"We're All in This Together": Experimental Evidence from a Universal Livelihoods Program*

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Abstract

Can a universal anti-poverty program improve outcomes for all households? We answer this question using a clustered randomized controlled trial covering 335 villages in rural Uganda, studying a universal livelihoods program that provides inputs and training to every household in a village. Nearly three years later, the program raises incomes and assets for both poor and relatively wealthier households, but through distinct channels. Wealthier households expand existing activities, while poorer households both expand agriculture and adopt new activities - livestock and non-farm enterprises. Program benefits exceed costs within three years, demonstrating that a universal program can generate broad-based welfare gains.

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1 Introduction

Over the last half-century, the world has experienced remarkable reductions in extreme poverty. Yet 700 million people still live in extreme poverty, and progress to reduce poverty has stalled (World Bank, 2024). Today, the global poor are increasingly concentrated in rural Sub-Saharan Africa, where households depend on low-productivity smallholder agriculture and live in communities characterized by widespread poverty (Wollburg et al., 2024). Meaningfully reducing poverty in such settings requires approaches that can improve the livelihoods of large numbers of households within the same community. This raises a key question: can providing a program to *every* household in a community improve the welfare of all households, including the poorest?

Despite growing interest in universal programs (Banerjee et al., 2023, Hanna and Olken, 2018),[1] there is limited causal evidence on their effects, and, theoretically, it is unclear whether such programs will be effective and for whom. Universality reallocates resources across the welfare distribution rather than focusing them on the neediest; if the transfer amount per household is small, it may be insufficient to enable households, particularly the poorest or most vulnerable, to meaningfully increase income. Further, delivering the same intervention to everyone simultaneously may lead to congestion in economic activities in the village, and the poorest may lack the complementary skills and inputs needed to compete with better-off households. However, including less-deprived households may generate larger overall welfare gains (Haushofer et al., 2025), and evidence on positive multiplier and general equilibrium effects suggests that universal programs may generate larger benefits than the sum of the effects of households treated in isolation (Banerjee et al., 2019, Egger et al., 2022).

Using a randomized controlled trial in rural Uganda with 335 villages in 114 clusters,[2] we offer the first causal evidence on the average and distributional effects of a universal livelihoods program. The program – henceforth the "RTV program", implemented by Raising the Village (RTV) – aims to enable households to expand their income-generating activities in agriculture, livestock, and non-farm enterprises through the provision of inputs, training, and savings support to all households in a village over a 24 month period. A small input transfer and group training keep program costs low at only USD 339 in 2023 PPP per household. We examine the effects of the program versus a pure control group who received no

[1] Part of the interest in universal programs is due to increasing recognition of the drawbacks of targeted programs: they may create negative spillover effects on those not included (Duflo et al., 2023, Haushofer and Shapiro, 2018), use resources on a targeting process that is often error-prone and perceived as unfair (Banerjee et al., 2024, Brown et al., 2018, Coady et al., 2004, Hanna and Olken, 2018, Merfeld and Morduch, 2023) and may carry stigma for recipients (Thomas et al., 2020).

[2] Clusters of 2-4 villages sharing services and infrastructure were randomly assigned equally to either treatment, which received the program, or to control, which did not.

program, on household welfare just under three years after its start (almost one year after it ended) with a sample of almost 4,000 households randomly selected from the approximately 30,000 households in these communities.

As is typical for the region, nearly all households in our sample own land and engage in smallholder farming at baseline. The communities have poverty levels similar to the Sub-Saharan African rural average of 46%. Nevertheless, there is considerable variation in wealth, with the average wealth of households in the 75th percentile five times that of the 25th percentile. However, even households in the top wealth quartile consume only about USD 3.3 PPP per capita per day, and, on average, 25% are below the consumption poverty line even immediately post-harvest. Households also differ markedly in production activities and market engagement along wealth lines: the poorest households grow and sell a narrow set of staple crops and earn almost 30% of their income from wage labour. In contrast, wealthier households diversify by selling a wider variety of seasonal and perennial crops, and over one-third of their income comes from livestock rearing or non-farm enterprises, with relatively little from wage labour. Given these differences in wealth, economic activities, and market participation, can the program work for different types of households?

We find that the program leads to large and statistically significant improvements in households' economic situation. All types of households experience gains in welfare – measured by income, wealth, and consumption – including the poorest households, more vulnerable households and households with lower skills, such as those with low education. The distributions of income, wealth and consumption shift to the right throughout. This mitigates concerns that the small transfer size would be insufficient to enable the poorest households, in particular, to improve their economic situation. Similarly, the program works well even in villages with high rates of baseline poverty or high inequality, in villages with different levels of market integration, and particularly well in villages where households were engaged in few economic activities at baseline. We find no evidence of heterogeneity even when using machine learning approaches, with those predicted to benefit most and least from the program experiencing similar treatment effects on average. Together, we view this as evidence that the universal program was effective at enabling all types of households and villages to improve their welfare, and was not monopolised by the better-off or only worked in homogeneous communities. In a context where even relatively better-off households are near the poverty threshold, improving everyone's welfare is valuable. These gains have been stable since the end of the program, suggesting inputs are not being used up over time and that households are continuing to make productive investments.

Universal programs may be at risk of causing congestion if all households are encouraged to shift into a narrow range of activities. This may differentially harm the poorest, who

cannot compete with wealthier households. We examine this by looking at how the activity profiles of the rich and poor shift in response to the program. While wealthier households primarily increase their income by expanding their existing portfolio of economic activities, poorer households expand into new household economic activities, resulting in a more diversified portfolio similar to that of wealthier households. The poorest households have achieved income gains by cultivating and selling a wider range of crops and perennials, participating in livestock and animal product markets and running non-farm enterprises, while substantially reducing their reliance on casual wage labour. The income of households in the poorest baseline wealth quartile is now significantly higher than that of control households in the second quartile and statistically indistinguishable from that of control households in the third quartile of baseline wealth.

A potential explanation for why we find such broad gains from the program is that all households carried out agriculture at baseline, and a major part of the program focuses on improving agricultural yields and expanding the varieties of crops grown and sold to market through training and provision of improved seeds.[3] Consistent with this, about half of the overall income increase comes from agriculture, through both higher yields and greater diversification in the crops and perennials grown and sold to the market. Crucially, since most crop sales occur through traders visiting the villages who offer a fixed price and take the produce outside the area, the increase in crop sales does not seem to have generated congestion, and we see no evidence of changes in prices. About one-third of the income gain comes from non-farm enterprise profits, reflecting more enterprises in treated villages – not higher per-firm assets or profitability – consistent with the program providing training and savings group support rather than direct enterprise finance. The remainder reflects a rise in livestock income. We see changes in household labour supply consistent with the rise in income and changing pattern of activities.

Higher incomes have enabled all households to accumulate more assets: non-land wealth is USD 389 PPP (31%) higher on average in treated households. Nearly half of this increase is due to an increase in the value of livestock holdings.[4] Wealth accumulation is fur-

[3]One part of the program we study focuses on agriculture, and this integrates core components of effective agricultural extension programs, such as giving tailored advice and inputs either directly or by providing a cash transfer to purchase them (Aggarwal et al., 2024, Ambler et al., 2026, Deutschmann et al., 2021, Fishman et al., 2022). However, compared to most agricultural extension programs, the RTV program emphasizes crop diversification, especially through perennials like coffee, rather than only raising yields of a focal staple crop, and includes multiple non-agricultural program elements. The program may also reduce the re-optimization costs associated with adopting interdependent input combinations. Training and plot demonstrations help farmers understand how the package works in practice, while universal participation facilitates learning from higher-skill farmers within the community. These are key barriers to adoption identified by Laajaj and Macours (2026).

[4]We verify part of the increase in livestock holdings through enumerator observation.

ther supported by savings groups, which expand significantly in treated villages and enable households to make larger purchases of assets and livestock. Higher incomes and agricultural output have raised monthly consumption by USD 59 PPP (10%), mainly through increased consumption of own produced food, consistent with the expansion in crop activity.[5] Households also report better physical and mental health. Community engagement and trust are substantially higher in treated communities, a dimension that has been observed to worsen in response to programs perceived to have been targeted in an unfair manner (Cameron and Shah, 2014, Duflo et al., 2023, **?**).

Universality creates conditions for positive spillovers through aggregate demand and complementarity channels. The randomization of villages in clusters of 2-4 connected villages was designed to maximise the potential for within-cluster spillovers while making spillovers across clusters less likely. The study was not designed to test the former, but we can examine the latter using variation in the density of treatment and control clusters. Spatial analysis capturing the number of treated clusters within a distance radius of 0-5 km shows no evidence of spillovers to control clusters and suggestive evidence of some positive spillovers across treated clusters: the total effect on income, including spatial spillovers, is approximately USD 51 PPP, around 26% larger than the direct treatment effect, and the total effect on consumption is USD 100 PPP, 70% larger than the direct estimate. The positive spillovers across treated clusters suggest that treated households benefit from having more treated households nearby, and hint that positive spillovers are occurring within clusters too. This is consistent with the idea that universal programs may generate positive aggregate demand effects that magnify program impacts, though our study cannot test this directly. These beneficial effects could depend on how well integrated the village economy is, but we see no evidence of heterogeneity by village market integration or the size of the village economy.

We benchmark the benefits and costs of the RTV program against a range of other anti-poverty interventions. We find that the RTV program is highly cost-effective, substantially more so than several targeted programs, including multifaceted livelihoods programs and large lump-sum cash transfers (Bandiera et al., 2017, Banerjee et al., 2015, Bossuroy et al., 2022). The RTV program's three-year benefit–cost ratio of 267% is between two and eleven times larger than those of these comparison programs at similar horizons, and is already of an equivalent magnitude to the 10-year benefit–cost ratio in Banerjee et al. (2021).[6] The

[5]To check that seasonality is not driving the results we find, we conduct a phone survey nine months after the endline survey (almost four years after the program started) to capture consumption during the agricultural lean season. We find even larger treatment effects on consumption in this phone survey, suggesting treated households are better able to smooth consumption over the year.

[6]We test a range of alternative cost and benefit scenarios, including valuation of volunteer time and restricting benefits to the poorest 25% or 50% of households—and find that the program remains highly cost-effective in all cases.

high-benefit cost ratio is driven by the lower per household cost of the RTV program,[7] with the benefits comparable to those seen in other types of programs.

Our study contributes to the early literature on universal anti-poverty programs for households by providing the first evidence on both the average impact of a universal livelihoods program and its distributional consequences (Banerjee et al., 2019, Hanna and Olken, 2018). There is an ongoing evaluation of a universal cash transfer in Kenya (Banerjee et al., 2023).[8,9] However, the effects of a universal livelihoods program, providing training and in-kind transfers, likely differ from the effects of universal cash transfers, providing a large injection of money into the economy.

Using a clustered RCT with a large, randomly-drawn sample and comprehensive measurement of economic and social well-being, we show that a universal livelihoods program not only improves outcomes for households on average, but delivers substantial gains to all types of households, regardless of their initial conditions and constraints. Beyond establishing that the program is effective, we show why the program works for all: it enables broad expansions in farming activity for all, alongside shifts into livestock rearing and small enterprise ownership for the poorest, that allow households to accumulate assets and consume more, improving their welfare.

We also provide evidence on the design of effective anti-poverty programs. Cash transfers are a widely used tool, but evidence on their long-term impacts remains mixed and few studies examine outcomes beyond two years (Blattman et al., 2020, Crosta et al., 2024, Haushofer and Shapiro, 2018). While graduation programs have demonstrated success in alleviating poverty in both the short and long term (Bandiera et al., 2017, Banerjee et al., 2015, 2021, Bedoya et al., 2019),[10] large asset transfers and one-on-one mentorship make them expensive and complex to scale. Attempts to develop a more cost-effective graduation approach that have focused on unpacking the bundled program or provided a lighter-touch version have not consistently been successful (Banerjee et al., 2022, Burchi and Strupat, 2018, Leight et al., 2026, Sedlmayr et al., 2020), though Beam et al. (2025) found lower-cost group coaching to

[7]Universal coverage allows training to be delivered collectively and ongoing mentorship to be provided by volunteer committees drawn from within the community. This structure keeps costs low while ensuring high participation and engagement. Indeed, uptake in our sample is nearly universal: 99% of households attended at least one training session and 84% completed all four types of training sessions. In addition, the value of input transfers to each household is small, keeping the RTV program costs to only USD 339 in 2023 PPP per household.

[8]The cash transfer studied in Aggarwal et al. (2025) is also provided to all households in a village.

[9]We reviewed 54 studies of cash transfers and livelihoods programs that examine the effects of these programs on household welfare. Of these, 3 were universal. Only 21 reported the percentage of the population who were eligible. These target, on average, one-third of the households.

[10]Barker et al. (2024) is an exception, finding treatment effects of a graduation program in Ethiopia dissipate after 7 years as the control group begins to catch up.

be as effective as individual coaching. By eliminating the need for complex, individualized training – often cited as one of the key barriers to scaling targeted interventions – the RTV program is a promising model for large-scale poverty reduction. We show that the RTV program is effective in rural Sub-Saharan African villages, where most of the extreme poor live. This potential for the program to scale coupled with the significant impact at a low cost means that the RTV program stands out as a viable solution for addressing rural poverty across countries.

The rest of the paper proceeds as follows: we discuss the experimental design and intervention in Section 2, the conceptual framework in Section 3, the data in Section 4 and the results in Section 5. In Section 6 we discuss general equilibrium effects and in Section 7 we discuss the cost-benefit analysis and comparison with other anti-poverty programs. Section 8 concludes.

2 Study Design

2.1 Setting: Rural Western Uganda

We work in rural western Uganda. Uganda is the 18th poorest country in the world, with 48% of rural households living below the USD 2.15 PPP a day extreme poverty line in 2019 (Ugandan National Bureau of Statistics (UBOS), 2021). Rural villages in western Uganda have high rates of poverty comparable to the national and Sub-Saharan African rural rate of 46%, with on average 43% of households classified as poor in 2019 (Ugandan National Bureau of Statistics (UBOS), 2021, World Bank, 2024). Our setting is therefore a good one for studying poverty in rural Sub-Saharan Africa, where half of the world's extreme poor live.[11]

The study took place in 335 villages from 12 sub-counties in the Kagadi and Kyenjojo districts. Our partner NGO, RTV, selected the study area as one it had not previously worked in. RTV selected rural villages for inclusion in the study following their existing village selection process: RTV meets with the local government to identify villages with limited government services such as schools, health centers and piped water and where households were reliant on agriculture for both income and consumption. In the 12 study sub-counties where the study took place, RTV determined that 335 out of 395 villages met the eligibility criteria for the program. There were no inclusion criteria for the study above

[11] Our setting is also similar to the western Kenyan context where GiveDirectly's unconditional cash transfer studies, as well as the ongoing universal basic income study, are set (Banerjee et al., 2023, Egger et al., 2022, Haushofer and Shapiro, 2016, Orkin et al., 2023).

those imposed by RTV to be a participating community, and so all 335 eligible villages are included in the sample for this study.

Summary statistics at endline for the study control villages are shown in Table A1. The typical village has 92 households. Household poverty levels are comparable to the rural Ugandan average: 35% of households fall below the World Bank's USD 2.15 PPP 2022 consumption poverty line immediately post-harvest, while 65% do so during the lean season.[12]

Despite the high levels of poverty, there is variation in households' economic situation within villages, particularly in terms of income and wealth. The average household income is USD 160 PPP, and the average non-land wealth is USD 1,282 PPP. Both show considerable variation: the standard deviation is greater than the mean for both, and the ratio of the 75th to 25th percentile is roughly 6 for income and 9 for wealth. Inequality is also pronounced, with Gini coefficients of 0.47 for income and 0.55 for non-land wealth. This is broadly in line with the non-land wealth Gini coefficient of 0.63 measured at the parish level in rural areas nationwide (Ugandan National Bureau of Statistics (UBOS), 2021).

Access to services varies across villages. Most villages have trading centers and a well, but just under half have a primary school, one-third have a mobile money agent, and only one in six has a weekly market. Secondary schools and health centers are rare.

2.2 Intervention: The Raising the Village Program

The RTV program is offered to every household residing within a village selected to receive the intervention. It consists of a combination of household-specific inputs and village-level training.[13] The precise program is tailored to each village based on the specific needs and priorities of the households in that village, but always includes the core components described below. Unlike other livelihoods programs, which are often provided to one individual within the household, this program is provided to the household, with all adults expected to attend trainings and participate in the program.

The program includes the following core components, provided during the first six months of the program implementation: agricultural inputs and training, livestock inputs and train-

[12]The lean season poverty rate statistic is from a phone survey carried out nine months after the endline survey. These statistics also highlight how sensitive poverty rates are to seasonality and the importance of taking this into account in targeted programs.

[13]The program has elements in common with both the multifaceted "Targeting the Ultra Poor" (graduation) programs, which provide similar packages of support and mentorship to the poorest, and income-generation focused community-driven development programs, which provide community chosen projects. Programs like the Millennium Villages Project (MVP) and Community-driven Development (CDD) also take a community-level approach to development. However, these differ from this program in their focus on public goods and projects.

ing, savings groups (VSLAs), sanitation, hygiene and health access and mindset change trainings.

1. **Agriculture inputs and training**:

    a. All households in a village receive the same package of seeds and tools. The precise package of inputs is chosen using a combination of village climatic data (including altitude, soil type, temperature and rainfall) and consultation with the households in the village in a series of design sessions. Typically, the household inputs include 2-5kg each of bean, groundnut and maize high-yield seeds, 0.25 bag of Irish potatoes, a variety of vegetable and fruit seeds and sometimes perennial seedlings such as coffee. Households also receive tools and equipment such as hoes, forks, spades and sacks. Additional tools are provided to the village for communal use, including pangas, wheelbarrows, water drums, watering cans and spray pumps as well as large equipment such as milling machines and coffee pulpers. The agricultural inputs aim to increase the production of multiple staple and perennial crops for both own consumption and sale to market, and increase the varieties of fruits and vegetables households grow to raise the nutritional diversity of households' diets.

    b. Four one-day trainings take place: The first takes place before inputs are provided to households and focuses on planting, organic fertilizer and pest management; the second takes place a month later and focuses on planting methods such as line spacing; the third takes place one month before harvest and is focused on post-harvest management and storage, such as crop drying and use of PICS bags; and the final is a refresher training scheduled at a time dependent on the needs of the community. Demonstration plots are set up in the village to teach best-growing practices as part of the trainings. Households are instructed in how to plant kitchen gardens to grow a variety of vegetables for household consumption.

    c. An agriculture committee is elected, whose members receive an additional day of training. The committees provide regular support and mentorship in the community. It is responsible for ensuring that at least 90% of households attend each training and successfully adopt key techniques trained on. The committee also manages community inputs, such as large agricultural tools and machinery available for all households.

2. **Livestock inputs and training**:

    a. All households attend a one-day training on livestock management. This focuses on proper feeding, animal shelter, monitoring animals for signs of illness, and avoiding

overcrowding. It also covers simple ailments like caring for sick animals and births. Qualified veterinarians provide the training.

b. VSLAs are set up with the goal of purchasing livestock (see savings groups below).

c. Approximately 40% of households receive small livestock in the form of pigs. The village can choose who receives livestock, though women-headed and youth-headed households are often selected as recipients.[14] An innovative pass-on model is used to provide the pigs:[15] The selected households form groups of five, and one member of that group is chosen to receive an adult, female pig.[16] Each of the other four households in the group receives one piglet from the first litter of piglets, such that all members have an adult pig within 12 months. The pass-on model, combined with a smaller livestock transfer, allows the RTV program to provide livestock at a considerably lower cost compared to other graduation programs that typically provide a large adult livestock to all participants at the beginning of the program.[17] Households selected to receive pigs are required to attend the livestock training and set up a pigsty before receiving the pig.

d. A village livestock committee is elected from households with experience of livestock, who receive an additional day of general livestock training. The additional training covers more advanced topics such as how to provide medication and vaccinations. The committee provides support and mentorship for the care of livestock to the other households in their village. It must ensure at least 90% of households attend the livestock training and adopt key aspects of the training. The committee manages village-level livestock inputs, including medication and vaccination, which are available to all households in the community. The committee members provide simple disease diagnosis, referral to veterinarians and administer medication and vaccinations as needed. The committee also ensures that livestock is passed on amongst the households selected to receive them.

