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Asset Transfers and Anti-Poverty Programs

Experimental Evidence from Tanzania

Sarah Baird
Craig McIntosh
Berk Özler
Utz Pape

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Abstract

This paper uses a set of randomized experiments to examine the impact of a group business development program implemented by the Tanzanian government, along with a set of complementary training and cash transfer interventions targeted to vulnerable households in rural areas. In contrast with much of the recent literature, the analysis finds little effect of the business development program. While most enterprises remain operative three years after formation, even the highest estimates of effective wage rates suggest returns roughly equivalent to the opportunity cost of time for these households. Trainings on business skills and group transparency did not improve outcomes, although they appear to have exerted a redistributive effect from group elites to rank and file members. Unconditional and unanticipated lump sum cash transfers to randomly selected members of these groups induce all members to invest more in the enterprise, with seemingly little to no return on these marginal investments. The results emphasize the importance of profitability as the key motivation for asset transfer–based social protection programs.

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Asset Transfers and Anti-Poverty Programs: Experimental Evidence from Tanzania*

Sarah Baird
George Washington University

Craig McIntosh
University of California, San Diego

Berk Özler
The World Bank

Utz Pape
The World Bank

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* Sarah Baird, email: sbaird@gwu.edu, George Washington University; Craig McIntosh, email: ctmcintosh@ucsd.edu, University of California, San Diego; Berk Özler, email: bozler@worldbank.org and Utz Pape, email: upape@worldbank.org, The World Bank. Corresponding Author: McIntosh, 9500 Gilman Drive, La Jolla CA, 92093-0519. We thank seminar and conference participants at CSAE, EGAP, WADES, WGAPE, UC Berkeley, and the World Bank. We thank the following World Bank trust funds for research funding: Spanish Impact Evaluation Fund, Gender Action Plan, Bank Netherlands Partnership Program, Knowledge for Change Program II, and Trust Fund for Environmentally and Socially Sustainable Development. This study is a collaboration between the Tanzanian government and the World Bank, neither of which required IRB for social science research at the time of the study. Baird and McIntosh were given access to deidentified secondary data and UCSD deemed it did not need IRB. The findings, interpretations, and conclusions expressed are entirely those of the authors.

1. INTRODUCTION

Social protection programs are increasingly designed to drive sustainable pathways out of poverty by investing targeted transfers in businesses run by poor households (Ravallion 2003). The actual structure of such programs varies widely, from unconditional cash transfers (UCTs) to highly tailored, hands-on interventions that launch people into specific lines of business. While a voluminous literature documents the ability of cash transfers to build up business assets (Gertler et al. 2012, de Mel et al. 2012, Haushofer and Shapiro 2016), perhaps the most comprehensive success story from such programs relates to BRAC's *Graduation* program. This multifaceted intervention, including the transfer of a livestock asset, training and coaching, consumption support, access to financial services, and female empowerment, has been shown to have consistently significant (if quantitatively modest) effects in a recent six-country study (Banerjee et al. 2015), as well as continuing to confer benefits even 10 years after program implementation (Banerjee et al. 2021). Given the high costs and bundled nature of the *Graduation* program, an important next step in this research agenda is understanding which components of the bundle are necessary for generating large benefits (Sedlmayr, Shah, and Sulaiman 2020) or what other components might be added or incorporated into the next generation of these *productive inclusion* or *adaptive social protection* programs, such as cognitive behavioral therapy (Barker et al. 2021; Bossuroy et al. 2022).

This study contributes to this debate with a multi-layered experiment providing group enterprise funding, business skills training, and unconditional cash transfers to poor households in Tanzania. We conducted a randomized evaluation of the Vulnerable Groups component of Tanzania's Social Action Fund (TASAF II[1]), a program through which groups of ~15 individuals

[1] The interventions under the second phase of the program (TASAF II) evaluated in this paper took place between 2008 and 2012. Since then, TASAF has evolved from a small program to a large social assistance implementing

propose a joint business plan and are provided with a large grant of working capital (~$6,500) to execute the plan.[2] Like the *Graduation* program, most of these enterprises involve the rearing of livestock such as cows, goats, and pigs. Over the top of this program, we then randomly assigned two additional interventions. The first is a multi-day business skills and group trust-building training, executed around the time of receipt of the funding and randomized at the group level (32 of 59 Early group assigned to training), following the ILO's *Start Your Business* and *Improve Your Business* training modules. The second is an individually randomized UCT, randomly varied between $50 and $350. This combination of an asset transfer, entrepreneurial training, and individual income support replicates some but not all the features of the *Graduation* program, and the separate randomization of each component allows us to unbundle their independent impacts.

In the end none of the interventions we study, and indeed no combination of them, proves to have a strong effect on beneficiary welfare even in the short term. The TASAF groups are formed, investments made, and business activities diligently operated just as was intended. The groups themselves as well as the assets that they hold prove remarkably durable, at least for the 36-month follow-up period of our study, and group members not only devote substantial time but put their own financial resources into the operation of these groups. The lack of impact across the three overlaid interventions appears to have a single root cause: these group-operated businesses are simply not very profitable, at least not for the vulnerable population TASAF targeted and/or

agency, which has been running Tanzania's flagship safety net program nationwide (the Productive Social Safety Nets program – PSSN) since 2012. At the time of writing, PSSN provides cash transfers to almost 1.4 million households and is a fundamentally different program relative to the one evaluated in this paper. Several components described and evaluated below were in fact removed from the program in 2012 when PSSN was piloted. Therefore, the findings from this study and their relevance to the current operations of TASAF as an implementing agency should be interpreted accordingly.

[2] This part of the experiment uses a pipeline design among successful applications in 100 rural communities in five districts of Tanzania as a part of the second phase of TASAF, taking advantage of the fact that the program did not have the capacity to fund and supervise all projects at once. A randomly drawn 50% of clusters were assigned to start their projects with a 12-month delay and form the control group for the group-enterprise intervention.

not without more intensive support. When we calculate an effective wage on the time invested in these businesses, it is close to the opportunity cost of time, and indeed lower than the food-for-work wage of $1.35 paid by the other major TASAF social protection program at the time. The trainings alter the organization of the groups, empowering rank and file members and leading to some pull-back of time and contributions by group elites, but do not improve business outcomes overall. Most remarkably, the completely private and individual cash transfers are largely invested into the group enterprises, and indeed induce substantial additional individual investment by group members who did not receive any cash. In this case, the fundamental premise of small-scale business investment providing a steady profit stream for beneficiaries seems to have failed, and the group members find themselves in the same boat as the overall program; piling investment into an entrepreneurial activity that yields disappointing returns.

We can delve into the magnitudes of these effects using detailed data that we collected from the group-based enterprises on reported inputs, assets, and earnings six, 12, and 36 months after baseline. Beginning with average disbursements of $5,867, groups retained about $5,000 in assets at the 6-month follow-up and by 12 months had built the value back up almost to the original value before beginning a long-run decapitalization. In groups with no unconditional cash transfers (UCTs), the total business assets declined to $2,660 or just about 40% of the mean value of the grants from TASAF at 36 months, while groups in which at least one member received UCTs retained, on average, $5,000 in assets.[3] The average net earnings of beneficiaries from the group business was $3.35 per month ($3.80 in *no UCT* and $2.80 in *any UCT*). Even assuming no depreciation of group assets and all decrease in stock value is consumed, the increase in consumption in the *no UCT* arm cannot be larger than $1.50 per person per month when the flow

[3] All figures in this paper are in real 2008 US$, the time of the baseline, with subsequent survey amounts adjusted using a district-specific CPI.

of asset sales is added to net monthly earnings. The corresponding figure in the groups receiving UCTs is $0.60, smaller because of reduced consumption from liquidation of group assets. These numbers correspond with the evidence from the household data, an insignificant average increase in consumption of 72 cents per person per month over a baseline mean of $19. Hence the combination of preserved (not consumed) group asset values and low profits limit the scope for increases in household income.

These somewhat bleak results help to inform three distinct literatures in the debate over how to build effective economic inclusion programs. First, they add a data point to the literature on group-based business investment programs in Sub-Saharan Africa. In many ways TASAF is similar to the NUSAF Youth Opportunities Program evaluated in neighboring Uganda by Blattman et al. (2014, 2020), which saw impressive short-term gains followed by long-term catch-up by the control.[4] However, as we discuss in more detail in the next section, key differences exist; NUSAF selected youth at the beginning of their working careers, invested mostly in training for skilled trades, allowed more scope for individuals to own enterprises, and avoided low-skilled sectors such as livestock that make up the majority of TASAF investment.[5] These findings echo those of Haushofer et al. (2022), who find that cash transfers targeted based on deprivation (rather than, say, potential in the form of high expected conditional average treatment effects) may not be attractive for increasing social welfare – even when the social planner cares about redistribution. In Appendix B, we provide a more detailed comparison to related social protection programs.

[4] A similar increase in earnings in the short run followed by convergence a few years later is observed in an entrepreneurship program in Ethiopia that provided a cash grant and business training to young people (Blattman and Dercon 2018a & 2018b).

[5] In a more individualized context, Argent, Augsburg, and Rasul (2014) evaluate Rwanda's *Girinka One Cow* policy and find that a short and inexpensive livestock management training caused large and long-lasting economic benefits up to six years after the asset transfer on milk production and yields, household earnings, and assets.

Secondly, we contribute to the uneven empirical literature on active labor market programs in low- and middle income countries. This is a critical area of inquiry given the dominant role of informality and self-employment as highlighted by Bandiera et al. (2022), and the literature on these programs has yielded inconsistent results with low overall returns (Alaref et al. 2020; Bertrand et al. 2021) and few big wins (McKenzie 2021), albeit for different target populations. Our findings on the training component of our experiment provide an interesting window in that they appear to have done little to improve business processes or outcomes, perhaps because of the relatively short duration of our trainings (2-3 days, as compared to training over the course of 1-2 years in Karlan and Valdivia 2011).[6] Nonetheless, we find these exercises led to a redistribution of both effort and reward within the groups. In untrained groups, elites contribute significantly more labor and earn more revenue and profit, while in the trained groups these differences all become statistically insignificant, suggesting improved opportunity for participation by the rank and file. Nonetheless, this equalization of engagement does not lead to higher group profits, even for the rank and file. Given that the social capital and trust dimensions of the training did not generate business profits, it seems that trainings more tightly focused on the technical side of specific business activities might have been a more attractive path forward.

Finally, our study speaks to the cash transfer literature in two distinct ways. We have one stratum of eligible individuals who did not participate in TASAF groups and were provided with cash; in this group we effectively replicate the broader literature by finding modest increases in business assets and income. Our transfers were smaller than the literature evaluating GiveDirectly and our outcome measurement is relatively long after treatment (24 months) and so our impacts are muted relative to Haushofer & Shapiro (2016) and McIntosh & Zeitlin (2022), but the general

[6] A study using the same ILO *Start Your Business* materials in Sri Lanka found some impacts on business starts but none on profits, sales, or capital stock (de Mel et al. 2014).

profile of impacts is very similar.[7] Where we find completely divergent results is in the UCT response for individuals who participate in TASAF groups, among whom little of the value of the cash transfers seems to have gone into household-level consumption or investment, instead being invested in the group enterprise. Indeed, for every $100 transferred collectively to the members of a group, we find $400 additional in-group investment, a finding that can be explained by the very strong effect of group average cash transfer amounts on the financial contributions to group enterprises *even for individuals who did not themselves receive any cash transfer*. The group ethos appears to have been so strong that it completely determined the use of individual cash transfers, leading to a profile of impacts for TASAF members that looks unlike the broader literature due to the low returns on these investments. So even our cash transfer impacts end up reinforcing the ultimate centrality of the low returns to the group business investment.

The policy conclusion emphasizes the extent to which the logic of any entrepreneurial asset transfer program is predicated on the returns to investment. If livestock groups are unable to turn an economic profit (generating durable returns to labor in excess of the prevailing wage), then they are effectively cash transfers 'on the hoof,' providing a medium-term consumption support program that will dissipate as the original investment is consumed away. While a welfare case can still be made for such a program, the relevant questions would then center around the risk and smoothing properties of transfers provided in this manner (which pushes labor and livestock mortality risk on to the beneficiary but gives them more control over the pace of spend-down) relative to a more predictable flow of payments as from a typical cash transfer program.

[7] While a number of studies looking at conditional cash transfers (CCTs) have uncovered meaningful long-term effects (Barham et al. 2013, Araujo and Macours 2021), most analyses of UCT programs find benefits that dissipate quite rapidly (Brudevold et al. 2017; Hicks et al. 2017, Haushofer and Shapiro 2018, Baird et al. 2019). Stoeffler et al. (2020) find that cash transfers combined with enhanced savings mechanisms can generate asset accumulation among the very poor, similar to our findings on total stock of assets in groups with UCT recipients in our study.

Several features of TASAF appear to have been problematic in terms of return on investment. First, the targeting of vulnerable individuals, however well-justified on welfare grounds, may not intersect well with the financial durability of business investment. Second, investments were mainly put into sectors without barriers to entry and in which beneficiaries were already operating. Finally, group investment may impose collective-action frictions on the operation of the enterprises unless rules over co-investment and profit sharing are very well established. While the results of our training experiment suggest that these sharing rules are malleable, we do not discover a viable pathway to profitability for these group enterprises. Emphasis in such programs must be placed on identifying opportunities for specific investments in capital or training that unlock market opportunities that are not already widely accessible.

2. Motivation and Study Setting

2.1 Study Setting

Tanzania, the setting for this study, had a population of 42 million at the time the study began in 2008. Approximately 44% of the land area is agricultural land with 68% of total employment in agriculture. The GDP per capita in 2008 was $1,899 (PPP, constant 2017 international $). The annual GDP growth rate averaged around 6% for the period 2000-2020, with a high of 7.9% in 2011 (WDI 2021). Small and medium enterprises account for 50% of Tanzania's GDP and generate up to 40% of total employment, however most of these firms have remained largely informal. The study took place from 2008-2012 in five districts in Tanzania: Moshi, Kwimba, Lushoto, Makete, and Nzega. While the selection was purposive, they represent a range of the conditions in Tanzania, from relatively richer and more connected Moshi and Lushoto, to the more remote rural districts of Kwimba, Makete, and Nzega. Compared with the average

poverty headcount in Tanzania, estimates suggest that poverty rates are lower than average in Lushoto and Moshi, roughly average in Nzega, and slightly higher than average in Kwimba and Makete (Baird, McIntosh Özler 2013).

