

# Cash Transfers and Social Capital: Evidence from a Randomized Controlled Trial in Malawi

Hiwot Mesfin<sup>a</sup> and Francesco Cecchi<sup>b,\*</sup>

<sup>a</sup>UNU-MERIT, Maastricht University, Maastricht, the Netherlands

<sup>b</sup>Department of Development Economics, Wageningen University, Wageningen, the Netherlands

\*Corresponding author. E-mail: francesco.cecchi@wur.nl

## Abstract

We examine the social capital implications of conditional and unconditional cash transfer (CCT) programs in Malawi, randomly assigning adolescent women and their households to either program or to a control group. Our results show that cash transfers have a positive aggregate effect on social capital, proxied by trust and gift giving. They also show positive intention-to-treat effects on both trust and gift giving in the short run but a negative spillover effect on gift giving in the long run. Moreover, we find that CCTs have greater positive effects on trust than the unconditional cash transfers (UCT). Further analyses reveal that adolescents with initial reciprocal beliefs drive the increase in trust. These results contribute to the current debate on whether CCTs or UCTs are better policy tools, adding the important ‘externality’ of social capital formation.

**Keywords:** Social capital, Reciprocal beliefs, Social protection, Conditional cash transfer, Unconditional cash transfer

**JEL classification:** O12, C93, D62

## 1. Introduction

Cash transfer programs have become popular policy tools to alleviate poverty and especially to enable poor households to break the inter-generational poverty trap by, for instance, encouraging investments in children. The two most widely used cash transfer formats are conditional cash transfer (CCT) and unconditional cash transfer (UCT). In CCTs, the cash transfers are conditioned on certain desirable (at least from the provider’s point of view) behavioral changes, such as sending children to school or visiting health care facilities. Contrarily, the UCT involves no conditions: beneficiaries are not required to change behavior in exchange for the received transfer (Standing, 2014).

Both CCTs and UCTs have proven to be effective social protection tools in a variety of contexts.<sup>1</sup> Proponents of unconditionality point to the fact that for a *Homo economicus*, UCTs should be preferred, as they grant to beneficiaries the autonomy to make their own priorities and allocate the money in ways that maximize their well-being and utility over time. The boundedly rational *Homo sapiens*, it is rebutted, may be better off under CCTs, which may help draw beneficiaries towards making welfare-maximizing decisions, rather than relying solely on their ‘present desires’. For example, a myopic beneficiary might spend money on food or clothing for immediate gratification rather than on children’s education for delayed but higher returns. The main drawback of CCTs, in addition to being prone to paternalism, is that they have added costs in terms of monitoring compliance to the conditions (Gaarder, 2012).

Regardless of which format will eventually prove to be most effective in what context,<sup>2</sup> cash transfers do not take place in a social and institutional vacuum. As such, they may cause ‘externalities’. In particular, they can be expected to alter, for better or for worse, the expectations that people exhibit with regard to those surrounding them, as well as towards institutions, if not outright affect other-regarding preferences. More importantly, there are good reasons to hypothesize that the extent to which cash transfers shape social capital norms and preferences may depend on their format. In fact, CCTs are more akin to a trust game, in which a sum of money is transferred under the expectation of ‘reciprocal’ action from the recipient. UCTs instead may be most easily comparable to altruistic donations, for which nothing is expected in return. In this study, we investigate whether cash transfers affect social capital, proxied by trust and gift-giving behavior, and examine whether their effect varies based on their degree of conditionality—a thus far overlooked dimension in the debate on CCT versus UCT.

In fact, in recent years there has been a rise in studies that evaluate the impacts of cash transfers on secondary outcomes, i.e., outcomes that are not directly intended to be affected by these social protection programs.<sup>3</sup> To mention some examples, CCTs increase non-beneficiaries consumption, transfers of gifts and loans in Mexico (Barham *et al.*, 2013);

<sup>1</sup> For example, Mexico’s PROGRESA (aka Oportunidades), one of the pioneering CCT programs, improves health outcomes of children (Gertler, 2004; Hoddinott and Skoufias, 2004); increases educational outcomes, especially in post-primary school (Skoufias *et al.*, 2001; Attanasio *et al.*, 2012) and girls’ educational outcomes (Schultz, 2004); reduces time spent in domestic work for both boys and girls (Skoufias *et al.*, 2001); and increases consumption of ineligible villagers (Angelucci and De Giorgi, 2009). Other cash transfer programs have also been effective in improving the livelihoods of the poor. For example, Aizer *et al.* (2016) find that a Mothers’ Pension program in the United States improves children’s health, education and incomes in adulthood. Barham *et al.* (2013) find that a CCT program in Nicaragua increases boys’ cognitive abilities. Harman *et al.* (2016) find that a CCT program in Turkey increases school attendance, improves test scores and reduces pregnancy. In addition, Cirillo *et al.* (2021) present an extensive review of evidence on the effects of cash transfer programs on adolescents’ well-being. Another extensive review by Harman *et al.* (2016) also shows that cash transfers have encouraging effects on reducing poverty, increasing school attendance and empowering women. The review shows less clear effects on learning and nutritional outcomes.

<sup>2</sup> Some studies have tried to obtain empirical insights on whether one form is superior to the other. One pioneering study by Baird *et al.* (2012) compares a CCT conditioned on school attendance to a UCT in Malawi. Using a randomized experiment, their study finds that while CCT surpasses UCT in increasing educational outcomes (school attendance and English proficiency), UCT surpasses CCT in improving the marriage and fertility outcomes of young women. Similarly, Attanasio *et al.* (2015a) show that CCT conditioned on health care outperforms UCT in increasing preventative health care uptake among Colombian beneficiaries. An excellent systematic review by Baird *et al.* (2013a) also finds that CCTs, especially when they have clear conditions that are coupled with strict monitoring, outperform UCTs in increasing the uptake of desirable behavior (such as school enrollment), at least in the short run. Their review, however, finds no noticeable difference between CCTs and UCTs in fostering knowledge retention.

<sup>3</sup> Merton (1936) discusses the difficulty surrounding the anticipation of all outcomes that could be affected by what he calls ‘purposive social actions’, i.e., policies. According to Merton (1936), the main reasons behind failure to anticipate the consequences of social actions are limited knowledge, errors in design and implementation and ‘imperious immediacy of interest’ (when a strong interest in the intended outcomes triumphs over the actors’ desire to consider unintended consequences). Additionally, evidence shows that policies and programs could affect outcomes that are not specifically targeted and that these effects could be desirable or undesirable (Klitgaard, 1997).

CT programs reduce HIV AIDS prevalence in Malawi (Baird *et al.*, 2012); CCTs improve recipients' psychological well-being, also in Malawi (Baird *et al.*, 2013b; Angeles *et al.*, 2019); CCT program leads individuals into a low-return migration in Indonesia (Bryan *et al.*, 2021); CCT that aims to improve maternal health increases fertility in India (Nandi and Laxminarayan, 2016); and social assistance program in Kyrgyzstan lowers subjective well-being (Gassmann *et al.*, 2021).

Broadly speaking, our paper speaks most closely to this literature, which we extend by investigating the comparative effect of CCTs and UCTs on social capital. Social capital plays a critical role in spurring economic growth and development among others by enabling collective action (Svendsen and Svendsen, 2003; Ostrom and Ahn, 2009; Algan and Cahuc, 2010; Ashraf *et al.*, 2021). As Kenneth Arrow puts it, 'It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence' (Arrow, 1972, p. 357). Further studies also support Arrow's argument on the role of social capital in the economy. For example, Knack and Keefer (1997), using cross-country data, show that higher social capital, proxied by generalized trust levels, is associated with higher economic achievement. Zak and Knack (2001) also reaffirm the positive relationship between trust and economic growth and show that low-income countries with high levels of trust are better placed to reap their advantages of backwardness than their counterparts with low levels of trust.<sup>4</sup> In Africa, two complementary studies by Nunn (2008) and Nunn and Wantchekon (2011) show that the slave trade decreased economic growth through its effect on reducing trust among Africans.<sup>5</sup>

More specifically—while the comparative effect of CCT and UCT on social capital remains largely unexplored to date—a few previous studies did examine the impacts of either CCT or UCT on social capital outcomes in non-comparative settings (i.e., either CCTs or UCTs).<sup>6</sup> One of the earliest quantitative studies observes higher cooperation (proxied by individuals' contribution in a public goods game) among Colombians in CCT recipient villages than their non-recipient counterparts (Attanasio *et al.*, 2009). A follow-up study by Attanasio *et al.* (2015b) also confirms the findings that CCT increases cooperation. Another study by Angelucci and De Giorgi (2009) finds that Mexico's PROGRESA (a CCT) increases transfers (in the form of gifts and loans) from beneficiaries to non-beneficiaries, indicating that the program contributes to the strengthening of social capital. Contrarily, Camacho (2014) finds no effect of a CCT program on social capital (proxied by membership in social organizations) in Peru. On the other hand, Chong *et al.* (2009) find that welfare programs (not differentiating between CCT and UCT programs) lead to lower interpersonal trust in four Latin American countries, which the authors argue could be due to stigma (arising from both the self and others) associated with welfare programs. A qualitative study by MacAuslan and Riemenschneider (2011), on the other hand, shows

<sup>4</sup> Advantage of backwardness is the idea that low-income countries have the opportunity to learn from the technologies and experiences of high-income countries and grow faster rather than engage in costly experiments that high-income countries in the lead have to go through.