3. **Savings groups**:

Village Savings and Loan Associations (VSLAs) are set up. The village can set up multiple savings groups with different purposes depending on the needs of households, but

[14]Women-headed households are almost always widows. Youth-headed households have a household head aged 18-30.

[15]The only other study of a program that uses the pass-on model is an evaluation of Heifer in Nepal, which found that the pass-on model improves cost effectiveness (Janzen et al., 2021).

[16]Male pigs are provided in a ratio of 1:7 female pigs. Individuals to care for the male pigs are identified from the selected primary beneficiaries.

[17]In Banerjee et al. (2015), households received the equivalent of 4-8 goats. A pig has a similar value to a goat here, so the size of the livestock transfer is only 1/8-1/4.

they usually focus on the purchase of household assets and livestock and small business creation. Separate groups for women, men and youth, as well as joint groups, are set up. Groups can both own assets themselves and give out loans to members. As part of the program, the village is required to set up at least two VSLAs, focused on business creation, livestock purchases or asset purchases.

4. **Sanitation, hygiene and health access**:
   Shallow wells are constructed in the village to provide access to clean water to all households. A one-day training on Water, Sanitation and Hygiene (WASH) takes place. In this training, households are instructed on specific hygiene practices, such as installing hand-washing stations by latrines. Committees conduct bi-weekly follow-ups to ensure these WASH measures are being implemented by all households and to maintain the wells. RTV arranges for visits by health workers to the village every two months, for a total of six visits during the first 12 months of the program. These identify minor illnesses for treatment or referral and address HIV/AIDS, Covid-19 and family planning.

5. **Mindset change**:
   Four training sessions are carried out to boost aspirations, entrepreneurship, financial literacy, and women's equality. The first training takes place over two days. The first day focuses on financial literacy and includes topics such as setting financial goals, financial planning, budgeting, cash flow management, and savings and credit resources. The second day focuses on mindset change and includes topics such as improving self-efficacy and aspirations, goal setting, overcoming obstacles, and having a growth mindset. The second training is on Village Savings and Loans (VSLA) groups and entrepreneurship. It builds on the financial literacy training, including topics such as making investments and obtaining funding for a business, marketing their businesses, and monitoring performance. The third training is Gender Equality, Roles, and Responsibilities and focuses on questioning gender roles, understanding the impact of these roles on the household's ability to generate income and discussions around domestic violence. The fourth training is a refresher depending on the needs of the community.

Monitoring: During the first year, project officers are meant to track village progress against set targets to ensure high compliance. Project officers conduct a limited number of household coaching visits (up to 4 visits per household) over the program period to reinforce key practices. Quarterly monitoring reports from RTV show that at least 90% of households are practicing the key behaviours taught in the agriculture, livestock and WASH trainings, but we did not independently verify these. Project officers also check that VSLAs are functioning properly and that committees are carrying out their role effectively. Villages falling

short receive additional training and support to bring all households up to speed. This intensive monitoring and early intervention likely supports the program's broad effectiveness. Project officers continue to follow-up and track village progress through months 12-24, after which the village is considered 'graduated'.

Committees: A key part of the RTV program is the formation of committees to provide ongoing mentorship and ensure practices taught during training are carried out. Committees are formed for agriculture, livestock and sanitation by election from volunteers within the village, with quotas of 40% men, 40% women and 20% youth households. Committee members are usually experienced and successful members of the community in this domain. While voluntary, committees play an active role in program implementation and are crucial for ensuring high participation and implementation of the program within the community. Committee members spend around 155 hours on program activities over the two years of program implementation. Members of these committees receive additional training and control village-level inputs, such as large agricultural tools and livestock medications. Committee members are expected to conduct check-ins with all households on a fixed schedule, ensure high training attendance and support their community members in adopting taught practices. Project officers ensure that committee members are carrying out their duties during quarterly check-ins, and will hold re-elections for committee members who are not performing adequately.

Cost: The direct program costs, excluding the time cost of village committee members, are USD 339 PPP per household in 2023 USD PPP. The asset transfer in the form of seed and livestock inputs given to households is the largest component of the program, at USD 130.86 PPP per household (see Table A2 for the program cost breakdown and Online Supplement B.1 for a detailed discussion of how program costs were calculated, as well as discussion of alternative cost scenarios valuing committee time and considering targeted alternatives). The use of the pass-on model for livestock reduces the cost of the input transfer. Personnel costs, which include salaries of all staff carrying out training and monitoring activities, are USD 58.94 PPP. Group trainings and committees comprised of community members provide ongoing mentorship and support in core program areas, which removes the need for program officers to deliver these functions and helps to keep costs low. Indirect costs are relatively large at USD 138.61 PPP, and include all office staff involved in developing the program and ensuring implementation is on track against targets, as well as program development and fundraising costs for international staff. Startup costs are USD 11.03 PPP and cover the village eligibility assessment and tailoring of the program to the village using needs

assessments and climatic data. The RTV program is substantially lower cost than other graduation programs, including programs designed to be lower cost (see Section 7 Table 4).

Universal nature: The RTV program has many features that only make sense when the program is offered to every household in a village and could not easily be provided to only a subset. For example, committees are formed of successful members of the community who have existing experience in livestock rearing or a range of agricultural technologies. If the program were targeted, the committee members would likely not be eligible. Individuals would likely not be motivated to commit their time to a committee if they could not participate in the program. This would require alternative structures, such as paying committee members, utilising project officers (at greater cost as other graduation programs do) or having less experienced committees, all of which would likely increase costs or reduce the effectiveness of the program. Certain elements of the program are provided to all households, for example wells, large machinery, health visits, and it would be difficult or impossible to not allow some households to use these. Additionally, a central message of the program, captured by its name "Raising the Village", is that all households in the community are going to work together to improve the economic situation of everyone. This helps support elements like high training attendance, livestock pass-on and adoption of the practices taught by all, as well as the substantial time commitment of the committees. If the program were only offered to some households, it would likely work less well for those who did participate while potentially generating hostility from those excluded. Finally, many components of the program are fixed costs per village, for example the group trainings. Limiting participation to only those targeted does not change the cost, while spreading it over fewer households.

2.3 Randomization

Randomization is at the cluster level. RTV classified the study villages into 114 'clusters'. Each cluster is typically comprised of 2-4 villages that are geographically close and share some services, such as schools, markets or water sources. We assigned the 114 clusters to either be a treatment cluster, receiving the RTV intervention or be a control cluster, receiving no intervention. Assigning close villages to treatment in clusters ensures that any spillover effects of treatment across clusters will be minimized. We stratified the randomization using median splits on the cluster mean of a household assets index (household ownership of various assets, livestock and land), a village services index (availability of various services such as health centers, markets and roads), and the district (Kagadi and Kyenjojo), to ensure balance on these important measures of wealth and economic integration. A map of

the study locations and treatment assignment is shown in Online Supplement Figure OS1.

The randomization was carried out in two batches of 50 and 64 clusters, based on the timing of the baseline survey. The intervention delivery was in two phases corresponding to the randomization batches: phase one started in October 2020, and phase two started in June 2021.

2.4 Sampling

Every household in an eligible village can take part in the RTV program, and so we sample randomly from all households within each village. To construct a sampling frame, we worked with the village leadership to compile a list of all households in the village, resulting in a list of 30,082 households across the 335 villages. From this list, we randomly selected 12 households per village to be surveyed, stratifying on the marital status of the household head. This process ensures that, in expectation, our sample is representative of the village. Survey respondents were approached in their households, taken through the oral consent process, and, if they agreed to take part in the study, interviewed using the baseline survey. We baselined nearly 4,000 households from the 335 villages.[18]

3 Conceptual Framework

The central novelty of the RTV program is universality: every household in a treated village receives the program. Here we discuss how universality can change what a program can achieve and for whom. We organise this discussion around three important ways in which a universal program changes the economics of a livelihoods intervention. First, we consider the implications of a smaller *transfer per household*, assuming a fixed budget is spread across a larger number of households than in a targeted program. On the other hand, targeting is costly and imposes its own, often non-monetary, costs on households. Second, we consider how such a universal program could cause *congestion* in local economies if households crowd into certain activities, which may be worse for some households. Third, we consider *spillover* effects within and beyond clusters on households and markets. While we cannot directly test the isolated contribution of each, we discuss the likely importance and direction of the effects we expect and where our design allows us to test this directly. Note that while these channels alter how universal programs operate relative to targeted programs, most are also relevant when targeting a larger share of a community.

[18] In a couple of villages, enumerators could not find 12 households from the list to complete the baseline with, or had to move on from the village before 12 baseline surveys were reached.

First, the per-household asset transfer in a universal program is smaller than in an equivalent targeted program, since the same budget is spread across all households rather than concentrated on a subset.[19] This raises a concern: is the universal transfer sufficient for the poorest households to generate a sustainable income? Prior evidence on this is mixed: While Balboni et al. (2022) found evidence of poverty traps, implying the transfer needs to be large enough to enable households to pass the poverty-trap asset threshold, recent studies have not found evidence of poverty traps and suggest smaller transfers are also effective (Assaad et al., 2026, Karlan et al., 2026). We do not have a targeted arm that redistributed the same budget to a smaller group of households, and so cannot make a direct causal comparison. However, we can examine treatment effects for households in the wealth quartiles or with other vulnerable characteristics who would typically be targeted by other programs, and compare the magnitude of these effects with both those seen for richer households and to those found in the targeted program literature.

At the same time, targeting generates well-documented costs that a universal program eliminates by construction. Targeting is often imprecise (Hanna and Olken, 2018), and this imprecision means that many households in genuine need are excluded while some ineligible households receive transfers. Excluded households may experience confusion and distress (Duflo et al., 2023, Haushofer and Shapiro, 2018), and the process raises concerns around horizontal equity and fairness (Banerjee et al., 2024, Brown et al., 2018, Hanna and Olken, 2018, Merfeld and Morduch, 2023), which can lead to crime (Cameron and Shah, 2014). Recipients may also experience stigma (Thomas et al., 2020), and transfers may be partially undone by households sharing resources with excluded neighbours, diluting the gains to targeted households (Angelucci and De Giorgi, 2009). A universal program avoids all of these costs, and this is arguably the main dimension along which it differs from a targeted program that targets a large proportion of the community. This may generate positive effects on social cohesion within treated communities, beyond the direct economic gains.

Universal delivery does not, however, guarantee equal gains within the village. Programs relying on community involvement risk elite capture, with better-off households influencing how collective resources are allocated (Heß et al., 2021). This concern is limited in the case of RTV since each household receives its own individual transfer. Still, in more unequal villages the poorest may benefit less. This is empirically testable by examining heterogeneity in treatment effects by baseline level of poverty and inequality in the villages. The level of market integration and size of the village economy may also determine the degree to which the households within a village can benefit from the program. This can be tested by examining

[19] A universal program could, in principle, provide the same, larger amount to all households, but this is likely prohibitively expensive.

heterogeneity by measures of village market integration, such as road access, availability of markets and the proportion of households operating businesses, and the size of the village.

Second, a potential concern with a universal program is that if everyone invests in the same activities at the same time, there could be congestion in the village economy. For example, if many households start operating retail businesses, the returns drop substantially, and that activity no longer offers a route out of poverty (Poll, 2026). This may prevent the program from being effective at all. Further, wealthier households, who can compete more effectively for limited market opportunities, may crowd out the poorest, leaving them unable to benefit. This concern would be most acute for a universal program relative to a targeted one, since a targeted program concentrates resources in fewer households with similar profiles, whereas a universal program reaches all households with very different skills and resources. The RTV program addresses this directly through its design by providing training and support across a range of household economic activities — agriculture, livestock, and enterprise. The focus on multiple activities rather than one primary one means that households can select into the most appropriate activities for them. It therefore reduces the scope for congestion, as households generate income from different sources. A key prediction of this feature is that treated households will engage in a greater number of economic activities relative to control households, and the specific activities adopted will differ systematically across wealth quartiles. We test this by examining whether treated households across wealth quartiles engage in a greater number of economic activities and whether their labour allocation shifts accordingly. Additionally, we test whether households with more resources, such as the rich who may have complementary inputs or better access to credit, benefit differentially from the program, by examining heterogeneity by household characteristics such as income and education.

Third, if there are positive complementarities in income, providing a program to a larger share of households will generate greater effects than providing the program to households in isolation (Banerjee et al., 2019). Recent evidence supports the importance of these positive spillovers: evidence from an anti-poverty program in Kenya suggests that when a larger proportion of a community receives the intervention, multiplier effects increase the benefits to all (Egger et al., 2022). Similarly, increases in aggregate demand meant that a cash transfer targeted at women to open businesses in Nigeria had large positive spillovers on non-beneficiary women in the same villages (Papineni et al., 2025). Positive general equilibrium and large multiplier effects within a community mean a universal program could deliver similar economic impacts as highly targeted programs but with smaller input and asset transfers, potentially saving on cost.[20] In addition, including everyone in the program will

[20]Universal provision may also strengthen knowledge spillovers. When training is targeted to only some

result in households who may be better placed to benefit from taking part, and who may make "transformative investments", increasing the total welfare gains (Banerjee et al., 2019, Haushofer et al., 2025).

The program is designed to maximise positive spillovers by delivering the intervention at the cluster level (groups of 2–4 geographically linked villages), though we cannot test the full extent of these within-cluster spillovers directly. The clusters are formed based on existing social and economic linkages, which makes cross-cluster spillovers less likely. While we can exploit natural variation in the number of treated clusters surrounding each cluster to test for spillovers across cluster boundaries, we expect these to be limited.

Further, a program providing transfers to everyone in the villages has the potential to impact local prices, which may dampen program impacts. We examine impacts on crop and market prices as a test for local price effects.

4 Data

We use data from a baseline survey, midline survey, endline survey, market price survey, village chairperson survey, and consumption survey for the analysis presented here. We also have data from RTV on household attendance at the training sessions.

The baseline survey for the study took place in June (phase 1) or November (phase 2) 2020.[21] Both study districts were included in each phase of the baseline survey. We surveyed 2,073 households in phase one and 1,779 households in phase two, for a total sample of 3,852 households. A midline survey took place with a sub-sample of the study sample from October to December 2022, only attempted with the 2,618 married households.[22] An endline household survey took place from August to October 2023 in all baselined households with the household head or his spouse. The midline and endline surveys were timed to take place just after one of the two main harvests of the year.[23] We also conducted a short phone survey in June 2024 during the agricultural lean season that covered only consumption.

households, broader adoption depends on diffusion through social networks. This process can stall if too few individuals are reached or if central individuals are excluded (Beaman et al., 2021).

[21] We originally began the baseline survey in-person in March 2020. The project was then put on hold due to the start of the Covid-19 pandemic. In June 2020, we updated the baseline survey by phone to account for the large change in household situation due to the severe lockdown in Uganda (Mahmud and Riley, 2021). We could not reach 92 households on the phone so for these we use the March 2020 responses. Households interviewed in November 2020 were surveyed in person.

[22] We had limited funding, and so prioritised the married households strata. Of these 2,618 households, 219 no longer contained a married female adult at midline and were therefore ineligible, leaving an eligible frame of 2,399 households (Table A5, column 2).

[23] There are two main growing cycles in Western Uganda, with harvests taking place in January and August.

Both the baseline and endline surveys covered a comprehensive list of questions designed to capture the economic and social situation of households. This included detailed questions on crop production by season, crop consumption from own production, expenditures, income, wealth, labour supply, mental and physical health and community engagement. The midline survey only included a subset of questions focused on capturing the pre-specified primary economic outcomes – household consumption, income, wealth and labour supply. Note that household consumption includes the value of both purchased food and food consumed from own production, while farm income only includes crops that are sold. Therefore, there is no double-counting between the two measures. The primary outcomes are defined in detail in Online Supplement C.

In addition to measures using traditional survey questions, the endline survey included a number of alternative measures intended to verify household reports. These included the verification of livestock, assets, housing conditions and sanitation practices by enumerators.

Simultaneously with the endline survey, a survey was conducted with the village chairperson in each village and in the nearest market. The village chairperson survey covered access to services in the village, experience of shocks and migration in the village, and verified program elements in treatment villages. The market survey captured the prices and range of goods available in the village market. Prices were collected for 79 common food and non-food items in specified quantities. If available, we collected prices from three vendors within each market.

4.1 Sample Descriptives

The estimated Gini coefficient for non-land wealth within a village is 0.55, indicating substantial inequality in the distribution of wealth across sample households in the study villages (Table A1). To examine how demographic characteristics and economic profiles differ across the wealth distribution, Table 1 presents summary statistics for the control group at endline disaggregated by baseline wealth quartiles.[24,25] Nearly half of the households in the bottom two quartiles live on less than $2.15 PPP a day and are classified as "extremely poor". The rate is lower (25%) but still not negligible in the top quartile. Correspondingly, there is substantial variation in the economic activity profile of households by these quartiles, with

[24]We present summary statistics at endline because the baseline surveys were administered during the Covid-19 pandemic. While there were immediate adverse effects (Mahmud and Riley, 2021), a year later, the average control group household income had already recovered to the pre-pandemic level (Mahmud and Riley, 2023). As a result, the statistics for the control group at the endline are more informative for describing the economic position of the households. We see a strong correlation of 0.4-0.5 between baseline and endline income and wealth in the control group.

[25]Summary statistics for the full control group at endline are in Online Supplement Table OS1.

the poorest households growing a few staple crops and reliant on wage labour, whereas the richest households grow a diversified range of crops, are more likely to sell perennials and derive additional income from livestock and small enterprises, with less reliance on wage labour.

Income for households in the top non-land wealth quartile is about 2.5 times that of the bottom quartile. Households in the top quartile are distinguishable from the other quartiles by a larger proportion of their income coming from non-farm enterprises (25%) and less from wage labour (13%). The pattern is reversed for the bottom quartile, where 14% of the income on average is from non-farm enterprises and 29% is from wage labour. The bottom quartile also earns almost no income from livestock, as only 20% of them sell animals or animal products, while almost half of the top quartile do. This is because households in the bottom quartile own fewer livestock.

Land ownership is nearly universal, and virtually all households farmed in the last two cropping seasons, so households across the wealth distribution earn some income from crop sales. This pattern is typical of the region: in the Ugandan National Panel Survey 2019-20, 88% of households in the lowest wealth quartile report farming in rural areas and in nearby western Kenya, the site of evaluations of large unconditional cash transfers and the Universal Basic Income study, 95% of the households grow crops (Orkin et al., 2023). Hence, crop sales are the primary source of income in our sample, accounting for around half of the income on average.

Although cultivation of beans and maize is nearly universal, households in the top wealth quartile exhibit significantly greater agricultural diversification. On average, they grow approximately two additional crops across the two main seasons and have just under two more perennial crops over the past year relative to households in the bottom quartile. Moreover, their degree of market participation is markedly higher, as they are 27 percentage points more likely to sell perennials and 10 percentage points more likely to sell seasonal crops than the bottom quartile.

Variation in total consumption is more compressed than for income or wealth: households in the top wealth quartile consume roughly 50% more than those in the bottom quartile. This gap is driven primarily by own-production consumption— which is nearly twice as large in the top quartile — rather than by greater purchases of food.