2.2 TASAF's Vulnerable Groups Program

Tanzania's Social Action Fund (TASAF) was initiated in 2000 by the Government of Tanzania as one of its poverty reduction strategies. TASAF II (2005-2013) was a USD 120 million social funds program – fairly typical of such large programs in Sub-Saharan Africa. It aimed to address the shortage of social services and income poverty in rural and urban areas and well as enhance capacity of beneficiaries. The program's financing targeted three main groups: service poor communities (improvement of social services and infrastructure), food insecure households (public works programs where beneficiaries receive cash for work) and vulnerable groups (VGs). An evaluation of the VG component forms the basis of this study.

The beneficiaries of VG projects are 'vulnerable' households, i.e., those containing elderly individuals, people with disabilities, widows, orphans, and those affected by HIV/AIDS, who form small groups and develop proposals to receive grants for income-generating activities. These groups vary in terms of business activities, size, and leadership structure. Our sample of 119 groups consists of 28 cattle-keeping groups, another 53 keeping either goats, pigs, or chickens, 11 investing in milling machines, 8 in tailoring, 8 in bee keeping, and the remainder in assorted agricultural activities such as vegetable production or tree nurseries. The median group has 15 members, with the smallest 6 and the largest 33. The executive structure of the group consists of a Chairperson, Treasurer, and Secretary, whom we term the group elite. In addition, we also identified the 'prime mover' in each group – the person who drove the application and knew the business side best.

The program brings together groups of disadvantaged individuals around a single vulnerability category (roughly a third are widow/widower groups, a third elderly, and the remaining are orphan or disabled groups) and asks them to draft a business plan for a small collective enterprise.[8] After a small amount of training provided by the government on procurement and handling bank accounts, the successful groups are disbursed substantial productive inputs for the project, with most groups receiving between $5,000 and $10,000, and the average group $6,650. Funds were disbursed from TASAF to an account owned by the group but jointly supervised by the Treasurer and TASAF, and receipts for purchases of equipment and services were audited regularly. While our study sample is admittedly a closely monitored environment, within this group it appears that money was transferred and invested in accordance with the initial group business plans.

3. STUDY DESIGN

3.1. The TASAF Pipeline Experiment

Within the five study districts, groups of vulnerable individuals went through the sensitization, application, and approval process required by TASAF and described in more detail in Baird, McIntosh and Özler (2013). TASAF VG screening follows a Community Driven Development rubric, with multiple stages of local participation including vetting eligibility status, a collective participatory ranking exercise to help select projects with strong local support, and a technical analysis by a district-level TASAF official who screens each preliminary business proposal vis à vis local skills and market conditions. TASAF then identified 100 villages that were close to the approval stage within these districts, and all VG projects within these villages (119) were recruited

[8] Groups containing HIV-affected households benefitted from the program but were left out of the randomized experiment.

into the study. We conducted a listing exercise in these 100 villages to classify households as eligible or ineligible according to the VG criteria, and to identify key individuals.

This pipeline of 119 active groups was randomized at the village level in to two tranches. The Early group was to be treated right after baseline (59 groups receive TASAF early treatment), and the Late group to be delayed for a year (60 groups receive TASAF late treatment), with the 12-month midline survey conducted immediately before the Late group was treated. This randomization was blocked by district and group type (livestock groups versus non-livestock groups). Importantly for the interpretation of our results, the timing structure of the experiment was common knowledge to the beneficiaries, introducing the possibility that the control group behavior in the midline was altered by the fact that they were about to receive their transfer. Anticipating this issue, we retained the Eligible Non-Beneficiary (ENB) households in the panel data set to have a second (albeit non-experimental) control group that is never treated.[9]

The entire study timeline was shifted off for the districts of Moshi and Lushoto, which began first, relative to the remaining districts which trailed by roughly ten months. Because the experiments were blocked by district this does not affect results. Early treatment disbursements took place in December 2008/early 2009 in Moshi and Lushoto, and were made between September and October 2009 in the remaining three districts. Late treatment took place in early 2010 in Moshi and Lushoto and in December 2011/January 2012 elsewhere. Figure 1 shows the timing of the surveys and the interventions.

3.2. The Training Experiment

Human and managerial capital is a critical input to the generation of entrepreneurial returns (Ibarrarán et al. 2019, Bruhn et al. 2010), and in the context of group investments training also has

[9] These are households in study villages that met the technical eligibility for TASAF in containing an individual defined as 'vulnerable' by the rules of the program, but that did not in fact participate in any TASAF group.

the capacity to alter the participation of disempowered members (Blattman et al. 2016). To investigate this issue, the early treatment group was then further randomized to two groups; one of which was to receive some form of training (32 groups) and the other would not receive any training (27 groups). These activities were conducted by an NGO specialized in training activities for rural citizens in Tanzania (Triodos Facet). The training had two primary components. The first of these was a Trust Building training given to all trained groups; it was based on ILO's *Grassroot Management Training* and *Guidelines for Group Actions.* This component emphasized group cohesion, as well as how to manage intra-group conflict and to create transparent guidelines for business management. Appendix Figure A1 provides a cartoon used in the training that is exemplary of this component's emphasis on transparency and rules-based financial management.[10]

A second training was based on ILO's *Start Your Business* and *Improve Your Business* program, given to 17 of the trained groups, and used a standard ILO business skills curriculum, emphasizing bookkeeping, quality management, and market development. The first component of the training lasted for one day, and the second component for two more days. Appendix Figure A2 shows the curriculum for this two-day component, illustrating the emphasis on marketing, business management, and the formation of a formalized business development plan. Attendance of the training activities among all group members was 85% and reported satisfaction with both trainings at the time of completion was very high.

3.3. The Cash Transfer Experiment

[10] As explained above, VG members were brought together by their circumstances, i.e., by their specific vulnerability or eligibility criterion. As such, they did not necessarily know each other or work together before the project. Furthermore, rural villages in Tanzania can cover large spaces and be comprised of a number of hamlets that are far away from each other. Hence, building some cohesion in these groups was seen as potentially useful for the success of the group.

Roughly eight months after the Late TASAF treatment had begun in Moshi and Lushoto, and effectively contemporaneous with the disbursement of the Late TASAF funds in the remaining districts, we implemented a cash transfer experiment at the household level in study villages. Figure 2 shows a CONSORT-style diagram of the research design for our study. Eligible households in the study sample (TASAF members and ENBs alike) were randomized to a UCT control (36% of the eligible sample in treatment villages), or to transfer amounts ranging in intervals of fifty dollars from $50 to $350, each transfer cell assigned with a probability of 9% and the average transfer being $200. This randomization was blocked by district and the village-level TASAF Early treatment experiment. These transfers were delivered by a special team that traveled to the residence of each household to administer them. This UCT intervention represents a particularly clean example of a completely unframed (and unanticipated) lump-sum cash transfer. Because we were interested to see how households would freely choose to allocate the transfer across consumption, household investment, and investment in the group enterprise, we provided no framing for the reasons of the transfer, saying only that it was being provided to them on a lottery basis because of their participation in the overall study, and that they were free to use the money as they wished. The transfer was lump sum, made in cash, and in person to the survey respondent.

The cross-randomization of the UCT transfer against the preexisting TASAF research structure creates several subgroups on whom we can focus. First, at the household level, we can examine the standalone benefits of cash transfers by looking at the Eligible Non-Beneficiary group, who never received any of the other interventions in the study and therefore provide a standard UCT experiment with a follow-up 16-24 months after intervention, depending on the district. We can examine the effect of cash transfers within the TASAF group members by

comparing members who do and do not get transfers on a randomized basis. Finally, because we have entire TASAF groups in which no individuals were assigned to receive UCTs, we generated substantial heterogeneity in the cumulative amount of money transferred to group members (ranging from 0 for almost half of groups to a maximum of $1,300) and so we can use this variation to study outcomes for the groups, looking both at the group-level totals as well as at the behavior of other individuals in these groups who were not themselves treated with UCTs.

Because of this design, at midline we have a simple experimental analysis where we can compare the trained and untrained TASAF groups to the control. By endline all of the TASAF members are treated, so we can examine the absolute effect of TASAF by observational comparison to the ENBs, as well as the experimental analysis of the UCT (cross-cut over ENB and TASAF training status).

3.4 Data Collection and Outcomes

The listing exercise at the village level partitioned all households into those who would be eligible (containing an individual meeting one of the VG criteria) versus ineligible (everyone else). We also identified and surveyed key village-level elites (the Village Executive Officer and Chairperson as well as the individual who was the 'prime mover' of the TASAF application, whether they were a group member or not). Within TASAF groups we classify households as belonging to Group Leaders (or GL, comprised of the group's Chairperson, Treasurer, or Secretary), or the Rank & File (or RF, if the household contains any other group member). For all 119 study groups, we sampled all three GL into the study, and we also randomly sampled three members from the remaining RF. As shown in Baird, McIntosh and Özler (2013), GL tended to be substantially wealthier and better educated than RF. Finally, in each village, we sampled three 'eligible non-beneficiaries' (ENB), who met the technical qualifications for inclusion in a TASAF

VG group but were not beneficiaries. These three strata, i.e., GL, RF, and ENB, within which the group investment, training, and household cash transfer experiments were conducted, are the focus of this paper.

Within this sample, we conducted a number of surveys.[11] First, we conducted a comprehensive three-wave household survey. The survey included data on consumption, income and revenue, savings and borrowing, revenue, food security, productive assets, livestock, housing quality, food security, health, and education. We also tracked the progress of the groups, using a detailed enterprise survey. This not only collected a standard battery of business practices, as well as asset and profit/loss data for the groups, but it attempted to conduct the mapping of group activities back to the individual level – tracking contributions of time, inputs, and money to the group from each member as well as the rate of profit-taking by members from the group enterprise. For the enterprise survey we have an additional 'rapid resurvey,' conducted roughly six months after disbursement of TASAF funds to the Early treatment group, intended to capture outcomes immediately after disbursement.[12]

As this study began in 2008 with data collection ending in 2012, it pre-dated the standard use of trial registration and pre-analysis plans. Thus, we use two seminal papers in the literature – Banerjee et al. (2015) and Haushofer and Shapiro (2016) – to guide our grouping and selection of primary and secondary outcomes. Our primary outcomes include consumption (food, non-food, and total, measured as real USD monthly per capita adult equivalents – adjusted for differences in price levels across districts and over time), housing quality, livestock, and productive assets. For

[11] All survey instruments and enumerator manuals for the survey can be found at https://sites.google.com/site/decrgberkozler/datasets.

[12] An important issue in survey design, given the capture of assets at both the group and household levels, is avoiding double-counting the same assets. In an attempt to avoid this, we carefully distinguished group assets as those considered to be owned collectively by the group, and in the household survey we asked separate questions about individually-owned assets versus group-owned assets (typically livestock) that might be on household land or supported with household labor and expenditure, but were not owned by the household.

housing quality, we use an indicator for whether the household has an improved roof as its own outcome (following the results in Haushofer and Shapiro 2016). For livestock, we measure the total value of all livestock (both including and excluding group owned livestock), and examine the numbers of dairy cows, dairy goats, pigs, and all poultry. Productive assets include two outcomes of interest: the total value of durable productive assets and the total value of businesses.

Our secondary outcomes include food security, health, education, income and revenue, and savings and borrowing. Food security is measured by looking at the average number of meals eaten in a day by an individual in the household. Health includes three measures: the proportion of household members who were sick or injured in the past week, whether the respondent's self-reported health was good or average, and in index of disability for those over 15. Education looks at the proportion of school-aged children (aged X-Y) in school at the time of the survey and school expenditures. Income and revenue, all in the past year, includes agricultural revenue, livestock revenue, livestock expenditures, livestock profit and enterprise income. Finally, savings and borrowing looks at total savings and total borrowing.

3.5. Attrition and Balance

We began the experimental component of the study with 1,017 eligible households having responded to the baseline survey. In Table A1, we examine whether subsequent attrition from the study was driven by any of the treatments. We see that attrition from the study was 5.5% at 12 months and 14.2% at 36 months from baseline. While it was substantially lower among group leaders than the rank and file, it was not correlated with being treated by TASAF, receiving training or the UCT, or getting both TASAF and the UCT (the UCT variable here, as in the impact regressions, is in units of hundreds of dollars received by a household).

The study appears well-balanced; Table A2 shows balance using the household data, including all TASAF members, and incorporating dummies for Early TASAF treatment and Training, as well as the UCT and UCT*Training interactions as above. Across all primary outcomes we find only 1 out of 40 comparisons significant at the 5% level, slightly less than what we would expect by random chance. Because the TASAF groups do not exist at baseline we do not test for balance on the group data.

4. Observational Evolution of the TASAF Groups over Time

A starting point in understanding what the TASAF investment did is a simple descriptive analysis of the evolution of enterprise outcomes. In 92% of cases the TASAF program created the group enterprises from nothing, and so business outcomes such as business assets and profits are typically zero prior to treatment (meaning the baseline for the Early group, and the baseline, the rapid resurvey (RR) at six months, and the midline at one year for the Late group).[13] Using our three post treatment surveys we can construct four different durations since treatment: 6 months (RR), 12 months (R2), and 36 months (R3) for the Early treatment group, and 24 months (R3) for the Late-treatment group. To avoid conflating the effects of the UCT with the normal operating of the TASAF groups, which are only relevant for R3 outcomes and presented later in this section, we only include the groups that received no UCTs.

Table 1 provides basic summary statistics of group outcomes (first six columns) and individual contributions to/earnings from groups (remaining columns) across the four rounds of the survey. It illustrates the way the pipeline design worked, with no activity in any group at baseline, the Early groups in full swing by the 6- month RR, and then despite some initial stirrings

[13] Six of the 60 groups in the delayed treatment arm had positive total stock values at the time of R2 data collection with average stock values much smaller (USD 653) than the groups in the TASAF early treatment arm (USD 5,633).

of activity in the Late groups during RR and R2, no sizeable business activity in them until R3. In general, as we would expect based on a simple duration-from-treatment model, the Late group at R3 has outcomes that are intermediate between the R2 and R3 outcomes for the Early group.

