 months of transfers), we were able to administer a full survey to 88 percent of baseline households.

For children of ages 0-5 and elderly of age 60 and over, we recorded how many times each individual visited a health clinic in the last year. We further gathered data on literacy, whether a child ever attended school, whether a child is currently enrolled in school, whether an enrolled child missed school in the last week (and why), whether the child has taken a national exam, and the highest grade completed.

As a main focus of CCT programs is to increase consumption, we also measured various forms of food and non-food consumption. We collected data on the value of 35 food items obtained through each of three methods of procurement: home production, purchase, and gift (each expressed in TSH).[2] Of particular interest are total purchases and the value of home-production of the six most common food consumption items in our sample villages: super sembe maize flour, husked rice, sugar, dona maize flour, dried beans, and other flour. These items jointly account for over half of total food consumption value. In addition to food consumption, we also collected data on a number of other important consumption items. These include expenditures on cigarettes and other tobacco products; clothing disaggregated by men, women,

[2] At the time the baseline survey began, a Tanzanian Shilling was worth 0.000771 USD, or approximately 1,300 TSH to the dollar.

and children; other personal effects; weddings, funerals, and other ceremonies; modern medical services and medication; education in boarding schools; and insurance.

As the key, novel aspect of this CCT program is that it is community-run, the data of central interest to us are the data on trust in other people, on transfers in and out of the household, and on precautionary savings. This information can help us analyze the extent to which the program may have altered community and intra-household dynamics. To measure trust, we asked the household head if most people can be trusted, if people in their community can be trusted, and if community leaders can be trusted. To better understand household risk sharing networks, we recorded the total values of transfers into or out of the household from the government, NGOs, and individuals, by transfer type (cash, food, or other in-kind transfer). We also asked whether any household members had bank or non-bank savings.

At baseline, only 6% of households gave away goods or cash worth more than 5,000 TSH. Less than half of the households in the sample received transfers (of cash, food, or other goods) worth at least 5,000 shillings. Very few households reported receiving cash from the government, NGOs, or religious organizations (less than one percent).

4. Empirical Methodology

We carried out a baseline and two follow-up surveys to capture both short-term (18-20 months) and longer-term (30 months) impacts of this CCT. We conduct two follow-up surveys because households may be slow to adjust certain behaviors, and some effects may take more time to become visible. Further, some impacts may be temporary and eventually reverse themselves.

We want to estimate the impact of being assigned to receive treatment under the community-based CCT on outcome Y_{it} for household (individual) i in period t. Our baseline specification estimates the following difference-in-differences model:

$$Y_{it} = \beta_0 + \sum_{t=1}^{q} \delta_t + \beta_1 TREAT_{it} + \alpha_i + \varepsilon_{it} \quad (1)$$

where $TREAT_{it}$ take on the value of one if household (individual) i receives treatment by time t, and zero otherwise. δ_t are time dummies and α_i are household (individual) fixed effects. These ensure that we take into account all the characteristics of a household or of an individual that are

unchanging over time (including those we cannot measure). Note that the time-invariant dummy variable for living in a treatment village is collinear with our fixed effects, and so is dropped. Thus, the impact in which we are interested is β_1. We cluster our standard errors at the village level since treatment varies at this level.

We employ two definitions of treatment. First, we consider treatment to mean assignment to treatment, and estimate intention-to-treat (ITT) effects. All surveyed households in treatment communities were initially intended beneficiaries of the program. However, because our baseline survey occurred before the randomization of communities into treatment and control and before beneficiary lists were finalized, some people in treatment communities were not ultimately treated. Our ITT estimates base inference on initial treatment assignment (which is random) instead of on whether treatment was received (which may be for non-random reasons).[3] Second, we consider treatment to mean actually receiving transfers, and estimate treatment-on-the-treated (TOT) effects.[4] Of course, there may be non-random reasons for someone in a treatment community not to receive treatment. For example, a relatively rich household may be more likely to be cut from the program following initial assignment to treatment. We thus estimate TOT effects by instrumenting receipt of treatment with assignment to treatment. Essentially, we exploit that part of treatment that is driven by random assignment to treatment. We slightly favor the TOT analysis because it allows us to understand how the CCT program affects those who actually receive transfers, rather than how the program affects those in program communities (who usually but not always received transfers).

As a second specification, we estimate the following analysis of covariance (ANCOVA) model using the follow-up surveys:

$$Y_{it} = \alpha_0 + \sum_{t=1}^{q} \gamma_t + \alpha_1 EVERTREAT_i + \theta Y_{i0} + X_{it} + u_{it} \quad (2)$$

[3] During the midline, some of the surveyed households in treatment communities had not received treatment (82 households) and some of the surveyed households in control communities had received treatment (6 households). The former is likely due to households having been dropped from consideration during the verification process. The latter is likely due to households residing near the border of two communities—one assigned to the treatment condition and the other assigned to the control condition—or due to households moving from treatment to control communities.

[4] We defined receiving treatment conservatively, such that if a household that had been receiving transfers split, all split-off households were considered as receiving treatment, regardless of if they actually reported receiving transfers or not. Thus, 22 split-off households that reported not receiving transfers were considered treatment households, since they may have received some transfers before splitting off from the original household.

where $EVERTREAT_i$ takes on the value of one if household (individual) i has ever been under treatment and zero otherwise. Y_{i0} is the baseline value of the outcome of interest, γ_t are time dummies, and X_{it} is a vector of controls for baseline household characteristics including the gender, age, and age-squared of the head, whether the house has an improved floor, roof, toilet, and piped water, and dummies for the number of household members and the education level of the head. ANCOVA offers more power than difference-in-differences, especially when exploring outcomes which are not highly auto-correlated (McKenzie 2011). We first estimate equation (2) using only the midline data, and then using only the endline data, to determine how the treatment effects vary over time.[5] Next—to gain additional power—we estimate the average treatment effect over both follow-up rounds by pooling the data from midline and endline and estimating equation (2) again.

3.1 Balance across Treatment and Control Groups

Table 1 shows balance at baseline on a number of community, education, and health variables. Household size is nearly identical at slightly under four members per household in both groups. The difference between treatment and control groups is also not statistically significant for variables ranging from the financial (whether the household has borrowed in the past year), to the physical (whether the household has piped water), educational (literacy rates, having ever attended school, completed standard 7 or higher), health (number of clinic visits), and community-level (contributing labor to community development projects, trust in community leaders).

In those cases where there are statistically significant differences between households in treatment and control communities, they tend to suggest that—if anything—households in treatment communities were worse off. Across several wealth, consumption, and transfer variables, households in treatment communities seem to have fewer resources. The households in treatment communities are less likely to have houses made of improved materials than are those in control communities. They also rank lower on an assets index (constructed using the first principal component of a principal components analysis based on ownership of 13 household assets), and are less likely to have received transfers from an NGO or individual in the past year.