<sup>5</sup> Trust also affects other intermediary factors that drive economic growth. For example, Guiso *et al.* (2004), by taking data from Italy, show that high trust increases credit availability and stock purchase and that these effects are pronounced in areas where formal institutions are weaker. Similarly, Engelhardt *et al.* (2021), using cross-national data, find that high levels of trust—both societal and governmental—reduce COVID-19-induced stock market volatility.

<sup>6</sup> There is also emerging literature that specifically investigates the effects of various programs, interventions and policies on social capital. For example, community reconstruction foreign aid increases cooperation in Liberia (Fearon *et al.*, 2009); food aid crowds out informal risk-sharing in Ethiopia (Dercon and Krishnan, 2003); formal health insurance crowds out social capital in Uganda (Cecchi *et al.*, 2016) and informal transfers in Ghana (Strupat and Kloth, 2018); weather index insurance reduces cooperation among Ethiopian farmers (Nigus *et al.*, 2018); foreign aid increases trust by reducing inequality in Uganda (D'Onofrio and Maggio, 2015); and CCT program increases trust in leaders in Tanzania (Evans *et al.*, 2019). Given the social capital's critical role in the economy, it is important to understand how programs such as cash transfers shape it. Importantly, to date, we are unaware of studies that comparatively assess the social capital implications of CCTs and UCTs within the same setting.

that cash transfers negatively affect social relations in Zimbabwe and Malawi. They find that although the cash transfers improve intra-household social relations, they reduce inter-household relations induced by ‘jealousy’ arising from non-recipients. They find that some recipients even prefer a lower transfer towards them in order to include more beneficiaries in the program. Interestingly, they do not find the same negative inter-household effects from food transfer programs, which they argue is due to the prevalent food-sharing norms that reduce adverse reactions among non-recipients. A study by Ozler *et al.* (2021) also finds evidence among Syrian refugees in Turkey that school-aged children from control households move to beneficiary households, which resulted in lower per capita consumption among beneficiaries. Similarly, Chong *et al.* (2009) find that welfare programs lead to lower interpersonal trust in four Latin American countries, which the authors argue could be due to stigma (arising from both the self and others) associated with welfare programs.

Our study contributes to this literature in the following ways. Firstly, as already mentioned, there is little work that investigates the comparative impacts of cash transfers on the recipients’ social capital. Previous studies are primarily concentrated on conditional cash transfers in the Latin American context (e.g., Attanasio *et al.*, 2009; Angelucci and De Giorgi, 2009; Camacho, 2014; Chong *et al.*, 2009),<sup>7</sup> while we investigate the effects in an African context and are able to separate and contrast CCT and UCT effects.<sup>8</sup> By doing this, we also contribute to the literature that discusses whether the conditionality in CCTs has a differential ‘externality’ effect on the contexts in which they take place, compared to an unconditional transfer. Lastly, unlike previous studies, the experimental setup enables us to estimate the total causal effect (TCE) (the effect on those in the treatment areas, regardless of whether they are offered treatment) and spillover effects (the effect on non-treated individuals that live in treatment enumeration areas [EAs]).

We use data from the ‘Schooling, Income, and Health Risks’ (SIHR) study, which employs a randomized controlled cash transfer experiment in Malawi that aims to study the effects of cash transfers on adolescent women’s schooling and health outcomes. Our results show that cash transfers have a positive TCE on trust that becomes apparent in the long run (about 2 years after enrollment in the program) and on gift giving in the short run (about 1 year after enrollment in the program), but the effect on gift giving disappears in the long run due to a negative spillover on the non-treated. The intention-to-treat estimates show the programs’ aggregate effect on both trust and gift giving in the short run, disappearing in the long run. Moreover, we find that the CCT program outperforms UCT in increasing trust (in both the short run and the long run) and UCT outperforms CCT in increasing gift giving (but only in the short run). Further analyses reveal that individuals with initial reciprocal beliefs drive the increase in trust from the cash transfer program.

The remainder of this paper is organized as follows. The next section presents the theoretical framework and hypotheses. Section 3 presents the study design and estimation strategy. Section 4 presents and discusses the main results and explores potential explanations. Section 5 concludes.

## 2. Theoretical framework

In this paper, our primary objectives are (1) to measure the TCE, treatment effects and spillover effects of cash transfer programs on social capital; (2) to study whether the two widely used types of cash transfers have varying effects on different types of social capital indicators and (3) to examine what/who drives such effects.

<sup>7</sup> The study by MacAuslan and Riemenschneider (2011) provides insights from an African context; however, it is a descriptive qualitative study and therefore has limited generalizability.

<sup>8</sup> Additionally, while virtually all studies investigate adults, our experimental setup enables us to investigate the effects on adolescent women—recipients at a critical behavioral development age.

We postulate that the way conditional transfers affect the recipients' social capital need not be identical to the way unconditional transfers do. Recipients of UCTs, for example, might perceive the transfers as gifts.<sup>9</sup> In contrast, recipients of CCTs might perceive it as an incentive for their 'behavior' with respect to the conditions. As a result, UCTs might drive different sets of beliefs, such as altruism (gift giving), whereas CCTs might be better placed to drive beliefs that embody expectations regarding the behavior of others, such as trust. This line of argument is based on the following conceptualization of trust: 'trust is the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor' (Mayer *et al.*, 1995, p. 72).

Another important element specific to the CCT is that the recipient has a clear understanding of the reasons why she is receiving the money. When individuals receive cash with no strings attached, anecdotal evidence suggests that it might raise suspicion about their motives and intentions. This might impede the development of trusting beliefs if not even erode them.<sup>10</sup> Motives are central to the components of trust identified by Mayer *et al.* (1995). According to Mayer *et al.* (1995), benevolence is one of the three components of trust and is conceptualized as 'the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive.' The fact that in the CCT, the recipient has a clear idea about the motives of the cash provider compared to the UCT where the motives are unclear, we expect that CCTs would have a stronger role in influencing trust than UCTs.<sup>11</sup>

Finally, another reason to expect a difference in how the two types of transfers would affect different components of social capital is due to the fact that the conditions in the CCT programs often require the recipients to interact with other individuals (Attanasio *et al.*, 2009). The argument here is that CCTs are usually conditioned on school attendance, visiting health care facilities, etc., which are activities that would expose beneficiaries to other individuals, and this exposure might be more likely to affect certain types of social capital such as trust and cooperation. Based on the aforementioned arguments, the hypothesis that emerges is that the effects of both CCTs and UCTs on social capital could be positive, but that CCTs can be expected to have a relatively stronger effect than UCTs on trust and UCTs can have a stronger effect on gift giving than CCTs.<sup>12</sup>

Furthermore, we are also interested in studying whether beneficiaries with different characteristics and beliefs respond differently to the two formats of transfers. Specifically, we are interested in understanding whether the social capital of beneficiaries that are 'highly sociable', that are wealthier, those who have reciprocal beliefs and those who attend school would be more likely to respond to the cash transfers. If, for example, girls that are highly sociable to begin with socialize more because they have more disposable money from the transfers, it could further strengthen their social capital.<sup>13</sup> A similar argument also applies to wealth status as girls that are wealthier would most likely use the additional cash from the

<sup>9</sup> The offer letter of the unconditional treatment arm states that the recipient was selected through a lottery system to receive the cash transfer and that they are not expected to do anything in return, while the conditional one clearly states that they are receiving the transfer in order to help them stay in or return to school and states that in order to keep receiving the money, they have to have at least 80% class attendance. The offer letter can be seen in the appendix of Baird *et al.* (2011).

<sup>10</sup> For example, a UCT program in Western Kenya created a belief among villagers that 'they' are providing money because at some point they want to take away their children. See the video, <https://www.bbc.com/news/world-africa-43646271>.

<sup>11</sup> Based on communications with the principal investigators of the original study, we have learned that the beneficiaries developed trust towards the implementing non-governmental organization (NGO) relatively quickly because the NGO has been delivering the transfers regularly and strictly following the program rules. Additionally, the same NGO provided both conditional and unconditional transfers.

<sup>12</sup> This is the preferred interpretation of the authors. Admittedly, it is also possible that cash transfers could reduce social capital due to possible jealousy and resentments arising from non-beneficiaries as Chong *et al.* (2009) find in four Latin American countries and MacAuslan and Riemenschneider (2011) in Zimbabwe and Malawi. In this case, however, the social capital reduction would be driven by non-recipients.

transfers to socialize more (rather than spend it on necessities), which, in turn, could increase their social capital. The reason behind these expectations is that social capital, like any other form of capital, would need some resources to be acquired and maintained (Glaeser *et al.*, 2002). Similarly, since the condition in our CCT treatment is school attendance, the recipients would be more likely to go to school and be able to interact and socialize with their peers, which could then increase their social capital.