The average disbursement to groups was $5,867. Within the first six months of disbursements, groups spend nearly half of total available funds on set-up costs and working capital, ending up with combined assets plus working capital at about 83% of the grant. Figure 3 shows how this number then evolves over time: group value climbs quickly between 6 and 12 months, peaks at about 96% of the originally disbursed value 12 months subsequent to disbursement. This increase comes from some of the investments paying off (e.g., piglets are born; pigs fatten). At the 36-month follow-up, the total value of the stock of assets at the enterprise level in Early treatment groups that received no UCT has fallen to $2,660, or 45% of the disbursed amount. Hence, in the absence depreciation or profit in the group enterprise, we would expect just over half of the disbursed money to have shown up in household balance sheets within three years simply through consumption of the principal.

What then is the evolution of returns to group members? To examine this, we use questions asked of each group member about individual investment and profit-taking. During the enterprise survey, we ask every individual in the group to report time inputs in managing the group activity and the value of cash and kind investments in the group, as well the income taken out of the group by individuals. By calculating the difference between income and investment at the individual level we have a net income per individual in the group, and by then dividing this by the average time input we can directly calculate an effective wage rate. Note that because we cannot distinguish between realized profit and consumption of business principal, this wage rate is inclusive of the pace at which overall group value is being drawn down. Wage changes over time in the UCT

control are plotted in Figure 4 (note that these are simple group averages relative to time of disbursement, not causal impacts relative to a counterfactual), with a quadratic time trend superimposed. We see negative effective wages at six months (reflecting that individual investments into the enterprises still exceed profit taking). By 12 months the wage is effectively zero; by 24 months it has grown to $.50 per day (using data from the Late treatment group), and by 36 months to almost exactly $1 per day, significantly different from zero.

How does the total value taken out of group enterprises compare to the draw-down in group value? The difference between these two quantities, in principle, reveals the extent to which the realized income gains are driven by profits or consumption of principal. As an (admittedly imperfect) way of doing this, we can take the observed values for the Early treatment group from Table 1, linearly interpolate the stock values, contributions, and earnings across months. The difference between these latter values, multiplied times 14.5 (the average group size) gives the net contribution to the group in a month (where a negative number implies net withdrawals). We can then aggregate the stock asset value we would expect to see in each period according to net contributions in the prior month and compare this aggregated value to the observed (interpolated) stock. The difference between the two should arise from profit (if positive) or depreciation (if negative). The results of this simulation are presented in Figure 5, which illustrates that at their maximum around R2 the TASAF groups had generated $678 in real profit, but that from there group values deteriorated faster than would be expected given profit-taking, implying depreciation. The average monthly profit net of contributions in the six-month accumulation phase was 1.92% per month (as a percentage of the original grant), and the average depreciation in the 24-month period between R2 and R3 was -1.74% per month.

There are reasons for some optimism in these results: the group enterprises funded by TASAF are durable, they appreciate in total value over their first year, and pay effective wages that grow monotonically over time. However, even at their highest observed value the effective wage rate yielded by participation in the groups is just $1 per day, lower than TASAF's own Food for Work daily wage of $1.35 per day.[14] Hence at no point in the study did the average return to labor in the VG program equal what was paid in the standard workfare program. All of this suggests that when we turn to the household analysis, we may expect to see very modest causal effects of the TASAF VG program on outcomes like household consumption unless the opportunity cost of time in beneficiary households was extremely low.

5. MIDLINE ANALYSIS

5.1 Household Impacts of TASAF and Training Experiments

We now use the midline comparison between untrained TASAF groups, trained TASAF groups, and control to estimate the experimental impact of the program at the household level. We can run the standard cross-sectional ANCOVA regression in the midline:

$$(1)\ Y_{iv} = \beta_0 + \gamma_1 T_v + \gamma_2 (T_v * Train_v) + \beta_1 X_{iv} + \beta_2 Y_{iv0} + \epsilon_{iv}$$

In this regression Y_{iv} is the outcome for household *i* in village *v*, T_v is a dummy for the Early treatment group, the interaction $T_v * Train_v$ is a dummy for groups that receive both TASAF and training, X_{iv} includes block randomization strata fixed effects a dummy for whether the household contains a group leader, and Y_{iv0} is the baseline outcome. Regressions are weighted to be representative of all group members, and standard errors are clustered at the village level, the unit of treatment assignment. In the core tables we also provide p-values on the F-tests of the similarity

[14] See the TASAF Assessment Handbook at this link.

of the treatment effects coefficients (does the training add significant value over TASAF alone) and on the joint significance of the two treatment terms (which maximizes sample size and power in the test of TASAF bundled with training).

Our first household analysis focuses on the ownership of livestock, given that most of the TASAF groups invest in some form of animal husbandry. This provides a clear way to begin parsing what we can learn from the pipeline design of the study. In the first row of Table A3 we see the midline experimental treatment-control difference, revealing the number of cows significantly increasing (a coefficient of .2 representing a quadrupling from the baseline control mean of .05), as well as an increase of almost .5 in the number of pigs owned. As we would expect these increases are similar in trained and untrained groups. Interestingly, the livestock displaying strong serial autocorrelation (goats and poultry) are not those driven by TASAF, suggesting that the program is inducing movement into new forms of animal husbandry. Given our efforts not to double-count, these should be taken as impacts above and beyond the shift in strictly group values reported in the previous section, i.e., these are animals that are reported by group members owned by them as opposed to being a 'group cow' or a 'group pig.'

Having illustrated these mechanical effects of treatment, we then move to examine the deeper household impacts of TASAF. Given the results of the prior section, we may expect that despite the presence of additional assets, the returns being generated by the assets are disappointing. Indeed, Table 2 shows very muted household impacts of TASAF funding at midline. TASAF alone appears to have led to a modest increase in non-food consumption and an increase in expenditures on livestock, but these changes are relatively small in absolute terms (this translates into a less than 8 percent increase in overall consumption relative to the control, and while livestock expenditures have doubled at midline, livestock revenues are actually somewhat

lower than the control). Agricultural income from sales of crops is no higher, and household-level enterprise profits and assets are not improved. Hence, this picture suggests that the flow of income from TASAF group enterprises is being invested in livestock assets, but has neither translated into flow consumption benefits nor helped the household to increase other sources of income. The groups receiving training do not show superior outcomes on any of our primary measures, a theme to which we return later.

Analysis of a set of secondary outcomes in Table A4 arrives at a similarly pessimistic conclusion. This analysis has the same structure as the previous one except that we do not have baseline observation of these outcomes and so it is a simple midline cross-section rather than an ANCOVA. We examine outcomes related to food security, durable consumption, savings, borrowing, schooling of children, and health, and find no impacts significant at the 95% level for either treatment, even when we use the F-test to look for joint significance of the two treatments. We can also focus our analysis on the wellbeing of the specific vulnerable individual who caused the household to be eligible for TASAF. A core purpose of programs with elaborate targeting criteria that attempt to draw in vulnerable individuals is the desire to improve the health and consumption of these individuals specifically. To examine whether household-level impacts could be muting a stronger impact on the actual vulnerable group member, we exploit an individual-level survey module to report on the health and the consumption of the actual VG group member at the time of the round 2 survey, before the late-treated group is treated. These results, in Table A5, examine illness, hospitalization, morbidity, self-reported health quality, and individual food insecurity for the targeted individual. The results provide no evidence that the VG group members who had benefited from 12 months of TASAF treatment enjoyed better health or superior individual-level consumption.

5.2. Digging into the Impacts of Training

It is already clear from the household results that the training program did not have transformative impacts. We now delve into this further by examining group behavior in more detail, as well as looking at ways that the training may have changed the relative contributions of group leaders. The simplest way to analyze the training experiment at the group level is to use only the Early-treated TASAF groups, within which the training experiment was performed, and compared the trained groups with the untrained. This treatment differential remains cleanly present in this group throughout the study, and so we can use the group-level surveys at RR, midline, and endline to examine the additional effect of training using an interaction between the training dummy and round dummies. Table 3 examines two sets of group-level outcomes; in columns (1) – (4) we look for changes in the types of business practices the training was supposed to engender. At RR and R2 we do see that trained groups are more likely to be keeping written records of group accounts, but these effects fade by R3, and do not carry over to other practices. Trained groups are no more likely to make these accounts available to all group members, to have a written business plan, or to issue written receipts to customers. Untrained groups are likely to have written records that are available to members, and are very unlikely to have written business plans or issue receipts.

Columns (5) – (7) of Table 3 then examine the key entrepreneurial outcomes at the group level (sales over the past month, stock value of group assets, and 6-month profits). All but two of the groups in the early treatment arm are operating an income generating activity at RR– with average total business stocks in the untrained groups valued at approximately $5,564, mean sales during the past month just over $40, and net losses in their first six months of $67. Relative to this base, we find no impacts of training either at midline or endline, although the point estimates are large and imprecise due to the small sample size of groups and large variation in these outcomes.

What about the possibility that the trainings altered the functioning of groups, specifically the division of spoils between group leaders (GL) and Rank-and-File members (RF)? To interrogate this, we pre-specified GL (three members with signatory power over group accounts and finances: chairperson, secretary, and treasurer) and RF as two distinct strata for the study, which, as noted above, was used for stratified sampling of members from each group for the follow-up household surveys. As shown in Table A6, GL tend to have higher consumption, more assets, and more enterprise revenue than the RF members of the TASAF groups. Because the training intervention explicitly highlighted aspects of collective rule-setting, transparency in the accounting of group business, and how to fairly resolve conflicts between group members (see Figure A1), it may have had the effect of empowering the RF relative to GL.

When we look for heterogeneity of impacts of the training intervention between these two groups, an interesting and nuanced picture emerges. Table 4 presents the effects of the program on monthly earnings, financial (cash and in-kind) and labor inputs, along with calculated profits (earnings-financial inputs) and an imputed daily wage (profits per 8 hours worked in the group enterprise). In the absence of training, GL were much more involved in the groups than RF, putting in more labor and inputs and particularly in the endline receiving more not just in terms of overall income but being paid a higher effective wage as well. At the midline, we already see some discouraging effect of the training on this differential effort, with trained GL putting in significantly less labor than untrained GL (and no more than their RF group members), although they continue to earn more income. By the endline this divestiture is clearer, with negative interacted coefficients on all metrics of involvement by the GL, and their behavior in trained groups never being different from RF although GL in untrained groups are significantly more engaged across every measure.

At the 36-month follow-up, a typical GL in an untrained group spends 55 hours per month working on the group enterprise and has net earnings of USD 6.91, compared with 33 hours and USD 4.31 for the average untrained RF member. These differences are statistically significant at the 95% level of confidence. However, if the groups have received training, these differences shrink substantially (even disappear) and become statistically indistinguishable: trained GL and RF members work 32 vs. 30 hours and earn USD 5.82 vs. USD 5.55 per month, respectively. The training intervention seems to have led to a more equitable distribution of the group profits between its members, i.e., reducing within-group inequality, without reducing the modest total net earnings of the enterprises. While there is some modest suggestion of the RF improving their earnings, and profits from the groups, the majority of the convergence comes from leaders reducing effort in the face of the training.

6. ENDLINE ANALYSIS

6.1. Longer Term Household Impacts of TASAF Using a Second Control Group

The pipeline structure of the main TASAF study means that by endline we no longer have experimental identification of the impact of TASAF because both Early and Late groups are treated. Because we also drew eligible households who are not TASAF beneficiaries into the survey, we can point a different lens at our pipeline design and recover the ability to estimate absolute treatment effects in the endline, albeit non-experimentally. To gain maximum power on long-term TASAF effects we pool all eligibles and ignore other treatments (so we incorporate the trained groups as part of the TASAF treatment and will miss complementarities with the cross-cut UCT treatment, discussed in more detail in the next section). To be able to combine impacts across

rounds we switch to the interacted dummy format where full R3 impacts are arrived at by adding coefficients from the following three-round panel regression:

$$Y_{ivt} = \beta_0 + \beta_1 T_v + \beta_2 G_i + \beta_3 R_2 + \beta_4 R_3 + \beta_5 (T_v * R_2) + \beta_6 (T_v * R_3) + \beta_7 (G_i * R_2) + \beta_8 (G_i * R_3) + \gamma_1 (G_i * T_v * R_2) + \gamma_2 (G_i * T_v * R_3) + \beta_9 X_{iv} + \epsilon_{ivt} \quad (2)$$

Here G_i indicates that household i is a TASAF group member (observable also in Late villages because they were treated after midline) and R_2 and R_3 are dummies for midline and endline rounds, so the treatment terms γ_1 and γ_2 give the experimental difference among beneficiaries across rounds for TASAF Early treated compared with TASAF Late treated (and so should look like the regressions that only include group members); β_5 and β_6 give the round-specific differences between non-beneficiaries in Early and Late villages (which will be zero if there are no spillovers from beneficiaries to ENBs). Of unique interest in this regression are the trend terms β_7 and β_8, which allow us to track how outcomes evolve across time for TASAF beneficiaries relative to all eligibles in their villages. While these terms are not experimental, under the assumption of parallel trends between group members and ENBs they give readily interpretable measures of impacts over time that are occurring for the whole beneficiary group relative to those not selected as beneficiaries. This is useful for two different reasons: first, anticipation in the pipeline design may have caused changes to occur in the Late group prior to treatment (β_7), and the experimental comparison can no longer measure the absolute benefit of treatment on the Late group in R3, while the triple difference can (β_8).

The results of this triple-difference relative to the ENBs is presented in Table 5. As we would expect, the R2 experimental treatment effects are similar to the prior results because they are identified off of the randomized differences between early and late groups. Of interest here are the coefficient on TASAF members in R2 and R3 relative to the ENBs (rows 3 and 6). Taken at

face value, these paint a substantially more positive picture of the evolution of outcomes for TASAF members. At baseline they had food and overall consumption roughly two dollars below the ENBs; by R2 the entire beneficiary group has closed that gap and it remains closed for the duration of the study. It appears that in R2 the ENBs were hit by a negative consumption shock that was largely avoided by the whole group of TASAF beneficiaries. By R3 this differential consumption relative to ENBs has risen to $2.21 overall and a significant $2.28 for food consumption.