[5] In these two cases, we do not include time fixed effects since the specification analyzes only one round of data.

Table 1: Balance across Treatment and Control Groups

	Mean - Treatment Village	Mean - Control Village	Equality of means p-value	Mean - Treatment Household	Mean - Control Household	Equality of means p-value
General Characteristics						
Household size	3.96	3.97	0.95	4.02	3.94	0.55
Male household head	0.63	0.59	0.11	0.63	0.59	0.12
Age in years	35	37	0.04	35	37	0.05
Orphan (one or both parents dead)	0.04	0.04	0.89	0.05	0.04	0.65
Elderly (age 60+)	0.30	0.33	0.00	0.30	0.33	0.01
Wealth & Consumption[6]						
HH has improved roof	0.33	0.37	0.05	0.33	0.37	0.13
HH has improved floor	0.03	0.09	0.00	0.03	0.08	0.00
HH has toilet	0.69	0.76	0.00	0.69	0.75	0.01
HH has piped water	0.30	0.32	0.53	0.30	0.31	0.64
Asset ownership index (13 assets)	-0.33	-0.13	0.00	-0.35	-0.12	0.00
Non-food consumption expenditure (annualized)	129,561	163,775	0.00	127,350	163,874	0.00
Food consumption value (annualized)	616,933	662,860	0.06	620,183	659,443	0.11
Credit & Savings						
Any HH member borrowed in the past year	0.19	0.18	0.55	0.19	0.19	0.84
Any HH member has savings	0.01	0.02	0.12	0.01	0.02	0.04
Health & Education						
Number of health center visits in past year per individual	2.83	2.77	0.65	2.84	2.76	0.51
Ever attended school (each HH member)	0.54	0.54	0.88	0.54	0.54	0.93
Currently in school if ever attended school (under 22)	0.77	0.80	0.14	0.77	0.80	0.14
Literate (each HH member)	0.43	0.44	0.41	0.43	0.44	0.38
HH member completed Standard VII or higher	0.31	0.33	0.36	0.31	0.33	0.31
Enrolled child absent last week due to own fault	0.12	0.13	0.51	0.11	0.13	0.26
Transfers						
HH received a government transfer (past year)	0.04	0.03	0.26	0.04	0.03	0.29
HH received a transfer from an NGO (past year)	0.04	0.06	0.01	0.04	0.06	0.02
HH received a transfer from an individual (past year)	0.37	0.44	0.00	0.38	0.42	0.05

[6] An improved roof is defined as one made of iron sheets or concrete, and an improved floor is made of concrete or cement. The asset index is constructed by a principal components analysis of 13 assets, specifically an iron, a refrigerator, a television, a bed, a radio, a clock, a sewing machine, a stove, a bike, a motorcycle, a car, a cart, and a mobile phone.

Value of all transfers received by the HH in last month	1,317	1,728	0.50	715	2,211	0.01
Trust						
HH respondent trusts most people	0.26	0.23	0.15	0.26	0.23	0.10
HH respondent trusts people in community	0.59	0.53	0.01	0.59	0.53	0.01
HH respondent trusts community leaders	0.81	0.80	0.67	0.81	0.80	0.61
Community						
Respondent reports that village has a parents' association	0.11	0.11	0.71	0.12	0.11	0.69
Respondent reports that village has a health committee	0.59	0.55	0.13	0.59	0.56	0.17
HH respondent rates schooling and health facilities as good or excellent	0.64	0.67	0.21	0.65	0.66	0.67
HH contributed labor to community development in past year	0.36	0.35	0.67	0.36	0.36	0.88

At baseline, the majority of households reported trusting members of their communities (55%) and most trusted their community leaders (80%). However, only a quarter of respondents believed that they could trust most people. Community participation and trust levels across treatment and control communities are broadly similar at the baseline, although treatment households seem to have slightly higher levels of trust in people (Table 1). There is no significant difference between the two groups in the likelihood to trust community leaders at baseline, however. Also, both groups are equally likely to have contributed labor to a community development project. Some differences at baseline motivate the use of household and individual fixed effects in our analysis of Equation (1). They also motivate a number of controls for baseline characteristics in our analysis of Equation (2).

5. Results

In this section, we first describe the estimated effects of the program on the health, education, and consumption indicators that the program aimed to improve. Next, we describe how the program affected trust in other community members, trust in community leaders, and intra-household transfer behaviors. We pay special attention to how these dynamics have changed over time, and the individual- and community-specific factors predicting greater or lesser increases in trust and transfers.

5.1 Health Outcomes

We first analyze how participation in the community-based CCT (i.e., treatment) affects health-seeking behavior—one of the program's key conditionalities. In Table , we present robust evidence that treatment is associated with significant increases in seeking treatment from a health center. This is true overall and across various age groups: age 0-1, age 0-2, and age 60+.

Table 2: Effects of CCT on Health Center Visits by Age Group at the Midline

Average number of health facility visits in the past year by baseline age				
	(1)	**(2)**	**(3)**	**(4)**
	All	**Age 0-1**	**Age 0-2**	**Age 60+**
Baseline mean of outcome	2.80	8.51	9.17	2.79
Panel A: Effect of Treatment on the Treated – Difference in Differences				
Treatment (TOT) x After	1.21	2.28	1.87	1.14
	(0.33)***	(1.14)**	(1.08)*	(0.36)***
After	-1.37	-2.81	-2.95	-1.21
	(0.19)***	(0.56)***	(0.58)***	(0.22)***
R-squared	0.032	0.085	0.099	0.026
Observations	4,227	330	382	3,633
Panel B: Intention to Treat – Difference in Differences				
Treatment (ITT) x After	1.14	1.98	1.64	1.08
	(0.67)*	(1.58)	(1.66)	(0.52)**
After	-1.37	-2.81	-2.95	-1.20
	(0.40)***	(0.87)***	(0.98)***	(0.32)***
R-squared	0.87	0.64	0.73	0.63
Observations	9477	391	547	4029
Panel C: Effect of Treatment on the Treated – ANCOVA				
Treatment household	1.34***	2.47***	2.12***	1.28***
	(0.20)	(0.88)	(0.81)	(0.18)
R-squared	0.113	0.116	0.115	0.090
Observations	2,114	165	191	1,817
Panel D: Intention to Treat – ANCOVA				
Treatment village	1.27***	2.11***	1.85**	1.22***
	(0.19)	(0.77)	(0.73)	(0.72)
R-squared	0.117	0.116	0.115	0.088
Observations	2,114	165	191	1,817
Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).				