As mentioned, we are also interested in studying whether girls with varying levels of initial reciprocal beliefs react differently to the cash transfer programs. In other words, we investigate whether respondents who have the belief that people, in general, can be expected to be helpful and with good intentions, would be more likely to develop trusting behavior when exposed to the CCT treatment. Trust and reciprocal beliefs, as also documented by Altmann *et al.* (2008), are separate but closely correlated concepts to begin with. Reciprocal beliefs are about one's expectation of others, while trust goes beyond mere expectation and entails one's willingness to be vulnerable to (and dependent on) the actions of others. We hypothesize that respondents with initial reciprocal beliefs would find the cash transfers as 'confirmations' to their beliefs that people are generally helpful and trustworthy as 'others' have shown interest in not only providing them with extra cash but also have shown them that they have a clear motive that they care about their education. As Falk and Fischbacher (2006) and Cox *et al.* (2001) show, individuals' reciprocal behavior depends not only on the 'consequences' of the actions of other parties but also on the 'intentions' behind them. This is because previous studies show that reciprocal beliefs are correlated with trust; for example, Altmann *et al.* (2008) find a positive relationship between positive reciprocity and trust. Inversely, Dohmen *et al.* (2008) find a negative correlation between negative reciprocity and trust. Our hypothesis here is that individuals who have a general reciprocal belief, i.e., a belief that people can help other people without expecting immediate return, could be more likely to be more trusting of others as a result of the fact that some people are providing them with cash to help them improve their living conditions and facilitate their education.

### 3. Background and methodology

Here, we describe the study setting and experimental design, explain and describe our variables and present our empirical strategy.

#### 3.1. Context: Malawi

Malawi is a land-locked country located in southeastern Africa and is home to about 20 million people. The Malawian economy is primarily agrarian as agriculture employs 77% of its population. The employment shares by the industry and service sectors are 4% and 19%, respectively. Like other African countries, about 67% of the Malawian population is below the age of 24 years and has a youth dependency ratio of about 79%. Malawi is a low-income country with a per capita income of \$1,060 and about 50% of its population living under the poverty line (CIA, 2021).

In order to lift its population out of poverty, the Malawian government, along with donors, has been implementing social assistance programs since 2000. The pioneering of such a program is the poverty alleviation program whereby the government provided a safety net to the poor to help with its structural transformation program (Slater and Tsoka, 2007). Afterward, a number of cash transfer programs have been implemented by NGOs and researchers. One such program is the SIHR cash transfer experiment conducted by researchers from the World Bank and other academic institutions with an objective to

<sup>13</sup> Baird *et al.* (2019) observe that girls in the UCT treatment sent more text messages to their friends, for example.

examine the roles of conditional and unconditional transfers in improving education and health outcomes of young women in the Zomba district of Malawi (Baird *et al.*, 2012). This project also pioneers providing evidence to aid the debate on whether conditional or unconditional transfers are better for providing least-cost social protection to the poor. Their analyses reveal that the two transfers yield positive effects on different outcomes: while CCT (conditioned on school attendance) outperforms UCT in educational outcomes, both in terms of decreasing dropout rate and increasing English language skills, UCT outperforms CCT in reducing teenage marriage and pregnancy (Baird *et al.*, 2011).

### 3.2. Study design

The data for this study come from the SIHR study, a randomized cash transfer experiment implemented in Zomba District, Malawi.<sup>14</sup> The experiment targets young unmarried school-aged women (age, 13–22 years old) and their households in 176 EAs covering both urban (29 EAs) and rural locations (147 EAs). The reason behind targeting young, school-aged, unmarried women is because the main goal of the experiment was to study the effect of schooling cash transfers on HIV prevalence among young women (Baird *et al.*, 2012). It then identifies the baseline schooling status of the adolescent women as those who have dropped out of school (dropout sample) and those still enrolled in school (schoolgirl sample).

Treatment is assigned at the EA level, where half (88) of the EAs are assigned to treatment and half (88 EAs) to the control group. While all the dropout girls in treatment EAs were offered conditional treatment, 14% to 100% of schoolgirls (depending on their age and geographic location) were offered either conditional or unconditional transfer. Following this, the sample constitutes 436 dropout girls in 46 EAs and 453 dropout girls in 88 EAs who do not receive any transfers (i.e., control groups). The schoolgirls sample, on the other hand, is divided into three groups where one group (506 girls in 46 EAs) receives a CCT, the other group (283 girls in 27 EAs) receives a UCT and a third group (1,495 girls in 88 EAs) receives no transfers (control group). The experiment also includes control 623 girls from experiment EAs to capture spillover effects. The total sample size is hence 3,796 girls. The condition in the CCT treatment arm is school attendance, where to be able to continue receiving the transfer and expectation from the girls to attend school for at least 80% of the time. For months where attendance fell below 80%, payment is withheld, and payment resumes once the girl fulfills the attendance requirement.

Next, the treatment girls and their parents are randomly assigned to various amounts of transfers. Consequently, parents could receive \$4, \$6, \$8 or \$10 per month, whereas the girls could receive either \$1, \$2, \$3, \$4 or \$5 per month. The transfers lasted for 2 years, covering 2008 and 2009. Accordingly, the average monthly transfer to households amounted \$10, which is equivalent to about 10% of households' consumption expenditure during the study period (Baird *et al.*, 2011).<sup>15</sup>

Detailed data are collected from both the household head and the core respondent (the adolescent girl). The household-level data include information about household characteristics, assets, consumption and shocks. The core respondent level data contain information on the adolescent's demographic characteristics, schooling status, health, sexual behavior,

<sup>14</sup> The experiment is conducted by the following: Berk Ozler, World Bank; Sarah Baird, George Washington University; Craig McIntosh, University of California San Diego; Ephraim Chirwa, University of Malawi. Malawi SIHR Impact Evaluation Household Survey (SIHR1E1-R3) 2007–2010. Ref round 1: MWI 2007 SIHR v01 M v01 A PUF. Dataset downloaded from <https://microdata.worldbank.org/index.php/catalog/1005> on March 2021. Ref round 2: MWI 2008 SIHR1E-R2 v01 M. Dataset downloaded from <https://microdata.worldbank.org/index.php/catalog/2338> on March 2021. Ref round 3: Ref. MWI 2010 SIHR1E-R3 v01 M. Dataset downloaded from <https://microdata.worldbank.org/index.php/catalog/2339> on March 2021.

<sup>15</sup> Initially, the program was intended for 1 year, and the same has been communicated to recipients. However, the project owners managed to secure additional funding and managed to extend it for one more year. The extension was once again communicated to beneficiaries in advance. The CCT also covers school fees—paid directly to the schools (Baird *et al.*, 2011).

social networks, generalized trust and reciprocal beliefs. The dataset consists of four waves. The first round (baseline) is collected in 2008. The second round (first follow-up) is collected in 2009, and the third follow-up data were collected in 2010, right after the completion of the cash transfer experiment. The fourth and last round of data was collected in 2012 to study the long-term impacts of the cash transfer program. Unfortunately, we are unable to use the last round of data in all of our analyses because information on generalized trust and gift giving has not been collected in this round. Therefore, for these analyses, we use data coming from the first three rounds. Contrarily, information on voting behavior has only been collected in the fourth round, but since the survey instrument uses a retrospective question, it reflects behavior over the past 5 years prior to the survey period.<sup>16</sup>

### 3.3. Variables and descriptive statistics

The explanatory variables of interest are (1) an indicator for whether the respondent belongs to the treatment EAs, regardless of whether they are offered treatment or not; (2) an indicator for whether the respondent received an offer to either the CCT or UCT; (3) an indicator for whether the respondent belongs to the treatment EAs but did not receive an offer to either one of the transfers; (4) an indicator for whether the respondent received an offer to the conditional transfer; and (5) an indicator for whether the respondent received an offer to the unconditional transfer.

#### 3.3.1. Outcomes

One of our social capital indicators is the adolescent's generalized (interpersonal) trust beliefs. The primary challenge one faces when studying social capital is the difficulty associated with its conceptualization and measurement. Among many others, an earlier conceptualization of social capital by Robert Putnam presents it as 'features of social life—networks, norms, and trust—that enable participants to act together more effectively to pursue shared objectives' (Putnam, 1995, p. 664). According to Robert Solow, for the concept of social capital to be meaningful, it has to be measured even if 'inexactly' (cited in Knack and Keefer (1997)). As a result, attempts have been made to develop a measure of social capital even though the accuracy of the instruments is still debated. As part of the effort to measure social capital, a survey instrument has been developed by the General Social Survey (GSS) and is widely adopted by many other studies. The instrument asks respondents the following question: 'Generally speaking, would you say that most people can be trusted or you cannot trust most people?' The responses are either 'people can be trusted.' or 'you cannot trust most people.' We code these responses into trust = 1 if the response is 'people can be trusted'; 0, otherwise. Our dataset also contains information about adolescents' generalized trust generated using the same survey instrument.

Even though our measurement of trust is non-experimental, there is evidence that these measures of trust strongly correlate with experimentally measured trust (Johnson and Mislin, 2012; Aksoy *et al.*, 2018). Knack (2001) also presents a review of evidence that shows the survey instrument predicts quite well other types of trusting behavior such as returning lost wallets and immigrants holding trusting beliefs closer to the average in their source countries, etc. It could also be that our non-experimental trust measure is even better than its most commonly used experimental counterpart—i.e., the 'trust (investment) game' for the following reasons.

The trust game works as follows: participants receive equal amounts of endowments, and they are anonymously paired with another participant such that one is the first mover or the 'trustor' and the other a second mover or the 'trustee.' The participants are instructed

<sup>16</sup> Balance has been achieved along most of the baseline characteristics except for female-headed household, age and highest grade attended at baseline. The attrition rate is about 10%, and there is no evidence that attrition is systematic. For detailed discussion of this, see Baird *et al.* (2011).