There is little variation across wealth quartiles in household head age and household composition. Still, there are inequalities in other demographic characteristics across the quartiles: 28% of those in the bottom quartile are headed by someone with no schooling, compared to 10% in the top quartile. Households in the bottom wealth quartile are more than twice as likely to be headed by a woman, i.e. by a widow, which highlights their greater

vulnerability.

4.2 Balance

We test for balance across treatment and control for a range of baseline covariates and find no significant differences at the 10% level or below for these 21 measures (Table A3). We also perform an omnibus test to see whether the variables jointly predict treatment. The F-statistic from this test is an insignificant 0.58 (p-value = 0.92), confirming joint balance.

4.3 Intervention Compliance

We confirmed in the village chairperson survey at endline that all treatment villages received the RTV program, and that no control villages received it. We also confirmed that certain elements of the RTV program were implemented in treated villages: In treated villages, 93% of village chairpersons reported that RTV initiated health and nutrition programs, 97% that they built wells, 93% that they provided agricultural programs and 96% that they provided livestock programs.

We also have administrative data from RTV on household attendance at each training session.[26] For our sample of households, attendance at RTV trainings is greater than 90%, with 84% of households attending all four types of training, and 97% attending at least three out of the four training sessions (Table A4). Attendance is likely so high because RTV utilizes the committees to ensure that at least 90% of households attend each training and tracks adherence to this.

Since this is a village-level program, we do not consider further the degree to which a household was treated, but consider all treatment villages to have received the RTV program as intended.

4.4 Attrition

We have low attrition of 8% at endline which is not correlated with treatment (Table A5, column 1). All households that completed the baseline survey are considered to be part of the study sample and so attriters are all households that we could not survey at the endline. Of the 292 households we could not survey at the endline, 122 (41%) of the households were not available, 23 (8%) refused, 82 (28%) had moved away, and 65 (22%) could not be found.

We also had low attrition of 6% in our midline survey which is not correlated with treatment (Table A5, column 2). Note that the midline survey was only carried out with

[26]The RTV cluster officer is responsible for recording and submission of the attendance data at every training. These are objectively verified by RTV through photos and audits.

Table 1: Summary Statistics by Wealth Quartiles

	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
HH Head Age	44.48	44.38	43.49	45.85
HH Head Has No Schooling	0.28	0.26	0.18	0.10
HH Head Female	0.36	0.29	0.21	0.15
Total Adults	2.13	2.29	2.40	2.66
Total Children	2.21	2.53	2.55	3.01
Total Consumption (USD PPP)	481.90	521.20	594.61	735.41
Consumption Per Capita Per Day Equivalent (USD PPP)	2.91	2.97	3.12	3.33
Food Purchased Consumption	171.54	158.08	165.03	190.66
Food Produced Consumption	217.65	261.62	306.67	366.57
Non-Land Wealth (USD PPP)	535.21	756.80	1,235.13	2,575.17
Asset Value	324.19	401.29	570.10	1,186.42
Livestock Value	262.53	347.28	557.82	1,260.75
Savings	103.22	136.20	219.67	369.77
Amount of Money Lent	33.97	51.41	88.39	179.61
Outstanding Loan Amount	-188.46	-178.77	-200.35	-421.21
Total Income (USD PPP)	103.75	115.29	162.63	251.13
Crop Sales (Monthly)	52.95	64.13	84.02	115.15
Income from Animals	4.99	5.95	9.31	26.88
Profits	14.43	20.00	35.02	63.41
Total Wage	29.90	23.00	27.65	32.73
Any Crop Income	0.84	0.89	0.91	0.94
Any Perennial Income	0.48	0.55	0.64	0.75
Any Animal Income	0.20	0.22	0.32	0.43
Any Business Income	0.17	0.19	0.23	0.33
Any Wage Income	0.47	0.38	0.38	0.24
HH Owns Land	0.94	0.96	0.98	0.99
HH Has Farming Activities	0.97	0.97	0.98	0.99
Number of Crops Grown	6.01	6.72	7.12	7.80
Number of Perennial Crops	4.24	4.55	5.21	5.90
WB Consumption Poverty Line	0.43	0.42	0.32	0.25
N	449	448	449	448

Notes: All statistics are reported from the endline household data from only the control villages. Wealth quartiles are based on baseline non-land wealth which is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loan given minus loan taken). HH Head has no schooling is an indicator for household head having no schooling. HH Head Female is an indicator for female household head. Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Consumption per capita per day is total consumption divided by the number of adult equivalents in the household and scaled to daily. Total Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wage, and rental income. Any crop income, any perennial income, any animal income, any business income, and any wage income are indicators for the household earning income from that activity. HH Owns Land is an indicator for household ownership for any type of land. HH Has Farming Activities is an indicator for household having grown a crop in the last two farming seasons. Number of Crops Grown is the number of crops grown across seasons 1 and 2. Number of Perennial Crops is the total number of perennials grown by a household in a year. WB Consumption Poverty Line is a binary variable equal to 1 if the household consumption per capita per day is below the World Bank poverty line of USD 2.15 PPP a day.

married women.[27] 147 households attrited: 45 (31%) had moved away, 23 (16%) could not be found, 72 (49%) were unavailable and 7 (5%) refused to take part in the survey.

We had extremely low attrition of only 3% in our consumption phone survey, which is not correlated with treatment (Table A5, column 3). Three people did not consent to the survey and we were unable to reach the rest. We were extremely successful at reaching respondents in this phone survey as we utilized village leadership to find respondents we could not reach directly, and update any contact information that had changed. Such high rates of follow-up are not uncommon in phone surveys (Banerjee et al., 2020, Mahmud and Riley, 2023).

4.5 Empirical Specification

We estimate the following specification to measure the intent-to-treat effects of the RTV program:

$$Y_{ic} = \beta_0 + \beta_1 \text{Treated}_c + \delta Y_{0ic} + \alpha_s + \epsilon_{ic} \quad (1)$$

Where Y_{ic} is an outcome of interest for a household i in cluster c, Y_{0ic} is the equivalent measure in the baseline survey, Treated_c is an indicator for the household being in a cluster that was randomly assigned to receive the RTV program, α_s are stratification fixed effects and ϵ_{ic} is a random error term. Hypothesis tests use standard errors that allow for heteroskedasticity and are clustered at the cluster level.

We follow a pre-analysis plan for the specification and all outcome variable definitions.[28] All values reported are in 2023 USD PPP at the rate of 1 USD to 1,315 UGX, and we adjust for inflation and winsorize monetary aggregates at the 1% level. We specified that we would correct for testing multiple hypotheses across our four primary outcomes and within a family of outcomes for each of our primary outcomes by calculating q-values adjusted for the false discovery rate following Benjamini et al. (2006).

5 Treatment Effects on Households

The RTV program leads to large and statistically significant improvements in households' economic situation. On average, household monthly income is USD 40 PPP higher (26%), monthly household labour supply is 3.3 days greater (7%), household monthly consumption is USD 59 PPP higher (10%), and total non-land wealth is USD 389 PPP higher (31%) in

[27] Of the households married at baseline, 219 were found to no longer have a female married adult in the household, and so were not eligible to complete the midline survey.

[28] There are no deviations from the pre-specified definition of primary outcomes. Some secondary outcomes are not presented here due to space constraints.

treated households compared to control (Table 2).[29] All these survive a multiple hypothesis test correction at the 1% level or lower. These results are robust to the exclusion of baseline controls (Online Supplement Table OS3, panel A)[30] and to not winsorizing (Online Supplement Table OS3, panel B).[31] The RTV program has comparable effects to those found in other studies of multifaceted anti-poverty programs (Bandiera et al., 2017, Banerjee et al., 2015), or large lump-sum cash transfers (Orkin et al., 2023) (see Section 7). This suggests that a universal program can be as effective on average as a targeted one, mitigating concerns of congestion or that the transfers would be too small to generate comparable impacts.

Table 2: Impact on Primary Economic Outcomes

	(1) Monthly Income	(2) Labour Supplied (Days)	(3) Non-Land Wealth	(4) Monthly Consumption
Treated	40.703	3.276	389.518	58.807
	(9.393)	(1.295)	(82.076)	(14.380)
	[0.000]***	[0.013]**	[0.000]***	[0.000]***
	{0.001}***	{0.004}***	{0.001}***	{0.001}***
Control Mean	158.173	43.918	1,275.143	583.228
N	3,560	3,560	3,560	3,560

Notes: Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. p-values are in square brackets and sharpened q-values controlling for the false discovery rate across outcomes are in curly brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The program works on average, but does it improve economic outcomes for all types of households? We find evidence consistent with all types of households benefiting: treatment effects are positive across all wealth quartiles (Table A6), across quantiles when estimating quantile treatment effects (Figures A1a - A2b, and Online Supplement Tables OS6 - OS9),

[29] Since we analyse all outcomes at the household level, we check for impact on household size, fertility and migration. We do not find any changes in these outcomes as a result of the RTV program (Online Supplement Table OS2).

[30] The fact that our estimates are almost identical without baseline controls mitigates concerns that our baseline survey occurred during the Covid-19 pandemic.

[31] Results are also robust to a test of social desirability bias, following Dizon-Ross and Jayachandran (2023) (Online Supplement Tables OS4 and OS5).

throughout the distribution for income, consumption, and non-land wealth (Figures A3a - A3d), and a Kolmogorov-Smirnov test rejects equality of all at the 1% level. We see no evidence of heterogeneity by pre-specified household characteristics, such as wealth, education, measures of vulnerability like the head being a widow or psychological dimensions like self-efficacy (Figure A4). We see some weak evidence of more vulnerable households seeing larger benefits: consumption gains are significantly higher for female-headed households and households with below-median land holding (1 acre or less) at baseline.

To further test for variation in who benefits from the program, we implement the method outlined by Chernozhukov et al. (2025) for estimating heterogeneous treatment effects for households predicted to be most and least impacted by the program using a set of baseline covariates. The method uses machine learning techniques to generate proxies of conditional average treatment effects for all households, after training on part of the sample. Households are then divided into 2 groups, based on whether their estimated conditional average treatment effects are above or below the median. Using a random forest algorithm and a large number of baseline covariates that include household demographics and economic outcomes, and village-level means and variance of economic outcomes, and indicators of market integration, we find no evidence of heterogeneity (Online Supplement Table OS10).

Together, this suggests that the program was not captured by those with more resources, nor did it benefit only those with pre-existing skills taking advantage of the training and inputs provided. This contrasts with Haushofer et al. (2025), who find meaningful differences in terms of who benefits most from a (targeted) cash transfer program on baseline deprivation. This could be because a multifaceted program, including training and saving support to overcome skill and credit constraints, is needed for the most deprived to benefit.

As discussed in Section 3, beyond household characteristics, the universal nature of the program means that village characteristics may also be important in determining impact. We find no evidence that high within-village inequality disadvantages vulnerable households, or that villages with weaker market integration, measured by availability of a trading centre or weekly market, or being near a major road, benefit less from the program (Figure A5). We find evidence that villages where households were engaged in few household economic activities at baseline (mostly only selling seasonal crops to market) see larger income gains from the program, consistent with the program expanding households' activity portfolio, and this being more effective where most households were initially doing fewer things. The lack of heterogeneity that we find across household and village characteristics does not appear to be due to a lack of power: most interaction terms are small, suggesting no economically meaningful differences between groups, and the study is powered to detect meaningful effects on the interaction term between the heterogeneity dimension and the treatment status

indicator in the range of 0.15 - 0.20 standard deviations.

The RTV program focuses on enabling households to adopt new household economic activities – agriculture, non-farm enterprises, and livestock – and to expand existing ones. In the subsequent sections, we explore how the program was able to improve the economic situation of all types of households by examining the impact on each of these activities, while acknowledging that the bundled nature of the intervention means we cannot separate out the different components.

5.1 Economic Activities and Income Generation

There is an increase in income across wealth quartiles, with the poorest quartile now earning income indistinguishable from that of the second wealthiest quartile in the control group (Figure 1). This has been achieved through poorer households starting new income-generating activities (Table 3), while households across the wealth quartiles increase their farming income (Table A7). The poorest households are more likely to sell perennial crops, and have shifted into livestock rearing and small enterprise ownership, while reducing their reliance on casual wage labour.[32] As a result, the economic activity profile of the bottom two quartiles more closely resembles that of wealthier households. Household labour supply shows a similar shift in activities alongside an overall expansion (Table A8).[33] It appears that the universal nature of the RTV program did not result in congestion in local economies as households expanded into multiple activities. Next, we unpack the changes in income by examining the impact on different economic activities.

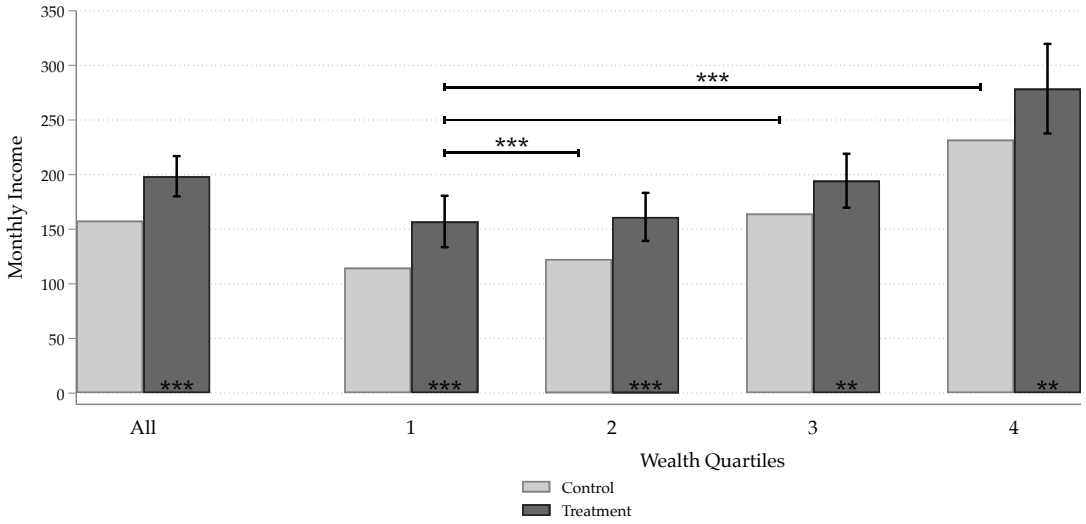
A core element of the program is agriculture, and half of the overall increase in income is due to increased farm sales: households in treatment villages have 27% higher sales as compared to the control group (Table A9 column 2). Consistent with the provision of seed inputs and emphasis on crop breadth, all types of treated households grow and sell a larger number of different crops (Tables A10 - A12).[34] At the same time, crop yields for the main seasonal and perennial crops have also increased (Tables A13 - A15). Over 90% of all major crop output is sold to traders who come to the village to purchase it at a fixed price, and hence the increase in supply can easily be absorbed by integrated markets. We find investments in line with the rise in crop yields: increases in the land area planted and in the use of inputs, with fertilizer use more than doubling (Table A16). Households spend more time working on their own farms (Table A8) but are also more likely to hire labour to help with farming (Table A17). The RTV training included information on best practices for

[32] This was not pre-specified; see Online Supplement Table OS11 for the average effect.

[33] This increase in labour supply is driven by household members above 16. The labour supply of household members under 16 to casual work has decreased (Online Supplement Table OS12).

[34] See Online Supplement Table OS13 for the average effect.

Figure 1: Treatment Effects on Monthly Income by Baseline Wealth Quartile



Notes: This figure plots the monthly income value in the control and treatment arms for the full sample (All) and for each quartile of baseline non-land wealth. Monthly Income is monthly household income comprised of the scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Vertical confidence intervals are from estimation of equation 1, comparing the treatment and control arm for the full sample (All) and for each wealth quartile. The horizontal lines show the comparison of the bottom quartile treatment households with the second, third, and fourth quartile control households. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

drying produce and having a compost pit for organic fertilizer, and we find a large increase in the enumerator-verified presence of these in the treatment households, suggesting that households have successfully implemented techniques taught to them during the training, contributing to higher yields (Online Supplement Table OS14). The increase in yields has, in turn, translated into higher values of total yield and higher values of sales, with little evidence of changes in prices (Tables A13 - A15).

Table 3: Impact on Household Income Generating Activities by Wealth Quartiles

	(1)	(2)	(3)	(4)	(5)	(6)
		Household Income Generating Activities				
	Number of Household Income Generating Activities	Any Crop Income	Any Perennial Income	Any Animal Income	Has Business	Any Wage Income
Treated	0.298***	0.039	0.108***	0.094***	0.067**	-0.064*
	(0.074)	(0.027)	(0.034)	(0.030)	(0.031)	(0.033)
Treated × Quartile 2	-0.067	-0.027	-0.029	-0.012	-0.003	0.038
	(0.093)	(0.033)	(0.044)	(0.039)	(0.043)	(0.048)
Treated × Quartile 3	-0.142	-0.020	-0.071*	-0.024	-0.036	0.002
	(0.097)	(0.029)	(0.042)	(0.044)	(0.044)	(0.040)
Treated × Quartile 4	-0.141	-0.039	-0.086**	-0.009	-0.025	0.068*
	(0.091)	(0.031)	(0.043)	(0.046)	(0.043)	(0.041)
Q1 Total Effect	0.298	0.039	0.108	0.094	0.067	-0.064
p-value: Q1 Total Effect = 0	0.000	0.155	0.002	0.002	0.033	0.057
Q2 Total Effect	0.230	0.013	0.079	0.082	0.064	-0.026
p-value: Q2 Total Effect = 0	0.001	0.550	0.035	0.006	0.036	0.428
Q3 Total Effect	0.156	0.019	0.037	0.070	0.030	-0.062
p-value: Q3 Total Effect = 0	0.023	0.364	0.251	0.031	0.322	0.031
Q4 Total Effect	0.157	-0.000	0.022	0.085	0.042	0.003
p-value: Q4 Total Effect = 0	0.021	0.988	0.488	0.018	0.163	0.905
Q1 Control Mean	1.700	0.845	0.478	0.196	0.181	0.472
Q2 Control Mean	1.876	0.885	0.552	0.231	0.208	0.376
Q3 Control Mean	2.137	0.909	0.648	0.321	0.259	0.376
Q4 Control Mean	2.479	0.940	0.748	0.427	0.365	0.241
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Number of Household Income Generating Activities is the sum of four binary variables: Any Crop Income (a binary variable equal to 1 if there is any income from crops for Seasons 1 and 2), Any Perennial Income (a binary variable equal to 1 if there is any income from perennials over the past 12 months), Any Animal Income (a binary variable equal to 1 if there is any income from livestock), and Has Business (a binary variable equal to 1 if the household operates a business). Any Wage Income is a binary variable equal to 1 if the household has earned any wage income from work outside the household. Quartile indicators correspond to the household's baseline non-land wealth quartile. Quartile 1 represents the bottom 25% of households by baseline non-land wealth, while Quartile 4 represents the top 25%. The Total Effect row reports the estimated effect for each quartile as compared to the corresponding control group quartile, and the following row presents the p-value from a test of whether that effect is statistically different from 0. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The RTV program provides training aimed at building an entrepreneurial mindset and encourages saving for investment in small enterprises. Consistent with this emphasis in the program, we see an increase in business activity as measured by higher sales and stock purchases shown in Table A18. There is a corresponding increase in profits of 37% (USD 12 PPP) compared to a control group mean of USD 33 PPP (Table A9 column 4) and one-third of the increase in household income in the treated villages is due to these increased business profits.[35] Households spend more time working on their businesses (Table A8). However, there is no change in enterprise assets (Table A18 column 5). This is consistent with the fact that most businesses are retail in nature, and the RTV program did not provide large asset or cash transfers for starting more capital-intensive businesses. At the enterprise level, there are no significant differences in profits or sales between treatment and control villages (Online Supplement Table OS15, panel A), indicating that the household-level income gains stem from a greater number of enterprises rather than better performance of individual businesses. This is true for both pre-existing enterprises (that existed at the time of the baseline) and 'new' enterprises that have opened since (Online Supplement Table OS15, panels B and C).