First, we see that treatment is associated with significantly more visits to health clinics by all people. The average individual in the sample visits a health clinic 2.8 times per year at baseline. However, treatment is associated with 1.2 additional visits per year at midline (Column 1)—a 43% increase over the baseline mean number of health clinic visits. The effects of treatment (in number of visits but not in percentage terms) are even larger in magnitude among children ages 0-2, a sub-population specifically targeted by the healthcare conditionalities. Column (2) shows that treated children aged 0-1 at the baseline, who normally go to a health clinic 8.5 times per year, have an additional 2.3 visits per year due to treatment (a 27% increase over the baseline mean number of visits). Column (3) shows that treated children aged 0-2 at the baseline, who normally go to a health clinic 9.2 times per year, have an additional 1.9 visits per year due to treatment (a 21% increase over the baseline mean). Treatment leads to an additional 1.1 visits per year among elderly (age 60+ at baseline) members of treatment households (Column 4), which represents a 39% increase over the baseline average number of visits—2.8 per year—for this age group.

These results are even more robust and slightly more pronounced when we use the ANCOVA method rather than the differences-in-differences method. Using this method—whether using treatment on the treated (TOT) or intent to treat (ITT)—essentially produces the same results, and remains significant for all age groups considered. The ITT effects of the difference-in-differences method are slightly less prominent, and though of similar magnitude they are not statistically significant at conventional levels for very young children (aged 0-1 or aged 0-2); this is likely due to power issues associated with the small sample size.

We next analyze how treatment affects health outcomes for members of treated households. One of the goals of this program has been to improve health by incentivizing health-seeking behavior and health-improving purchases and investments. In Table , we show that treatment is not associated with statistically significantly lower rates of illness in the last four weeks using difference-in-differences—either overall, or among specific sub-populations (children aged 0-4, children aged 0-18, and those age 60+). Similarly, we do not find any effects of treatment on the number days in the last week for which the individual has been too sick to perform their normal daily activities. ANCOVA results do suggest some marginally significant decreases in elderly health due to the program, though this may simply be due to a greater awareness of health

problems given more clinic visits, or a greater willingness to admit health problems given access to medical care to address health problems.

Table 3: Effects of CCT on Household Health Outcomes at the Midline

	If reported being sick in the past 4 weeks				Number of days too sick for normal activities in last 4 weeks			
	All	Age 0-4	Age 0-18	Age 60+	All	Age 0-4	Age 0-18	Age 60+
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Baseline mean of outcome	0.27	0.28	0.20	0.39	1.63	1.06	0.80	2.80
Panel A: Effect of Treatment on the Treated – Difference in Differences								
Treatment (TOT) x After	0.01	0.00	-0.03	0.05	-0.24	-0.07	-0.15	-0.21
	(0.03)	(0.06)	(0.04)	(0.04)	(0.25)	(0.30)	(0.18)	(0.51)
After	-0.00	-0.06	-0.01	0.03	0.17	-0.23	-0.09	0.66
	(0.02)	(0.03)**	(0.02)	(0.03)	(0.17)	(0.17)	(0.14)	(0.32)**
R-squared	0.000	0.011	0.003	0.008	0.000	0.007	0.003	0.005
Observations	10,727	966	4,528	3,639	10,727	966	4,528	3,639
Panel B: Intention to Treat – Difference in Differences								
Treatment (ITT) x After	0.01	0.00	-0.03	0.04	-0.22	-0.07	-0.14	-0.20
	(0.04)	(0.08)	(0.05)	(0.06)	(0.38)	(0.42)	(0.26)	(0.73)
After	-0.00	-0.06	-0.01	0.03	0.17	-0.23	-0.09	0.66
	(0.03)	(0.05)	(0.04)	(0.04)	(0.28)	(0.26)	(0.21)	(0.48)
R-squared	0.66	0.62	0.61	0.59	0.66	0.63	0.61	0.62
Observations	13923	1106	5221	4032	13922	1106	5221	4031
Panel C: Effect of Treatment on the Treated - ANCOVA								
Treatment household	0.03	0.06	-0.00	0.07*	-0.06	0.30	-0.03	-0.04
	(0.02)	(0.21)	(0.03)	(0.03)	(0.21)	(0.21)	(0.12)	(0.44)
R-squared	0.020	0.041	0.014	0.016	0.022	0.039	0.006	0.023
Observations	5,364	483	2,264	1,820	5,364	483	2,264	1,820
Panel D: Intention to Treat - ANCOVA								
Treatment village	0.03	0.06	-0.00	0.06*	-0.06	0.28	-0.03	-0.03
	(0.02)	(0.04)	(0.03)	(0.03)	(0.20)	(0.19)	(0.12)	(0.42)
R-squared	0.020	0.045	0.014	0.015	0.022	0.040	0.006	0.023
Observations	5,364	483	2,264	1,820	5,364	483	2,264	1,820

Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).

The CCT has effectively changed how individuals behave with respect to their health; more health-seeking behavior is occurring among both young children and the elderly. If visits to health care clinics improve health, wellbeing, or productivity and if individuals were underinvesting in their health before the CCT, then the CCT may be generating large improvements in these areas. However, we find little evidence for any direct impact of the CCT on reported health at midline.

5.2 Education Outcomes

We also examined whether participation in the community-based CCT (i.e., treatment) affects education outcomes, as this is the second key conditionality of the program. In Table 2, we first show that treatment is associated with higher literacy among children aged 0-18 (Column 1). While on average 52% of children ages 0-18 are literate at the baseline, children in treatment households are 4 percentage points more likely to be literate at midline. This is represents an 8% increase in the literacy rate over the baseline level, and the result is statistically significant at the 10% level. Furthermore, treatment also leads to a higher likelihood of 0-18 year olds having attended school at some point (Column 2), and a greater likelihood of their being currently enrolled in school (Column 3). While 69% of children aged 0-18 have attended school at some point, treatment makes them 7 percentage points more likely to have done so—a 10% increase over the baseline mean rate. Also, while 59% of children aged 0-18 are currently enrolled in school, children in treatment communities are 6 percentage points more likely to be in school—a 10% increase over the baseline mean rate.

Nonetheless, treatment does not have a statistically significant impact on the likelihood that enrolled children aged 0-18 missed school in the last week for personal reasons (i.e., not due to school closure, teacher absence, or some other factor outside their control) (Column 4). It also does not affect the propensity for students aged 0-18 to have taken a national exam (Column 5).

Treatment also seems to have a large impact on grade progression. Primary school begins at age 7 and continues for 7 years. The seven primary grades are Standard I through Standard VII. We find evidence that treatment has a large impact on whether children aged 7-14 have completed Standard IV or above, and on whether children aged 15-18 have completed Standard VII or above.