**Table 1.** Descriptive Statistics

Variable	Mean	Std. dev.	Min.	Max.	N
Panel A: Outcomes					
People can be trusted = 1	0.313	0.464	0	1	3776
Gift = 1	0.165	0.371	0	1	3796
Panel B: Moderators					
People help = 1	0.376	0.484	0	1	3784
Sociability baseline	0.03	1.037	-1.319	8.590	3797
Asset index	0.11	2.52	-3.697	6.827	3790
Panel C: Controls					
Urban = 1	0.175	0.38	0	1	3796
Mother alive	0.821	0.383	0	1	3787
Father alive	0.702	0.458	0	1	3773
Household size	6.258	2.309	1	15	3790
Age	15.952	2.186	13	22	3796
Education level	7.218	2.068	1	12	3795
Sexually inactive	0.658	0.474	0	1	3787
Ever been pregnant	0.119	0.324	0	1	3787

as follows. The trustor can send any amount of his endowment to the trustee, and that the amount will be tripled by the experimenter before it is passed on to the trustee. The trustee then has the choice to send any amount back to the trustor. From these games, the amount transferred by the trustor is used as a measure of his/her trust, and the amount returned by the trustee is used as a measure of his/her trustworthiness (Berg *et al.*, 1995). However, as Cox (2004) argues, it is difficult to attribute the behavior observed in the trust game to just trust and trustworthiness as it is difficult to separate other motives such as altruism and inequality aversion. By using the responses to a survey question, we avoid such convolutions to be able to obtain a measure of the respondents' trusting beliefs. Based on the descriptive statistics presented in Table 1, on average, about 31% of our respondents are trusting, which is slightly lower compared to the average trust in 29 high-income countries reported by Knack and Keefer (1997), which is about 36%.

Another social capital indicator we use is adolescents' gift-giving behavior. We are interested in studying gift-giving behavior because gifts can be seen both as a form of altruism or as a basis to build social capital and establish reciprocal relations. As we show in Table 1, about 16% of our respondents gave gifts to other individuals.

### 3.3.2. Moderators

One of our hypotheses is that girls with reciprocal beliefs would be more likely to become more trusting in response to the CCT as it might strengthen their beliefs that people are generally helpful. For this purpose, we use data generated from the following survey instrument that is adopted from the General Social Survey (GSS) and European Social Survey (ESS): 'Most people in this village are willing to help if you need it.' The responses are 'strongly disagree', 'disagree', 'neither disagree nor agree', 'agree' or 'strongly agree'. From this, we generate a dummy indicator showing reciprocal = 1 if the responses are 'strongly agree', 'agree' and 'neither disagree nor agree'; 0, otherwise. As we present in Table 1, about 38% of respondents in our sample have reciprocal beliefs. We also conduct robustness analysis by coding 'neither disagree nor agree' as a 'non-reciprocal.'

We also hypothesize that the social capital of girls with higher initial sociability could be affected differently in response to the cash transfers. On the one hand, having more disposable income could further increase socialization and lead to stronger social capital.

On the other hand, it could lead to stigma/jealousy from peers and could reduce the beneficiaries' social capital. To test this, we construct a sociability index at baseline from the following indicators: (1) time spent with friends, obtained by asking, 'In the past month, how many times have you got together for food and drinks?' (2) wedding attendance obtained by asking, 'How many times in the last 12 months have you been to a wedding?' and (3) funeral attendance obtained by asking, 'How many times in the last 12 months have you been to a funeral?' To create the sociability index, we first standardize each variable so that they are on an identical scale such that they have a mean of 0 and a standard deviation of 1 and then use a simple additive approach to construct our sociability index. Finally, to make interpretation more straightforward, we also standardize the sociability index to have a mean of 0 and a standard deviation of 1.

Similarly, we also look at whether girls from wealthier households would react differently to the cash transfers by using households' asset index as a proxy for wealth, centered to have a mean of zero.

### 3.3.3. Controls

Additionally, we control for baseline age, household size, educational level, an indicator if the mother is alive, an indicator if the father is alive, an indicator of whether the respondent lives in an urban area, an indicator of whether the adolescent was sexually inactive and an indicator for whether the adolescent has never been pregnant. Table 1 presents the descriptive statistics for these variables at baseline. On average, our respondents are 16 years old and have about 7 years of schooling. The average household has about six members with an average wealth index of 0.11. While about 82% of respondents have their mothers alive at baseline, only 70% of the respondents have their fathers alive. About 18% of the respondents come from urban areas. While about 66% of our respondents never had sex, about 12% were pregnant at some point before the baseline.

### 3.3.4. Estimation strategy

As we discuss in Section 3.2, since the (randomized) experiment design includes within-treatment EA controls, we are able to estimate both the TCE and spillover effects as outlined in Baird *et al.* (2018). The argument behind the TCE is that certain treatments might spill over to the untreated individuals who get to interact with the treated individuals; hence, the average treatment effect of the program needs to reflect such spillovers. For this reason, we first estimate the TCE by comparing the individuals in treatment EAs (regardless of whether they are offered treatment or not) to their counterparts in the pure control EAs.

$$SC_{ji} = \zeta TreatEA_i + \lambda SC_{jib} + \beta X_i + \epsilon_i, \quad (1)$$

where  $SC_{ji}$  indicates outcome  $j$  of respondent  $i$ , where  $j$  stands for a dummy indicator for generalized trust and gift giving;  $TreatEA_i$  shows whether respondent  $i$  belongs to a treatment EA;  $SC_{jib}$  is the baseline values of  $js$  (this helps us take care of measurement errors associated with the outcome variables between survey rounds as suggested by McKenzie, 2012);  $\zeta$  is the parameter of interest that shows the TCE; and  $X_i$ 's are baseline characteristics listed in Table 1 and  $\epsilon_i$  is the stochastic error term.

Next, we disaggregate the intention-to-treat effects on those who are offered the treatment (ITT on T) and spillover effects on the non-treated (SNT), i.e., on those in treatment EAs but not offered the treatments, also following Baird *et al.* (2018), using the following regression equation:

$$SC_{ji} = \gamma Treat_i + \delta spillover_i + \lambda SC_{jib} + \beta X_i + \epsilon_i, \quad (2)$$

where  $Treat_i$  indicates whether respondent  $i$  received the offer to any of the cash transfers;  $spillover_i$  indicates whether  $i$  belongs to the within-treatment EA control group; and  $\gamma$  and  $\delta$  are the parameters of interest showing the ITT on T and SNT, respectively.

To test our main hypothesis that CCT and UCT may affect social capital in different ways, we again estimate intention-to-treat effects of the following form but only for the school girl sample as unconditional treatment is only available for the school girl sample. As we discuss in Section 3.2, the dropout sample consists of only CCT treatment.

$$SC_{ji} = \omega CCT_i + \Omega UCT_i + \lambda SC_{jib} + \beta X_i + \epsilon_i, \quad (3)$$

where  $CCT_i$  and  $UCT_i$  indicate whether the respondent belongs to the conditional or unconditional treatment and  $\Omega$  and  $\omega$  are our parameters of interest.

Furthermore, to study whether the effects are moderated by the initial reciprocal beliefs, initial sociability and wealth, represented by subscript  $m$  in the following specification, we estimate the following specification.

$$SC_{ji} = \alpha Treat_i + \lambda SC_{jib} + \tau M_{mi} + \theta Treat_i X_{mi} + \beta X_i + \epsilon_i, \quad (4)$$

where  $M_{mi}$  stands for moderator  $m$  of respondent  $i$ ;  $Treat_i X_{mi}$  shows the interaction between moderator  $m$  and treatment status;  $\alpha_1$  and  $\theta$  are our parameters of interest.

## 4. Results: Cash transfers and social capital

In this section, we present the main results and explore potential explanations behind.

### 4.1. TCEs, treatment effects and spillover effects

We start our analyses by estimating the TCE specified in equation (1) where we pool the two forms of cash transfers—conditional and unconditional—and check whether cash transfers affect our social capital indicators—generalized trust and gift giving. For this purpose, we generate a treatment indicator taking the value 1 if the respondent belongs to either the CCT or UCT treatment EA (regardless of whether the respondent received an offer or not); 0 if the respondent is in the pure control EA (receives no transfers). To be able to see the evolution of the TCE over treatment periods, we present the results separately by follow-up survey rounds (the first follow-up in 2008 and the second follow-up in 2010) and test whether the coefficients are statistically different over these two periods and present the  $P$  values for the covariate-adjusted regressions to save space. We present the results in panel A of Table 2 where the odd-numbered columns show results without covariates and the even-numbered columns show results with covariates adjustments. Next, in panel B of the same table, we disaggregate the results into ITT on T and SNT in the treatment enumeration villages specified in equation 2.

Based on the results presented in columns 1–4 in Table 2, we find that cash transfers increase trust but only becomes statistically significant in the second follow-up (about 2 years after the program started).<sup>17</sup> After controlling for individual and household characteristics (column 4), we find that, in treatment EAs, cash transfers increase the likelihood of trusting beliefs by about 3% (significant at 5%). Interestingly, when we look at the disaggregated effects on the treated and spillovers on the non-treated, we find the trust

<sup>17</sup> Note that the coefficients in both 2008 and 2010 are not statistically different from each other but the effect becomes significant only in 2010 probably because we are slightly underpowered to detect significance in 2008 as the sample size is lower by about 30 observations.