This result is subject to two quite different interpretations. The more optimistic interpretation is that we have a permanent-income-driven story where even the Late treated group increased their consumption from the outset in anticipation of receiving the program in 12 months, and that by R3 the whole beneficiary group was experiencing a relative consumption increase of roughly 12% of the baseline mean, equivalent to moving from the median to the 59^{th} percentile of consumption among all eligibles. The more pessimistic interpretation is that we simply have a violation of parallel trends; our prior work suggested that the selection of beneficiaries among the eligibles favors the wealthy, educated, informed, and politically active (Baird et al. 2013), possibly indicating the presence of superior counterfactual trends in consumption. Overall, we conclude that, even if one were to favor the optimistic scenario, the TASAF treatment confers modest effects at best on household welfare.

6.2. Impacts of Cash Transfers

For the cash transfer study, we first randomly selected half of the villages to be included in the UCT experiment, blocked by TASAF treatment status (Early, Late, and ENB), and then individually randomized UCT treatment within selected clusters. Hence, we can consider the impact of standalone transfers among the ENBs as well as the impact of transfers on top of TASAF

grants for the beneficiary households. Transfers were made shortly after the midline survey, and so the Early TASAF treatment group had received funding over a year earlier, while the Late TASAF treatment group received their VG grant just several months before the UCT. The endline survey captures outcomes roughly two years after the transfers were made. To analyze UCT impacts we include as the treatment variable the size of the transfer to a household, in units of hundreds of US dollars (randomized between $50 and $350, with the mean and median transfer amount among UCT recipients equal to roughly $200) and set to zero for households who received no transfer.

Table 6 analyzes impacts of the cash transfers in the ENB stratum, which, given the absence of any other interventions in that population, studies an intervention much like the large cash transfer literature, such as the numerous studies on GiveDirectly transfers in Kenya (Haushofer and Shapiro 2016, Egger et al 2019) and Rwanda (McIntosh and Zeitlin 2022), albeit with substantially smaller transfer amounts. Given the relatively small size of our transfers and the 24-month follow-up duration, we do not find any appreciable effects on consumption or livestock value. We do detect a large but noisy increase enterprise assets and income, significant at 90%, indicating an increase of $29 per $100 of UCT, or an average treated impact of $58 over a control-group mean of $78.

Given the complex research design among TASAF beneficiaries by R3 and the concerns raised by Muralidharan et al. (2019) over the pooling of arms in factorial designs with multiple cross-cuts, we present the R3 UCT impacts in two distinct ways. In Panel A of Table 7 we follow the same structure as the prior table, pooling all UCT treatment and estimating a single ANCOVA regression for the TASAF beneficiaries. In Panel B we show every cell of the research design separately to avoid conflating the impacts of Early TASAF treatment, training, UCT, and their

interactions. Each cell is defined as a standalone treatment variable (so that all impacts are measured relative to the control group) and p-values from F-tests are provided at the bottom of the table for the joint effect of the three UCT arms and the two training arms. Interestingly, however, we see quite a different pattern of impact on business investment, with the UCTs actually leading to a significant *decrease* in agricultural income, and rather than a significant improvement in enterprise income we see a negative effect on both income and assets with t-statistics above 1. Hence, something distinct seems to be occurring with the TASAF beneficiaries; they are failing to translate individual-level cash transfers into improvements in household enterprise outcomes.[15] Table A8 (using an R3 ANCOVA regression model with an interaction term to test the difference between TASAF members and the ENBs) shows that the UCT-receiving TASAF members are achieving less enterprise income at the household level than are the ENBs who get UCTs.

The obvious explanation for this divergent pattern is that the TASAF group members have a unique non-household vehicle for investing cash transfers, namely the group business. We have two distinct ways of approaching this question. The first is individual; we can bring the data collected in the group survey about individual contributions to and receipts from the group together with the treatment status from the UCT experiment to ask whether those who received cash behave differently in the groups. The results of this analysis, presented in Table 8, show that indeed recipients of UCTs engage more strongly with their groups. We see a 10% increase over the UCT control group mean across the board per $100 transferred, which is only statistically significant for labor inputs. In each case these treatment effects at the average transfer represent increases of about 20% over the no-UCT mean. Hence, those receiving the UCT are putting more effort towards

[15] Appendix Table A7 shows that there are also no significant impacts on secondary outcomes from the UCT for TASAF beneficiaries.

the group activity and yet not receiving enough more from it to show up in either earnings or consumption.

Our second means to address the relationship between the UCT and TASAF is at the group level. The total amount of cash transferred to the members of a group is effectively randomized, and so we can examine how this variation translates into changes in group outcomes. The UCT represents a substantial positive liquidity shock and arrives in a lump-sum cash form ideal for investing, and so a natural question is the extent to which cumulative UCT receipts are translated into observable investments in the TASAF group activity. Given the very private nature of the transfers, we interpret the decision to invest in group businesses as a genuine outcome of household decision-making rather than coercion from other group members to invest. Effectively, UCT recipients would face a private version of the same welfare issue that motivates this paper: with liquid capital in hand, does making investments in group asset generate higher net present value than the alternatives, or than simply consuming the money over time?

Table 9 shows that there was a strong tendency for TASAF members to invest transfers in the group enterprises. Indeed, for every $100 received collectively by group members we find that the total value of the stock in group businesses at endline is $402 higher (over a base of $2,284). This somewhat remarkable finding indicates that the UCT provides a log-rolling opportunity through which money received by some group members effectively generates a multiplier of 4 on the stock value that groups succeed in maintaining in the joint enterprises two years later. Despite the 25% increase in total stocks arising from the UCT, however, there is no concomitant improvement either in the flow of sales or the profitability of the groups as a result of the cash transfers. The finding that TASAF members invested heavily in group projects and saw very little return on this investment, at least within the window of our study, squares the distinction between

the impacts of UCTs on TASAF members versus the ENBs. The substantial accumulated assets may lead to future welfare benefits for group members but could not be used to drive household enterprise outcomes within the window of the study.

How is it possible for the cumulative group transfer to have driven such large increases in the stock value of enterprises? The answer is that the receipt of the UCT by some group members led to a strong increase in the contribution of *other* group members, whether or not they themselves received money. We can show this in two related ways. First, Panel A of Table 10 uses the same structure as Table 9 but analyzes only those individuals who do not themselves receive a UCT. This simple experimental spillover analysis shows that there are significant increases in financial and labor inputs to the groups occurring even for those who receive no cash directly, and again no improvement in profits or wage. In Table 10 Panel B we use all group members and include the cumulative transfer to everyone *else* in the group as well as the individual UCT in the analysis of individual contributions to the group (now clustering at the village level). This structure, with both quantities randomized but correlated because of the village-level assignment step in the UCT experiment, allows us to separately identify the impact of transfers to others from receiving money oneself. The rest-of-group cumulative cash transfer has a significant impact on the financial and labor contributions by individual group members to the group. Remarkably, once we have controlled for the cumulative group transfer the additional effect of own cash transfer amount becomes insignificant, suggesting that the collective peer effect is entirely responsible for the contributions. The implication is that the individual-level impact shown in Table 7 arises entirely from the intersection of the contribution spillover effect and the fact that own and other UCT treatments status is mechanically correlated due to the village-level component of the UCT design

(the correlation is .3775). Neither own nor other contributions improve profits, earnings, or effective wages at the 95% significance level.

This set of findings amplifies a major theme of this study. These group enterprises display a remarkable collective ethos, with group members working together over the course of years and sacrificing at the individual level to build a joint enterprise. The notable durability of the TASAF enterprises and the breadth of investment by GL and RF alike attest to this dedication. This collective ethos is so strong that improving the wealth of some group members effectively exerts a tax on other group members in an effort to prevent the drawing-down of group value otherwise observed. While the UCTs allow groups to protect collective asset investment from being decapitalized, this is achieved by piling individual resources into enterprises in which the rate of return may ultimately be too low to justify the cost.

7. CONCLUSION

Tanzania is distinctive for its socialist roots, combining the broader African traditions of redistribution and risk-sharing (Jakiela and Ozier 2015) with the *Ujamaa* philosophy of its first president Julius Nyerere and the *Chama Cha Mapinduzi* party that has ruled the country since independence. While the economy has liberalized since reforms began in the 1990s, the results of this study serve as a parable for the uneasy ways in which the growth-based capitalist mindset might relate to this underlying collectivist tradition.

For a group-based model to function at all, members must be able to overcome the tragedy of the commons, invest assets that could be coopted for individual purposes in a collective endeavor, and remain involved with that endeavor over a long enough timeframe to give success a chance. All these hurdles were cleared under TASAF VG projects. We developed our ‘rapid

resurvey' check-in six months after the groups had been treated fearing that most of the assets might have been already privatized and liquidated by that time. Instead, we found every single treatment group operating robustly at that point, with enterprise asset values that had increased by 5% on average six months later, and with more than half of the original asset value in the groups three years later. While labor contributions had tapered off by about a third between RR and endline, financial contributions and profit-taking both increased over that interval. Only six of the 59 Early treatment groups report zero stock value three years later. So as collective entities, the VG projects had been durable.

As capitalist entities, however, they have been less successful: ultimately the justification for this type of economic inclusion program relies on these groups to become profit-making businesses. Precisely because members were so reluctant to draw down stocks quickly to consume them, we did not see the types of short-term consumption gains that are typical in the cash transfer literature. Because they were also unable to translate the investment into high entrepreneurial returns to their labor, effective wages realized from the substantial devotion to these group businesses appears not to have been superior to the returns from counterfactual labor returns, generating scant benefits relative to the control. While a training was successful in generating a more egalitarian pattern of contributions to and profit-taking from the group, this did not result in improved overall group performance. In the most pyrrhic evidence we present, not only those receiving UCTs but other members of their groups who do not receive transfers all pile individual liquidity into this group investment achieving these same low returns.

To have implemented multiple components of the successful TUP model and not been successful in reducing poverty, the conclusions of this study are mostly sobering. First, while group structures may make sense for training and launching new businesses, it is not clear that they are

an effective way to create strong dynamic profit motives. Second, generic short-term training on business practices is likely to be less effective (if also less expensive) than a more long-term, focused, vocational form of training that builds marketable skills in specific areas. Finally, the returns to cash transfers are driven entirely by the way in which they are invested. When other components of an intervention have been successful in succeeding profitable business opportunities, cash is likely to achieve high returns, and where such opportunities are lacking, it will not. The coordinated work in TUP of identifying a specific opportunity that gets the beneficiary above a poverty trap threshold (Bandiera et al. 2017) and then gearing all the training, counseling, and cash transfer components of the program towards driving the profitability of that investment appears to contain the ‘secret sauce’ of that program.

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TABLES AND FIGURES.

Table 1: Descriptive Statistics on Group Activity for Early and Late Treatment Groups

	Group-Level Outcomes:						**Individual-Level Group Interaction:**					
Round:	Sales 1 month		Total Stock		Profit 6 months		Labor Inputs (Hours/Wk)		Financial Inputs ($/Mo)		Earnings Taken ($/Mo)	
	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early	Late	Early
Baseline (R1)	0	0	0	0	0	0	0	0	0	0	0	0
	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Rapid Resurvey	0.1	29.6	19.0	5089.2	-96.1	0.6	0.8	14.4	0.1	3.2	0.0	1.3
	(1.1)	(85.2)	(75.1)	(2444.9)	(418.2)	(3.5)	(3.7)	(15.6)	(0.3)	(5.4)	(0)	(3.7)
Midline (R2)	2.4	80.8	65.3	5658.4	74.2	-7.4	0.1	11.6	0.0	4.7	0.0	5.9
	(18.6)	(142.1)	(326.0)	(3090.5)	(1055.5)	(294.4)	(0.7)	(14.4)	(0.1)	(12.0)	(0.3)	(13.9)
Endline (R3)	77.0	74.7	3403.7	2659.7	86.9	439.0	10.3	9.0	1.4	1.1	2.7	6.5
	(117.3)	(159.0)	(2517.5)	(2376.0)	(333.6)	(948.5)	(12.9)	(11.3)	(3.2)	(2.9)	(5.5)	(11.8)
N	60	59	60	59	60	59	372	358	372	358	372	358

Notes: Table gives the mean and SD (in parentheses) of outcomes at the group level (first six columns) and at the individual group-member level (remaining columns) across each of the four rounds of the group survey. The "Early" group was treated immediately after the baseline survey (R1), and the "Late" group immediately after the midline (R2). Values for R3 use only the TASAF groups that did not receive UCTs to avoid conflating the effect of cash transfers with TASAF. All currency values are in constant 2008 USD.

Table 2: Midline Analysis of Primary Outcomes at the Household Level

	Primary Outcomes:									
	Per-capita Consumption	Per-capita Food Consumption	Per-capita Non-Food Consumption	Improved Roof	Livestock Cost	Livestock Revenue	Livestock Profit	Agricultural Income	Enterprise Income	Enterprise Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TASAF treatment	1.36	-0.36	1.72**	0.036	17.0**	-6.20	-18.8	-6.58	-4.16	6.26
	(1.29)	(0.67)	(0.85)	(0.033)	(8.57)	(66.7)	(62.4)	(12.5)	(27.2)	(22.8)
TASAF + training	-0.51	-0.50	-0.21	0.037	11.9	29.2	22.9	10.6	-11.7	-23.5
	(0.86)	(0.65)	(0.39)	(0.037)	(7.90)	(64.4)	(62.2)	(13.2)	(25.5)	(14.9)
Baseline outcome	0.51***	0.31***	0.53***	0.68***	0.43***	0.018	0.0042	0.30***	0.72***	0.66***
	(0.054)	(0.051)	(0.085)	(0.053)	(0.12)	(0.032)	(0.035)	(0.067)	(0.086)	(0.045)
Baseline Control group mean	17.8	12.2	5.52	0.74	17.7	91.4	71.3	72.4	131.8	82.9
P-value: TASAF = TASAF + training	0.13	0.84	0.022	0.98	0.63	0.66	0.58	0.27	0.78	0.16
P-value: TASAF + (TASAF + training) = 0	0.642	0.453	0.146	0.185	0.0235	0.827	0.968	0.846	0.724	0.594
Observations	631	631	631	631	630	631	630	631	630	631
R-squared	0.32	0.23	0.25	0.65	0.16	0.033	0.039	0.25	0.58	0.55

Notes: *** p<0.01, ** p<0.05, * p<0.1. Table estimated for the full household sample of TASAF group members at midline, comparing the group experimentally offered TASAF and those offered TASAF + training to the control group. The regression is a cross-sectional ANCOVA including block randomization fixed effects The first F-test at the bottom of the table gives the p-value on the F-statistic for the difference between the treatment coefficients, and so tests the additional impact of the training. The second F-test is the p-value on the significance of the sum of the two treatment dummies. Standard errors clustered at the village level (unit of random assignment). Consumption numbers are monthly adult equivalents, and all monetary figures are in constant 2008 USD, and survey weights are used to make the analysis representative of all TASAF group members in study villages. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of random assignment).