A final element of the economic activities targeted by the program is livestock. We find that households are more likely to engage in livestock rearing, and consequently, income from the sale of livestock and animal products has increased by 38% (USD 4.5 PPP) from a low mean in the control group of USD 11.8 PPP (Table A9 column 3). Consistent with this, we see households using more livestock inputs such as feed and medicines (Table A19) and spending more time on livestock rearing (Table A8). This shift to households participating in livestock rearing can be explained by the livestock given to some households, the setup of savings groups to purchase livestock, and training in livestock management provided to all as part of the RTV program.

5.2 Wealth accumulation

Has the increase in income allowed households to accumulate wealth? Total household non-land wealth is USD 389 PPP (31%) higher for treated households as compared to the control group's wealth of USD 1,275 PPP (Table A20). Nearly half of this increase (47%) comes from higher livestock holdings, 28% from household assets, and 16% from savings, with the remainder attributable to small, statistically insignificant changes in loans given and outstanding.

Given that the program does not involve a substantial asset transfer, and the livestock transfer was small and only given to some households, how have households managed to

[35] We also see evidence that the businesses of treated households are more likely to be located outside the village and have more customers from outside the village (results not shown).

achieve such substantial wealth gains? The wealth gain can be explained by the nearly USD 40 PPP increase in household monthly income, while household expenditures increase by only USD 19 PPP (Online Supplement Table OS16), enabling households to save and accumulate assets and livestock.

Wealth accumulation is also facilitated by the program encouraging participation in savings groups and the formation of savings and loan associations to support household businesses and purchases of livestock and household assets. Treated households have significantly higher savings of USD 62 PPP (30%), most of which is kept in these savings groups. These groups often also give out loans to members for larger purchases. There is a 7 percentage point (11%) increase in the likelihood of a treated household being a member of a village savings group, relative to a mean of 65% in the control group, as well as an increase in the number of groups they are part of (Table A21). Crucially, these groups are of better quality: they are bigger, with on average three more members relative to a mean of 7.5 members, 10 percentage points more likely to give out loans or own assets, and the required monthly contribution amount is around 30% higher (Table A22). Consequently, treated households see a USD 45 PPP (27%) increase in the value of their savings in groups, a USD 8 PPP increase in the value of assets held in groups and a USD 10 PPP (50%) increase in income from group assets.[36] This expansion of savings groups can explain the large increase in savings and, consequently, in assets and livestock in the treated households.

The large increase in livestock holding of USD 184 PPP is partly explained by the transfer of a pig by RTV to some households. However, households also see an increase in the number and value of other non-transferred livestock, such as chickens and goats, meaning they are also purchasing livestock (Table A23). We verify the reported increase in ownership of pigs using enumerator observation (Table A24).[37]

The USD 108 PPP higher assets (Table A20 column 2) are driven by increases in both small assets such as radios, mobile phones, and pots and pans but also bigger assets such as furniture, beds and mattresses, solar panels and even vehicles (Online Supplement Tables OS17 - OS18). We also see an increase in both small farm tools and large farm equipment.

Following our pre-analysis plan, we exclude the value of the house from non-land wealth. However, we do measure spending on home improvements and objectively verify these. We find that treated households spend about USD 38 PPP (32%) more on home improvements in the last year. Consistent with this, enumerators observe improvements in wall quality, but not in other dimensions of house investment, such as the floor and roof materials (Online

[36]Note that we follow our pre-analysis plan variable definitions and do not include the value of assets held with groups in the total household assets value, and consequently in non-land wealth. We also do not include income from renting out these assets in our total income measure, again following our pre-analysis plan.

[37]Livestock other than pigs are hard to verify since they are often out in the fields for grazing.

Supplement Table OS19).

5.3 Welfare and Social Effects

What consequences has the increase in economic activity and income had on household welfare? We see improvements across a range of outcomes: there is an increase in household consumption, an improvement in dietary diversity and reductions in hunger, and households report having better physical and mental health.

Household monthly consumption is USD 59 PPP (10%) higher than in the control group (Table A25). 77% of this is due to an increase in food consumption of USD 45 PPP.[38] This increase in food consumption is almost entirely driven by higher consumption of own-produced food (USD 39 PPP), consistent with the rise in yields and increased diversity of crop production discussed above.[39] We do not see a significant change in spending on food (Online Supplement Table OS21) and an increase in total spending of only USD 19 PPP (Table OS16), consistent with the idea that households are saving a substantial portion of their higher incomes immediately post-harvest.

Treated households consume a more diverse diet as a result of their increased consumption, consuming on average 0.29 additional food groups out of seven each week (Online Supplement Table OS22).[40] In line with the increased consumption and more diverse diet, treated households report being less hungry: the likelihood of there being no food to eat of any kind in the house because of a lack of resources to get food in the last 30 days falls by 11 percentage points from a control group mean of 31% (Online Supplement Table OS23). For both adults and children, the likelihood and frequency of going to sleep at night hungry because there was not enough food in the house also decreases.

While we see no change in spending on food, we do see increased spending on non-food items: there is an increase in spending on durable goods amongst treated households of USD 3.6 PPP (56%), consistent with the increase in the value of household assets that we find, and in spending on non-food non-durable goods of USD 6.5 PPP (8%) (Table A25 columns 3-4).

We do not see a significant change in education expenditures (Table A25 column 5). Child-level analysis of expenditures and enrolment similarly shows no overall effects (Online Supplement Table OS24, panel A). While we see no significant differences by gender, we see

[38] To allow for comparison across studies, we also report consumption per adult equivalent and per capita excluding education (Online Supplement Table OS20).

[39] Note that the monetary value of any food consumed is only included in consumption and not included in income from farm sales. See Online Supplement Section C for variable definitions.

[40] RTV encouraged households to set up a vegetable garden to have a more nutritious diet. We find an increase in an enumerator observed measure of having a vegetable garden in Table OS14 column (3).

some weak evidence of an increase in school enrolment for older children (Online Supplement Table OS24, panels B and C). This aligns with evidence from other anti-poverty programs, such as the graduation program, which also found no increase in education spending despite income growth (Banerjee et al., 2015).

Our primary measure of consumption comes from an in-person survey carried out immediately post-harvest. This could make our treatment effects look larger if the program was most effective at increasing outputs at harvest. We validate this measure using a phone survey during the lean season.[41,42] We find that treated households also have significantly higher consumption, both from purchased and produced food, greater dietary diversity, and substantially lower hunger for adults and children, during the lean season, with effect sizes even larger than those seen in the post-harvest period (Online Supplement Tables OS26-OS28). Interestingly, the increase in food consumption is driven by both own food production and higher expenditure on food, in contrast to our findings post-harvest, which showed only an effect of treatment on own production (Online Supplement Table OS27). This suggests that higher incomes enable households to purchase more food during the lean season, when their own production is lower – the value of own production has almost halved in the control group compared to the endline survey. Overall, the lean-season phone survey suggests that, if anything, the treatment effects were *underestimated* by doing the endline survey immediately post-harvest, when the control group was also relatively better off. It also provides evidence that households may have additionally benefited from the program through being able to better smooth their consumption and suggests that treatment effects are not diminishing over time (see Section 5.4).

We see a significant decline in consumption poverty, defined using the World Bank USD 2.15 PPP a day poverty line, in treated villages, both immediately post-harvest and in the lean season (Table A26). Consumption poverty is substantially higher in the lean season (65%) than post-harvest (35%) in the control villages, highlighting the seasonal nature of poverty in these communities. In treated villages, the increase in poverty during the lean period is markedly lower than in the control villages – an increase of only 11 percentage points as compared to the 30 percentage point increase in control villages relative to the immediate post-harvest period. This suggests that the program not only reduced poverty

[41] An additional advantage of the phone survey is that we could feasibly blind enumerators to treatment status, ruling out any bias from their side and further validating the findings. We also conducted audio audits of 5% of all the phone surveys and had these transcribed by an independent enumerator unknown to the survey team. These confirmed no mention of RTV or the program in any way, and provided a useful quality check on the phone survey data.

[42] We used exactly the same questionnaire for the lean season phone survey as for the endline survey, but only asked the consumption and hunger modules. The survey took 19 minutes on average (median 18 minutes).

but also prevented households from falling back into poverty during hard times, thus better smoothing consumption.

In line with the program benefiting households from across the distribution, we do not see much evidence of changes in inequality within the village.[43] We examine the effect of treatment at the village level on the ratio of the 75th to 25th percentile and Gini coefficient for income, wealth and consumption (Online Supplement Table OS25). Treatment coefficients on inequality are uniformly negative, but only the wealth Gini coefficient declines significantly, implying a small equalization of the within-village wealth distribution. This contrasts with evidence from large cash transfers, where even targeted transfers can raise wealth inequality due to large positive spillovers benefitting ineligible households (Egger et al., 2022). In our setting, although villages display considerable variation in income and wealth, most households are near-poor, and impacts appear broadly shared across households.

The RTV program focuses on improving household health as a necessary precondition for households being able to benefit from the economic elements of the program. We find large improvements in the physical and mental health of households in treatment villages. An index of physical health capturing the degree to which the household head can perform physical activities and work increases by 0.13 standard deviations (see Online Supplement Table OS29 for components). We see a reduction in the probability that children below age 6 in treated households experience any of four common symptoms of illness, and school-aged children, particularly girls, are less likely to miss school due to illness in treated households (Online Supplement Table OS24 column 3 and OS30). These improvements in health are considerably larger than those seen in other graduation programs (Banerjee et al., 2015), possibly due to the increased focus on health and particularly hygiene in this program. In line with this, we find enumerator-verified evidence that households continue to use several of the hygiene practices taught as part of the RTV program (Online Supplement Table OS31): they are more likely to have a two-tiered dish rack, a handwashing set-up outside the toilet, and a hang line to dry clothes.

An index of mental health capturing the PHQ-9 validated measure of depression, stress and life satisfaction for the household head, reverse coded such that high values indicate better mental health, increases by 0.21 standard deviations for treated households. All components of the mental health measure improve substantially, with treated households 6 percentage points less likely to be depressed, less stressed, happier and generally more satisfied with their quality of life and optimistic about their future quality of life (Table A27). Their view of the future is also more optimistic: treated households have substantially higher aspirations in the form of expected and desired income in 10 years as compared to

[43] This was not pre-specified.

the control group, though their self-efficacy is unchanged (Online Supplement Tables OS32 - OS33).

Households in treated villages also have higher levels of community empowerment. We see an increase of 0.09 standard deviations in an index of community engagement in treatment villages, driven by increases in expressing your voice, trust and the holding of leadership roles (Online Supplement Table OS34). There is an increase in an index of voice in the community in treatment villages of 0.09 standard deviations, capturing whether people speak at and attend village meetings, suggesting people are taking a more active role in their communities (Online Supplement Table OS35). An index of trust in the community increases by 0.11 standard deviations, driven by an increase in perceptions that others in the community would help in times of need, let you borrow from them and provide advice (Online Supplement Table OS36). These improvements in community empowerment are corroborated by reports from the village chairperson survey (Online Supplement Table OS37). Overall, these findings suggest that the RTV program has enabled households in treated villages to be more engaged in their community, taking a more active part in meetings, taking on leadership roles and are more helpful and trusting of each other. These social cohesion gains are consistent with the conceptual framework's prediction that a universal program, by eliminating the stigma and social friction associated with targeting, may generate positive effects on community trust and engagement beyond the direct economic gains.

5.4 Temporal Dynamics of the Treatment Effects

We find a strong positive impact of the RTV program on household economic outcomes just under three years after the start of the program. How do these impacts evolve with time? In this section, we present two pieces of evidence on this, using data from a midline survey with a subsample of married households and leveraging the staggered program rollout. Both pieces of evidence support the idea that treatment effects have not diminished since the end of the program implementation and are likely to persist.

First, we utilize a midline survey to examine how treatment effects changed between program end and one year later. We conducted a midline survey in late 2022, around the time the RTV program ended. We surveyed the primary female in 2,259 of the eligible households containing a married female member, and construct a balanced panel of the 2,173 households observed across both midline and endline.[44] We asked the same questions at both the midline and endline regarding the primary outcomes, enabling us to construct consistent measures. The results on primary outcomes suggest that the program's impact has been steady between the program's conclusion and the endline survey (Table A28). This

[44]The original household randomization was stratified by marital status, so it is internally valid to look at a subsample of married households.

suggests that the households are building on the initial inputs provided by RTV and have not used up or consumed these, such that the positive impacts we find are likely to persist.

Second, we utilize the staggered rollout of the program implementation in two phases, approximately 8 months apart.[45] To analyze whether the effects differ across clusters in the early and late phases, we interact the treatment indicator with an indicator variable for the second phase of roll-out of the intervention. We find that the effects of the program are marginally significantly larger in villages treated in the earlier phase (phase 1) compared to those treated in the later phase (phase 2) for household wealth, monthly income and labour supply, though the total treatment effect remains positive and significant for all outcomes except labour supply for phase 2 (Table A29). This provides support that treatment effects are not diminishing over time.

6 General Equilibrium Effects

We now turn to the third channel raised in Section 3: whether universality generates positive spillovers through aggregate demand and complementarity channels, and whether the program has an effect on prices.

6.1 Prices

We do not find evidence that the RTV program had any meaningful effect on prices, consistent with studies of cash transfer programs (Egger et al., 2022), and of in-kind transfers (Gadenne et al., 2024). This is likely because food markets are nationally integrated, with over 90% of crops sold to traders who come to the village, making it unlikely that market prices would change as a result of a local program that expanded crop production. In contrast, labour markets tend to be more localized. We find that treated households report an increase in the average daily wage rate earned from casual labour. However, there is no corresponding increase in the prevailing wage rates paid by treatment households across different activities (Online Supplement Table OS38). A plausible explanation is that treated households, having expanded their household economic activities, reduced their supply of labour outside and, in doing so, selectively took advantage of the higher-paying opportunities that were already available, and gave up on the lower-paying jobs. Since there is no change in the general wage levels in the data, this suggests that the labour supply from neighbouring places, including control clusters, was sufficiently elastic to absorb the lower-paying jobs.

To test for changes in prices as a result of the RTV program, we collected data on the

[45]The randomization was done in two batches corresponding to these two phases of implementation, making this analysis internally valid.

prices of common goods and services at trading centers located within the treatment and control clusters.[46] We construct a price index by cluster by weighting the average price of each good in that cluster by its share of consumption. We did not ask about the specific good and quantity that we collected a price on in our consumption module at baseline, and so we obtain consumption shares for each good from two sources: 1) the Ugandan National Panel Survey 2018 and 2) the data replication package of Egger et al. (2022), which included a file containing expenditure weights from their consumption survey. We use both approaches since neither dataset includes all of the goods for which we collected prices. We construct price indices in this manner for both food and non-food items.[47]

We see no significant effect of treatment on the price index constructed using either weighting procedure except a marginally significant small decline for the food index (Table A30). This finding is consistent with that of Egger et al. (2022), which did not find effects on prices from a large cash transfer distribution in Kenya. In our case, this is likely because most crop sales are to outside traders.

We also test for changes in the number of vendors and types of goods available in markets in treated clusters in Online Supplement Tables OS39 and OS40. We see no changes in the number of markets or vendors, opening times or availability of different categories of goods in treated compared to control clusters.[48]

While markets are where people purchase most food and small household items, they are not where most livestock purchases take place or where most of the seasonal crops are sold immediately after harvest. We therefore also look at the sale prices of livestock and crops as reported in the household survey. To do this, we first compute the median price per village amongst all households in the village that reported growing the crop or owning the livestock.[49] The price indices are created by taking a weighted average of these median prices across all products in the index. The weights are calculated using the value of the products for households in control villages. We calculate the crop index separately in season one and season two and include the five major crops that represent 97% of the yield value. We also construct price indices using prices reported by the village elder. Results for the effect of treatment on indices of the average sale price of crops in seasons 1 and 2 and livestock are shown in Online Supplement Table OS41. We see no significant effect of treatment on the

[46]Trading centers are small markets located in a village. Villages frequently share trading centers, and this was one of the criteria used to construct the clusters.

[47]The RTV program provided agricultural inputs with the aim of expanding food production in the treated communities. Hence prices for food may behave differently to prices for non-food items.

[48]This is consistent with our finding that there is an increase in the number of businesses in the treatment villages, as only 12% of businesses report operating from the trading center.

[49]Note that since we see treatment effects on crop and livestock activity, who reports prices will differ between treatment and control villages.

price indices, except for a marginally significant and small increase in the livestock selling price index.

6.2 Spillovers

Prior studies of cash transfers have found evidence of large spillover effects, both within and across villages (Egger et al., 2022, Haushofer and Shapiro, 2016). The design of the RTV program differs in key ways from cash transfer programs, which makes large spillovers less likely. First, this is a village-level program, designed to maximize within-village spillovers but preventing us from examining them explicitly. Second, the RTV program was clustered at the level of 2-4 close villages that shared services and infrastructure, such as markets, minimizing the potential for spillovers across clusters. Third, the fact that this is an in-kind transfer rather than a cash transfer reduces the likelihood of spillovers, with Bandiera et al. (2017) finding no within-village spillovers from a graduation program. We find evidence for some positive spillovers across treated clusters but no spillovers to control clusters.

We test for potential spillovers using the pre-specified distance radii of 5 km[50] around a cluster centroid and augment equation 1 with the number of treated clusters within that radius, excluding own cluster ($\text{TreatedClusters}_c^{-c}$), controlling for the total number of clusters within the radius, excluding own cluster, (Clusters_c^{-c}), following Egger et al. (2022):[51]

$$\begin{aligned} Y_{ic} &= \beta_0 + \beta_1 \text{Treated}_c + \lambda_1 \text{TreatedClusters}_c^{-c} + \lambda_2 \text{TreatedClusters}_c^{-c} \times \text{Treated}_c \\ &\quad + \gamma \text{Clusters}_c^{-c} + \delta Y_{0ic} + \alpha_s + \epsilon_{ic} \end{aligned} \tag{2}$$

Standard errors are calculated following Conley (1999) using a uniform kernel out to 10 km. This approach relies on there being sufficient variation in treatment intensity within the distance radii, which we confirm we have in our setting (Online Supplement Table OS42): On average, there are 4.8 treated and 8.8 total clusters within 0-5km of control clusters, and 4.9 treated and 9.7 total clusters within 0-5km of treated clusters.

The total effect of treatment is calculated by multiplying $(\hat{\lambda}_1 + \hat{\lambda}_2)$ by the average number of treated clusters (4.9) and adding the direct treatment effect $\hat{\beta}_1$. This can be interpreted

[50] We also pre-specified that we would use a data-driven approach to select the optimal radius following Egger et al. (2022), which confirmed that 0-5km is the optimal radius.

[51] Our study was not designed to explicitly test for spillovers, and so we are using natural variation in the concentration of treated clusters generated by our randomization, following Miguel and Kremer (2004). We also use two alternative spillover specifications, both of which yield similar results. First, we augment equation 1 by the share of treated clusters (rather than the number of treated clusters). Second, we additionally interact the total number of clusters with a treatment indicator.

as the effect for a household in a treated cluster with the average number of treated clusters within 0-5km of the cluster. The total effect for the control group is calculated by multiplying $\hat{\lambda}_1$, the estimated coefficient from equation 2, by the average number of treated clusters in a 0-5km radius for control households (4.8). This can be interpreted as the total effect for a household in a control cluster with the average number of treated clusters within 0-5km of the cluster.

Results for the 5km radius are shown in Table A31. In panel A, we show the reduced form treatment effect estimated using equation 1, as shown in Table 2. In Panel B, we show the total effects, including spatial effects, estimated using equation 2. The total effect for treated households is consistently larger than the treatment effect estimated assuming no spillovers across clusters. The total effect for treated households on income is USD 51 PPP, about 26% higher than the reduced form estimate of USD 40 PPP. The total effect for treated households on consumption is USD 100 PPP, 70% greater than the reduced form estimate of USD 59 PPP. This is suggestive evidence of positive spillovers across treated clusters. The total effect in the control group is consistently small and insignificant, suggesting there are no spillovers, either positive or negative, on them.