Table 2: Effects of CCT on Household Education Outcomes at the Midline

	Age 0-18					Age 7-14	Age 15-18
	Literate	Ever attended school	Currently in school	Missed school last week if enrolled-own fault	Took national exam-Standard IV+	Completed Standard IV or Higher	Completed Standard VII or Higher
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Baseline mean of outcome:	0.52	0.69	0.59	0.12	0.98	0.36	0.50
Panel A: Effect of Treatment on the Treated – Difference in Differences							
Treatment (TOT) x After	0.04	0.07	0.06	0.03	0.01	0.06	0.13
	(0.02)*	(0.02)***	(0.03)*	(0.03)	(0.02)	(0.03)*	(0.07)*
After	0.18	0.13	0.02	-0.03	0.01	0.29	0.26
	(0.01)***	(0.01)***	(0.02)	(0.02)	(0.01)	(0.02)***	(0.05)***
R-squared	0.181	0.143	0.013	0.002	0.003	0.312	0.288
Observations	3,998	3,998	3,986	1,966	1,150	1,974	590
Panel B: Intention to Treat – Difference in Differences							
Treatment (ITT) x After	0.04	0.06	0.06	0.02	0.00	0.06	0.12
	(0.03)	(0.04)*	(0.05)	(0.05)	(0.03)	(0.05)	(0.11)
After	0.18	0.13	0.02	-0.03	0.01	0.29	0.26
	(0.02)***	(0.02)***	(0.03)	(0.03)	(0.02)	(0.04)***	(0.08)***
R-squared	0.84	0.83	0.74	0.70	0.73	0.81	0.80
Observations	4823	4823	4822	2897	1796	2320	787
Panel C: Effect of Treatment on the Treated - ANCOVA							
Treatment household	0.02	0.05**	0.03	-0.00	0.00	0.05	0.03
	(0.02)	(0.02)	(0.03)	(0.02)	(0.01)	(0.03)	(0.06)
R-squared	0.352	0.329	0.144	0.003	0.008	0.269	0.138
Observations	1,999	1,999	1,993	983	575	987	295
Panel D: Intention to Treat - ANCOVA							
Treatment village	0.02	0.04**	0.03	-0.00	0.00	0.04	0.03
	(0.02)	(0.02)	(0.03)	(0.02)	(0.01)	(0.03)	(0.06)
R-squared	0.352	0.328	0.143	0.002	0.008	0.270	0.139
Observations	1,999	1,999	1,993	983	575	987	295

Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).

On average, 36% of children aged 7-14 have completed Standard IV. Using difference-in-differences (TOT), treatment is associated with a 6 percentage point increase in the rate of completion of Standard IV or above in this age group, which is a 17% increase in the mean

incidence of Standard IV completion over baseline levels. This result is statistically significant at the 10% level. However, this effect is no longer significant, although of similar magnitude, when evaluating the effects of treatment using the ANCOVA method.

Similarly, on average, 50% of children aged 15-18 have completed Standard VII. Again, this is completion of primary school education, which is a prerequisite for passing on to secondary education. Treatment is associated with a 13 percentage point increase in the rate of completion of Standard VII or above, which is a 26% increase in the mean incidence of Standard VII completion over baseline levels. This result is also statistically significant at the 10% level in the difference-in-differences regressions, although it loses significances and is of much lower magnitude in the ANCOVA analysis. These results provide some evidence that treatment may have a positive impact on educational attainment and grade progression.

That the CCT has dramatically boosted whether a child has ever attended school, as well as whether they are currently enrolled in school, but not whether the child recently attended school suggests that the program is enrolling new students but is not encouraging students to spend more time in school than they already do. It could be the case that the conditions for remaining in the transfer program (80% attendance) are non-binding.

5.3 Expenditures

We also examined whether treatment changes the amount and composition of annual expenditures on various items. In Table 3, we show that treatment leads to statistically significantly higher expenditures on children's clothing (significant at the 1% level), and expenditure on formal insurance (significant at the 1% level). There is also some evidence for increased expenditures on clothing for women and girls over age 15 (significant at the 10% level in the difference-in-differences TOT regression). While this result is not significant in the other three analyses, it remains positive and of fairly large magnitude. In particular, treatment households annually spend 3,985 more Tanzanian shillings on children's clothing (Column 2) and 1,268 more shillings on insurance (Column 9).

Table 3: Effects of CCT on Average Annual Household Non-Food Expenditures at Midline

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Average annual expenditure on the following goods								
	Cigarettes, tobacco, snuff	Children's clothing (all HHs in sample)	Clothing/ footwear for men & boys > 15	Clothing/ footwear for women & girls > 15	Other personal effects	Wedding parties/ funerals/ dowries	Modern medical care services	Boarding school fees	Insurance (car, medical, life)
Baseline mean of outcome:	6,347	6,389	6,407	9,252	1983	4,045	10,066	5,817	181
Panel A: Effect of Treatment on the Treated – Difference in Differences									
Treatment (TOT) x After	-2,143	3,985	-242	3,511	695	424	1,749	2,538	1,268
	(2,038)	(1,481)***	(1,451)	(1,986)*	(414)*	(987)	(2,840)	(3,852)	(267)***
After	203	71	39.441,011	-733	-770	-432	-3,918	-3,875	173
	(1,249)	(916)	(1,047)	(1,308)	(346)**	(823)	(2,216)*	(3,362)	(51)***
R-squared	0.001	0.016	0.001	0.005	0.008	0.000	0.006	0.002	0.174
Observations	3,286	3,286	3,286	3,286	3,286	3,286	3,286	3,286	3,286
Panel B: Intention to Treat – Difference in Differences									
Treatment (ITT) x After	-1,998	3,715	-226	3,274	648	395	1,631	2,367	1,182
	(2,733)	(1,991)*	(1,951)*	(2,669)	(557)	(1,328)	(3,816)	(5,179)	(360)***
After	194	88	1,010	-719	-767	-430	-3,911	-3,865	178
	(1,793)	(1,316)	(1,504)	(1,876)	(496)	(1,181)	(3,182)	(4,826)	(74)**
R-squared	0.55	0.60	0.57	0.56	0.62	0.52	0.54	0.54	0.58
Observations	3,436	3,436	3,436	3,436	3,436	3,436	3436	3,436	3,436
Panel C: Effect of Treatment on the Treated - ANCOVA									
Treatment household	-87	2,434***	-731	1,124	49	-858	-1,282	-1,095	1,417***
	(1,168)	(853)	(1,098)	(1,246)	(-92)	(628)	(2,085)	(2,076)	(230)
R-squared	0.038	0.177	0.099	0.127	0.251	0.054	0.032	0.025	0.217
Observations	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671
Panel D: Intention to Treat - ANCOVA									
Treatment village	-81	2,279***	-684	1,052	45	-804	-1,200	-1,025	1,329***
	(1,109)	(810)	(1,043)	(1,183)	(167)	(597)	(1,978)	(1,973)	(221)
R-squared	0.038	0.175	0.099	0.127	0.251	0.054	0.032	0.025	0.202
Observations	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671

Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).