**Table 2.** Cash transfers and social capital

	People can be trusted = 1				Gift = 1			
	2008		2010		2008		2010	
Panel A: TCE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment EA = 1	0.0207 (0.0144)	0.0221 (0.0144)	0.0270* (0.0140)	0.0282** (0.0140)	0.0233** (0.0118)	0.0259** (0.0118)	-0.00874 (0.0114)	-0.0115 (0.0113)
Mean CG		0.240		0.212		0.147		0.149
Columns 2 and 4 2008 = 2010; <i>P</i> values				0.759				0.022
Panel B: ITT on T and SNT								
Treated = 1	0.0370** (0.0161)	0.0379** (0.0162)	0.0253 (0.0157)	0.0241 (0.0159)	0.0391*** (0.0133)	0.0411*** (0.0134)	0.0100 (0.0128)	7.55e-06 (0.0128)
Spillover = 1	-0.0113 (0.0203)	-0.00850 (0.0205)	0.0301 (0.0197)	0.0360* (0.0199)	-0.00781 (0.0167)	-0.00333 (0.0169)	-0.0457*** (0.0162)	-0.0335** (0.0162)
Mean CG treated		0.235		0.218		0.145		0.138
Mean CG spillover		0.252		0.221		0.162		0.153
Columns 2 and 4 2008 = 2010; ITT on T				0.547				0.030
Columns 2 and 4 2008 = 2010; SNT				0.115				0.164
Baseline trust	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline gift	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	3,523	3,504	3,556	3,536	3,796	3,763	3,796	3,763

The table shows the TCE of CCT and UCT on trust and gift giving in panel A and the ITT on T and the SNT. Standard errors are in parentheses. Controls include all the adolescent and household covariates listed in Table 1. †Mean CG† indicates mean in the control group. Significance: \*\*\* $P < 0.01$ , \*\* $P < 0.05$ , \* $P < 0.1$ .

effects in the first follow-up to be apparent with negative but insignificant spillover effects, but these effects lose their significance in the second follow-up with positive but marginally significant spillover effects that shows up only after we control for baseline characteristics (see column 4 in panel B).<sup>18</sup>

Contrarily, we find that the cash transfers increase gift giving but only in the first follow-up (or roughly about 1 year after the start of the transfers), and the effects disappear in the second follow-up. After controlling for individual and household characteristics (column 6), we find that, in treatment EAs, cash transfers increase the likelihood of gift giving by about 2.6% (significant at 5%).<sup>19</sup> Similarly, as can be seen from panel B, we find positive and significant ITT on the treated only in the first follow-up but not in the second follow-up. For example, a study by *Barrett et al. (2019)* finds that individuals are willing to give both privately obtained windfall income and publicly won windfall income, but in the latter case, while they tend to give more, they also tend to cease giving, especially when they have a larger network of recipients. Furthermore, while we find no significant spillover effects in the first follow-up, we find negative and significant spillover effects in the second follow-up.<sup>20</sup> Broadly, our results add evidence to the literature that looks at the interaction between social capital and institutions (*Fearon et al., 2009; Cecchi et al., 2016; Nigus et al., 2018; Barrett et al., 2019*).

As we describe in *Section 3.2*, another interesting feature of this experiment is that the transfer amounts are varied and randomly assigned to the respondents and their respective household heads. This gives us the opportunity to test whether the amount of money matters in shaping recipients' social capital. For this purpose, we look at the effects of the transfer size that the adolescent received as well as the combined amount with that of the household head. Interestingly, we find no evidence that the amount of the transfer matters for social capital (see *Appendix A2*).<sup>21</sup> This could strengthen our argument that the increase in the gift-giving propensity that we observe in the first follow-up could be the result of social factors (or a more generalized effect of participating in the program) rather than an income effect.

*Result 1: Cash transfer increases adolescent girls' generalized trust. In the long run, cash transfers also negatively affect gift-giving propensity among the non-treated (has a negative spillover on the untreated).*

## 4.2. Conditional versus unconditional

Here, we examine whether CCT and UCT have varying effects on adolescents' social capital and whether their effects evolve differently over time. These results are presented in *Table 3* where panel A presents the TCE for CCT and UCT and panel B presents the ITT on T of CCT and UCT as well as the SNT. Looking at the TCE, in line with our expectation that CCTs would have a stronger effect on 'conditional' behavior such as trust, CCT appears to increase trusting beliefs by about 5.5% (significant at 1%), but only in the second follow-up (about two years after the start of the program). This could be because beliefs take time to form. Contrary to our expectation that UCTs would have a stronger effect on an 'unconditional' behavior such as gift giving, we observe a negative and significant effect on the likelihood of gift giving in the long run (about 3.3%, significant at 5%). The disaggregated results also show that CCT increases trust. (Note that the effects become

<sup>18</sup> Again, note that the ITT on T and SNT coefficients in 2008 and 2010 are not statistically different from each other.

<sup>19</sup> *Baird et al. (2019)* investigate the long-term effects of these same cash transfers on educational and fertility outcomes and find that most of the effects were gone after the transfers stopped.

<sup>20</sup> Note that the coefficients from the 2008 and 2010 regression estimations are statistically significantly different from each other in the TCE and ITT on T analyses but not in the SNT analyses.

<sup>21</sup> Notice that we find a marginally significant reduction in the likelihood of gift giving as the transfer amount increases (combined with the transfer to the household head) but only in the second follow-up (2010).

significant at 1% only in 2010, but the test for equality of the coefficients in 2008 and 2010 shows that the two are not statistically different from each other.) Interestingly, the disaggregated results on gift giving show that, in line with our expectation, UCT increases gift giving in the short run (by 5.5% and significant at 5%) but reverses in the relatively long run and decreases it by about 4% (also significant at 5%). This could be, for example, simply because, in the beginning, the beneficiaries feel obliged to share their ‘newfound fortune’ with friends and family but reverse their behavior later on to the point that they can compensate for the excess sharing early on in the program.<sup>22</sup>

*Result 2:* CCT outperforms UCT in improving adolescent girls’ generalized trust. Unconditional transfer outperforms conditional transfers in increasing gift giving, but only in the short run.

#### 4.2.1. Potential explanations

Recall that our ITT results from panel B of [Table 2](#) show that cash transfers increase social capital; we further investigate where these effects are coming from. As we lay out in [Section 2](#), the cash transfers could have a stronger effect on the social capital of adolescents with higher initial sociability, reciprocal beliefs and wealth status.

Based on the results of these analyses, we find evidence that the entire positive effect of the treatment indicator appears to be driven by those adolescents with initial reciprocal beliefs. Our results reported in columns 1 and 2 in [Table 4](#) show that respondents with initial reciprocal beliefs, on average, gain trust that is about 0.11% higher than their counterparts in the control group (significant at 1%). In other words, the cash transfer increases trust only among those individuals who hold generalized reciprocal beliefs to begin with. We also repeat the analyses with an alternative indicator of reciprocity where we change the categorization of those who said ‘neither agree nor disagree’ to the reciprocity survey question and find similar results with respect to trust (see [Appendix A3](#)). Interestingly, the reciprocals seem to decrease their gift giving in the long run; however, these results are not robust to the alternative reciprocity indicator presented in [Appendix A3](#). Moreover, we conduct similar impact heterogeneity separately for the CCT and UCT arms and find similar effects that reciprocals drive the effects on trust in the CCT arm (see [Appendix A4](#)). Lastly, neither initial sociability nor wealth status seems to have significant moderation effects.

*Result 3:* Adolescents with initial reciprocal beliefs drive the increase in trust from the cash transfer treatment. We find no such effect arising from wealth status or adolescents’ sociability. In the long run, gift-giving propensity declines among the reciprocals.

## 5. Conclusion

Given the critical role social capital plays in economic development, it is important to understand how development programs shape it. In this study, we investigate whether the two widely implemented programs—CCT and UCT—affect social capital and examine whether their effect varies on different proxies of social capital arising from the variation in their delivery formats. We also examine various potential explanations.

The two cash transfer formats are currently under extensive debate among academics and policymakers regarding their effectiveness in providing the least-cost social protection to the poor. Since conditional transfers require the beneficiaries to adhere to certain behaviors that are deemed important for beneficiaries, they are expected to be more effective at improving welfare. However, they are criticized for being paternalistic and requiring higher running costs associated with monitoring of adherence to the conditions. Contrarily, unconditional transfers involve no such requirements, making them cheaper and more liberal. Given that

<sup>22</sup> We also look at the effects of CCT on the two social capital outcomes in the dropout sample and find no effect. These results are presented in [Appendix A1](#).