Table 3: Group-Level Impacts of the Training

	Group keeps written records of business activities	Records are available to group members	Group has written business plan	Group issues written reciepts to customers	Total Sales over Past Month	Total Group Stock Value	Total Group Profits over past 6 Months
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Trained in RR	0.16**	-0.073	-0.015	0.028	-23.5	-788.9	-64.8
	(0.080)	(0.052)	(0.026)	(0.038)	(24.4)	(555.0)	(96.2)
Trained in R3	0.17*	-0.095	-0.038	-0.046	-26.1	-486.8	-103.1
	(0.090)	(0.12)	(0.096)	(0.064)	(37.1)	(658.9)	(164.7)
Trained in R3	0.076	-0.19	0.025	0.060	-11.0	-442.6	185.3
	(0.11)	(0.12)	(0.078)	(0.068)	(37.8)	(738.0)	(153.8)
R2	-0.037	-0.26***	0.15**	0.074	51.7*	379.6	263.7**
	(0.086)	(0.089)	(0.072)	(0.053)	(26.4)	(418.3)	(122.1)
R3	-0.037	-0.22***	0.15**	-2.1e-16	48.7	-1692.2***	267.9**
	(0.10)	(0.080)	(0.072)	(0.055)	(33.8)	(489.6)	(119.8)
RR Untrained mean	0.78	0.96	0	0.037	40.9	5564.7	-67.5
Observations	177	177	177	177	177	177	177
R-squared	0.21	0.22	0.16	0.095	0.12	0.36	0.17

Notes: *** p<0.01, ** p<0.05, * p<0.1. Analysis includes the Early TASAF group members in which the training experiment is conducted. The regression is a three-round panel regression including the Rapid Resurvey (RR), midline (R2) and endline (R3). Regressions include dummy variables for round and the interaction between the randomized Training treatment and round dummies, as well as block randomization fixed effects. Standard errors are clustered at the village level, and outcomes are winsorized at 99%. All outcome variables are in 2008 real US dollars.

Table 4: Training for the Group Leaders versus Rank & File

	Midline					Endline				
	Monthly Earnings	Monthly Inputs	Monthly Profits	Monthly Labor (hours)	Daily Wage	Monthly Earnings	Monthly Inputs	Monthly Profits	Monthly Labor (hours)	Daily Wage
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Trained * Group Leader	-0.29	-0.30	0.14	-20.4*	0.15	-2.33	-0.36	-1.58	-19.7*	-0.56
	(1.26)	(1.39)	(1.29)	(12.0)	(0.43)	(1.48)	(0.44)	(1.43)	(10.3)	(0.43)
Trained	-0.60	-1.59	0.25	-10.1	-0.19	1.24	-0.26	1.42	-3.18	0.36
	(0.92)	(2.27)	(1.58)	(11.5)	(0.52)	(1.63)	(0.51)	(1.44)	(5.91)	(0.47)
Group Leader	3.40***	1.52	1.33	25.6**	0.28	2.60**	0.63*	1.89**	21.7**	0.62*
	(0.93)	(1.09)	(0.87)	(10.6)	(0.23)	(0.99)	(0.35)	(0.90)	(8.96)	(0.33)
Untrained RF mean	3.66	4.00	0.24	50.5	0.21	4.31	1.37	2.80	33.3	0.55
F-test Trained GL + GL	0.0018	0.16	0.16	0.39	0.25	0.81	0.16	0.77	0.62	0.84
Observations	346	346	346	346	346	346	346	346	346	346
R-Squared	0.15	0.13	0.13	0.15	0.10	0.20	0.21	0.19	0.33	0.056

Notes: *** p<0.01, ** p<0.05, * p<0.1. Analysis uses the survey conducted at the group member level describing contributions to, and earnings from, the group activity. Results give heterogeneity in the impact of the training on Group Leaders, as compared to Rank and File members. Separate regressions run in the midline and endline survey including only the Early TASAF group members among whom the training experiment was conducted, including dummies for Group Leaders, Training, and their interaction, as well as block randomization fixed effects. The F-test at the bottom of the table gives the p-value on the F-statistic for the sum of the Group Leader and Trained dummies, so tests whether there is a treatment effect among group leaders. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table 5: Non-experimental comparison to Eligible Non-Beneficiaries

VARIABLES	Per-capita Consumption	Per-capita Food Consumption	Per-capita Non-Food Consumption	Improved Roof	Livestock Cost	Livestock Revenue	Livestock Profit	Agricultural Income	Enterprise Income	Enterprise Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Early Village * Member * R3 (experimental)	0.21	-0.46	1.28	0.060	20.5**	-52.5	-68.6	31.7	41.9	33.5
	(2.03)	(1.53)	(1.00)	(0.056)	(7.98)	(78.0)	(75.9)	(30.8)	(47.8)	(41.5)
Early Village * R3 (trend among ENBs)	0.15	0.45	-0.83	0.045	-5.19	-23.4	-18.8	-11.8	-50.4	-58.1
	(1.68)	(1.29)	(0.70)	(0.048)	(6.01)	(78.7)	(75.8)	(23.5)	(41.9)	(37.7)
Member * R3 (difference for beneficiaries)	2.21	2.28**	-0.58	-0.0064	1.40	30.6	23.8	-1.45	-32.7	-10.3
	(1.44)	(1.04)	(0.74)	(0.035)	(5.50)	(57.4)	(57.6)	(23.0)	(45.0)	(38.7)
Early Village * Member * R2 (experimental)	1.79	-0.21	2.23**	0.066	31.1***	-107.4	-129.6	3.70	-3.12	23.4
	(2.00)	(1.50)	(0.86)	(0.050)	(10.2)	(97.8)	(94.1)	(27.6)	(32.0)	(34.3)
Early Village * R2 (trend among ENBs)	-1.06	0.011	-1.37**	-0.0051	-14.6*	58.1	69.6	9.63	-2.47	-34.2
	(1.75)	(1.33)	(0.68)	(0.040)	(8.32)	(76.7)	(74.2)	(24.2)	(24.8)	(29.9)
Member * R2 (difference for beneficiaries)	1.65	1.87*	-0.57	-0.039	-8.89	113.2*	113.0*	-8.55	18.2	-3.84
	(1.39)	(1.10)	(0.51)	(0.037)	(8.09)	(65.9)	(64.2)	(16.9)	(26.0)	(32.0)
Early Village * Member (balance)	-0.040	-0.086	-0.29	-0.013	0.92	116.2*	108.4*	7.86	-10.1	3.67
	(2.28)	(1.58)	(0.93)	(0.065)	(8.73)	(61.5)	(59.0)	(27.0)	(47.6)	(32.7)
Early Village (balance)	-0.56	-0.21	-0.025	-0.054	-4.95	-52.6	-44.4	-18.6	-10.5	-3.18
	(1.88)	(1.29)	(0.73)	(0.052)	(8.12)	(52.6)	(50.6)	(23.1)	(37.5)	(24.8)
Member (baseline difference from ENBs)	-2.56*	-2.20**	-0.031	0.017	-9.80	-92.9**	-76.9*	-20.5	-8.20	-15.1
	(1.51)	(1.07)	(0.61)	(0.047)	(6.57)	(41.1)	(40.7)	(21.0)	(34.7)	(25.6)
Round 2 (ENB trend)	-2.34**	-2.86***	0.84**	0.056*	10.0	-15.8	-21.9	8.63	31.6	38.0
	(1.10)	(0.92)	(0.41)	(0.030)	(7.16)	(50.0)	(50.0)	(15.0)	(20.8)	(29.4)
Round 3 (ENB trend)	0.32	-1.46*	2.15***	0.080***	5.27	47.1	45.7	9.98	78.6*	50.7
	(1.12)	(0.85)	(0.51)	(0.030)	(5.10)	(64.8)	(63.0)	(17.4)	(40.3)	(35.1)
Baseline Control group mean	17.8	12.2	5.52	0.74	17.7	91.4	71.3	72.4	131.8	82.9
P-value on F test on R2+R3 effect for Early	0.59	0.82	0.032	0.18	0.0016	0.28	0.17	0.51	0.60	0.44
Observations	2653	2653	2653	2648	2652	2653	2652	2648	2650	2652
R-squared	0.080	0.082	0.063	0.36	0.11	0.018	0.013	0.057	0.029	0.022

Notes: *** p<0.01, ** p<0.05, * p<0.1. Table estimated using three-round panel data pooling both Eligible Non-Beneficiaries and TASAF group members, with dummies for TASAF treatment, group member status, and the interactions between these variables and round dummies. It therefore provides the changes observed for the whole TASAF pipeline group relative to a (non-experimental) never-treated control group. Survey weights are used to make the analysis representative of all ENBs in study villages. Consumption numbers are monthly adult equivalents, and all monetary figures are in constant 2008 USD. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table 6: Cash Transfer Impacts on the Eligible Non-Beneficiaries

	Primary Outcomes:									
	Per-capita Consumption	Per-capita Food Consumption	Per-capita Non-Food Consumption	Improved Roof	Livestock Cost	Livestock Revenue	Livestock Profit	Agricultural Income	Enterprise Income	Enterprise Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
UCT Effect in R3 (100 USD)	0.52	0.26	0.37	0.015	0.79	-12.0	-10.7	-4.40	29.3*	20.3
	(0.58)	(0.39)	(0.29)	(0.016)	(2.13)	(19.7)	(18.5)	(8.08)	(15.8)	(17.2)
Baseline Outcome	0.38***	0.17***	0.71***	0.62***	0.38***	0.0096	-0.0091	0.32***	0.79***	0.0080***
	(0.050)	(0.049)	(0.078)	(0.058)	(0.069)	(0.019)	(0.018)	(0.11)	(0.062)	(0.000048)
Control group mean	18.7	12.9	5.71	0.74	26.1	116.4	89.9	102.5	77.5	42.4
Observations	245	245	245	245	245	245	245	245	245	245
R-squared	0.26	0.083	0.34	0.47	0.37	0.00099	0.00090	0.17	0.40	0.24

Notes: *** p<0.01, ** p<0.05, * p<0.1. Table estimated using endline (R3) data, with an ANCOVA controlling for baseline outcomes. The UCT variable is measured in hundreds of US dollars received by the household. Survey weights are used to make the analysis representative of all ENBs in study villages. Consumption numbers are monthly adult equivalents, and all monetary figures are in constant 2008 USD. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table 7: Cash Transfer Impacts on TASAF Group Members

Panel A.	**Primary Outcomes:**									
	Per-capita Consumption	Per-capita Food Consumption	Per-capita Non-Food Consumption	Improved Roof	Livestock Cost	Livestock Revenue	Livestock Profit	Agricultural Income	Enterprise Income	Enterprise Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
UCT Effect in R3 (100 USD)	0.42	0.15	0.20	0.013	2.14	22.3	21.1	-12.7**	-7.50	-5.59
	(0.51)	(0.27)	(0.29)	(0.013)	(1.91)	(17.6)	(17.3)	(5.11)	(7.06)	(4.99)
Baseline outcome	0.56***	0.33***	0.57***	0.43***	0.18**	-0.026**	-0.030**	0.30***	0.65***	0.65***
	(0.061)	(0.057)	(0.10)	(0.070)	(0.074)	(0.013)	(0.015)	(0.079)	(0.061)	(0.034)
Observations	20.8	14.0	6.79	0.80	35.0	119.0	82.1	96.4	107.4	64.5
R-squared	645	645	645	640	645	645	645	640	642	644
Control group mean	0.25	0.16	0.20	0.49	0.23	0.078	0.056	0.21	0.52	0.53
Panel B.	**Each treatment cell individually**									
Late TASAF & UCT	0.64	0.116	0.467	0.00	4.536	37.90	34.28	-19.07***	-10.34	-8.91
	(0.6)	(0.3)	(0.330)	(0.012)	(2.739)	(28.4)	(27.4)	(5.358)	(8.640)	(6.872)
Early TASAF only	-0.857	-1.610*	1.115	0.0151	12.22	117.8	102.7	-5.107	-9.529	-24.21
	(1.4)	(0.9)	(1.013)	(0.042)	(10.240)	(92.0)	(88.1)	(16.980)	(37.090)	(22.850)
Early & UCT	1.194	0.561	0.716	0.0762***	6.577**	11.11	5.759	6.201	-6.889	-15.21*
	(1.3)	(0.6)	(0.695)	(0.025)	(2.669)	(14.2)	(14.8)	(14.470)	(14.800)	(9.126)
Early & Training	1.434	0.658	0.727	0.0723	17.89***	-7.643	-22.73	0.151	-17.38	-39.72**
	(1.6)	(0.9)	(0.868)	(0.049)	(6.277)	(32.3)	(33.3)	(16.690)	(25.850)	(17.200)
Early & Training & UCT	-0.828	-0.434	-0.605**	0.0369	2.584	16.94	15.36	-16.11*	-12.12	-12.99
	(0.6)	(0.5)	(0.278)	(0.029)	(2.953)	(24.1)	(26.3)	(8.689)	(12.950)	(8.384)
Baseline outcome	0.546***	0.331***	0.560***	0.433***	0.178**	-0.0232**	-0.0262**	0.293***	0.652***	0.647***
	(0.1)	(0.1)	(0.100)	(0.068)	(0.072)	(0.0)	(0.0)	(0.072)	(0.060)	(0.036)
Control group mean	20.5	13.8	6.63	0.78	25.7	75.9	49.0	105.4	118.9	77.9
Observations	645	645	645	640	645	645	645	640	643	644
R-squared	0.257	0.175	0.216	0.51	0.242	0.086	0.064	0.225	0.524	0.534
F-test on all UCT arms	0.154	0.601	0.00615	0.0101	0.0635	0.38	0.548	0.00209	0.631	0.393
F-test on both Training arms	0.196	0.484	0.0331	0.174	0.0201	0.733	0.618	0.165	0.641	0.0726