We do not find statistically significant evidence that treatment households spend less on cigarettes, tobacco, and snuff, though the coefficient on treatment is negative (Column 1). We also do not find statistically significant evidence that treatment households spend more on modern medical care services (Column 7) or on education for children in boarding school

(Column 8). Treatment has almost no effect—statistically or economically—on expenditures on clothing for men and boys over age 15 (Column 3). The coefficient on treatment for this expenditure category (242 shillings, or approximately 0.18 USD per year) is very small. Similarly, the coefficient on expenditure on weddings, parties, funerals, and dowries is also small (424) compared to the significant coefficients described above, and is statistically insignificant at conventional levels (Column 6). Overall, these results suggest that the program has encouraged spending on women and children, and potentially has had effects on health and education spending.

5.4 Food Consumption

We found few food consumptions impacts of the CCT. Among the 10 most common food consumption items, which collectively account for over half of total food consumption, we found significant impacts of treatment on only one: a reduction in "other flour" production (-527 shillings in value in the last week, by the TOT difference in differences analysis), which is statistically significant at the 10% level (it is more strongly significant—at the 5% level—in the ANCOVA analysis). Thus, the consumption of these items seems to be generally unaffected by the CCT program.

We also examined the effects of treatment on the full set of food items for which data were collected at both baseline and midline. This included 35 food items obtained by three different methods of procurement (home produced, purchased, and gift), for a total of 105 potential effects studied. Few results were statistically significant (only 14 out of 105), and even fewer were of relatively large magnitude (the two largest, statistically significant increases in consumption were an increase of 256 shillings in the weekly value of home produced peas, lentils, and other pulses, and an increase of 122 shillings spent on tomatoes—both significant at the 5% level). This indicates that the CCT program likely did not have much direct impact on the individual items consumed by the beneficiary households. It also suggests that the caloric intake by household members did not change much as a result of the program.

Table 4: Effects of CCT on Household Food Consumption at the Midline

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Value of food consumption in the past week									
	Maize (flour) super/ sembe - Purchased	Maize (flour) super/ sembe - Produced	Maize (flour) Dona - Purchased	Maize (flour) Dona - Produced	Other flour (millet, cassava, sorghum, barley) - Purchased	Other flour (millet, cassava, sorghum, barley) - Produced	Rice (husked) - Purchased	Rice (husked) - Produced	Dried beans - Purchased	Sugar - Purchased
Baseline mean of outcome	3,600	216	700	371	166	424	263	61	580	551
Panel A: Effect of Treatment on the Treated – Difference in Differences										
Treatment (TOT)x After	65.59	699.62	-46.67	-109.15	-70.02	-526.83	-159.64	-413.08	-72.41	120.56
	(626.34)	(711.19)	(235.26)	(204.86)	(88.43)	(278.10)*	(353.73)	(463.16)	(174.50)	(150.78)
After	-2,095.46	1,937.35	-442.65	351.76	-9.26	455.01	1,159.71	1,368.13	603.40	860.49
	(397.39)***	(500.38)***	(139.19)***	(108.36)***	(55.28)	(252.68)*	(280.17)***	(317.86)***	(124.37)***	(98)***
R-squared	0.126	0.156	0.029	0.013	0.003	0.012	0.063	0.086	0.049	0.129
Observations	3,286	3,286	3,286	3,286	3,286	3,286	3,286	3,286	3,286	3,286
Panel B: Intention to Treat – Difference in Differences										
Treatment (ITT) x After	61.16	652.32	-43.52	-101.77	-65.29	-491.21	-148.84	-385.15	112.41	-67.52
	(842.01)	(956.69)	(316.30)	(275.40)	(118.88)	(373.97)	(475.27)	(622.80)	(202.76)	(234.42)
After	-2,095.19	1,940.22	-442.84	351.31	-9.54	452.85	1,159.05	1,366.43	860.98	603.10
	(570.48)***	(717.84)***	(199.79)**	(155.62)**	(79.25)	(362.91)	(402)***	(456)***	(141)***	(178)***
R-squared	0.64	0.56	0.52	0.56	0.60	0.65	0.55	0.54	0.61	0.60
Observations	3436	3436	3436	3436	3436	3436	3436	3436	3436	3436
Panel C: Effect of Treatment on the Treated - ANCOVA										
Treatment household	-99.38	601.48	46.16	-37.07	4.92	-567.89**	-178.63	-583.45	-27.43	14.50
	(271.78)	(595.30)	(103.73)	(185.70)	(74.48)	(221.74)	(269.81)	(437.27)	(130.31)	(98.97)
R-squared	0.219	0.200	0.050	0.127	0.061	0.192	0.113	0.113	0.163	0.274
Observations	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671
Panel D: Intention to Treat – ANCOVA										
Treatment village	-93.05	563.13	43.22	-34.70	4.60	-531.58**	-167.31	-546.27	-25.68	13.55
	(258.38)	(566.06)	(98.58)	(176.29)	(70.71)	(211.14)	(256.30)	(414.47)	(123.66)	(93.87)
R-squared	0.219	0.200	0.050	0.127	0.061	0.193	0.113	0.113	0.164	0.274
Observations	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671	1,671

Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).

5.5 Community Trust

Next, we examined whether treatment changes household members' reported trust of people overall, people in their community, and leaders of their community. An important component of this CCT program is its community-based nature, relying heavily on communities to deliver the program. Indeed, this feature distinguishes it from CCT programs in other countries that are almost always carried out by the central government (although usually with some community role). There may be reasons to believe that the collaboration involved in carrying out this community-based CCT leads to higher levels of community trust; at the same time, the separation of more needy households from less needy households could imply a resulting reduction in trust if there are disagreements about the households to be targeted.

In Table 5, we show that treatment makes household members less likely to trust people overall (Column 1), but more likely to trust community leaders (Column 3). While on average 24% of people report trusting most people at baseline, our differences-in-differences, TOT results suggest that members of treated households are 7 percentage points less likely to report trusting people overall at midline (representing a 29% decline in such trust from baseline levels). Further, while on average 80% of people report trusting their community leaders at baseline, these results indicate that members of treated households are 6 percentage points more likely to trust community leaders (an 8% increase in this type of trust). Both of these results are significant at the 10% level.

Using the ANCOVA method, the effect of treatment on trust in people in general is no longer significant. However, the effect on trusting leaders in the community is even more strongly statistically significant, and it is of the same magnitude as the difference in differences TOT results (6 percentage points in both ANCOVA specifications). It is significant at the 1 percent level in the ANCOVA TOT analysis and the 5 percent level in the ANCOVA ITT analysis.

These findings suggest that the CCT has indeed changed the way people feel about their communities and their leaders. Greater trust of leaders is likely built by the fact that leaders have more resources to distribute, and treated households are the principal beneficiaries of those additional resources. That is, beneficiary households now have more money because their community management committee is giving it directly to them. On the other hand, the program targets only a subset of the community, which understandably creates some feelings of inequity.

Treated households now have neighbors that are aware they have more resources, and who may feel they have a claim to some portion of them. This may affect traditional solidarity networks, explaining the findings of lower trust in people overall.