**Table 3.** CCT, UCT and social capital

	People can be trusted = 1				Gift = 1			
	2010		2010		2008		2010	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Panel A: TCE</b>								
CCT TCE = 1	0.0140 (0.0183)	0.00948 (0.0184)	0.0576*** (0.0178)	0.0554*** (0.0178)	0.00288 (0.0145)	0.00890 (0.0146)	0.00912 (0.0135)	0.00863 (0.0135)
UCT TCE = 1	-0.0184 (0.0193)	-0.0109 (0.0194)	-0.0243 (0.0187)	-0.0220 (0.0188)	0.0150 (0.0153)	0.0110 (0.0154)	-0.0327** (0.0142)	-0.0333** (0.0143)
Mean CG: CCT TCE	0.244	0.244		0.205		0.138	0.119	
Mean CG: UCT TCE	0.250	0.250		0.222		0.136	0.127	
CCT TCE = UCT TCE	0.304	0.520	0.007	0.011	0.628	0.932	0.072	0.073
CCT: columns 2 and 4 2008 = 2010; P values				0.076			0.989	
UCT: columns 2 and 4 2008 = 2010; P values				0.680			0.036	
<b>Panel B: ITT on T and SNT</b>								
CCT	0.0382* (0.0225)	0.0366 (0.0225)	0.0570*** (0.0219)	0.0552** (0.0219)	0.0285 (0.0179)	0.0365** (0.0180)	0.00676 (0.0166)	0.00344 (0.0167)
UCT	0.0204 (0.0285)	0.0328 (0.0286)	-0.0253 (0.0275)	-0.0224 (0.0276)	0.0558** (0.0225)	0.0549** (0.0227)	-0.0364* (0.0209)	-0.0416** (0.0210)
Spillover = 1	-0.0130 (0.0210)	-0.0111 (0.0210)	0.0335* (0.0204)	0.0335* (0.0203)	0.00884 (0.0166)	0.0103 (0.0166)	-0.0227 (0.0154)	-0.0229 (0.0154)
Mean CG: CCT	0.238	0.238		0.214		0.138	0.115	
Mean CG: UCT	0.244	0.244		0.226		0.226	0.121	
Mean CG: spillover	0.251	0.251		0.217		0.142	0.122	
CCT = UCT	0.586	0.907	0.009	0.014	0.291	0.478	0.071	0.061
CCT: columns 2 and 4 2008 = 2010; ITT on T				0.568			0.190	
UCT: columns 2 and 4 2008 = 2010; ITT on T				0.150			0.002	
Spillover: columns 2 and 4 2008 = 2010; SNT				0.123			0.130	
Baseline trust	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Baseline gift	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	2,145	2,136	2,169	2,159	2,284	2,265	2,284	2,265

The table shows the TCE of CCT and UCT on trust and gift giving in panel A and the ITT on T and the SNT. Standard errors are in parentheses. Controls include all the adolescent and household covariates listed in Table 1. 'Mean CG' indicates mean in the control group. Significance: \*\*\* $P < 0.01$ , \*\* $P < 0.05$ , \* $P < 0.1$ .

**Table 4.** Cash transfers and social capital: moderation

VARIABLES	People can be trusted = 1				Gift = 1			
	2008		2010		2008		2010	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated = 1	0.00408 (0.0193)	0.00341 (0.0195)	0.00194 (0.0189)	0.00142 (0.0192)	0.0407** (0.0159)	0.0376** (0.0161)	0.0406*** (0.0154)	0.0279* (0.0154)
Treated × reciprocal	0.106*** (0.0318)	0.107*** (0.0319)	0.0413 (0.0312)	0.0390 (0.0313)	0.00766 (0.0264)	0.00901 (0.0265)	-0.0549** (0.0255)	-0.0511** (0.0253)
Treated × social	-0.00848 (0.0149)	-0.00709 (0.0149)	-0.000263 (0.0145)	0.00344 (0.0146)	-0.00611 (0.0122)	-0.00717 (0.0123)	-0.00100 (0.0118)	-0.000145 (0.0117)
Treated × wealth	-0.00179 (0.00604)	-0.00167 (0.00607)	0.00539 (0.00592)	0.00556 (0.00596)	-0.00107 (0.00499)	-0.00116 (0.00501)	-0.00214 (0.00481)	-0.00166 (0.00480)
Reciprocal baseline = 1	-0.00463 (0.0182)	-0.00733 (0.0183)	-0.0127 (0.0179)	-0.0138 (0.0179)	0.000800 (0.0148)	0.00275 (0.0148)	0.0275* (0.0142)	0.0310** (0.0141)
Sociability baseline	-0.0134 (0.00861)	-0.0108 (0.00869)	0.00705 (0.00838)	0.00589 (0.00847)	0.0124* (0.00709)	0.00962 (0.00714)	0.00997 (0.00684)	0.00499 (0.00683)
Wealth	-0.00617* (0.00352)	-0.00214 (0.00384)	-0.00907*** (0.00342)	-0.00904** (0.00375)	0.00531* (0.00290)	0.00408 (0.00317)	0.000950 (0.00280)	0.000750 (0.00303)
Trust baseline = 1	0.147*** (0.0159)	0.140*** (0.0159)	0.0524*** (0.0155)	0.0523*** (0.0156)				
Gift baseline = 1					0.0787*** (0.0162)	0.0735*** (0.0163)	0.0505*** (0.0157)	0.0399** (0.0156)
Observations	3,508	3,492	3,540	3,524	3,767	3,749	3,767	3,749
Controls	No	Yes	No	Yes	No	Yes	No	Yes

The table shows the intention-to-treat effects along with impact heterogeneity with respect to selected variables. Standard errors are in parentheses. Controls include all the adolescent and household covariates listed in Table 1. Significance: \*\*\* $P < 0.01$ , \*\* $P < 0.05$ , \* $P < 0.1$ .

both formats have specific advantages and disadvantages, the debate continues as to which one is optimal for the individual and the state alike.

With this study, we contribute some evidence to the debate on whether CCTs or UCTs are better policy tools by scrutinizing the effects of the two forms of cash transfers on an important but potentially unintended outcome—social capital—which has the potential to further the process of economic development. To achieve our objectives, we use data from a randomized cash transfer experiment that targets young women and their households in Malawi and estimate the TCE, ITT on T and spillover effects. Our results show that cash transfers increase trust and gift giving in the short run among treatment EAs. We also find a negative spillover effect on gift giving, specifically in the long run. Our results also show that while CCT has stronger positive effects on trust, UCT has stronger positive effects on gift giving in the short run than CCT, but the effects reverse in the long run. Additional analyses reveal that the trust gain from the cash transfer treatment arises from respondents with initial reciprocal beliefs.

With an important caveat associated with our measurements of social capital in mind, we indicate that policymakers could reap a positive externality in the form of higher social capital by implementing CCT programs rather than UCTs. It would be relevant if future research could validate these comparative findings in other contexts—and perhaps with alternative social capital measures/indicators—and further investigate the implications of social protection programs on both beneficiaries' and social capital and their spillover to non-beneficiaries.

## Acknowledgement

We are thankful for the inputs we received from the two anonymous reviewers and the editor. The data and dofile are available online.

## Data availability

All data are incorporated into the article and its online supplementary material.

## Supplementary material

[Supplementary material](#) is available at *Journal of African Economies* online.

## References

- Aizer A., Eli S., Ferrie J., Lleras-Muney A. (2016) 'The Long-Run Impact of Cash Transfers to Poor Families', *American Economic Review*, 106(4): 935–71.
- Aksoy B., Harwell H., Kovaliuikaite A., Eckel C. (2018) 'Measuring Trust: A Reinvestigation', *Southern Economic Journal*, 84(4): 992–1000.
- Algan Y., Cahuc P. (2010) 'Inherited Trust and Growth', *American Economic Review*, 100(5): 2060–92.
- Altmann S., Dohmen T., Wibral M. (2008) 'Do the Reciprocal Trust less?' *Economics Letters*, 99(3): 454–7.
- Angeles G., de Hoop J., Handa S., Kilburn K., Milazzo A., Peterman A., Malawi Social Cash Transfer Evaluation Team (2019) 'Government of Malawi's Unconditional Cash Transfer Improves Youth Mental Health', *Social Science & Medicine*, 225: 108–19.
- Angelucci M., De Giorgi G. (2009) 'Indirect Effects of an Aid Program: How Do Cash Transfers Affect Ineligibles' Consumption?' *American Economic Review*, 99(1): 486–508.
- Arrow K. (1972) 'Gifts and Exchanges', *Philosophy and Public Affairs*, 1: 343–362.
- Ashraf Q. H., Galor O., Klemp M. (2021) 'The ancient origins of the wealth of nations', in *The Handbook of Historical Economics*. Amsterdam: Elsevier, pp. 675–717.