The pattern of spillovers that we observe only across treated clusters is suggestive of aggregate demand-based spillovers across clusters: for example, a business may be more profitable the better-off everyone else is around it. Similarly, traders may travel to a village to make purchases if there are sufficient items for sale both within the village and in the local area to make travel worthwhile. If spillovers had operated through labour markets and local hiring, we would have expected spillovers on both the control and treated households. Consistent with this, as discussed earlier, when we examine effects on wages paid to workers in different activities, we do not see any treatment effects (Online Supplement Table OS38).

7 Cost-Effectiveness and Benefit Comparison

We use the estimated program impacts to gauge the magnitude of benefits to recipient households relative to the costs of the RTV program. We find that by three years, the benefit-cost ratio of the program is 267%. We also compare the benefit-cost ratio of the RTV program to other anti-poverty programs for which there is comparable data, including large lump-sum cash transfers distributed by GiveDirectly and the Targeting the Ultra Poor multifaceted programs developed by BRAC. Relative to these, the RTV program has a benefit-cost ratio two to eleven times higher after almost three years, making this an extremely cost-effective approach to alleviating rural poverty.

We follow the standard practice and use changes in household consumption and non-

productive assets as the core measure of program benefits. This includes yearly changes in consumption expenditure and a one-time change in household assets as measured in year three. We did not measure consumption after year one. Given the nature of the program, effects likely take time to build and so we conservatively assume that there was no treatment effect at that point.[52] We consider only benefits up to year three rather than making assumptions about their persistence. This yields a conservative estimate of program benefits: if consumption gains persist beyond year three, the actual benefits are likely underestimated.[53]

Program cost data came directly from our implementing partner, RTV, and includes comprehensive cluster-level figures on the value of inputs, personnel salary costs, travel costs, government contributions and indirect costs for both local and international staff and office costs (see Table A2 and Online Supplement Section B.1 for a detailed discussion of program costs). For comparability with other programs, we calculate a per household cost.

In Table 4, column 1, we report our estimates of the RTV program costs and benefits. All benefits are reported on an annual basis, the costs are inflated to year three, and both benefits and costs are reported on a per household basis. Benefit estimates annualise non-durable consumption in the midline (Y2) and endline (Y3) surveys, and take the value of non-productive assets in year three (see Table OS43 for the treatment effects that the benefits are based on). The total benefits of the RTV program are USD 1,050 in 2023 PPP, while the total costs are only USD 339 PPP (USD 393 PPP when inflated to year three) yielding a benefit-cost ratio of 267%.

We compare the benefit-cost ratio of the RTV program against other multifaceted anti-poverty and cash transfer programs in columns (2)-(6). For the comparison to other multifaceted anti-poverty programs, we draw on Banerjee et al. (2015) and Bandiera et al. (2017), who study the Targeting the Ultra Poor program originally developed by BRAC, and Bossuroy et al. (2022), who study a lighter touch graduation program in Niger. For the cash transfer, we draw on Orkin et al. (2023), who studied a lump sum cash transfer provided by GiveDirectly in Kenya.[54] We report both the benefits and costs in the year they were reported for in the paper, preventing direct comparisons of these across studies.

In column (2), we report the average of the 6 sites studied in Banerjee et al. (2015). In column (3), we report the costs and benefits found at the India site, which was the lowest

[52]This contrasts with the assumption made in other studies, such as Banerjee et al. (2015), which provided large transfers to households, and assumes that treatment effects in year one were equal to those in year two.

[53]This analysis also does not account for utility gains from smoother consumption across the year and does not account for other benefits of the program that might enter an individual's utility function through avenues other than consumption, such as improved mental health and social benefits.

[54]The GiveDirectly cash transfer analysed in Orkin et al. (2023) is the same as that examined in Egger et al. (2022) in a different region of Kenya. Orkin et al. (2023) is the only study of the GiveDirectly cash transfer program that included cost-benefit analysis.

cost site in Banerjee et al. (2015). In column (4), we report the costs and benefits from Bandiera et al. (2017).[55] We see that after three years, the benefit-to-cost ratio of the TUP program on average, in India and in Bangladesh is between 23% and 65%.[56]

In column (5) we report the costs and benefits of a lighter-touch multifaceted program in Niger (Bossuroy et al., 2022). This program includes a cash-grant, group coaching, savings groups and micro-enterprise training. The benefit-cost ratio of the light graduation program is 130%.[57] In column (6), we report the costs and benefits of the cash transfer.[58] The benefit-cost ratio of the cash transfer is 65%.

The benefit-cost ratio of the RTV program is two to eleven times higher than that of other anti-poverty programs. This is due to the lower cost of the RTV program while the benefits are of a similar magnitude to those seen in other programs. However, given this is a village-level program, it is important to note that the total cost of providing the program to a village may be more under the RTV program than under a targeted program. In Online Supplement Section B.2, we consider alternative cost and benefit scenarios, including valuing the time of volunteer committee members and including only the benefits to the poorest 50% and 25% of households.[59] The program remains extremely cost-effective even under these scenarios.

The cost-benefit analysis focuses on benefits only in the form of consumption and durable assets. However, anti-poverty programs have been shown to affect a wide variety of outcomes

[55]We deflate costs to year three rather than year 4, and show benefits up to year three, so that they are comparable with Banerjee et al. (2015) and our estimates.

[56]For this analysis, we consider only costs and benefits after three years. This contrasts with both Banerjee et al. (2015) and Bandiera et al. (2017), who make various assumptions about the persistence of the program benefits beyond three years. This is because strong assumptions are needed regarding persistence to generate benefit-cost ratios of greater than 100% in these programs. In Banerjee et al. (2021), the authors found the 10 year benefit-cost ratio of the India site to be 379%.

[57]Note that no surveys were carried out in year 3. In the paper, the researchers make various assumptions about the rate of dissipation of the year 2 effect. We conservatively assume the year 2 effect persists fully in year 3. The researchers do not report on the value of household assets, and so we are unable to account for this component.

[58]The cost-benefit analysis reported in Orkin et al. (2023) was carried out after 17 months. We make assumptions about the persistence of the benefits in that study in order to allow a comparison with the 3-year point reported in this and the other studies shown in Table 4. These assumptions mean that the benefits are an upper bound of those expected to persist to three years.

[59]In our endline survey, we see that 35% of the households post-harvest and 65% in the lean season are classed as ultra poor using the World Bank's $2.15 per capita per day consumption threshold. Note, however, that most targeting criteria for anti-poverty programs use proxy means tests that can be administered in short censuses to determine eligibility instead of administering a full consumption survey. As a result, there are both inclusion and exclusion errors in targeting. For example, in Bandiera et al. (2017), only 6% of households were eligible for the program, of whom 53% were classified as poor according to the World Bank threshold. However, 49% of the next 22% of the village classified as "near-poor" according to the program poverty criteria would also be classified as poor according to the World Bank threshold. Similarly, in Banerjee et al. (2015), of the households selected using Participatory Wealth Ranking, only 48% would be classified as poor according to the World Bank poverty threshold.

Table 4: Cost-benefit Analysis Comparison

	(1) RTV	(2)	(3) TUP	(4)	(5) Light	(6) Cash
Country	Uganda	Average	India	Bangladesh	Niger	Kenya
Cost-benefit Year	2023	2014	2014	2007	2016	2018
Input transfer cost	131	1,064	700	-	321	1,931
Total cost (as if incurred in Y0)	339	3,613	1,257	1,121	482	2,149
(a) Inflated total cost Y3	393	4,181	1,455	1,298	531	2,388
(b) Y1 annual nondurable consumption ITT	0	351	344	61	156	564
(c) Y2 annual nondurable consumption ITT	289	351	344	106	267	363
(d) Y3 household asset ITT	102	18	6	40	-	406
(e) Y3 annual nondurable consumption ITT	658	251	251	237	267	220
(f) Total benefit (b)+(c)+(d)+(e)	1,050	971	945	444	690	1,553
Benefit-cost ratio (f)/(a)	267%	23%	65%	34%	130%	65%

Notes: Cost-benefit year gives the USD PPP year for costs and benefits reported in that paper. Costs deflated at 5% annual rate to year three for all programs. Input transfer is the cost of the asset and/or cash transfer component only, not specified in Bandiera et al. (2017). All numbers shown are annual on a per household basis. TUP simple average and TUP India taken from Banerjee et al., 2015 of 6 RCTs examining the TUP program at three years, prices in 2014 USD PPP. TUP India is the country with the highest benefit-cost ratio. Banerjee et al. (2015) did not carry out surveys at the end of Y1, but used the treatment effect at Y2. We also did not carry out surveys at the end of Y1, and conservatively assume no treatment effect. TUP Bangladesh taken from Bandiera et al. (2017), examining the TUP program at 7 years, prices are in 2007 USD PPP, assets are from Y4. Light Niger is taken from the capital arm of Bossuroy et al. (2022) - a lighter touch multifaceted program involving the provision of a cash grant, coaching, savings groups and micro-enterprise training. They did not have a 3-year followup, and so we assume the 2-year effect persists entirely in year 3. They do not report the value of household assets. Cash Kenya is taken from the cash transfer arm of Orkin et al. (2023). They present benefit-cost analysis at their endline after 17 months in Table C.1. To enable a comparison with the benefit-cost ratios in the other studies, the consumption benefits they report for non-durable consumption and education expenditures have been annualised and assumed to persist for three years. The expenditure on land and housing has not been assumed to persist and is included only in years 1 and 2, scaled to 12 months and 5 months, respectively. The assets accumulated after 17 months are assumed to persist up to three years. These are generous assumptions and represent an upper bound on the total three-year benefits.

beyond these, and improvements in these areas may also enter an individual's utility function. Here we compare the effects of the RTV program on a range of summary outcomes commonly examined in the literature to the effects seen in Banerjee et al. (2015), Bandiera et al. (2017) and Orkin et al. (2023) (Figure A6). All outcomes are measured in standard deviation terms, allowing a comparison across programs in different countries and time points. We construct outcomes as closely aligned with Banerjee et al. (2015) and Bandiera et al. (2017) as possible

and provide detailed notes on any differences in the construction of an outcome between our studies in the notes to Figure A6.[60] This provides a more comprehensive picture of the range of benefits of each program, on a comparable scale. We can see that the effect size of the RTV program is very similar to that of the TUP program and cash transfer across nearly all the outcomes. The main exceptions are income and consumption, where the TUP program in Bangladesh has significantly larger positive effects. Overall, the RTV program offers comparable benefits across outcomes to those seen under the TUP graduation program and lump-sum cash transfers.

8 Conclusion

We examine a unique universal livelihoods program provided to every household in a village, in which households receive agricultural and small livestock inputs, training and mentorship, healthcare and saving support. Using an RCT with 114 clusters randomly assigned to receive the program or not, we find large improvements in the welfare of all types of households three years after its start. Relatively wealthier households expanded existing economic activities, while poorer households adopted new activities and reduced reliance on casual wage labour.

Monthly household incomes are 26% (USD 40 PPP) higher on average in the treatment group, driven by an expansion of farming activities and a shift into business and livestock rearing. Higher crop yields have enabled greater consumption from own production, and higher incomes have allowed households to save and accumulate assets. We also see significant improvements in physical and mental health and perceptions of social cohesion.

Importantly, the program benefits all types of households, including more vulnerable households such as female-headed households and those with no education, and across different types of villages. We see no evidence of inflation or spillover effects on control clusters, and some evidence of positive spillovers across treated clusters, suggesting the program generates aggregate demand effects that enhance its effectiveness. This suggests that the program will continue to work well as it is rolled out more widely.

While the economic and well-being gains are comparable to those seen in other targeted multifaceted programs, the cost is dramatically lower at only USD 339 PPP. As a result,

[60] While the outcomes measured in Banerjee et al. (2015) are reported at the same time point as this study (at 3 years), those in Bandiera et al. (2017) are after 4 years and those in Orkin et al. (2023) are after only 17 months. Orkin et al. (2023) does not construct or report outcomes in the same manner, and the replication data is not public yet, preventing us from constructing exact analogues where possible. Note that since all outcomes are being transformed into standard deviations, treatment effects will mechanically be larger if the standard deviation of an outcome is smaller in one study than another. This could be the case if the study sample is more homogeneous in one context over another, either due to targeting on narrow eligibility criteria or the inclusion of only one geographical area.

the program has a benefit-cost ratio two to eleven times as large as comparable programs (Bandiera et al., 2017, Banerjee et al., 2015, Bossuroy et al., 2022) and four times larger than a lump-sum cash transfer (Orkin et al., 2023). The program is therefore a cost-effective approach to alleviating rural poverty.

The program is tailored to the village level, delivers training in groups, and utilises within-village mentorship through committees, making it considerably simpler to scale than comparable programs. That said, the bundled nature of the program means we cannot precisely identify which components drive the impacts we find, nor separate out wider economic conditions (such as the covid-19 pandemic) or implementation quality of RTV. Future work should explore how the program replicates across different settings and attempt to quantify the general equilibrium effects from a universal program when expanded.

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Online Appendix

Table A1: Endline Control Village Summary Statistics

	Mean	Median	Std. Dev.
Panel A. Economic Characteristics			
Number of Households	91.92	83.50	41.91
Average Poverty (Lean Season)	0.65	0.68	0.26
Average Poverty (Post harvest)	0.35	0.33	0.17
Average Income	160.2	147.8	76.6
Average Wealth	1,281.9	1,102.5	759.7
Average Consumption	584.9	563.1	132.7
Standard Deviation of Income	165.0	138.7	98.4
Standard Deviation of Wealth	1,686.6	1,448.0	1,069.5
Standard Deviation of Consumption	315.0	291.9	104.9
Ratio (75/25) Income	6.23	4.22	6.72
Ratio (75/25) Wealth	9.31	5.79	21.82
Ratio (75/25) Consumption	2.38	2.20	0.92
Gini Coefficient of Income	0.47	0.47	0.11
Gini Coefficient of Wealth	0.55	0.57	0.11
Gini Coefficient of Consumption	0.28	0.27	0.07
Panel B. Access to Amenities			
Primary School	0.45	0.00	0.50
Secondary School	0.05	0.00	0.22
Trading Center	0.91	1.00	0.28
Weekly Market	0.16	0.00	0.37
Mobile Money	0.34	0.00	0.47
Well Drinking Source	0.84	1.00	0.37
Health Center	0.04	0.00	0.19
Panel C. Distance to Amenities (km)			
Primary School	1.24	0.50	1.69
Secondary School	5.16	4.00	3.95
Trading Center	0.17	0.00	0.66
Weekly Market	3.45	3.00	3.53
Mobile Money	2.01	1.00	2.90
Well Drinking Source	0.27	0.00	0.77
Health Center	5.43	5.00	3.91
N	170	170	170

Notes: All economic characteristics in Panel A are reported from the endline household data for control villages, except for the Average Poverty (lean season) which comes from the phone survey. Data on amenities in Panel B and Panel C is from the endline village elder survey. Number of households in a village is from the listing activity.

Table A2: Cost Elements of RTV Program (2023 USD PPP)

	RTV
(1) Asset/input transfer	130.86
Asset cost household	65.74
Seeds	40.83
Livestock	24.91
Asset cost village	65.12
(2) Personnel costs	58.94
Trainings	25.20
Travel costs	7.03
Government contribution	26.71
(3) Indirect costs	138.61
Support & office local	103.32
Support & office int.	35.29
(4) Start-up costs	11.03
Total Cost (1)+(2)+(3)+(4)	339.44

Costs included as part of the RTV program were as follows: Under (1) asset/input transfer we include all household and community seed, tool, materials and livestock transfers. Under (2) personnel costs we include all salaries and travel of RTV staff. We also include both the travel costs of other staff such as government workers and an estimate of their cost using the salaries of comparable RTV staff, to reflect the cost to RTV had RTV hired these workers themselves. Under indirect (3) we include both international and local office and support staff costs allocated to the RCT in proportion to the active RCT treatment communities as a share of all communities RTV was active in. Indirect costs also include international fundraising activities, growth and program development costs. Start-up costs (4) include village identification, community needs assessments and climatic data. See Appendix B.1 for a full discussion of costs and assumptions. Costs incurred between 2020 and 2021.

Table A3: Balance

Variable	(1) Control	(2) Treatment	(3) Difference
HH Head Age	44.244	43.972	-0.212
	(16.176)	(15.573)	(0.635)
HHH has no schooling	0.205	0.218	0.012
	(0.404)	(0.413)	(0.017)
HH Head Female	0.254	0.257	0.006
	(0.435)	(0.437)	(0.014)
Total Adults	2.301	2.357	0.056
	(1.243)	(1.201)	(0.051)
Total Children	2.813	2.887	0.067
	(1.570)	(1.523)	(0.058)
Total Consumption	262.713	256.305	-4.113
	(201.645)	(195.499)	(11.504)
Non-Land Wealth	779.529	798.363	30.066
	(1,236.511)	(1,186.415)	(44.606)
Total Income	85.717	85.518	1.256
	(155.950)	(158.117)	(7.127)
Total Labour Supply	44.438	40.135	-3.131
	(40.002)	(38.451)	(3.099)
Asset Value	450.269	460.863	19.575
	(608.210)	(611.188)	(22.233)
Livestock Value	341.084	344.185	8.562
	(824.595)	(785.160)	(27.053)
Savings	68.209	61.762	-5.079
	(136.202)	(130.064)	(5.805)
Net Loans	-80.032	-68.447	7.009
	(252.041)	(246.699)	(14.104)
Crop Sales	42.927	42.932	0.829
	(70.582)	(73.789)	(3.666)
Income from Animals	5.061	5.110	0.229
	(30.967)	(31.340)	(1.385)
Profits	19.658	21.289	2.170
	(109.600)	(113.408)	(4.315)
Total Wage	16.579	15.337	-1.441
	(39.377)	(38.503)	(1.855)
HH Has Business	0.133	0.132	0.001
	(0.340)	(0.338)	(0.014)
HH Has Farming Activities	0.917	0.915	-0.004
	(0.276)	(0.278)	(0.011)
WB Consumption Poverty Line	0.802	0.811	0.008
	(0.399)	(0.391)	(0.018)
Not Depressed	0.497	0.477	-0.018
	(0.500)	(0.500)	(0.031)
Observations	1,948	1,904	3,852

Notes: The table reports balance tests for characteristics measured in the baseline survey. Column (1) reports the mean of the control group. Column (2) reports the mean of the treatment group. Standard deviations are reported in parentheses in columns (2) and (3). Column (3) reports the difference of the two means calculated using a regression including stratification, fixed effects, and standard errors clustered at the cluster level. Standard error is reported in parentheses in column (3). HHH Has No Schooling is an indicator for household head having no schooling. HH Head Female is an indicator for a female household head. Total Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Total Income is the monthly household income comprised of scaled aggregate of the sale of crops and perennials (Crop Sales), sale of livestock and animal products (Income from Animals), business profits (Profits), wage (Total Wage), and rental income. Total Labour Supply is reported in days aggregated across all household members. HH Has Business is an indicator for a household having a non-farm enterprise. HH Has Farming Activities is an indicator for a household having grown a crop in the last two farming seasons. The WB Consumption Poverty Line is a binary variable equal to 1 if the household consumption per capita per day is below the World Bank poverty line of USD 2.15 PPP per capita per day. Not Depressed is a binary variable equal to 1 for the respondent not being depressed (score on PHQ-9 scale being less than 5). Values in USD PPP at the 2023 exchange rate 1:1315 and adjusted for inflation.