Table 5: Effects of CCT on Household Members' Trust at Midline

	(1)	(2)	(3)
	Can most people be trusted?	**Can people in the community be trusted?**	**Can community leaders be trusted?**
Baseline mean of outcome:	0.24	0.56	0.80
Panel A: Effect of Treatment on the Treated – Difference in Differences			
Treatment (TOT) x After	-0.07	-0.04	0.06
	(0.04)*	(0.03)	(0.03)*
After	0.31	0.20	-0.03
	(0.03)***	(0.02)***	(0.02)
R-squared	0.16	0.08	0.004
Observations	3,260	3,255	3,267
Panel B: Intention to Treat			
Treatment (ITT) x After	-0.06	-0.04	0.05
	(0.05)	(0.04)	(0.04)
After	0.31	0.20	-0.03
	(0.04)***	(0.03)***	(0.03)
R-squared	0.59	0.60	0.56
Observations	3,421	3,419	3,424
Panel C: Effect of Treatment on the Treated – ANCOVA			
Treatment household	-0.02	0.02	0.06***
	(0.03)	(0.03)	(.02)
R-squared	0.058	0.047	0.031
Observations	1,657	1,654	1,661
Panel D: Intention to Treat – ANCOVA			
Treatment village	-0.02	0.02	0.06**
	(0.03)	(0.02)	(0.02)
R-squared	0.059	0.046	0.028
Observations	1,657	1,654	1,661
Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).			

5.6 Transfers Paid Out and Received

Participation in the community-based CCT (i.e., treatment) might very well affect what treatment households are able to receive from other sources. On the one hand, we might think that getting transfers from TASAF would deter individuals and possibly NGOs and religious organizations from giving transfers of any kind to CB-CCT beneficiary households. These individuals and organizations may perceive beneficiary households as "less needy" as a result of their receipt of transfers from TASAF, and accordingly reduce their transfers. On the other hand, beneficiary households might increase the amount of money they pay out to other households, as a result of receiving treatment. They now feel richer and therefore may give more money to non-beneficiary households—whether out of altruism, or through an existing risk-pooling arrangement with neighbors.

Table shows that treatment has a large and statistically significant impact on transfers received during the previous one year. Treatment households are 92 percentage points more likely than the average baseline household to receive a transfer of at least 5,000 TSH from the government or TASAF (Column 1)—an unsurprising result given that treatment households by definition receive a transfer above this amount. However, being a treatment household is negatively correlated with having received a transfer from an NGO or religious organization (Column 2) and with having received a transfer from an individual (Column 3), although these effects are only statistically significant using ANCOVA and not using difference-in-differences.

Columns 4-6 reveal that while treatment does not have a statistically significant effect on *whether* households receive a transfer from an individual or an NGO/ religious organization using the difference-in-differences method, it has a large effect on the *size* of transfers received. Treatment is associated with about 111,000 TSH more from the government and TASAF (Column 4), but with almost 1,000 TSH less from NGOs and religious organizations (Column 5), and with 14,000 TSH less from individuals (Column 6). This implies that more than 13% of the transfer gains received from TASAF and the government are mitigated by reduced transfers from other sources. The reduction in transfers from NGOs and religious organizations is clearly much smaller than the reduction in transfers from individuals. This suggests that most of this money is staying in the communities and simply benefiting non-beneficiary households in the form of spillovers.

Table 8: Effects of CCT on Transfers Received (by Source) and Paid Out

	(1)	(2)	(3)		(4)	(5)	(6)		(7)
	Household received at least 5000 TSH from group, last 12 months				Value of all transfers received (cash, food, and other in-kind) from group, last 12 months				Value of all transfers given out, last 12 months
	government/ TASAF	*NGO or religious org.*	*individuals*		*government/ TASAF*	*NGO or religious org.*	*individuals*		
Baseline mean of outcome:	0.04	0.05	0.40		648	1,038	20,229		1,523
Panel A: Effect of Treatment on the Treated – Difference in Differences									
Treatment (TOT) x After	0.92	-0.01	-0.02		111,235	-940.74	-13,754		683.96
	(0.02)***	(0.02)	(0.04)		(5,318)***	(748.96)	(6,347)**		(734.97)
After	-0.01	-0.01	0.13		-197.03	624.66	25,538.96		404.74
	(0.01)	(0.02)	(0.03)***		(449.58)	(636.90)	(5,415)***		(620.84)
Panel B: Intention to Treat – Difference in Differences									
Treatment (ITT) x After	0.86	-0.01	-0.02		103,713	-877	-12,824		638
	(0.03)***	(0.03)	(0.05)		(7,444)***	(1,008)	(8,532)		(989.04)
After	-0.00	-0.01	0.13		259	621	25,483		408
	(0.02)	(0.02)	(0.04)***		(762)	(914)	(7,778)***		(892)
R-squared	0.86	0.55	0.60		0.70	0.53	0.58		0.62
Observations	3435	3435	3435		3435	3435	3435		3435
Panel C: Effect of Treatment on the Treated - ANCOVA									
Treatment household	0.92**	-0.02**	-0.06*		111,121***	-1,446**	-16,125***		-301
	(0.01)	(0.01)	(0.03)		(4,866)	(689)	(4,561)		(543)
R-squared	0.834	0.035	0.107		0.373	0.032	0.082		0.027
Observations	1,671	1,671	1,671		1,671	1,671	1,671		1,671
Panel D: Intention to Treat - ANCOVA									
Treatment village	0.86***	-0.02**	-0.06*		104,054***	-1,353**	-15,104***		-281
	(0.02)	(0.01)	(0.03)		(4,714)	(656)	(4,325)		(515)
R-squared	0.750	0.037	0.108		0.328	0.034	0.083		0.028
Observations	1,671	1,671	1,671		1,671	1,671	1,671		1,671

Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).

In the ANCOVA analysis, these results are even more pronounced. Treatment results in a strongly significant decrease in the amount of transfers received from both NGOs and other individuals. In contrast with the difference-in-difference results, the negative coefficients on the likelihood of the household receiving transfers from NGOs and other individuals are of larger magnitude and statistical significance. Indeed, treatment is associated with a 2 percentage point

decrease in the likelihood of receiving transfers from NGOs (a 40 percent reduction, relative to baseline levels), significant at the 5 percent level. Treatment is also associated with a 6 percentage point decrease in the likelihood of receiving transfers from individuals (a 15 percent decrease, relative to baseline levels), significant at the 10 percent level.