Notes: *** p<0.01, ** p<0.05, * p<0.1. Both panels are estimated as endline (R3) cross-sectional ANCOVA regressions, including randomization block fixed effects. Panel A includes the UCT treatment amount in hundreds of dollars, and Panel B estimates separate impacts for each cell in the research design (all cells compared to the control). F-tests at the bottom report p-values on joint tests of significant for the three UCT arms (penultimate row) and the two Training arms (last row). Consumption numbers are monthly adult equivalents, and all monetary figures are in constant 2008 USD. Survey weights are used to make the analysis representative of all TASAF group members in study villages. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table 8: Impact of Cash Transfers on Contributions to Group

	Monthly Earnings	Monthly Inputs	Monthly Profits	Monthly Labor (hours)	Daily Wage
	(1)	(2)	(3)	(4)	(5)
UCT Effect in R3 (100 USD)	0.47	0.19	0.27	3.70*	0.056
	(0.32)	(0.14)	(0.24)	(2.09)	(0.077)
UCT Control group mean	4.11	1.20	2.77	41.1	0.54
Observations	702	702	702	702	702
R-Squared	0.11	0.13	0.11	0.18	0.037

Notes: *** p<0.01, ** p<0.05, * p<0.1. Analysis uses the survey conducted at the group member level describing contributions to, and earnings from, the group activity. Regressions use only Round 3 data for TASAF group members, including the UCT amount in hundreds of USD as well as block randomization fixed effects to compare the members who were assigned a cash transfer at the individual level to those who were not. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table 9: Group-level Impacts of Cumulative Cash Transfers to All Group Members

	Total Stock		**Total Sales (last month)**		**Total Profits (last 6 months)**	
	Winsorized	Transformed	Winsorized	Transformed	Winsorized	Transformed
UCT effect (100 USD)	402.107***	0.188***	-0.805	0.041	3.907	0.127
	(140.810)	(0.062)	(2.703)	(0.055)	(11.907)	(0.110)
Mean (no UCT)	2,984.315***	7.252***	77.016***	2.286***	245.426***	1.642**
	(401.169)	(0.503)	(18.151)	(0.361)	(86.612)	(0.683)
Number of observations	119	119	119	119	119	119

Notes: *** p<0.01, ** p<0.05, * p<0.1. Table uses R3 outcomes from the Group survey to analyze the impact of the cumulative UCT amount randomized to all members of the group. UCT impact is measured in hundreds of USD, and all outcomes are in constant 2008 USD. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table 10: Spillover Effect of Cash Transfer on Contributions of Other Group Members

Panel A: Only individuals not themselves receiving a UCT

	Monthly Earnings	Monthly Inputs	Monthly Profits	Monthly Labor (hours)	Daily Wage
	(1)	(2)	(3)	(4)	(5)
Cumulative Group UCT (100 USD)	0.21	0.17**	0.056	1.61*	0.031
	(0.16)	(0.066)	(0.12)	(0.94)	(0.036)
Mean in groups with no UCT	3.61	0.87	2.57	36.9	0.45
Observations	467	467	467	467	467
R-Squared	0.14	0.13	0.17	0.19	0.083

Panel B: All Surveyed Group Members

	Monthly Earnings	Monthly Inputs	Monthly Profits	Monthly Labor (hours)	Daily Wage
	(1)	(2)	(3)	(4)	(5)
Individual UCT Transfer (100 USD)	0.14	-0.034	0.17	1.55	0.016
	(0.18)	(0.092)	(0.15)	(1.30)	(0.040)
Cumulative UCT to others in group (100 USD)	0.22	0.15***	0.073	1.45*	0.027
	(0.13)	(0.052)	(0.100)	(0.74)	(0.030)
Mean for individuals not receiving UCT	4.11	1.20	2.77	41.1	0.54
Observations	702	702	702	702	702
R-Squared	0.12	0.15	0.11	0.19	0.039

Notes: *** p<0.01, ** p<0.05, * p<0.1. Analysis uses the survey conducted at the group member level describing contributions to, and earnings from, the group activity. Regressions use only Round 3 data for TASAF group members. Panel A uses all surveyed members, and includes control for transfers to an individual as well as transfer for that individual to all other members of the group. Panel B uses only the group members who were not themselves assigned to receive any UCT. Regressions include the UCT amount in hundreds of USD as well as block randomization fixed effects. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of random assignment).

Figure 1: Diagram of Study Design

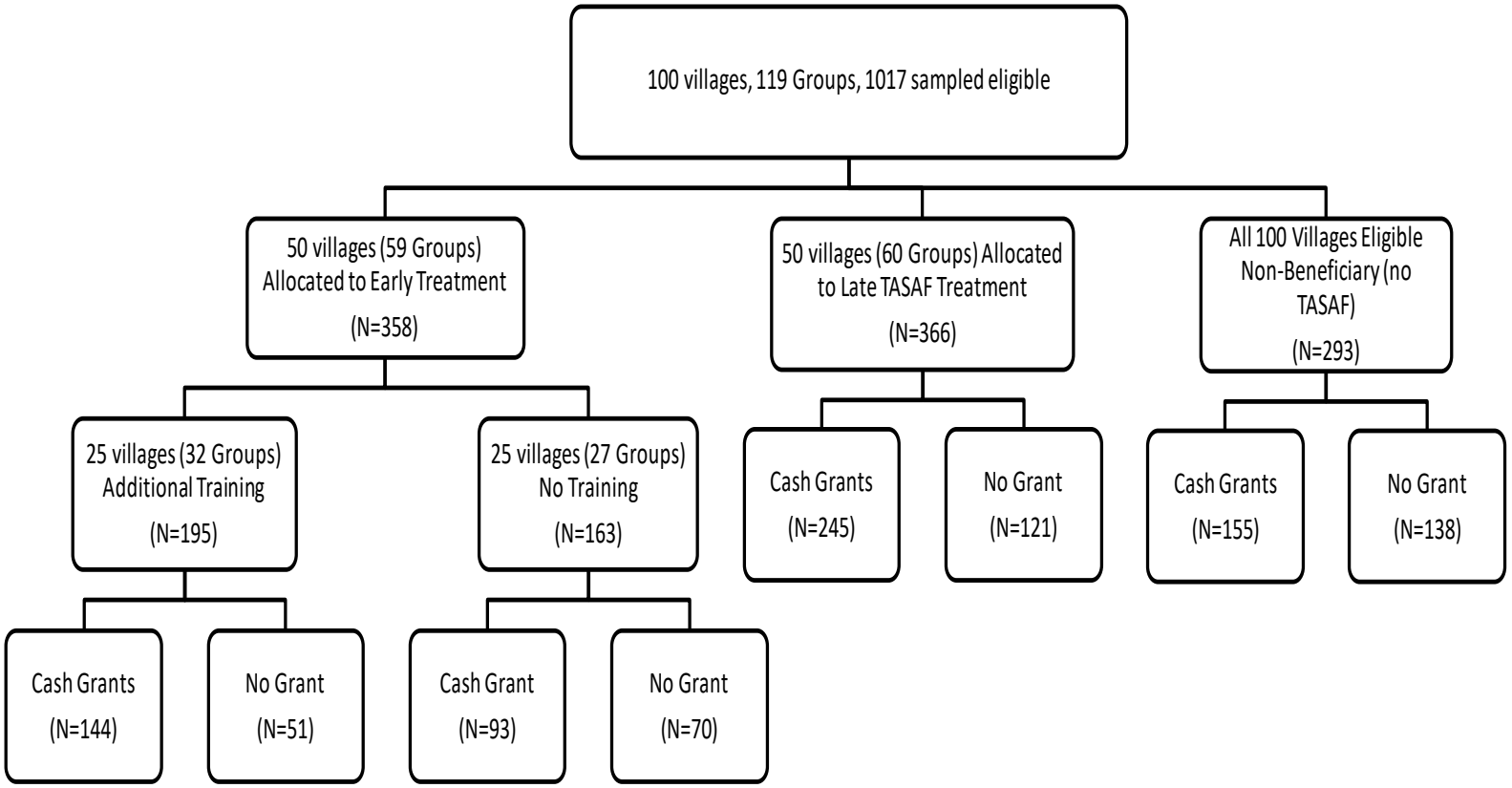
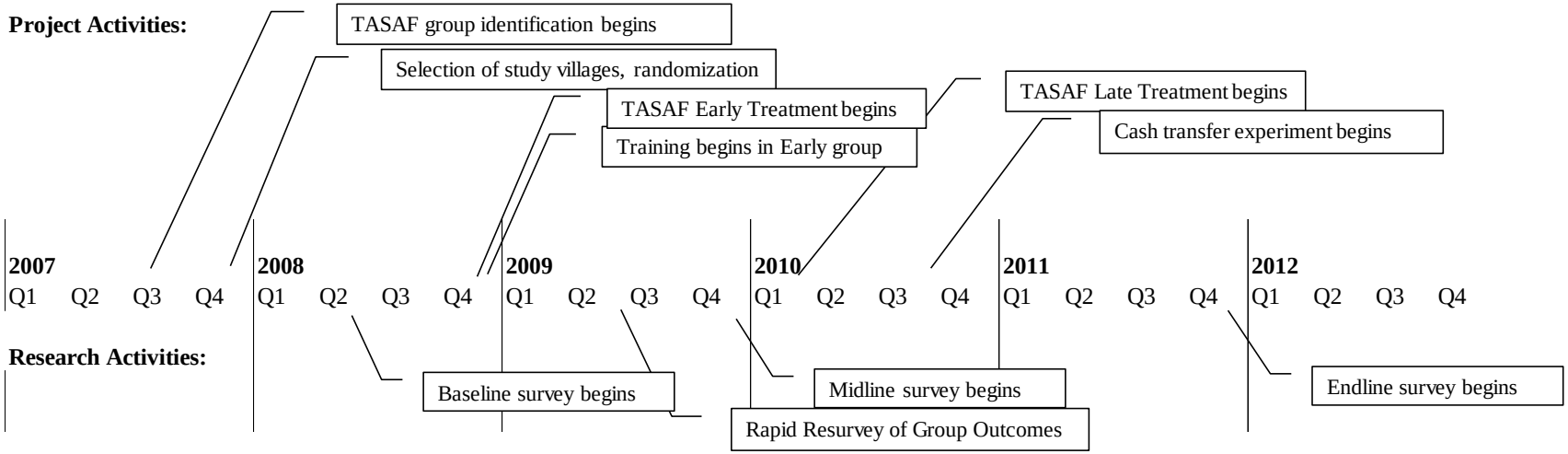


Figure 2: Study Timeline



In all cases the timeline for project and research activities in Moshi and Lushoto districts begin ten months before the same activities in Kwimba, Nzega, and Makete.

Figure 3: Evolution of Group Total Asset + Working Capital Value over Time.

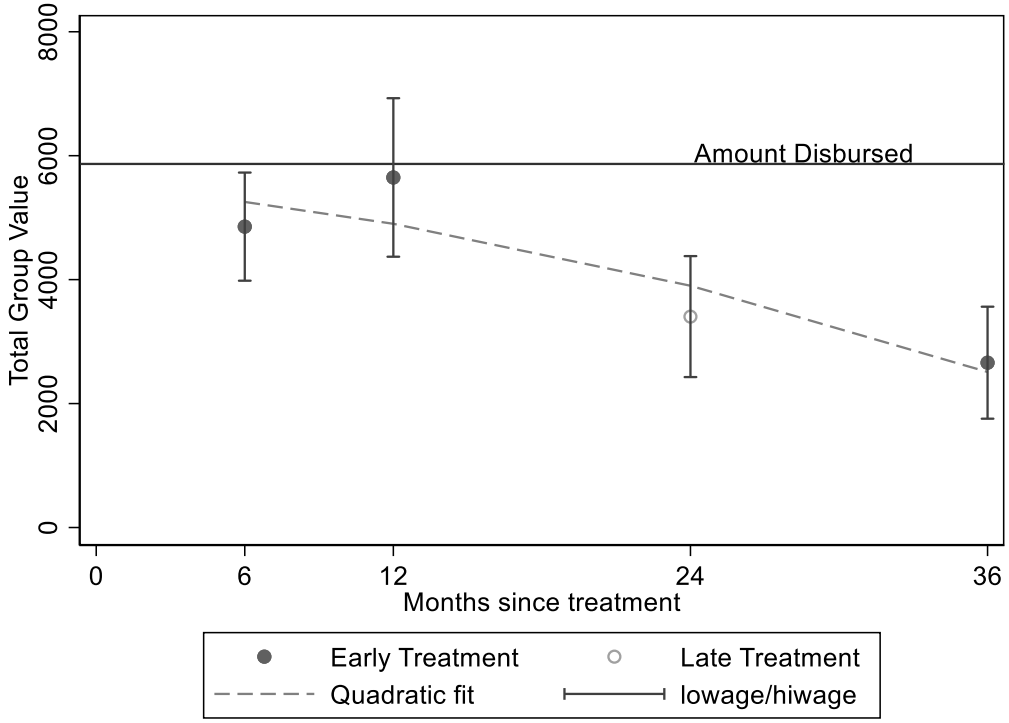


Figure 4: Effective Daily Wage Rate from Business, USD.