Table A4: Training Attendance

	Mean	Median	Std. Dev.
Panel A. Types of Training			
Agriculture - Organics	0.93	1.00	0.26
Agriculture - Preparation and Preplanting	0.96	1.00	0.20
Healthy Households	0.95	1.00	0.21
WASH Training	0.94	1.00	0.24
Panel B. Number of Trainings			
Any Training Attendance	0.99	1.00	0.11
Attended One Training	0.00	0.00	0.03
Attended Two Trainings	0.02	0.00	0.15
Attended Three Trainings	0.13	0.00	0.33
Attended Four Trainings	0.84	1.00	0.37

Notes: The table reports summary statistics for 1905 treated households on their attendance of various training initiatives related to the RTV programme. Panel A includes statistics for each of the four trainings. Panel B includes statistics on the number of trainings attended by households across these four types of trainings..

Table A5: Attrition

	(1)	(2)	(3)
	Endline	Midline	Consumption Phone Survey
Treated	-0.005	0.007	0.003
	(0.011)	(0.009)	(0.012)
Control Mean	0.08	0.06	0.03
N	3,852	2,399	3,852

Notes: Endline is a binary variable equal to 1 if the household was surveyed at endline. Midline is a binary variable equal to 1 if the household was surveyed at midline for the sample that was included in the midline. Consumption Phone Survey is a binary variable equal to 1 if the household was surveyed during the consumption phone survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A6: Impact on Primary Economic Outcomes by Wealth Quartiles

	(1) Monthly Income	(2) Labour Supplied (Days)	(3) Non-Land Wealth	(4) Monthly Consumption
Treated	42.213***	4.215**	475.243***	65.621***
	(12.009)	(1.810)	(98.901)	(23.844)
Treated × Quartile 2	-3.754	-0.583	-64.072	0.083
	(14.337)	(2.638)	(119.347)	(30.962)
Treated × Quartile 3	-12.156	-1.757	-281.105*	-12.574
	(17.423)	(3.044)	(153.307)	(28.430)
Treated × Quartile 4	4.387	-2.361	-5.025	-24.811
	(21.802)	(3.209)	(203.679)	(32.156)
Q1 Total Effect	42.213	4.215	475.243	65.621
p-value: Q1 Total Effect = 0	0.001	0.022	0.000	0.007
Q2 Total Effect	38.459	3.632	411.171	65.704
p-value: Q2 Total Effect = 0	0.001	0.071	0.000	0.004
Q3 Total Effect	30.057	2.457	194.139	53.047
p-value: Q3 Total Effect = 0	0.019	0.300	0.098	0.014
Q4 Total Effect	46.600	1.853	470.218	40.810
p-value: Q4 Total Effect = 0	0.028	0.496	0.019	0.108
Q1 Control Mean	103.798	36.971	522.061	482.479
Q2 Control Mean	115.522	40.522	775.246	523.144
Q3 Control Mean	163.946	45.856	1,253.646	599.111
Q4 Control Mean	253.295	52.747	2,605.649	734.893
N	3,560	3,560	3,560	3,560

Notes: Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Quartile 1 represents the bottom 25% of households by baseline non-land wealth, while Quartile 4 represents the top 25%. The Total Effect row reports the estimated effect for each quartile as compared to the corresponding control group quartile, and the following row presents the p-value from a test of whether that effect is statistically different from 0. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A7: Impact on Income by Wealth Quartiles

	(1) Total Income	(2) Farm Sales	(3) Livestock and Animal Product Sales	(4) Business Profits	(5) Wage Income	(6) Rental Income
Treated	42.213***	18.948***	4.575***	17.173***	-1.703	3.041**
	(12.009)	(6.692)	(1.696)	(5.872)	(4.563)	(1.229)
Treated × Quartile 2	-3.754	-0.285	-1.632	-6.386	5.414	-1.222
	(14.337)	(7.603)	(2.077)	(8.210)	(6.118)	(1.528)
Treated × Quartile 3	-12.156	-2.751	1.542	-10.575	2.963	-3.765*
	(17.423)	(9.184)	(2.841)	(9.847)	(5.763)	(2.217)
Treated × Quartile 4	4.387	10.424	-1.518	-4.037	4.293	-3.956
	(21.802)	(9.372)	(4.630)	(11.248)	(8.537)	(3.108)
Q1 Total Effect	42.213	18.948	4.575	17.173	-1.703	3.041
p-value: Q1 Total Effect = 0	0.001	0.005	0.008	0.004	0.710	0.015
Q2 Total Effect	38.459	18.663	2.943	10.787	3.711	1.819
p-value: Q2 Total Effect = 0	0.001	0.005	0.053	0.081	0.365	0.115
Q3 Total Effect	30.057	16.197	6.117	6.598	1.260	-0.724
p-value: Q3 Total Effect = 0	0.019	0.013	0.014	0.415	0.769	0.710
Q4 Total Effect	46.600	29.372	3.057	13.136	2.591	-0.915
p-value: Q4 Total Effect = 0	0.028	0.002	0.468	0.228	0.724	0.754
Q1 Control Mean	103.798	52.737	4.839	13.965	30.695	1.627
Q2 Control Mean	115.522	65.039	6.179	20.464	21.738	2.199
Q3 Control Mean	163.946	85.297	9.559	35.115	27.393	6.583
Q4 Control Mean	253.295	114.784	27.142	64.628	33.423	13.394
N	3,560	3,560	3,560	3,560	3,551	3,560

Notes: Monthly Income is monthly household income comprised of Farm Sales, Livestock and Animal Product Sales, Business Profits, Wage Income and Rental Income. Farm Sales are a scaled aggregate of the sale of seasonal crops which are scaled to monthly by dividing by 6, and perennials which are asked on an annual recall. Rental Income is asked for the last year, and divided by 12 to scale to monthly. Quartile indicators correspond to the household's baseline non-land wealth quartile. Quartile 1 represents the bottom 25% of households by baseline non-land wealth, while Quartile 4 represents the top 25%. The Total Effect row reports the estimated effect for each quartile as compared to the corresponding control group quartile, and the following row presents the p-value from a test of whether that effect is statistically different from 0 Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A8: Impact on Labour Supply

	(1) Total Labour Supply	(2) Household Farm	(3) Household Livestock	(4) Household Business	(5) Salaried	(6) Casual
Treated	3.276	1.666	1.247	0.757	0.423	-0.835
	(1.295)	(0.977)	(0.436)	(0.355)	(0.264)	(0.236)
	[0.013]**	[0.091]*	[0.005]***	[0.035]**	[0.112]	[0.001]***
		{0.063}*	{0.011}**	{0.037}**	{0.063}*	{0.003}***
Control Mean	43.918	27.879	6.924	4.318	1.474	3.323
N	3,560	3,559	3,560	3,560	3,560	3,560

Notes: Total Labour Supply is reported in days aggregated across all household members. Household Farm, Household Livestock, and Household Business are measures of labour supplied to different household economic activities. Labour supply is measured for the last 4 weeks except for to the household farm, for which it is measured over the two farming seasons and then scaled to 4 weeks. Salaried is labour supplied to a salaried job. Casual is casual labour supplied outside the household. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. p-values are in square brackets and sharpened q-values controlling for the false discovery rate across outcomes are in curly brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A9: Impact on Income

	(1) Total Income	(2) Farm Sales	(3) Livestock and Animal Product Sales	(4) Business Profits	(5) Wage Income	(6) Rental Income
Treated	40.703	21.460	4.459	12.351	1.517	0.937
	(9.393)	(4.733)	(1.498)	(4.665)	(2.858)	(1.061)
	[0.000]***	[0.000]***	[0.004]***	[0.009]***	[0.597]	[0.379]
		{0.001}***	{0.008}***	{0.010}***	{0.314}	{0.234}
Control Mean	158.173	79.051	11.779	33.208	28.322	5.877
N	3,560	3,560	3,560	3,560	3,551	3,560

Notes: Monthly Income is monthly household income comprised of Farm Sales, Livestock and Animal Product Sales, Business Profits, Wage Income and Rental Income. Farm Sales are a scaled aggregate of the sale of seasonal crops which are scaled to monthly by dividing by 6, and perennials which are asked on an annual recall. Rental Income is asked for the last year, and divided by 12 to scale to monthly. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. p-values are in square brackets and sharpened q-values controlling for the false discovery rate across outcomes are in curly brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A10: Impact on Season 1 Farming Outcomes by Wealth Quartiles

	(1) Number of Crops Grown	(2) Number of Crops Sold	(3) Value of Crops Sold
Treated	0.704***	0.427***	81.056**
	(0.155)	(0.133)	(38.702)
Treated × Quartile 2	-0.207	-0.122	2.232
	(0.189)	(0.150)	(39.093)
Treated × Quartile 3	0.103	-0.182	-29.932
	(0.219)	(0.164)	(50.373)
Treated × Quartile 4	-0.147	-0.111	27.804
	(0.210)	(0.155)	(51.399)
Q1 Total Effect	0.704	0.427	81.056
p-value: Q1 Total Effect = 0	0.000	0.002	0.038
Q2 Total Effect	0.497	0.305	83.288
p-value: Q2 Total Effect = 0	0.003	0.008	0.011
Q3 Total Effect	0.807	0.245	51.124
p-value: Q3 Total Effect = 0	0.000	0.026	0.139
Q4 Total Effect	0.557	0.316	108.860
p-value: Q4 Total Effect = 0	0.002	0.017	0.027
Q1 Control Mean	3.216	1.459	258.902
Q2 Control Mean	3.600	1.588	307.796
Q3 Control Mean	3.768	1.821	403.530
Q4 Control Mean	4.163	1.963	511.591
N	3,560	3,560	3,560

Notes: Number of Crops Grown is the number of crops planted. Number of Crops Sold is the number of crops sold. Value of Crops Sold is the monetary value of crops sold. Quartile indicators correspond to the household's baseline non-land wealth quartile. Quartile 1 represents the bottom 25% of households by baseline non-land wealth, while Quartile 4 represents the top 25%. The Total Effect row reports the estimated effect for each quartile as compared to the corresponding control group quartile, and the following row presents the p-value from a test of whether that effect is statistically different from 0. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A11: Impact on Season 2 Farming Outcomes by Wealth Quartiles

	(1) Number of Crops Grown	(2) Number of Crops Sold	(3) Value of Crops Sold
Treated	0.575***	0.516***	109.097***
	(0.140)	(0.128)	(36.302)
Treated × Quartile 2	-0.345*	-0.244	-31.549
	(0.198)	(0.150)	(42.930)
Treated × Quartile 3	-0.019	-0.251	-42.554
	(0.203)	(0.156)	(49.734)
Treated × Quartile 4	-0.047	-0.179	-17.039
	(0.195)	(0.141)	(49.080)
Q1 Total Effect	0.575	0.516	109.097
p-value: Q1 Total Effect = 0	0.000	0.000	0.003
Q2 Total Effect	0.230	0.271	77.548
p-value: Q2 Total Effect = 0	0.160	0.015	0.035
Q3 Total Effect	0.556	0.265	66.543
p-value: Q3 Total Effect = 0	0.000	0.009	0.083
Q4 Total Effect	0.527	0.336	92.058
p-value: Q4 Total Effect = 0	0.002	0.007	0.056
Q1 Control Mean	2.806	1.476	266.104
Q2 Control Mean	3.165	1.611	329.115
Q3 Control Mean	3.389	1.850	430.167
Q4 Control Mean	3.589	1.970	555.162
N	3,560	3,560	3,560

Notes: Number of Crops Grown is the number of crops planted. Number of Crops Sold is the number of crops sold. Value of Crops Sold is the monetary value of crops sold. Quartile indicators correspond to the household's baseline non-land wealth quartile. Quartile 1 represents the bottom 25% of households by baseline non-land wealth, while Quartile 4 represents the top 25%. The Total Effect row reports the estimated effect for each quartile as compared to the corresponding control group quartile, and the following row presents the p-value from a test of whether that effect is statistically different from 0. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A12: Impact on Perennials Farming Outcomes by Wealth Quartiles

	(1) Number of Crops Grown	(2) Number of Crops Sold	(3) Value of Crops Sold
Treated	0.662***	0.352***	39.999**
	(0.185)	(0.070)	(19.693)
Treated × Quartile 2	-0.208	-0.068	30.880
	(0.230)	(0.108)	(38.934)
Treated × Quartile 3	-0.339	-0.174	29.061
	(0.238)	(0.107)	(38.581)
Treated × Quartile 4	-0.373	-0.155	113.328**
	(0.256)	(0.112)	(50.746)
Q1 Total Effect	0.662	0.352	39.999
p-value: Q1 Total Effect = 0	0.001	0.000	0.045
Q2 Total Effect	0.455	0.284	70.879
p-value: Q2 Total Effect = 0	0.015	0.001	0.033
Q3 Total Effect	0.323	0.178	69.060
p-value: Q3 Total Effect = 0	0.115	0.043	0.031
Q4 Total Effect	0.289	0.197	153.327
p-value: Q4 Total Effect = 0	0.221	0.050	0.003
Q1 Control Mean	4.263	0.724	94.476
Q2 Control Mean	4.552	0.889	135.893
Q3 Control Mean	5.243	1.128	188.365
Q4 Control Mean	5.890	1.408	302.091
N	3,560	3,560	3,560

Notes: Number of Crops Grown is the number of crops planted. Number of Crops Sold is the number of crops sold. Value of Crops Sold is the monetary value of crops sold. Quartile indicators correspond to the household's baseline non-land wealth quartile. Quartile 1 represents the bottom 25% of households by baseline non-land wealth, while Quartile 4 represents the top 25%. The Total Effect row reports the estimated effect for each quartile as compared to the corresponding control group quartile, and the following row presents the p-value from a test of whether that effect is statistically different from 0. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A13: Impact on Season 1 Farming Outputs

	(1) Beans	(2) Maize	(3) Irish Potatoes	(4) Sweet Potatoes	(5) Groundnuts
Panel A. Yield Quantities					
Treated	17.816**	51.177*	1.709*	0.341***	3.563***
	(7.943)	(26.338)	(0.885)	(0.113)	(0.867)
Control Mean	117.492	359.627	5.376	1.349	10.786
N	3,560	3,560	3,560	3,560	3,560
Panel B. Yield Values					
Treated	38.604**	47.531**	27.808*	15.962**	11.574***
	(17.719)	(18.787)	(14.629)	(7.577)	(3.553)
Control Mean	270.820	264.098	103.424	69.833	45.998
N	3,560	3,560	3,560	3,560	3,560
Panel C. Prices					
Treated	-0.026	0.013***	-0.104	1.485*	-0.215***
	(0.032)	(0.004)	(0.272)	(0.897)	(0.071)
Control Mean	2.321	0.738	19.403	48.738	4.279
N	3,258	3,169	1,624	2,082	1,186
Panel D. Sales Values					
Treated	18.845	22.556	12.903**	4.521***	11.276***
	(12.731)	(14.560)	(6.354)	(1.334)	(4.091)
Control Mean	125.674	167.687	26.267	5.413	23.902
N	3,560	3,560	3,560	3,560	3,560

Notes: We report farming outputs for the five crops, which together account for 94% of the total value of yields in season 1. Panel A reports yields, measured in kilograms. Panel B reports the monetary value of the yields farmed by the household. Panel C reports the selling price for only the households that sell that crop. Panel D reports the monetary value of crops sold. Variables are unconditional in Panels A, B, and D. They are equal to 0 for households that do not grow the crop in Panels A and B and 0 for households that do not sell the crop to the market in Panel D. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A14: Impact on Season 2 Farming Outputs

	(1) Beans	(2) Maize	(3) Irish Potatoes	(4) Sweet Potatoes	(5) Groundnuts
Panel A. Yield Quantities					
Treated	22.887**	47.055*	1.224	0.169*	3.520***
	(8.969)	(28.433)	(0.818)	(0.095)	(0.894)
Control Mean	125.185	354.468	5.811	1.092	10.259
N	3,560	3,560	3,560	3,560	3,560
Panel B. Yield Values					
Treated	45.216**	47.571**	19.678	9.280*	14.480***
	(19.744)	(22.270)	(12.599)	(5.480)	(3.801)
Control Mean	261.713	279.457	100.583	52.199	40.632
N	3,560	3,560	3,560	3,560	3,560
Panel C. Prices					
Treated	-0.011	0.019**	0.078	-0.088	0.159
	(0.031)	(0.008)	(0.280)	(1.025)	(0.160)
Control Mean	2.073	0.760	17.455	47.264	3.927
N	3,007	2,928	1,491	1,672	1,043
Panel D. Sales Values					
Treated	28.102**	25.805	7.012	2.395	13.365***
	(11.569)	(16.891)	(6.125)	(2.723)	(4.571)
Control Mean	128.876	184.892	31.945	7.596	24.869
N	3,560	3,560	3,560	3,560	3,560

Notes: We report farming outputs for the five crops, which together account for 94% of the total value of yields in season 2. Panel A reports yields, measured in kilograms. Panel B reports the monetary value of the yields farmed by the household. Panel C reports the selling price for only the households that sell that crop. Panel D reports the monetary value of crops sold. Variables are unconditional in Panels A, B, and D. They are equal to 0 for households that do not grow the crop in Panels A and B and 0 for households that do not sell the crop to the market in Panel D. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A15: Impact on Perennial Farming Outputs

	(1) Banana	(2) Avocado	(3) Coffee	(4) Jackfruit	(5) Sugarcane
Panel A. Yield Quantities					
Treated	7.648	2.808	8.288***	12.776**	9.321
	(6.674)	(2.087)	(2.735)	(6.009)	(7.363)
Control Mean	102.385	25.159	34.148	96.800	32.552
N	3,560	3,560	3,560	3,560	3,560
Panel B. Yield Values					
Treated	37.325	24.228**	22.737***	26.134***	94.955**
	(46.557)	(10.245)	(6.295)	(9.428)	(36.621)
Control Mean	773.036	117.705	66.191	139.656	103.127
N	3,560	3,560	3,560	3,560	3,560
Panel C. Prices					
Treated	-0.166	0.397***	0.072	0.046	0.607***
	(0.180)	(0.125)	(0.049)	(0.029)	(0.221)
Control Mean	7.694	4.624	1.881	1.470	4.315
N	2,714	2,597	2,276	2,567	793
Panel D. Sales Values					
Treated	-0.520	1.652**	22.735***	0.764**	76.466**
	(6.878)	(0.794)	(6.294)	(0.345)	(32.010)
Control Mean	45.077	3.657	66.191	1.197	62.106
N	3,560	3,560	3,560	3,560	3,560

Notes: We report farming outputs for the five perennial crops, which together account for 94% of the total value of yields. Panel A reports yields, measured in kilograms. Panel B reports the monetary value of the yields. Panel C reports the selling prices for only the households that sell that perennial crop. Panel D reports the monetary value of sold crops. Outcomes cover the past 12 months. Variables are unconditional in Panels A, B, and D. They are equal to 0 for households that do not grow the crop in Panels A and B and 0 for households that do not sell the crop to the market in Panel D. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A16: Impact on Farming Inputs

	(1) Land Area Planted	(2) Any Inputs	(3) Any Irrigation	(4) Any Improved/ Hybrid Seeds	(5) Quantity of Fertilizer	(6) Quantity of Organic Fertilizer
Panel A. Season 1						
Treated	0.164***	0.008	0.024***	0.026***	16.551***	16.201***
	(0.048)	(0.007)	(0.009)	(0.009)	(3.600)	(3.560)
Control Mean	1.104	0.962	0.034	0.052	10.383	9.059
N	3,560	3,560	3,560	3,560	3,560	3,560
Panel B. Season 2						
Treated	0.186***	0.008	0.023**	0.036***	9.938***	9.100***
	(0.050)	(0.007)	(0.009)	(0.009)	(2.183)	(2.118)
Control Mean	1.010	0.962	0.033	0.047	5.813	5.021
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Land Area Planted is the area planted in acres in that season. Any Inputs is a binary variable equal to 1 if the household used tools, irrigation, traditional seeds, improved/hybrid seeds, insecticide, bags, insurance, machinery and other inputs for as inputs for farming. Any Irrigation is a binary variable equal to 1 if the used any irrigation. Any Improved/Hybrid Seeds is a binary equal to 1 if the household used any improved or hybrid seeds. Quantity of Fertilizer and Quantity of Organic Fertilizer are measures of the quantity of fertilizer and organic fertilizer used by the household respectively, in kilograms. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A17: Impact on Farm Hiring Outcomes