Table 9: Effects of CCT on Transfers Received (by Source and Transfer Type)

	(1)	(2)	(3)		(4)	(5)	(6)		(7)	(8)	(9)
	Value of all transfers of this type received from individuals, last 12 months				**Value of all transfers of this type received from government/ TASAF, last 12 months**				**Value of all transfers of this type received from NGO/ religious organizations, last 12 months**		
	cash (TSH)	*food (TSH)*	*other in-kind (TSH)*		*cash (TSH)*	*food (TSH)*	*other in-kind (TSH)*		*cash (TSH)*	*food (TSH)*	*other in-kind (TSH)*
Baseline mean:	7,569	8,148	4,657		138	179	331		275	201	562
Panel A: Effect of Treatment on the Treated – Difference in Differences											
Treatment (TOT) x After	-8,971	-5,144	64.93		111,762	-90	-438		-367	-576	3.34
	(3,586)**	(3,027)*	(1,765)		(5,220)***	(277)	(404)		(555)	(288)**	(311)
After	14,522	7,868	2,845		-475	138	140		399	379	-153
	(3,092)***	(2,448)***	(1,413)**		(326)	(195)	(342)		(502)	(242)	(195)
Panel B: Intention to Treat – Difference in Differences											
Treatment (ITT) x After	-8,360	-4,792	61		104,205	-83	-408		-343	-537	3.12
	(4,827)*	(4,076)	(2,376)		(7,294)***	(373)	(542)		(745)	(387)	(418)
After	14,485	7,846	2,845		-17.01	137	138		398	376	-153
	(4,447)***	(3,523)**	(2,031)		(73)	(279)	(490)		(720)	(346)	(280)
R-squared	0.57	0.60	0.54		0.71	0.38	0.35		0.51	0.51	0.53
Observations	3426	3419	3423		3435	3434	3435		3434	3435	3434
Panel C: Effect of Treatment on the Treated - ANCOVA											
Treatment household	-8,515***	-6,128***	-2,010		111,547***	-89	-382		-750	-570**	-154
	(2,342)	(2,219)	(1,395)		(4,768)	(288)	(461)		(539)	(222)	(243)
R-squared	0.079	0.043	0.033		0.375	0.009	0.007		0.018	0.026	0.056
Observations	1,662	1,656	1,659		1,671	1,670	1,671		1,670	1,671	1,670
Panel D: Intention to Treat - ANCOVA											
Treatment village	-7,970***	-5,732***	-1,882		104,491***	-84	-358		-702	-534**	-144
	(2,221)	(2,106)	(1,322)		(4,606)	(274)	(437)		(512)	(211)	(231)
R-squared	0.079	0.044	0.034		0.340	0.010	0.009		0.019	0.028	0.056
Observations	1,662	1,656	1,659		1,671	1,670	1,671		1,670	1,671	1,670

Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).

Table sheds some light on the types of transfers that cash transfers from TASAF seem to be crowding out. Columns 1-3 show how receiving treatment affects transfers from individuals; in the difference-in-differences, TOT results, it is associated with almost 9,000 fewer TSH in cash and 5,000 fewer TSH in food—but does not have a statistically significant effect on other types of in-kind transfers from individuals. This suggests that losses in transfer revenue from individuals due to being in a treatment household come mostly from fewer cash transfers received, but also from less food support.

Columns 4-6 show that treatment leads to significantly higher cash transfers from the government (an additional 111,000 TSH per year, according to the difference-in-differences TOT results), but does not have any effect on the (very small, on average) food and other in-kind transfers received from TASAF or the government. Columns 7-9 show that the losses of NGO transfers due to being treated are economically small overall, and only statistically significant in the case of food donations by NGOs (treated households receive about 600 TSH less).

5.7 Heterogeneous Treatment Effects on Trust at Midline and Endline

This section provides a more detailed analysis of the effects of treatment on trust at both midline and endline for individuals that rank the quality of community health and education facilities highly at baseline. These communities are likely well-poised to implement a CCT program with schooling and health conditionalities. As such, we might think that leaders in these communities are especially able to perform well and increase their community members' trust through a well-administered CCT program.

Table 10 shows heterogeneous treatment effects on trust at midline for two groups of citizens: those that rate the quality of their schools and health facilities as good or excellent at baseline, and those that rate either or both of them as fair or poor. All specifications are estimated by difference-in-differences and compute the effect of treatment on the treated (TOT). Columns 1-2 reveal no evidence of heterogeneous treatment effects on trust of most people according to baseline ratings of community facilities. However, Columns 3-4 show that increases in trust of leaders were greatest among those rating schooling and health facilities highly at baseline. In particular, the impact of treatment on people who said schooling and health facilities were good or excellent at baseline was an 11 percentage point increase in trust of community

leaders (about a 14% increase over mean trust of community leaders at baseline). The impact of treatment on trust of community leaders is negative and statistically insignificant among those rating schooling and health facilities as as fair or poor at baseline.

Table 10: Effects of CCT on Trust at Midline, by Perceived Quality of Schooling and Health Facilities at Baseline

	(1)	(2)		(3)	(4)
	Trust most people			Trust community leaders	
Treatment (TOT) x After	-0.07*	-0.07		0.06*	-0.05
	(0.036)	(0.061)		(0.032)	(0.054)
After	0.31***	0.33***		-0.03	0.08**
	(0.026)	(0.045)		(0.021)	(0.037)
Rates schooling & health facilities as good or excellent at baseline x Treatment (TOT) x After		-0.01			0.16***
		(0.075)			(0.059)
Rates schooling & health facilities as good or excellent at baseline x After		-0.04			-0.15***
		(0.055)			(0.042)
R-squared	0.155	0.156		0.004	0.013
Observations	3,260	3,258		3,267	3,265

Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).

Table 11 shows that at endline, negative impacts of the CCT on trust of most people had dissipated. Indeed, at endline the coefficient is positive, though insignificant. However significant, positive impacts of treatment on trust in community leaders continued with even stronger significance at endline (at the 5 percent level). Further, at endline, increases in trust of leaders were again greatest among those rating schooling and health facilities as good or excellent at baseline; at both midline and endline, treatment increases trust in community leaders by 10 percentage points among respondents rating community health and education facilities as good or excellent at baseline.

Table 11: Effects of CCT on Trust at Midline and at Endline, by Perceived Quality of Schooling and Health Facilities at Baseline

	(1)	(2)		(3)	(4)
	Trust most people			Trust community leaders	
Treatment (TOT) x After (midline)	-0.07*	-0.06		0.06*	-0.05
	(0.036)	(0.062)		(0.033)	(0.054)
Treatment (TOT) x After (endline)	0.02	-0.00		0.06**	-0.04
	(0.045)	(0.060)		(0.028)	(0.056)
After (midline)	0.30***	0.32***		-0.03	0.07*
	(0.026)	(0.045)		(0.021)	(0.038)
After (endline)	-0.11***	-0.06*		-0.05***	0.00
	(0.028)	(0.030)		(0.016)	(0.040)
Rates schooling & health facilities as good or excellent at baseline x Treatment (TOT) x After (midline)		-0.01			0.15***
		(0.075)			(0.059)
Rates schooling & health facilities as good or excellent at baseline x Treatment (TOT) x After (endline)		0.02			0.14**
		(0.073)			(0.065)
Rates schooling & health facilities as good or excellent at baseline x After (midline)		-0.03			-0.15***
		(0.055)			(0.043)
Rates schooling & health facilities as good or excellent at baseline x After (endline)		-0.07*			-0.08*
		(0.042)			(0.047)
R-squared	0.168	0.169		0.003	0.008
Observations	4,876	4,873		4,890	4,887

Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).