- Attanasio O., Pellerano L., Reyes S. P. (2009) 'Building Trust? Conditional Cash Transfer Programmes and Social Capital', *Fiscal Studies*, 30(2): 139–77.
- Attanasio O. P., Meghir C., Santiago A. (2012) 'Education Choices in Mexico: Using a Structural Model and a Randomized Experiment to Evaluate Progreso', *The Review of Economic Studies*, 79(1): 37–66.
- Attanasio O., Polania-Reyes S., Pellerano L. (2015a) 'Building Social Capital: Conditional Cash Transfers and Cooperation', *Journal of Economic Behavior & Organization*, 118: 22–39.
- Attanasio O. P., Oppedisano V., Marcos Vera-Hernández. (2015b) 'Should Cash Transfers be Conditional? Conditionality, Preventive Care, and Health Outcomes', *American Economic Journal: Applied Economics*, 7(2): 35–52.
- Baird S., McIntosh C., Ozler B. (2011) 'Cash or Condition? Evidence from a Cash Transfer Experiment', *The Quarterly Journal of Economics*, 126(4): 1709–53.
- Baird S., Garfein R. S., McIntosh C. T., Ozler B. (2012) 'Effect of a Cash Transfer Programme for Schooling on Prevalence of HIV and Herpes Simplex Type 2 in Malawi: A Cluster Randomised Trial', *The Lancet*, 379(9823): 1320–9.
- Baird S., De Hoop J., Ozler B. (2013a) 'Income Shocks and Adolescent Mental Health', *Journal of Human Resources*, 48(2): 370–403.
- Baird S., Ferreira F. H. G., Ozler B., Woolcock M. (2013b) 'Relative Effectiveness of Conditional and Unconditional Cash Transfers for Schooling Outcomes in Developing Countries: A Systematic Review', *Campbell Systematic Reviews*, 9(1): 1–124.
- Baird S., Aislinn Bohren J., McIntosh C., Ozler B. (2018) 'Optimal Design of Experiments in the Presence of Interference', *Review of Economics and Statistics*, 100(5): 844–60.
- Baird S., McIntosh C., Ozler B. (2019) 'When the Money Runs out: Do Cash Transfers Have Sustained Effects on Human Capital Accumulation?' *Journal of Development Economics*, 140: 169–85.
- Barham T., Macours K., Maluccio J. A. (2013) 'Boys' Cognitive Skill Formation and Physical Growth: Long-Term Experimental Evidence on Critical Ages for Early Childhood Interventions', *American Economic Review*, 103(3): 467–71.
- Barrett C. B., Nourani V., Patacchini E., Walker T. F. (2019) 'Altruism, Insurance, and Costly Solidarity Commitments', Working Paper 313.
- Berg J., Dickhaut J., McCabe K. (1995) 'Trust, Reciprocity, and Social History', *Games and Economic Behavior*, 10(1): 122–42.
- Bryan G., Chowdhury S., Mobarak A. M., Morten M., Smits J. (2021) 'Encouragement and Distortionary Effects of Conditional Cash Transfers', Working Paper.
- Camacho L. A. (2014) 'The Effects of Conditional Cash Transfers on Social Engagement and Trust in Institutions' Working Paper.
- Cecchi F., Duchoslav J., Bulte E. (2016) 'Formal Insurance and the Dynamics of Social Capital: Experimental Evidence from Uganda', *Journal of African Economies*, 25(3): 418–38.
- Chong A., Nopo H., Rios V. (2009) 'Do Welfare Programs Damage Interpersonal Trust? Experimental Evidence from Representative Samples for Four Latin American Cities', Working Paper.
- CIA. (2021). "The World Factbook: Malawi," <https://www.cia.gov/the-world-factbook/countries/malawi/>. CIA, the US.
- Cirillo C., Palermo T., Viola F. (2021) 'Social Protection and Adolescents in Lower- and Middle-Income Countries: A review of government programming and impacts', in *UNICEF Office of Research-Innocenti Working Paper Series*.
- Cox J. C. (2004) 'How to Identify Trust and Reciprocity', *Games and Economic Behavior*, 46(2): 260–81.
- Cox J. C., Sadiraj K., Sadiraj V. et al. (2001) *Trust, Fear, Reciprocity, and Altruism*. University of Arizona, mimeo. Working Paper.
- Dercon S., Krishnan P. (2003) 'Risk Sharing and Public Transfers', *The Economic Journal*, 113(486): C86–94.
- Dohmen T., Falk A., Huffman D., Sunde U. (2008) 'Representative Trust and Reciprocity: Prevalence and Determinants', *Economic Inquiry*, 46(1): 84–90.
- D'Onofrio, ALEXANDRA, and GIUSEPPE Maggio. 2015. "Does Foreign Aid Fuel Trust?" Working Paper.
- Engelhardt N., Krause M., Neukirchen D., Posch P. N. (2021) 'Trust and Stock Market Volatility during the COVID-19 Crisis', *Finance Research Letters*, 38: 1–6.
- Evans D. K., Holtemeyer B., Kosec K. (2019) 'Cash Transfers Increase Trust in Local Government', *World Development*, 114: 138–55.
- Falk A., Fischbacher U. (2006) 'A Theory of Reciprocity', *Games and Economic Behavior*, 54(2): 293–315.

- Fearon J. D., Humphreys M., Weinstein J. M. (2009) 'Can Development Aid Contribute to Social Cohesion after Civil War? Evidence from a Field Experiment in Post-conflict Liberia', *American Economic Review*, 99(2): 287–91.
- Gaarder M. (2012) 'Conditional Versus Unconditional Cash: A Commentary', *Journal of Development Effectiveness*, 4(1): 130–3.
- Gassmann F., Martorano B., Waidler J. (2021) 'How Social Assistance Affects Subjective Wellbeing: Lessons from Kyrgyzstan', *The Journal of Development Studies*, 58(4): 827–847.
- Gertler P. (2004) 'Do Conditional Cash Transfers Improve Child Health? Evidence from PROGRESA's Control Randomized Experiment', *American Economic Review*, 94(2): 336–41.
- Glaeser E. L., Laibson D., Sacerdote B. (2002) 'An Economic Approach to Social Capital', *The Economic Journal*, 112(483): F437–58.
- Guiso L., Sapienza P., Zingales L. (2004) 'The Role of Social Capital in Financial Development', *American Economic Review*, 94(3): 526–56.
- Harman L., Bastagli F., Hagen-Zanker J., Sturge G., Barca V. (2016) 'Cash transfers: what does the evidence say?' Working Paper. London: Overseas Development Institute.
- Hoddinott J., Skoufias E. (2004) 'The Impact of PROGRESA on Food Consumption', *Economic Development and Cultural Change*, 53(1): 37–61.
- Johnson N. D., Mislin A. (2012) 'How Much Should we Trust the World Values Survey Trust Question?' *Economics Letters*, 116(2): 210–2.
- Klitgaard R. (1997) 'Unanticipated Consequences in Anti-poverty Programs', *World Development*, 25(12): 1963–72.
- Knack S. (2001) *Trust, Associational Life, and Economic Performance*. Working Paper.
- Knack S., Keefer P. (1997) 'Does Social Capital Have an Economic Payoff? A Cross-country Investigation', *The Quarterly Journal of Economics*, 112(4): 1251–88.
- MacAuslan I., Riemenschneider N. (2011) 'Richer but Resented: What Do Cash Transfers Do to Social Relations?' *IDS Bulletin*, 42(6): 60–6.
- Mayer R. C., Davis J. H., David F., Schoorman. (1995) 'An Integrative Model of Organizational Trust', *Academy of Management Review*, 20(3): 709–34.
- McKenzie D. (2012) 'Beyond Baseline and Follow-up: The Case for More T in Experiments', *Journal of Development Economics*, 99(2): 210–21.
- Merton R. K. (1936) 'The Unanticipated Consequences of Purposive Social Action', *American Sociological Review*, 1(6): 894–904.
- Nandi A., Laxminarayan R. (2016) 'The Unintended Effects of Cash Transfers on Fertility: Evidence from the Safe Motherhood Scheme in India', *Journal of Population Economics*, 29(2): 457–91.
- Nigus H. Y., Nillesen E., Mohnen P. *et al.* (2018) 'The effect of weather index insurance on social capital: experimental evidence from Ethiopia', *UNU—MERIT Working Paper*, nos. 2018-007.
- Nunn N. (2008) 'The Long-Term Effects of Africa's Slave Trades', *The Quarterly Journal of Economics*, 123(1): 139–76.
- Nunn N., Wantchekon L. (2011) 'The Slave Trade and the Origins of Mistrust in Africa', *American Economic Review*, 101(7): 3221–52.
- Ostrom E., Ahn T.-K. (2009) 'The meaning of social capital and its link to collective action', in *Handbook of Social Capital: The Troika of Sociology, Political Science and Economics*, pp. 17–35. Northeastern University.
- Ozler B., Celik C., Cunningham S., Cuevas P. F., Parisotto L. (2021) 'Children on the Move: Progressive Redistribution of Humanitarian Cash Transfers among Refugees', *Journal of Development Economics*, 153: 1–38.
- Putnam R. D. (1995) 'Tuning in, Tuning out: The Strange Disappearance of Social Capital in America', *PS: Political Science & Politics*, 28(4): 664–83.
- Schultz T. P. (2004) 'School Subsidies for the Poor: Evaluating the Mexican Progresa Poverty Program', *Journal of Development Economics*, 74(1): 199–250.
- Skoufias E., Parker S. W., Behrman J. R., Pessino C. (2001) 'Conditional Cash Transfers and Their Impact on Child Work and Schooling: Evidence from the Progresa Program in Mexico [with Comments]', *Economia*, 2(1): 45–96.
- Slater R., Tsoka M. (2007) *Malawi Social Protection Status Report*. Washington, DC: World Bank.
- Standing G. (2014) *Conditionality and Human Rights*. United Nations Research Institute for Social Development. Geneva, Switzerland.

- Strupat C., Klohn F. (2018) 'Crowding out of Solidarity? Public Health Insurance Versus Informal Transfer Networks in Ghana', *World Development*, 104: 212–21.
- Svendsen G. L. H., Svendsen G. T. (2003) 'On the Wealth of Nations: Bourdieu Economics and Social Capital', *Theory and Society*, 32(5/6): 607–31.
- Zak P. J., Knack S. (2001) 'Trust and Growth', *The Economic Journal*, 111(470): 295–321.