	(1) Any Hired Labour	(2) Days Hired	(3) Number Hired per Day	(4) Hours per Day	(5) Labour Expenses
Panel A. Season 1					
Treated	0.055***	0.735***	0.055	0.372***	14.652***
	(0.017)	(0.266)	(0.088)	(0.104)	(4.550)
Control Mean	0.443	3.630	3.289	2.625	59.450
N	3,560	3,560	3,560	3,560	3,560
Panel B. Season 2					
Treated	0.040**	0.815***	0.259	0.263**	9.182*
	(0.018)	(0.263)	(0.161)	(0.105)	(4.972)
Control Mean	0.373	3.040	1.818	2.227	61.586
N	3,560	3,560	3,560	3,560	3,560
Panel C. Perennials					
Treated	0.020	0.183	0.111*	0.127*	32.479
	(0.012)	(0.117)	(0.064)	(0.074)	(20.875)
Control Mean	0.099	0.672	0.306	0.572	109.399
N	3,560	3,560	3,560	3,560	3,560

Notes: Any Hired Labour is a binary variable equal to 1 if any outside labour was hired. Days Hired are the number of days that workers were hired. For Season 1 and Season 2, the recall period was for the entire season while for perennials, the recall period was for a typical month during the past 12 months. Number Hired per Day is the usual number of workers hired per day. Hours per Day is the number of hours in a day a hired person would typically work. For Season 1 and Season 2, Labour Expenses are calculated by multiplying the days hired and number hired per day by the typical wage paid by the household for hired labour. For perennials, Labour Expenses are are calculated by multiplying the days hired and number hired per day by the typical wage paid by the household for hired labour, all multiplied by 12 as these variables were asked monthly. Panels A, B and C report outcomes for Season 1, Season 2 and Perennials respectively. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A18: Impact on Business Outcomes

	(1) Profits	(2) Sales	(3) Expenses	(4) Stock	(5) Assets	(6) Stock Purchases	(7) Asset Purchases
Treated	12.351***	30.851**	2.871	39.014	19.823	32.464**	0.255
	(4.665)	(15.304)	(2.494)	(24.059)	(16.569)	(14.656)	(0.873)
Control Mean	33.208	121.113	19.373	206.250	132.663	107.661	4.867
N	3,560	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Profits, sales and expenses are from the last 4 weeks. Profits are self-reported. Expenses include spending on running the business excluding on durable goods/assets and buying stocks and inventory. Stock is the value of all business stock and inventory. Assets are the value of all business assets. Stock Purchases and Asset Purchases are the amount spent on purchases of stocks and assets respectively for the business in the last 4 weeks. Variables are unconditional, and are equal to 0 if the household does not operate a business. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A19: Impact on Input Use for Livestock

	(1) Feed	(2) Medicine	(3) Machinery	(4) Transport	(5) Infrastructure	(6) Other
Treated	0.057***	0.078***	0.032**	0.010*	0.043***	0.012*
	(0.016)	(0.021)	(0.016)	(0.005)	(0.013)	(0.007)
Control Mean	0.166	0.431	0.147	0.020	0.131	0.027
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: All variables are binary variables equal to 1 if the household used any of the inputs. Feed is animal feed. Medicine includes any veterinary services, medicines and vaccines. Machinery includes any equipment used for livestock. Transportation includes any transportation of livestock. Infrastructure includes the construction or maintenance of livestock enclosures or houses. Other includes artificial or natural insemination, bull services, slaughter fees and insurance of livestock. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A20: Impact on Non-Land Wealth

	(1) Total Non-Land Wealth	(2) Assets	(3) Livestock Value	(4) Savings	(5) Loans Given	(6) Loans Outstanding
Treated	389.518	107.914	183.734	61.630	12.898	29.938
	(82.076)	(31.453)	(46.925)	(19.383)	(12.273)	(18.621)
	[0.000]***	[0.001]***	[0.000]***	[0.002]***	[0.296]	[0.111]
		{0.002}***	{0.001}***	{0.003}***	{0.135}	{0.059}*
Control Mean	1,275.143	620.304	606.875	207.113	88.261	-246.944
N	3,560	3,560	3,560	3,543	3,558	3,558

Notes: Total Non-Land Wealth is an aggregate Assets (the value of all assets owned by the household), Livestock Value (the value of all livestock owned), Savings (total household savings in all forms), Loans Given (the value of all household loans given) and Loans Outstanding (the value of all household loans outstanding). Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. p-values are in square brackets and sharpened q-values controlling for the false discovery rate across outcomes are in curly brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A21: Impact on Groups

	(1) Any Group	(2) Number of Groups	(3) Group Quality Index	(4) Value of Own Assets in Groups	(5) Value of Own Savings in Groups	(6) Income Received from Groups
Treated	0.069***	0.291***	0.244***	8.022*	45.106***	10.082**
	(0.022)	(0.054)	(0.046)	(4.739)	(12.769)	(4.937)
Control Mean	0.648	1.016	-0.000	21.541	166.149	19.014
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Any Group is a binary variable equal to 1 if there is any group membership. Number of Groups is the number of group memberships. Group Quality Index is an an index of the size of the group, a binary variable equal to 1 if the group also gives out loans and/or own assets and does not just save, and the group minimum contribution amount scaled to monthly. Value of Own Assets in Groups is the value of the household's share of group assets. Value of Own Savings is the value of the household's savings in the group. Income Received from Groups is the household's share of income from group assets. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A22: Impact on Group Quality

	(1) Group Quality Index	(2) Group Size	(3) Group Gives Loans or Own Assets	(4) Minimum Contribution Amount
Treated	0.244***	3.073***	0.100***	3.417***
	(0.046)	(0.592)	(0.023)	(0.976)
Control Mean	-0.000	7.446	0.530	12.203
N	3,560	3,560	3,560	3,560

Notes: Group Quality Index is an an index of Group Size (the size of the group), Group Gives Loans or Own Assets (a binary variable equal to 1 if the group also gives out loans and/or own assets and does not just save), and Minimum Contribution Amount (the group minimum contribution amount scaled to monthly). Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A23: Impact on Values and Quantities of Livestock

	(1) Cows	(2) Goats	(3) Pigs	(4) Chickens	(5) Sheep	(6) Ducks
Panel A. Value						
Treated	48.987	75.969***	46.345***	14.297***	1.166	0.327
	(43.645)	(21.026)	(9.132)	(2.985)	(4.924)	(0.761)
Control Mean	240.408	219.725	97.241	45.748	21.921	3.394
N	3,560	3,560	3,560	3,560	3,560	3,560
Panel B. Quantity						
Treated	0.087*	0.564***	0.368***	1.207***	0.004	0.017
	(0.049)	(0.153)	(0.071)	(0.297)	(0.045)	(0.048)
Control Mean	0.259	1.750	0.833	4.582	0.204	0.215
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Panel A includes the value of different types of livestock owned by the household. Panel B includes the quantity of different types of livestock owned by the household. These values are unconditional, so if a household does not own a specific type of livestock, the value and quantity assigned to them is 0. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A24: Impact on Pig Livestock

	(1) Any Pigs	(2) Quantity of Pigs	(3) Observe Any Pigs	(4) Quantity of Observed Pigs	(5) Observe Any Shelters
Treated	0.112***	0.368***	0.080***	0.201***	0.077***
	(0.020)	(0.071)	(0.019)	(0.047)	(0.019)
Control Mean	0.334	0.833	0.214	0.405	0.212
N	3,560	3,560	3,560	3,560	3,560

Notes: Any Pigs is a binary variable equal to 1 if the household owns any pig livestock. Quantity of Pigs is quantity of pigs owned by the household. Observe Any Pigs is a binary variable equal to 1 if the enumerator can see any pigs around the homestead. Quantity of Observed Pigs is the number of pigs observed by the enumerator. Observe Any Shelters is a binary variable equal to 1 if the enumerator can see any livestock shelters. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A25: Impact on Consumption

	(1) Total Consumption	(2) Food	(3) Durables	(4) Non-Food Non-Durables	(5) Education Expenditure
Treated	58.807	45.124	3.601	6.551	2.171
	(14.380)	(12.715)	(1.094)	(1.923)	(2.425)
	[0.000]***	[0.001]***	[0.001]***	[0.001]***	[0.373]
		{0.002}***	{0.002}***	{0.002}***	{0.103}
Control Mean	583.228	460.339	6.413	79.231	42.424
N	3,560	3,560	3,560	3,560	3,119

Notes: Total Consumption is monthly household consumption comprised of consumption of Food, Durables, Non-Food Non-Durables and Education Expenditure. Food is the total food consumed in the last 7 days within and outside the household, whether purchased or produced. Durables are total spending on purchasing durable goods in the last month. Non-Food Non-Durable is the sum of spending on personal goods, house maintenance, utilities, transport, recreation, gifts and health, all scaled to the last month. Education Expenditure is the total spending the last complete academic year and is only reported for households with at least one member aged 6-21. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. p-values are in square brackets and sharpened q-values controlling for the false discovery rate across outcomes are in curly brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A26: Impact on Poverty

	(1) Income Poverty	(2) Consumption Poverty	(3) Lean Season Consumption Poverty
Treated	-0.042***	-0.071***	-0.263***
	(0.012)	(0.018)	(0.036)
Control Mean	0.916	0.353	0.654
N	3,560	3,560	3,734

Notes: Income poverty is a binary variable equal to 1 if the household income per capita per day is below the World Bank poverty line of USD 2.15 PPP per capita per day. Consumption poverty is a binary variable equal to 1 if the household consumption per capita per day is below the World Bank poverty line of USD 2.15 PPP per capita per day. Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A27: Impact on Mental Health

	(1) Mental Health Index	(2) Not Depressed	(3) Not Stressed	(4) Satisfied Quality of Life	(5) Happiness
Treated	0.207***	0.056***	0.410***	0.320***	0.140***
	(0.040)	(0.018)	(0.079)	(0.086)	(0.044)
Control Mean	0.000	0.534	10.111	4.871	3.343
N	3,560	3,560	3,560	3,560	3,560

Notes: Mental Health Index is an index of an indicator for the respondent not being depressed (score on PHQ-9 scale being less than 5), sum of the responses to 4 questions on the not stressed scale, and a happiness and satisfaction index consisting of satisfaction with quality of life, level of happiness, improvement in quality of life in the last 12 months and the expectations for improvements in the next 12 months. Not Depressed is a binary variable equal to 1 for the respondent not being depressed (score on PHQ-9 scale being less than 5). Not Stressed is the sum of the responses to 4 questions on the not stressed scale where 1 is rarely, 2 is sometimes, 3 is often and 4 is very often. Satisfied Quality of Life is a categorical variable for whether all things considered, how satisfied are you with your life as a whole at the moment, with 1 being the lowest and 10 the highest. Happiness is a categorical variable level of happiness where 1 is unhappy, 2 is not that happy, 3 is neither happy nor unhappy, 4 is happy and 5 is very happy). Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A28: Impact on Primary Economic Outcomes (Pooled Balanced Panel)

	(1) Monthly Income	(2) Labour Supplied (Days)	(3) Non-Land Wealth	(4) Monthly Consumption
Treated	29.098*	4.614***	326.269***	29.522**
	(15.098)	(1.492)	(82.692)	(14.511)
Endline	19.578**	7.403***	316.828***	132.253***
	(8.564)	(1.409)	(61.468)	(11.977)
Treated × Endline	13.209	-2.094	91.214	26.759
	(13.936)	(1.994)	(85.590)	(18.341)
Total Effect	42.308	2.520	417.483	56.282
p-value: Total Effect = 0	0.001	0.103	0.000	0.001
Control Mean (Midline)	176.531	41.889	1,281.349	517.943
Control Mean (Endline)	196.110	49.292	1,598.177	650.196
N	4,346	4,346	4,346	4,346

Notes: Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. The regression pools the midline and endline surveys together, and includes heterogeneous effects by survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315, adjusted for inflation and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A29: Impact on Primary Economic Outcomes by Intervention Phase

	(1) Monthly Income	(2) Labour Supplied (Days)	(3) Non-Land Wealth	(4) Monthly Consumption
Treated	58.359***	6.082***	556.267***	65.487***
	(14.388)	(1.674)	(119.877)	(23.290)
Phase 2	-1.161	3.680**	-18.782	7.901
	(10.633)	(1.777)	(107.538)	(18.527)
Treated × Phase 2	-31.897*	-5.139*	-301.197*	-12.240
	(18.181)	(2.598)	(156.721)	(29.601)
Total Effect Phase 2	26.462	0.943	255.070	53.247
p-value: Total Effect	0.022	0.626	0.015	0.004
Control Mean (Phase 1)	159.294	42.701	1,161.010	586.657
Control Mean (Phase 2)	157.179	44.997	1,376.315	580.188
N	3,560	3,560	3,560	3,560

Notes: Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. The intervention delivery was in two phases. Phase 1 started in October 2020. Phase 2 is an indicator for the second phase which started in June 2021. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A30: Impact on Food and Non-Food Market Price Indices

	(1) Food Price Index (UNPS)	(2) Food Price Index (Egger et al.)	(3) Non-Food Price Index (UNPS)	(4) Non-Food Price Index (Egger et al.)
Treated	-0.008	-0.015*	0.028	0.030
	(0.010)	(0.008)	(0.026)	(0.026)
Control Mean	1.028	0.383	1.231	0.969
N	114	114	114	114

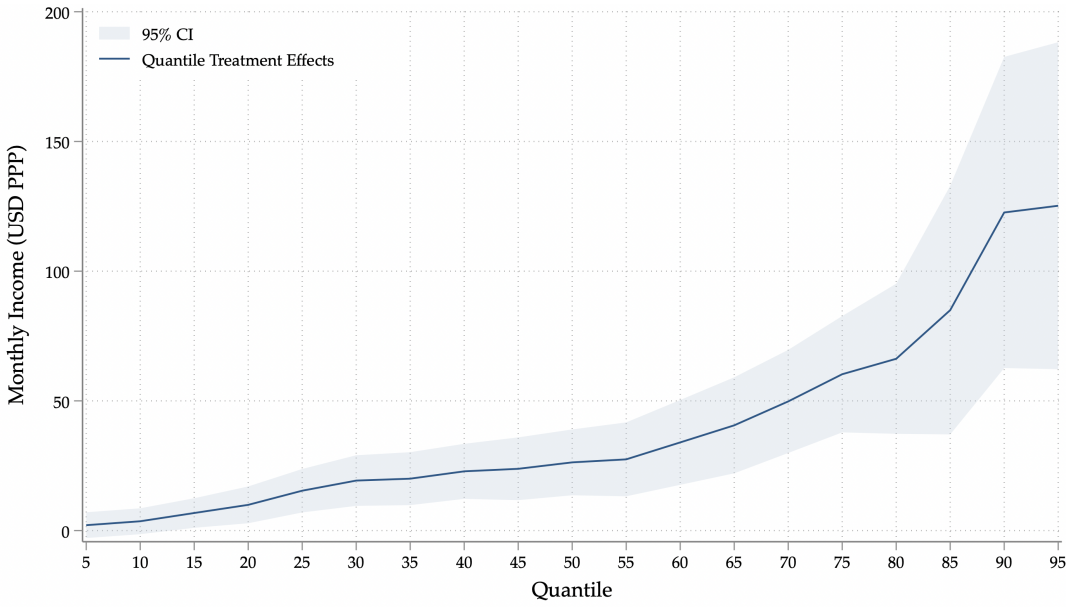
Notes: Price indices are calculated as linear log-price indices weighted by the expenditure shares of each product and are constructed at the cluster level. For each product, the logarithm of the median price amongst all markets in a cluster is used to create the price indices by taking a weighted average of these median prices across all products. The expenditure weights are from two sources: 1) the Ugandan National Panel Survey (UNPS) 2018 and 2) the data replication package of Egger et al. (2022), which included a file containing expenditure weights. The methodology follows that of Egger et al. (2022), where missing prices are imputed using the mean price of all other clusters of the same treatment. If there are 20 or fewer clusters with non-missing prices for a product, the expenditure weights for the product are set to 0, and rescaled accordingly. The price indices are calculated separately for food and non-food items. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table A31: Spillover Effects on Primary Outcomes

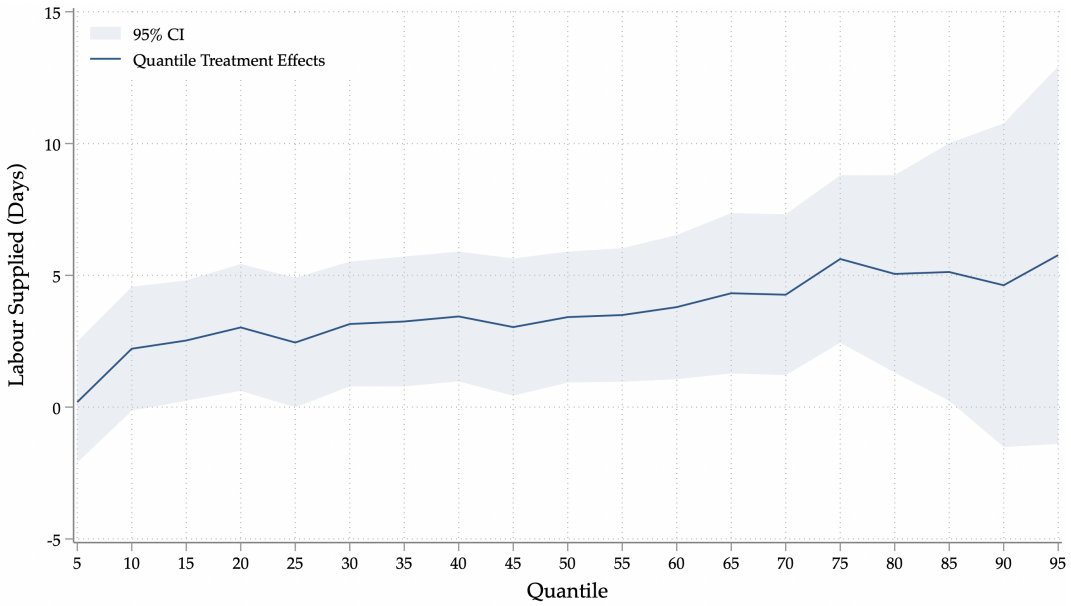
	(1) Monthly Income	(2) Labour Supplied (Days)	(3) Non-Land Wealth	(4) Monthly Consumption
Panel A. Reduced Form				
Treated	40.703***	3.276**	389.518***	58.807***
	(9.393)	(1.295)	(82.076)	(14.380)
Panel B. Spillovers				
Treated Total Effect	51.128***	5.854	425.758	100.275**
	(16.599)	(5.616)	(290.888)	(39.924)
Control Total Effect	6.893	2.503	-1.356	35.883
	(15.435)	(4.385)	(198.437)	(36.912)
Control Mean	158	44	1,275	583
N	3,560	3,560	3,560	3,560

Notes: Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Panel A shows the reduced form treatment effect estimated using equation 1. Panel B accounts for spillovers across clusters using equation 2. The Treated Total Effect accounts for the number of treated clusters within 0-5km of the cluster centroid for treated households and is equal to the sum of the coefficient on Treated, and the coefficients on TreatedClusters and TreatedClusters $\times$ Treated multiplied by the average number of treated clusters within 0-5km for treated households (4.9). The Control Total Effect accounts for the number of treated clusters within 0-5km of the cluster centroid for control households and is equal to the coefficient on TreatedClusters multiplied by the average number of treated clusters within 0-5km for control households (4.8). The 0-5km band used for the total effects was pre-specified in our pre-analysis plan. Conley (1999) standard errors in parentheses are calculated using a uniform kernel with a 10 km radius. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level.