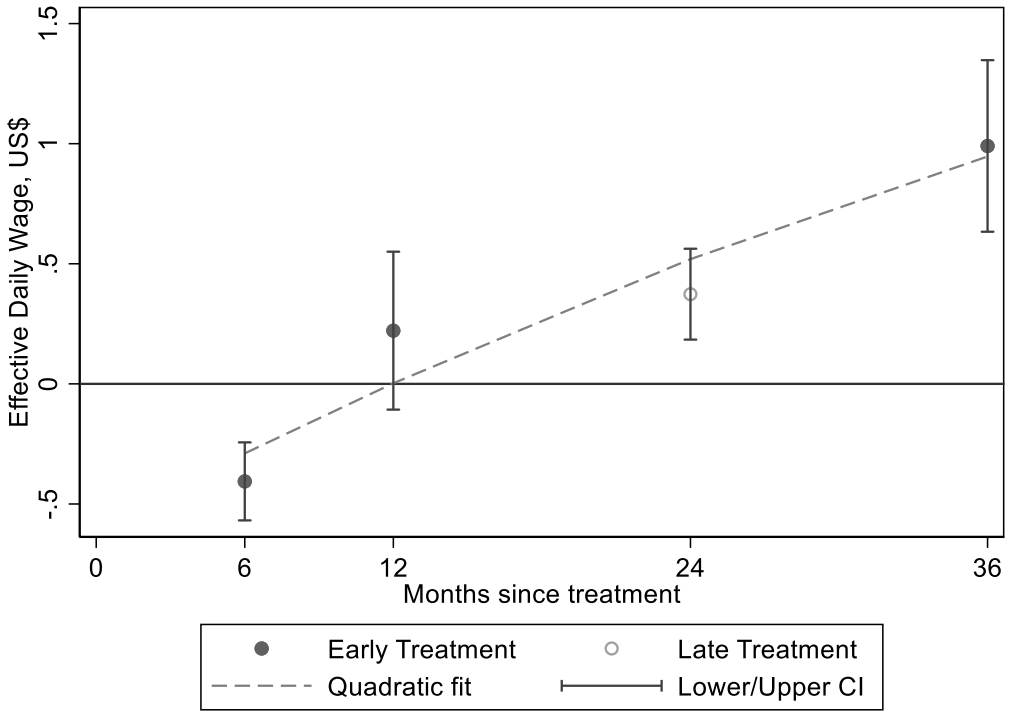
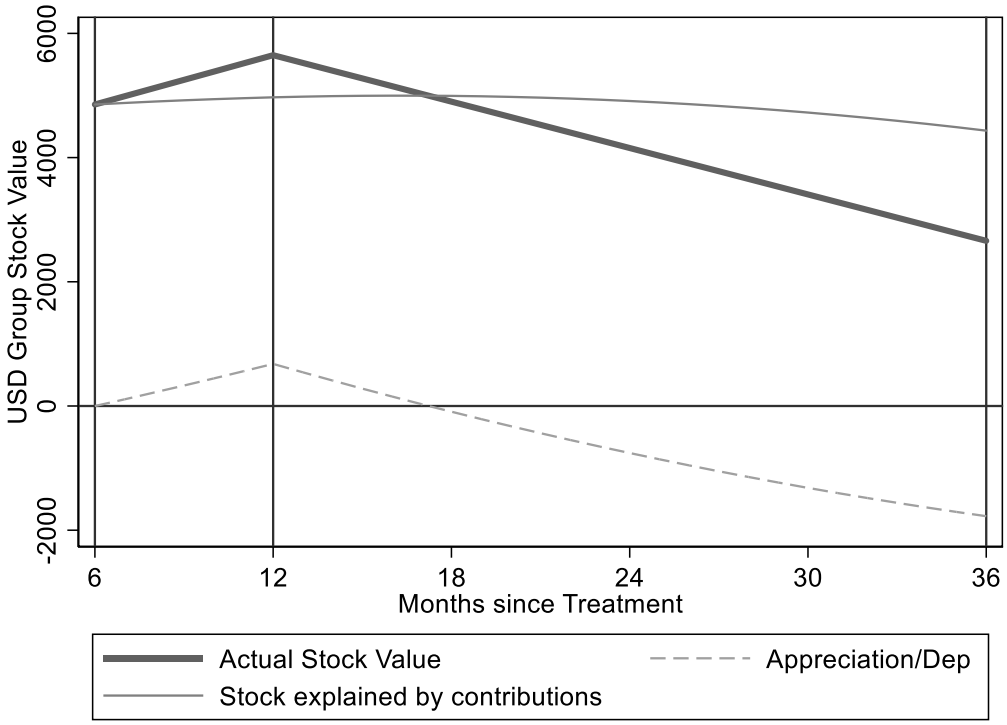


Figure 5: Stock Values and Net Contributions.



SUPPLEMENTARY ONLINE APPENDIX.

Table A1: Attrition

	Attrited in Midline Survey	Attrited in Endline Survey
TASAF treat	0.00187	0.0279
	(0.032)	(0.051)
Training treatment	-0.0219	-0.0491
	(0.033)	(0.046)
UCT treatment	0.00444	-0.018
	(0.009)	(0.013)
UCT * TASAF	0.0233	0.00484
	(0.022)	(0.024)
TASAF Member	0.00493	-0.0298
	(0.022)	(0.028)
Group Leader	-0.0360**	-0.0739***
	(0.018)	(0.027)
Multiple Groups/Village	0.00197	0.0651
	(0.038)	(0.068)
Livestock Group	-0.04	-0.04
	(0.024)	(0.034)
Lushoto District	0.0541	0.115*
	(0.043)	(0.059)
Makete District	0.027	0.205***
	(0.032)	(0.047)
Nzega District	-0.00427	0.142***
	(0.030)	(0.044)
Kwimba District	0.0325	0.0978**
	(0.031)	(0.042)
Observations	1,017	1,017
Mean Attrition in Control	0.0550	0.1420

Notes: *** p<0.01, ** p<0.05, * p<0.1. The dependent variable for the table is an indicator for a baseline-surveyed household if they attrited in the Midline (first column) or the Endline (second column). Analysis pools all eligible households and includes treatment group dummies and interactions, as well as block randomization fixed effects and a dummy for being a group leader. As with the outcome analysis, regressions are weighted to be representative of all eligible individuals and standard errors are clustered at the village level (unit of assignment for the TASAF and Training interventions).

Table A2: Balance

	Primary Outcomes:									
	Per-capita Consumption	Per-capita Food Consumption	Per-capita Non-Food Consumption	Improved Roof	Livestock Cost	Livestock Revenue	Livestock Profit	Agricultural Income	Enterprise Income	Enterprise Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TASAF treat	0.61	0.75	-0.12	-0.097	-5.97	21.4	24.3	0.86	-39.8	-15.5
	(1.36)	(1.07)	(0.59)	(0.071)	(3.94)	(25.7)	(24.2)	(13.4)	(29.8)	(20.2)
Training treatment	-1.53	-1.58	0.012	0.045	4.54	18.8	15.8	-27.0**	-26.3	-13.9
	(1.39)	(1.01)	(0.63)	(0.066)	(4.51)	(48.2)	(43.9)	(13.2)	(27.1)	(21.6)
UCT treatment	0.30	-0.12	0.43*	0.0084	0.099	14.9	14.7	4.21	-9.97	-4.03
	(0.52)	(0.36)	(0.25)	(0.021)	(1.74)	(15.0)	(15.2)	(11.2)	(13.1)	(8.73)
UCT * TASAF	-0.57	-0.32	-0.26	-0.042	0.94	29.6	27.4	7.14	34.0	24.5
	(0.76)	(0.53)	(0.39)	(0.036)	(2.37)	(39.3)	(36.9)	(14.4)	(28.7)	(20.8)
Group Leader	3.38***	1.45**	1.84***	0.053	2.81	54.2*	50.9*	-2.98	17.7	18.5
	(0.85)	(0.65)	(0.37)	(0.033)	(3.30)	(32.3)	(30.4)	(10.6)	(18.1)	(12.5)
Multiple Groups/Village	-2.41	-1.17	-1.23	-0.0050	-4.97	-24.1	-19.1	-0.66	4.40	6.96
	(1.93)	(1.42)	(0.94)	(0.041)	(5.56)	(30.2)	(30.7)	(12.0)	(15.7)	(9.14)
Livestock Group	2.20	2.38*	-0.21	-0.083*	-8.14	-70.4***	-61.6**	2.82	1.37	13.2
	(1.84)	(1.31)	(0.95)	(0.045)	(6.72)	(25.1)	(25.4)	(11.0)	(12.1)	(8.88)
Lushoto District	0.53	0.64	-0.20	-0.27***	-0.81	-19.7	-21.1	40.9*	43.7*	24.1
	(1.96)	(1.20)	(1.09)	(0.084)	(8.10)	(41.2)	(38.1)	(21.9)	(25.9)	(14.6)
Makete District	0.39	0.76	-0.36	-0.28***	-17.5***	-72.4**	-54.6	0.63	5.97	12.9
	(2.26)	(1.43)	(1.25)	(0.084)	(4.79)	(35.7)	(34.7)	(23.1)	(22.2)	(18.3)
Nzega District	0.62	1.01	-0.40	-0.70***	-16.8***	-9.15	3.26	60.8***	152.4**	87.8**
	(1.81)	(1.22)	(1.01)	(0.078)	(4.72)	(53.2)	(49.6)	(20.1)	(62.0)	(42.7)
Kwimba District	-5.92***	-3.63***	-2.29**	-0.68***	-10.9**	-2.65	4.82	49.4***	-1.96	4.47
	(1.59)	(1.13)	(0.88)	(0.054)	(4.83)	(50.0)	(48.5)	(14.1)	(14.2)	(6.81)
Baseline mean in control:	18.8	13.5	5.35	0.71	17.4	52.7	35.0	62.5	80.1	47.8
Observations	724	724	724	724	724	724	724	724	723	724

Notes: *** p<0.01, ** p<0.05, * p<0.1. Table estimated for the full household sample of TASAF group members at baseline, where the dependent variable is the baseline outcome and this is regressed on treatment dummies, their interactions, and block randomization fixed effects. Standard errors clustered at the village level (unit of assignment). Consumption numbers are monthly adult equivalents, and all monetary figures are in constant 2008 USD, and survey weights are used to make the analysis representative of all TASAF group members in study villages. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table A3: Impact of TASAF Early Disbursement on Household Livestock Ownership

	Dairy Cows	Dairy Goats	Pigs	Poultry
	(2)	(3)	(4)	(5)
TASAF treatment	0.21**	0.056	0.47**	0.43
	(0.084)	(0.053)	(0.22)	(0.68)
TASAF + training	0.33***	0.060	0.53***	0.016
	(0.096)	(0.041)	(0.16)	(0.74)
Baseline outcome	0.11	0.65***	0.31	0.28***
	(0.093)	(0.12)	(0.19)	(0.085)
Baseline Control group mean	0.047	0.028	0.20	4.21
P-value: TASAF = TASAF + training	0.36	0.96	0.81	0.67
P-value: TASAF, TASAF + training jointly signif.	0.000439	0.19	0.00142	0.817
Observations	631	631	631	631
R-squared	0.20	0.46	0.24	0.14

Notes: *** p<0.01, ** p<0.05, * p<0.1. Analysis uses Midline data for TASAF group members, and provides the experimental difference in the ownership of livestock for the TASAF and TASAF+training groups. Regression includes dummies for Group Leaders, Training, and their interaction, as well as block randomization fixed effects. The F-test at the bottom of the table gives the p-value on test for equality of the two treatment dummies. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table A4: TASAF Early Impact on Household Secondary Outcomes

	Secondary Outcomes:									
	Number of Meals Eaten	Consumption of Durables	Total Livestock Value	Savings	Borrowing	Children in School	Schooling Expenditures	Respondent in Good Health	HH member sick/injured past 4 wks	Ability to carry out physical tasks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
TASAF treatment	0.0031	0.23	99.9	1.37	-5.25	0.028	2.76	0.028	-0.0098	0.13
	(0.17)	(0.45)	(118.5)	(21.9)	(13.6)	(0.040)	(4.03)	(0.040)	(0.040)	(0.13)
TASAF + training	0.077	-0.21	87.3	-2.08	-7.43	-0.068	-1.85	-0.052*	0.033	0.092
	(0.17)	(0.22)	(132.0)	(13.0)	(6.56)	(0.041)	(5.10)	(0.030)	(0.029)	(0.11)
Baseline Control group mean	0.70	0.44	370.8	51.6	24.5	0.70	28.4	0.70	0.26	4.18
P-value on F test for TASAF = TASAF + training	0.75	0.28	0.93	0.88	0.86	0.047	0.41	0.075	0.29	0.78
P-value: TASAF, TASAF + training jointly signif.	0.903	0.385	0.645	0.983	0.528	0.121	0.673	0.128	0.412	0.549
Observations	630	631	631	628	631	513	513	631	631	631
R-squared	0.037	0.039	0.10	0.041	0.025	0.12	0.074	0.16	0.028	0.047

Notes: *** p<0.01, ** p<0.05, * p<0.1. Table estimated for the full household sample of TASAF group members at midline, comparing the group experimentally offered TASAF and those offered TASAF + training to the control group. The regression is a cross-section including block randomization fixed effects The F-test at the bottom of the table gives the p-value on the F-statistic for the difference between the treatment coefficients, and so tests the additional impact of the training. Standard errors clustered at the village level (unit of assignment). And all monetary figures are in constant 2008 USD, and survey weights are used to make the analysis representative of all TASAF group members in study villages. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table A5: Impact of TASAF Early Treatment on the Vulnerable Individual in the Household

	Sick or Injured in past 4 weeks	Required Hospitalization in past 4 weeks	Too Sick to Perform normal Activities past 12 months	Number Days unable to perform normal Activities, past 12 months	Ability to carry out Physical Tasks, 5-point scale	Health reported as Good or Very Good	Health has Improved over past 12 months	Missed Meal in Past 7 days	Number of Meals Missed in Past 7 days
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
TASAF treatment	-0.066	-0.016	0.019	-5.56	0.070	0.085	0.035	0.091*	0.48
	(0.066)	(0.019)	(0.061)	(4.85)	(0.21)	(0.060)	(0.045)	(0.050)	(0.34)
TASAF + training	0.031	0.0063	0.020	-0.37	0.018	-0.077	-0.035	0.0014	0.19
	(0.054)	(0.021)	(0.055)	(5.42)	(0.19)	(0.053)	(0.046)	(0.046)	(0.34)
Baseline Control group mean	0.36	0.028	0.56	16.1	3.81	0.59	0.30	0.16	0.88
P-value: TASAF = TASAF + training	0.16	0.32	0.99	0.34	0.83	0.013	0.19	0.15	0.51
P-value: TASAF, TASAF + training jointly signif.	0.363	0.56	0.915	0.457	0.946	0.0447	0.427	0.193	0.367
Observations	631	631	631	631	628	631	631	630	630
R-squared	0.040	0.0089	0.051	0.030	0.048	0.13	0.065	0.039	0.011

Notes: *** p<0.01, ** p<0.05, * p<0.1. Table estimated for the full household sample of TASAF group members at midline, focusing on the outcomes of the target beneficiary individual within the household, comparing the group experimentally offered TASAF and those offered TASAF + training to the control group. The regression is a cross-section including block randomization fixed effects The F-test at the bottom of the table gives the p-value on the F-statistic for the difference between the treatment coefficients, and so tests the additional impact of the training. Standard errors clustered at the village level (unit of assignment). And all monetary figures are in constant 2008 USD, and survey weights are used to make the analysis representative of all TASAF group members in study villages. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table A6: Comparison of Rank and File members to Group Leaders.