## APPENDIX

Table A1. CCTs and social capital: dropout sample

VARIABLES	People can be trusted = 1				Gift = 1			
	2008		2010		2008		2010	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CCTD	0.0494 (0.0303)	0.0496 (0.0306)	0.0158 (0.0299)	0.0201 (0.0304)	0.0157 (0.0274)	0.0232 (0.0277)	0.00944 (0.0283)	0.0143 (0.0284)
Trust baseline = 1	0.179*** (0.0332)	0.165*** (0.0336)	0.0642* (0.0328)	0.0629* (0.0335)				
Gift baseline = 1					0.0945*** (0.0343)	0.0673* (0.0356)	0.0706** (0.0354)	0.0354 (0.0364)
Observations	799	790	796	787	889	876	889	876
Controls	No	Yes	No	Yes	No	Yes	No	Yes

The table shows the intention-to-treat effects of CCTs on trust and gift giving propensities. Standard errors are in parentheses. Controls include all the adolescent and household covariates listed in Table 1. Significance: \*\*\* $P < 0.01$ , \*\* $P < 0.05$ , \* $P < 0.1$ .

**Table A2.** Amount of cash transfer and social capital

VARIABLES	People can be trusted = 1			Gift = 1				
	2008		2010	2008		2010		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Individual amount	0.0108 (0.0652)		-0.00987 (0.0630)		0.0493 (0.0556)		-0.0396 (0.0526)	
Combined amount		-0.0375 (0.0281)		-0.00956 (0.0272)		0.0440* (0.0239)		-0.0430* (0.0220)
Trust baseline = 1	0.171*** (0.0287)	0.158*** (0.0289)	0.0479* (0.0277)	0.0465* (0.0281)				
Gift baseline = 1					0.150*** (0.0297)	0.151*** (0.0307)	0.0762*** (0.0281)	0.0372 (0.0282)
Constant	0.216*** (0.0311)	0.207 (0.133)	0.225*** (0.0303)	0.107 (0.129)	0.141*** (0.0263)	-0.191* (0.113)	0.163*** (0.0249)	0.0197 (0.103)
Observations	1,139	1,127	1,145	1,133	1,225	1,205	1,225	1,205
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Standard errors are in parentheses. Controls include all the adolescent and household covariates listed in Table 1. Significance: \*\*\* $P < 0.01$ , \*\* $P < 0.05$ , \* $P < 0.1$ . To make the coefficients readable, we have divided the amounts that were originally in Malawian Kwacha by 1000.

**Table A3.** Cash transfers and social capital: moderation with alternative coding

VARIABLES	People can be trusted = 1							
	2008			2010				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated = 1	0.00867 (0.0198)	0.00746 (0.0201)	0.00256 (0.0194)	0.00186 (0.0197)	0.0358** (0.0163)	0.0333** (0.0166)	0.0365** (0.0158)	0.0242 (0.0159)
Treated × reciprocal	0.0867*** (0.0314)	0.0884*** (0.0315)	0.0359 (0.0308)	0.0342 (0.0309)	0.0200 (0.0260)	0.0196 (0.0261)	-0.0404 (0.0251)	-0.0380 (0.0250)
Treated × social	-0.00832 (0.0149)	-0.00693 (0.0149)	-0.000176 (0.0145)	0.00354 (0.0146)	-0.00615 (0.0122)	-0.00720 (0.0123)	-0.000984 (0.0118)	-0.000112 (0.0117)
Treated × wealth	-0.00173 (0.00605)	-0.00163 (0.00608)	0.00550 (0.00593)	0.00567 (0.00597)	-0.00143 (0.00499)	-0.00148 (0.00502)	-0.00221 (0.00482)	-0.00173 (0.00480)
Reciprocal baseline = 1	-0.00689 (0.0179)	-0.00910 (0.0180)	-0.0215 (0.0176)	-0.0224 (0.0176)	0.00282 (0.0145)	0.00514 (0.0146)	0.0190 (0.0140)	0.0227 (0.0140)
Sociability baseline	-0.0134 (0.00861)	-0.0108 (0.00869)	0.00698 (0.00838)	0.00586 (0.00847)	0.0124* (0.00709)	0.00965 (0.00714)	0.00988 (0.00684)	0.00491 (0.00684)
Wealth	-0.00613* (0.00352)	-0.00202 (0.00385)	-0.00897*** (0.00342)	-0.00890** (0.00375)	0.00530* (0.00290)	0.00407 (0.00317)	0.00100 (0.00280)	0.000818 (0.00303)
Trust baseline = 1	0.149*** (0.0158)	0.142*** (0.0159)	0.0548*** (0.0155)	0.0546*** (0.0156)	0.0783*** (0.0162)	0.0730*** (0.0163)	0.0503*** (0.0157)	0.0396** (0.0156)
Gift baseline = 1	3,508 No	3,492 Yes	3,540 No	3,524 Yes	3,767 No	3,749 Yes	3,767 No	3,749 Yes

The table shows the intention-to-treat effects along with impact heterogeneity with respect to selected variables. Standard errors are in parentheses. Controls include all the adolescent and household covariates listed in Table 1. Significance: \*\*\* $P < 0.01$ , \*\* $P < 0.05$ , \* $P < 0.1$ .

**Table A4.** Cash transfers and social capital: moderation separately for CCT and UCT

Variables	People can be trusted = 1				Gift = 1			
	2008		2010		2010			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CCT	-0.00370 (0.0289)	-0.00944 (0.0290)	0.0239 (0.0277)	0.0227 (0.0278)	0.0326 (0.0228)	0.0408* (0.0229)	0.0270 (0.0213)	0.0268 (0.0214)
UCT	0.0189 (0.0373)	0.0251 (0.0374)	-0.0156 (0.0356)	-0.0130 (0.0357)	0.0223 (0.0295)	0.0225 (0.0296)	-0.0259 (0.0276)	-0.0238 (0.0277)
CCT × reciprocal	0.108** (0.0461)	0.114** (0.0462)	0.0780* (0.0441)	0.0784* (0.0442)	0.00165 (0.0366)	-0.000294 (0.0366)	-0.0573* (0.0343)	-0.0583* (0.0343)
UCT × reciprocal	0.0453 (0.0587)	0.0515 (0.0588)	-0.0292 (0.0558)	-0.0290 (0.0559)	0.0808* (0.0461)	0.0772* (0.0463)	-0.0337 (0.0432)	-0.0378 (0.0433)
CCT × social	0.0135 (0.0227)	0.0132 (0.0228)	0.00860 (0.0212)	0.00908 (0.0213)	-0.00935 (0.0175)	-0.0102 (0.0175)	-0.00274 (0.0164)	-0.00507 (0.0164)
UCT × social	-0.0189 (0.0264)	-0.0186 (0.0264)	-0.00464 (0.0256)	-0.000164 (0.0256)	-0.00580 (0.0211)	-0.00776 (0.0211)	-0.00701 (0.0197)	-0.00758 (0.0197)
CCT × wealth	0.00695 (0.00903)	0.00738 (0.00905)	0.00407 (0.00872)	0.00482 (0.00874)	-0.00643 (0.00720)	-0.00708 (0.00721)	0.000460 (0.00674)	0.00200 (0.00675)
UCT × wealth	-0.0120 (0.0118)	-0.0120 (0.0118)	0.00740 (0.0112)	0.00617 (0.0113)	-0.000959 (0.00924)	-0.00210 (0.00929)	-0.00241 (0.00865)	-0.00177 (0.00870)
Reciprocal baseline = 1	-0.0119 (0.0229)	-0.0150 (0.0230)	-0.0236 (0.0220)	-0.0231 (0.0220)	0.00639 (0.0178)	0.00833 (0.0178)	0.0418** (0.0166)	0.0458*** (0.0167)
Sociability baseline	-0.00768 (0.0110)	-0.00312 (0.0111)	0.00645 (0.0105)	0.00599 (0.0106)	0.0109 (0.00859)	0.00875 (0.00866)	0.00847 (0.00804)	0.00527 (0.00810)
Wealth	-0.00660 (0.00467)	-6.77e-06 (0.00501)	-0.00933** (0.00446)	-0.00963** (0.00481)	0.00554 (0.00367)	0.00246 (0.00395)	0.00635* (0.00344)	0.00510 (0.00370)
Trust baseline = 1	0.143*** (0.0203)	0.134*** (0.0204)	0.0495** (0.0194)	0.0464** (0.0195)	(0.00367)	(0.00395)	(0.00344)	(0.00370)
Gift baseline = 1					0.0706*** (0.0205)	0.0696*** (0.0205)	0.0353* (0.0192)	0.0350* (0.0192)
Observations	2,134 No	2,127 Yes	2,158 No	2,151 Yes	2,264 No	2,256 Yes	2,264 No	2,256 Yes
Controls								

The table shows the intention-to-treat effects of CCT and UCT along with impact heterogeneity with respect to selected variables. Standard errors are in parentheses. Controls include all the adolescent and household covariates listed in Table 1. Significance: \*\*\* $P < 0.01$ , \*\* $P < 0.05$ , \* $P < 0.1$ .