5.7 Heterogeneous Treatment Effects on Intra-household Transfers at Midline and Endline

This section further explores the effects of treatment on transfers received from individuals, and tests for the existence of heterogeneous treatment effects by baseline assets levels and community characteristics. Table 12 shows that the crowd out of private transfers at midline was largest among relatively rich beneficiary households. Specifically, the impact of treatment on people who are at the 25th percentile of an asset index (constructed used principal components analysis with 13 items) at baseline was a crowd out of 7,104 TSH, or 35% of the baseline level of transfers from individuals. For people in the 75th percentile of the asset index, the effect of

treatment was a crowd out of 17,018 TSH, or 84% of the baseline level of transfers from individuals.

Table 12: Effects of CCT on Transfers Received from Individuals at Midline, by Measures of Baseline Poverty and Community Characteristics

	(1)	(2)	(3)	(4)	(5)
	Transfers received from individuals				
Treatment (TOT) X After (midline)	-13,754.45**	-15,519.51**	-23,107.91**	-7,313.46	8,870.30
	(6,346.519)	(6,385.289)	(9,075.011)	(7,508.320)	(10,421.514)
After (midline)	25,538.96***	26,067.38***	33,797.17***	18,346.77***	1,534.33
	(5,415.486)	(5,302.617)	(7,868.783)	(6,375.953)	(8,594.627)
Asset index at baseline x Treatment (TOT) x After (midline)		-9,147.54**			
		(3,760.374)			
Asset index at baseline x After (midline)		5,714.29*			
		(3,001.935)			
Village councilman years in office x Treatment (TOT) x After (midline)			1,889.23*		
			(997.887)		
Village councilman years in office x After (midline)			-1,699.58**		
			(758.836)		
2009 village size (# HHs) x Treatment (TOT) x After (midline)				-6.93**	
				(3.324)	
2009 village size (# HHs) x After (midline)				7.28***	
				(2.768)	
2010 village meetings (#) x Treatment (TOT) x After (midline)					-6,821.79*
					(4,040.137)
2010 village meetings (#) x After (midline)					7,181.78**
					(3,458.575)
R-squared	0.045	0.049	0.048	0.049	0.049
Observations	3,286	3,286	3,270	3,185	3,270

Notes: Standard errors in parentheses and clustered at the village level. * significant at 10%; ** significant at 5%; *** significant at 1%. After is a dummy for an observation coming from the midline survey (as opposed to the baseline).

Table 13: Effects of CCT on Transfers Received from Individuals at Midline and at Endline, by Measures of Baseline Poverty and Community Characteristics

	(1)	(2)	(3)	(4)	(5)
	Transfers received from individuals				
Treatment (TOT) X After (midline)	-14,241**	-16,106**	-23,990***	-8,279	7,598
	(6,398)	(6,453)	(9,136)	(7,615)	(10,289)
Treatment (TOT) X After (endline)	-4,737	-6,625	-7,970	-1,277	31,574*
	(8,071)	(8,181)	(12,389)	(10,525)	(19,000)
Asset index at baseline x Treatment (TOT) x After (midline)		-9,332**			
		(3,778)			
Asset index at baseline x Treatment (TOT) x After (endline)		-7,587*			
		(4,606)			
Village councilman years in office x Treatment (TOT) x After (midline)			1,976*		
			(1,010)		
Village councilman years in office x Treatment (TOT) x After (endline)			672		
			(1,405)		
2009 village size (# HHs) x Treatment (TOT) x After (midline)				-6.42**	
				(3.27)	
2009 village size (# HHs) x Treatment (TOT) x After (endline)				-2.40	
				(9.88)	
2010 village meetings (#) x Treatment (TOT) x After (midline)					-6,572
					(4,058)
2010 village meetings (#) x Treatment (TOT) x After (endline)					-10,974*
					(6,308)
R-squared	0.033	0.035	0.035	0.037	0.035
Observations	4,920	4,920	4,904	4,777	4,904
Notes: Robust standard errors in parentheses, clustered at the village level. *** p<0.01, ** p<0.05, * p<0.1. Coefficients on time dummies, and on time dummies interacted with the asset index, with village councilman years in office, with 2009 village size, and with 2010 village meetings not shown.					

The crowd-out effect of treatment was also large and significant in communities with more community meetings in the first year of the program and in communities with a relatively new and less-experienced village council leader. For example, each additional year that a village council leader had been in office results in a 1,889 TSH increase in transfers from individuals going treatment households. This is consistent with a local leader (Village Councilman) that's

not been in office very long lacking experience, knowledge, and pre-existing political approval and faith in his decision-making abilities; as such, people are less likely to take his word that the "right" people are getting transfers, and therefore give fewer individual transfers to beneficiary households. While the effect of a larger village size is strongly significant (at the 5% level); it implies a modest 7 TSH reduction in transfers per additional household in the village. Finally, each additional village meeting held during 2010 (the first year of the program) is associated with a 6,822 TSH reduction in transfers from individuals going to treatment households. This is consistent with meetings generally increase awareness of who is participating in the program and thus facilitating crowd-out of transfers. Table 13 shows that crowd out of private transfers at endline was lower than at midline, and persisted predominately among relatively rich beneficiaries and in communities with many meetings in 2010.

6. Conclusions

This paper examined the impact of a non-traditional, community-based CCT program on both basic indicators of health, education, and consumption, and on more nuanced measures of intra-household transfers and trust. The midline survey, carried out after 18-20 months of transfers, showed a range of significant impacts. Participating households, and especially elderly household members, were much more likely to visit health clinics in the previous year, though general health did not improve significantly. A number of educational outcomes including literacy, enrollment, and grade progression also improved. We also find little evidence on any large food consumption effects of the program, though there is some evidence of greater purchases of clothing and footwear for women and children.

We carried out a more extensive analysis of the effects of the program on trust and transfers. After 18-20 months of transfers, we find that the program increased trust in community leaders, but in the short run (at midline) it reduced trust in in people generally. Strikingly, the program reduced transfers that households receive from other households in the community, suggesting that participating households receive an increase in income only equal to about 87% of the transfer (as other transfers are reduced by about 13% of the transfer). As a result, impacts of the program may be lower than expected on treatment households, but may have positive externalities on other households in the community. The crowd out of private transfers was

largest among relatively rich beneficiary households, in communities with more community meetings in the first year of the program, and in communities with a relatively new village council leader. At 30 months, negative impacts of the CCT on trust of other community members had dissipated, but significant impacts on trust of community leaders continued. Crowd out of private transfers was lower than at 18 months, and persisted predominately among relatively rich beneficiaries and in communities with frequent community meetings.

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