	Per-capita Consumption	Per-capita Food Consumption	Per-capita Non-Food Consumption	Improved Roof	Livestock Cost	Livestock Revenue	Livestock Profit	Agricultural Income	Enterprise Income	Enterprise Assets
Rank and File:										
Mean	16.14	12.09	4.05	0.64	13.80	56.05	42.25	69.54	54.16	31.90
SD	9.51	7.04	4.57	0.48	38.75	374.08	368.05	179.34	364.53	276.06
Group Leaders:										
Mean	19.94	14.03	5.91	0.71	19.32	146.52	127.20	56.68	69.25	51.42
SD	11.80	8.60	5.60	0.45	49.91	868.09	861.80	99.68	240.91	177.60
All Group Members:										
Mean	17.98	13.03	4.95	0.67	16.47	99.91	83.43	63.31	61.49	41.37
SD	10.84	7.89	5.18	0.47	44.57	662.46	656.53	146.29	310.60	233.61

Notes: Table presents means and standard deviations of the primary outcomes for Rank and File members, Group Leaders, and All Group Members.

Table A7: Unconditional Cash Impacts on Secondary Outcomes for TASAF members.

	Secondary Outcomes:									
	Number of Meals Eaten	Consumption of Durables	Total Livestock Value	Savings	Borrowing	Children in School	Schooling Expenditures	Respondent in Good Health	HH member sick/injured past 4 wks	Ability to carry out physical tasks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
UCT Effect, R3	-0.053	-0.72	-69052.2	-3.31	2.91	-0.019	2.21	-0.014	-0.0027	-0.054
	(0.13)	(0.75)	(129048.6)	(11.5)	(8.50)	(0.036)	(3.10)	(0.033)	(0.030)	(0.10)
Observations	0.65	0.77	471273.7	60.1	26.1	0.69	28.5	0.69	0.26	4.21
R-squared	1270	1276	1276	1266	1276	1003	1003	1271	1271	1263
Control group mean	0.040	0.033	0.10	0.014	0.015	0.075	0.100	0.11	0.019	0.068

Notes: *** p<0.01, ** p<0.05, * p<0.1. Regression estimated as endline cross-section, including randomization block fixed effects, examining the study secondary outcomes. All monetary figures are in constant 2008 USD. Survey weights are used to make the analysis representative of all TASAF group members in study villages. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

Table A8: Comparison of Cash effects on TASAF Members versus ENBs.

	Per-capita Consumption	Per-capita Food Consumption	Per-capita Non-Food Consumption	Improved Roof	Livestock Cost	Livestock Revenue	Livestock Profit	Agricultural Income	Enterprise Income	Enterprise Assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
UCT * TASAF	0.075	0.012	-0.17	-0.0042	2.55	42.1*	36.8*	-5.90	-33.2*	-25.3
	(0.77)	(0.48)	(0.42)	(0.020)	(2.37)	(21.5)	(21.3)	(9.70)	(17.0)	(17.2)
UCT	0.33	0.13	0.31	0.017	-0.73	-19.5	-15.4	-4.40	24.7	20.5
	(0.56)	(0.39)	(0.29)	(0.015)	(1.97)	(19.8)	(18.9)	(7.19)	(15.6)	(16.2)
TASAF member	1.08	0.34	0.40	0.044	1.24	-79.9*	-73.0*	8.37	15.7	26.9
	(1.12)	(0.74)	(0.69)	(0.035)	(4.15)	(42.9)	(42.3)	(15.0)	(24.5)	(17.5)
Baseline outcome	0.43***	0.21***	0.63***	0.48***	0.45***	-0.022	-0.031	0.35***	0.88***	0.86***
	(0.045)	(0.046)	(0.076)	(0.056)	(0.10)	(0.021)	(0.022)	(0.086)	(0.055)	(0.11)
Control group mean	19.8	13.5	6.29	0.77	25.9	91.3	63.0	104.3	103.2	64.4
Observations	890	890	890	885	890	890	890	885	887	889
R-squared	0.25	0.12	0.22	0.51	0.28	0.077	0.058	0.21	0.46	0.44

Notes: *** p<0.01, ** p<0.05, * p<0.1. Regression is estimated as an endline (R3) cross-sectional ANCOVA, including randomization block fixed effects. The regression includes a dummy for being a TASAF member, the UCT variable measured in hundred dollars, and their interaction, and so tests the differential impact of the UCT between the TASAF members and ENB. Regressions also include block fixed effects. Consumption numbers are monthly adult equivalents, and all monetary figures are in constant 2008 USD. Survey weights are used to make the analysis representative of all TASAF group members in study villages. All outcomes Winsorized at 1% and 99%. Standard errors clustered at the village level (unit of assignment).

FIGURE A1. TRAINING ON GROUP RULES

Cartoon $C_{2.2}$: Importance of Respecting Group Rules

Group Rules are meant for all members, both leaders and ordinary members. They help to ensure transparency and to build an atmosphere of trust amongst group members. Group rules help to understand the rights and responsibilities of leaders and members.

FIGURE A2. CONTENT OF BUSINESS SKILLS TRAINING

2-DAYS TRAINING ON BUSINESS SKILLS/ENTREPRENEURSHIP, FOR TASAF II VULNERABLE GROUPS

BUSINESS SKILLS & ENTREPRENEURSHIP - DAY 1

Timing	Topics	Objectives	Contents	Methodology
9.00 - 9.30	Introduction to Business Skills Module	Participants: • formulate and express their expectations re. Business Skills Module • are aware of the purpose of BS Module	• Recap of Trust Building training • Course program 2-day Business Skills Module	• Pairs/Group discussion
9.30 - 10.30	1. Personal Entrepreneurial Competencies (PECs)	To enable trainees to: • assess their own risk taking behaviour • identify important personal entrepreneurial competencies	• Risk-taking • Other PECs	• Ball-toss game • Brainstorm • Discussion
10.30 - 11.00	BREAK			
11.00 - 11.30 11.30 - 13.00	PECs 2. Introduction to Marketing	Continued Participants get aware of: • the importance of meeting clients' demands • their own selling and negotiation skills • the basic elements of marketing	Continued • Customer needs • The marketing mix (4 Ps)	• Mini Market exercise • Discussion using cartoons
13.00 - 14.00	BREAK			
14.00 - 15.30	3. Basic Business Management (Part I)	Participants get aware of the importance of: • business planning • separating business from the family • delivering quality • cash management • recordkeeping • making profit calculations	• Business game	• ILO SIYB Business game (role-play)
15.30 - 16.00	BREAK			
16.00 - 16.30	Basic Business Management	Continued	Continued	• ILO SIYB Business game (role-play) • Discussion

BUSINESS SKILLS & ENTREPRENEURSHIP - DAY 2

Timing	Topics	Objectives	Contents	Methodology
8.30 - 9.30	4. Creativity & Innovation	To enable participants to: • Get aware of the importance of creativity in business. • Become creative and develop new business ideas.	• Recap of first day training • Creativity • Idea generation	• Innovation exercise (group work)
9.30 - 10.30	5. Business Opportunity Seeking	To enable participants to: • Be aware of the need to look out for opportunities on a continuous basis. • Identify and evaluate appropriate business opportunities	• Opportunity seeking • Business environment scanning	• Business Opportunity exercise (group work)
10.30 - 11.00	BREAK			
11.00 - 13.00	6. Basic Business Management (Part II)	To enable participants to: • Get familiar with important roles and functions of an entrepreneur on running a small business.	• Key competencies of an entrepreneur to successfully run a small business. • Functions and roles of an entrepreneur in a small business.	• Brainstorming • Group work
13.00 - 14.00	BREAK			
14.00 - 15.00	Basic Business Management (Part II)	Continued	Continued	• Trainees' presentations • Discussion using cartoons • (The trainer uses trainees' inputs to explain difficult topics: i.e. pricing and costing).
15.00 - 15.30	BREAK			
15.30 - 16.00	7. Group Action plan	To enable participants to: • Identify learning elements to be practiced in the management of group enterprises. • Incorporate the lessons they learned in their TASAF subproject	• Group action plan • Project presentations	• Group work • Trainees' presentations • Discussion
16.00 - 16.30	Evaluation	Participants evaluate the course	• Course evaluation	• Pictured questionnaire

Appendix B. Comparison to Related Social Protection Programs

There are three obvious points of comparison for the TASAF VG program and the training and cash transfer interventions we lay on top of it. The first is Uganda's NUSAF (Northern Uganda Social Action Funds), as described in Blattman, Fiala, and Martinez (2018). Under both programs, the government provided lump-sum transfers tied to the purchase of assets to groups of beneficiaries both for administrative convenience and to avoid the funds being used for consumption rather than investment purposes. Like their NUSAF counterparts, TASAF beneficiaries formed groups with a median size of 15 members, with the groups receiving approximately USD 7,000 in 2009 dollars on average (or about USD 525 per member). However, NUSAF targeted underemployed young adults who were, on average, much younger, more educated/literate, and less poor than TASAF. NUSAF required that the groups invest in a non-agricultural skilled trade, for which training was available nearby. This contrasts with TASAF activities, which were primarily animal husbandry.[16] While a significant share of funds in each successful proposal was earmarked and later used for skills training under NUSAF, almost none of this happened under TASAF. Further, in Uganda group members ultimately operated individual businesses in contrast to TASAF members who operated group enterprises and reported assets that belonged to the group activity years after receiving lump-sum transfers.

The second point of comparison is BRAC's *Graduation* or 'targeting the ultra-poor program,' (TUP) designed and originally implemented by BRAC (Bandiera et al. 2017). The TUP beneficiary population is more like that of TASAF, in that they are likely to be as poor and illiterate but, on average, significantly younger than TASAF beneficiaries (median age of beneficiaries in

[16] Blattman, Fiala, and Martinez (2018) states that NUSAF had a separate program for vulnerable groups that provided cash grants for livestock purchases, more similar to TASAF both in terms of target group of beneficiaries and scope. However, this program was not chosen for evaluation.

Bangladesh is 40 vs. 55 years in TUP and TASAF, respectively). Under TUP, leading women in ultra-poor households are offered a menu of productive assets with a package of complementary training and support.[17] Where the TUP differs most substantially from TASAF, however, is in the support and training package that accompanies the asset transfer: beneficiary households are (i) encouraged to retain the transferred asset for two years, (ii) given a stipend for the first 40 weeks to manage earnings fluctuations and to avoid liquidating their productive assets, (iii) visited by a livestock specialist 6-12 times over the first year, covering the life cycle of livestock, and (iv) visited by a BRAC program officer weekly for two years.[18] TASAF simply provides a one-day training on procurement and management of group funds before making a lump-sum transfer into the groups' bank accounts. While the support and training package under the TUP is expensive, the total per household cost of TUP at $1,120 in 2007 PPP terms is similar to that under TASAF, which is approximately $1,175 in 2009 PPP terms.[19]

The cash transfer literature forms our third point of comparison. Given our context and the unconditional nature of our transfers, the most relevant studies are those involving UCTs from GiveDirectly in East Africa. Haushofer and Shapiro (2016) study UCTs with a nominal value randomized to either $400 or $1,000, and also randomly vary whether the transfers were provided as a monthly flow or as a lump sum. Considering the base effect (small lump-sum transfers, the most comparable to our single payment averaging $200), they find increases in asset values of

[17] In the case of Bangladesh, while the menu included a variety of assets, all households chose a livestock bundle, with more than 90% containing at least one cow (in comparison, 68% of TASAF groups operated a livestock business, although keeping dairy cattle, pigs, chickens, and goats were more or less equally popular in Tanzania, in contrast to the preference for cows in Bangladesh).

[18] The program also provides other forms of support to beneficiary households, including encouragement of savings with BRAC, borrowing from BRAC microfinance at the end of the program, as well as activities to empower women in non-economic dimensions.

[19] However, the per household program cost in Bangladesh appears smaller than programs attempting to replicate TUP in other countries. The six-country study by Banerjee et al. (2015) reports total direct costs ranging from $1,257 in India to $5,150 in Pakistan in 2014 PPP terms.

61% ($301 over a base of $495), and in household revenue of 33% ($16 over a base of $49), as well as improvements in consumption and savings nine months after baseline.[20] A pair of studies in Rwanda with comparable transfer amounts found significant increases in assets and decreases in debt, and with transfers just over the top end of our amounts also saw increases in consumption and income (McIntosh & Zeitlin 2022).[21] Hence it is clear that UCTs in the range studied here ($50-350) can have meaningful effects on economic outcomes. What is unique and interesting in this study is the opportunity to understand the complementarities and strategic interactions that lie at the intersection of group investment, human capital formation, and the use of unconditional cash when these three are independently randomized on top of each other.

[20] The larger cash transfer amounts are found to have more transformative effects, and a study that makes mass-scale transfers to Kenyan households, equivalent to 15% of local GDP, also finds substantial benefits to non-recipients through the mechanism of increased labor demand from the income shock (Egger et al. 2019).

[21] The 'Gikuriro' benchmarking study had smaller transfers averaging $85 and found significant increases in productive and consumer assets and decreases in debt after 12 months (McIntosh & Zeitlin 2021), while the 'Huguka Dukore' benchmarking study's smallest transfer was $317 and found these same benefits plus significant improvements in consumption, income, and savings after 18 months, with a fade of about 50% after 36 months (McIntosh & Zeitlin 2022).