Figure A1: Quantile Treatment Effects for Monthly Income and Labour Supplied (Days)



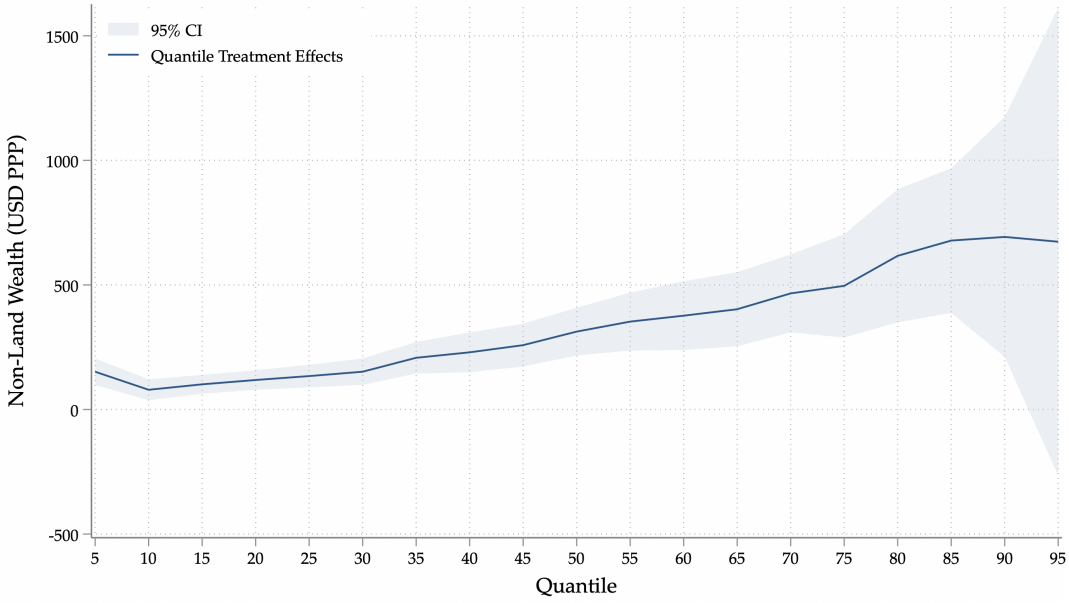
(a) Monthly Income



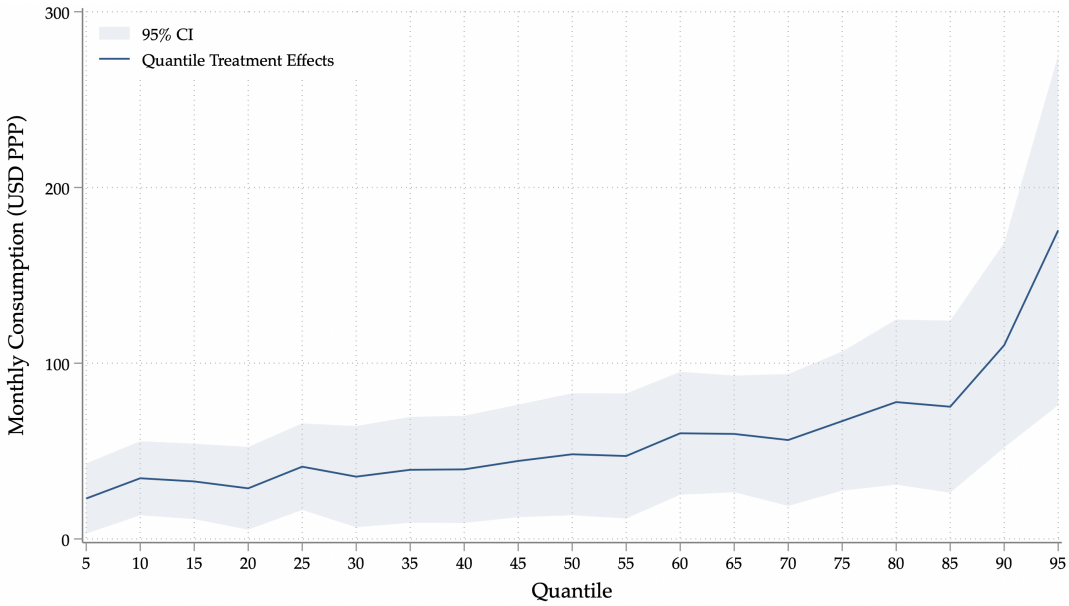
(b) Labour Supplied (Days)

Notes: Each panel presents quantile treatment effects. Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. All regressions include stratification fixed effects. All values in USD PPP at the 2023 exchange rate 1:1315, adjusted for inflation and winsorized at the 1% level. Heteroskedasticity-robust standard errors are clustered at the cluster level. Confidence intervals are presented at the 95% significance level.

Figure A2: Quantile Treatment Effects for Non-Land Wealth and Monthly Consumption



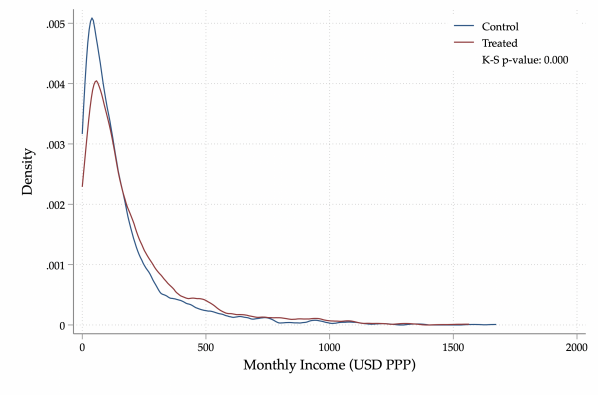
(a) Non-Land Wealth



(b) Monthly Consumption

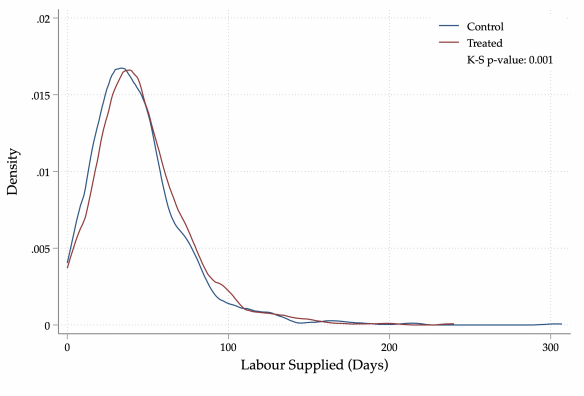
Notes: Each panel presents quantile treatment effects. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods, and education spending. All regressions include stratification fixed effects. All values in USD PPP at the 2023 exchange rate 1:1315, adjusted for inflation and winsorized at the 1% level. Heteroskedasticity-robust standard errors are clustered at the cluster level. Confidence intervals are presented at the 95% significance level.

Figure A3: Distributions of Economic Outcomes



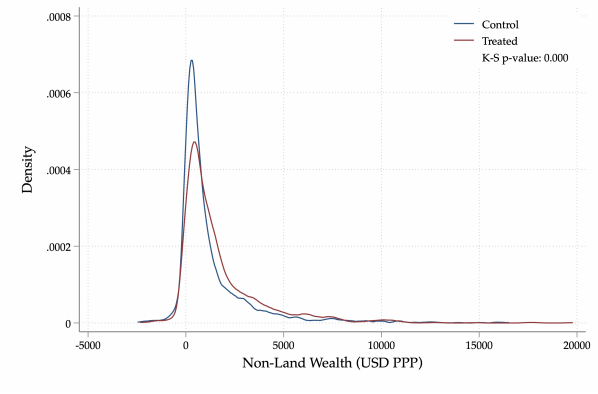
(a) Monthly Income

Notes: Monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income.



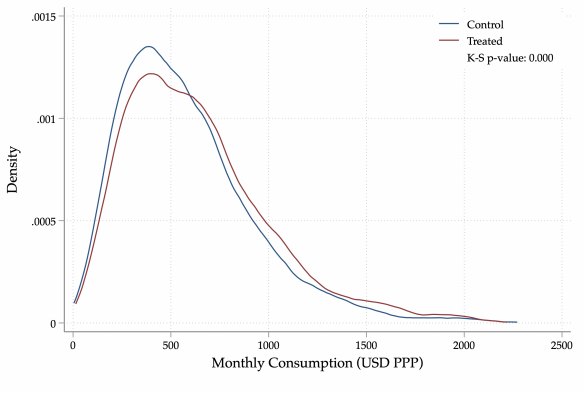
(b) Labour Supplied (Days)

Notes: Reported in days, aggregating across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work.



(c) Non-Land Wealth

Notes: Aggregate of household value of assets, livestock, savings, and net loans (outstanding given minus loans taken).

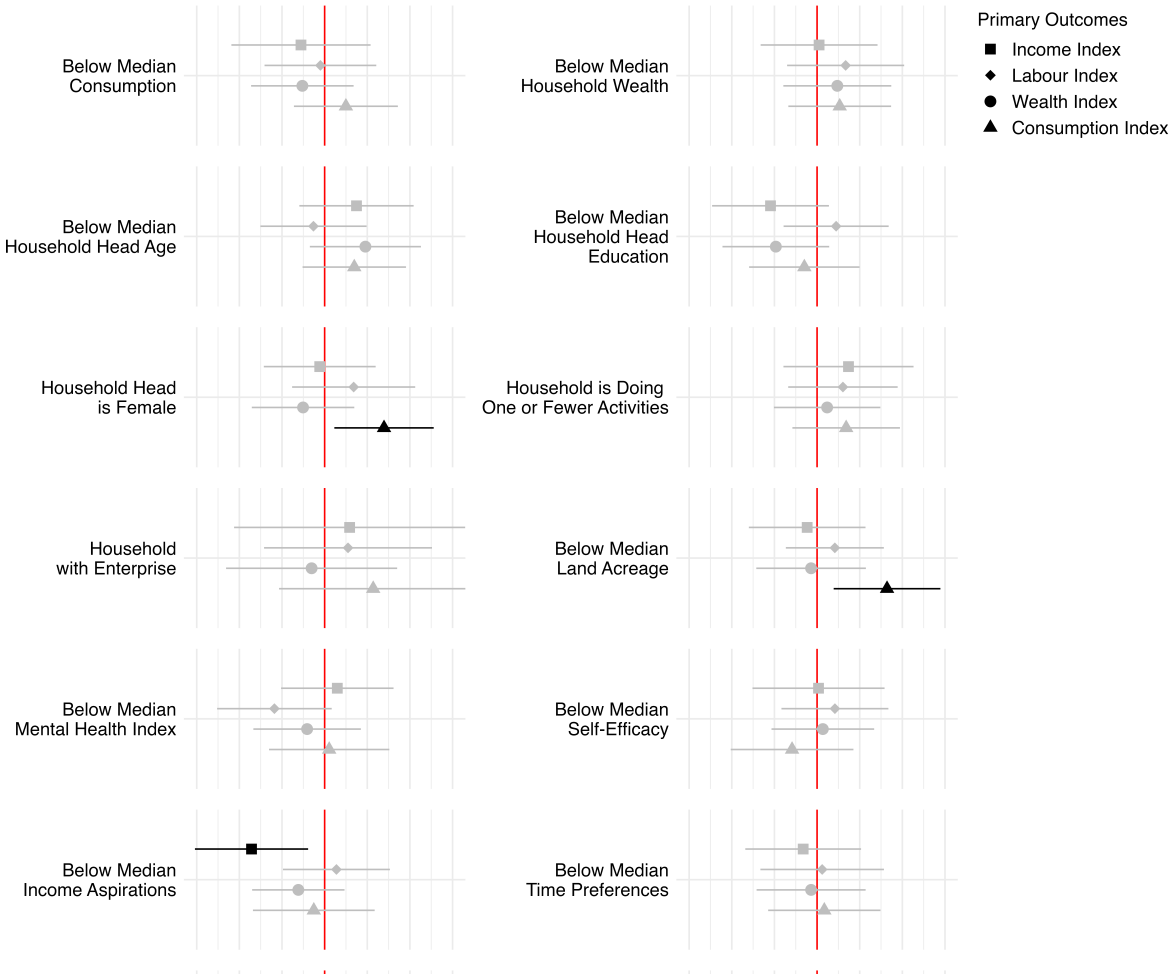


(d) Monthly Consumption

Notes: Monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods, and education spending.

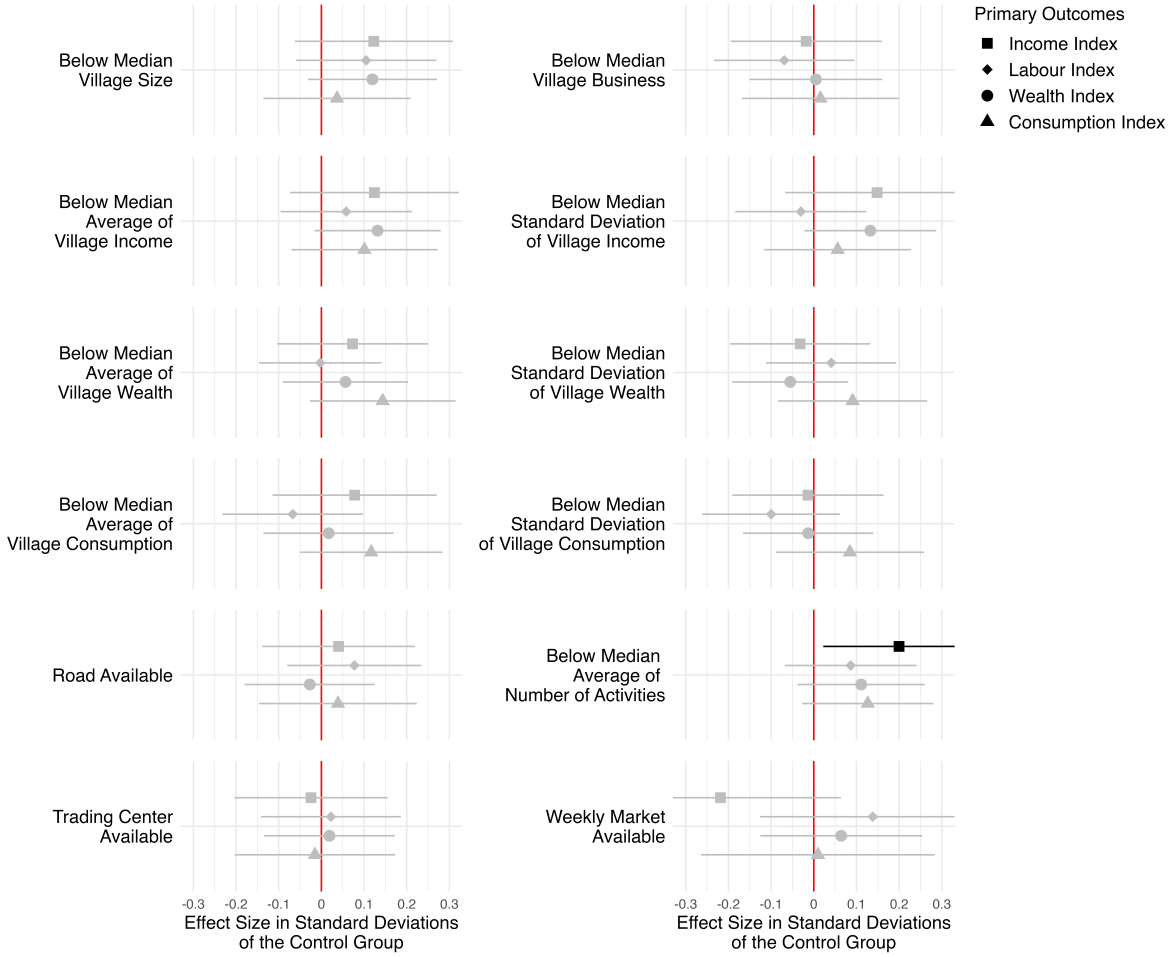
Notes: Each panel plots the distributions for control and treated households. K-S p-value is the value from the Kolmogorov–Smirnov test of the equality of the two distributions.

Figure A4: Heterogeneous Effects by Household Characteristics on Primary Outcomes



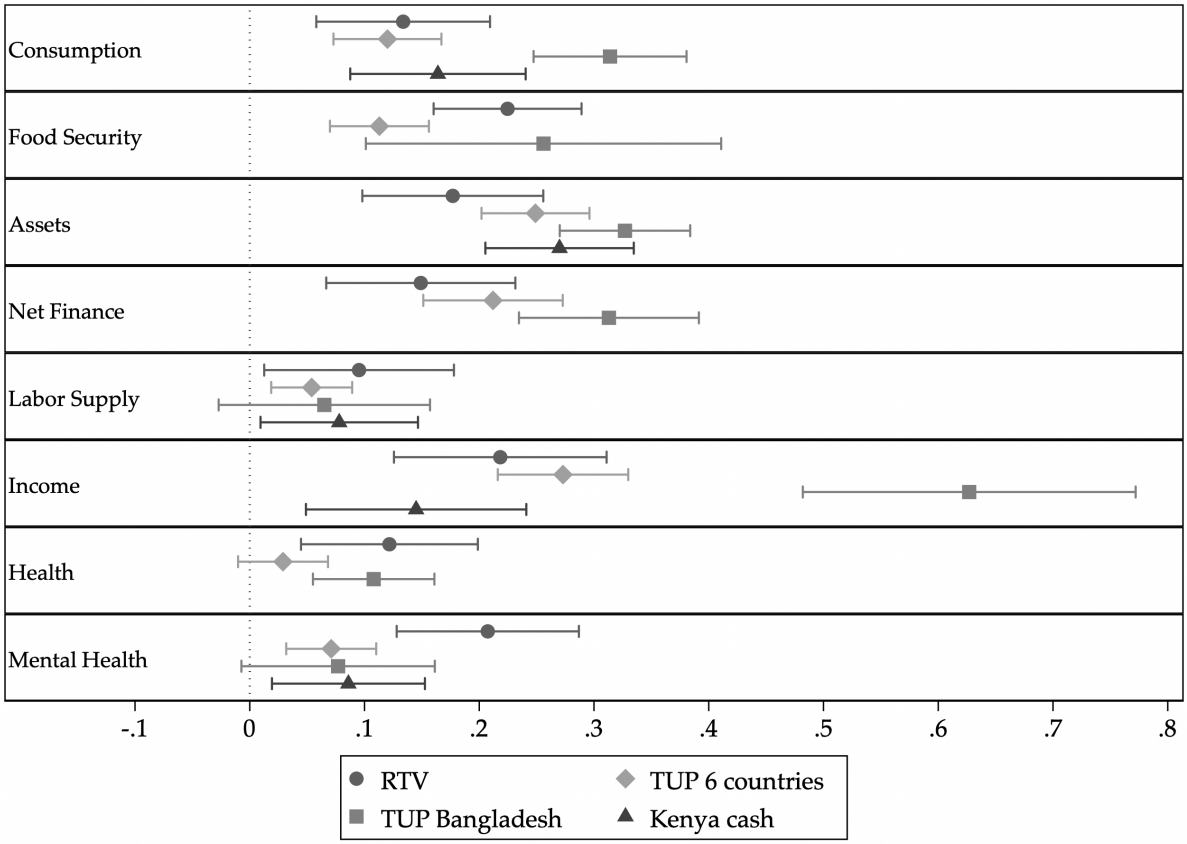
Notes: This figure plots the coefficient of the interaction between treatment and a dimension of heterogeneity using a heterogeneous treatment effects specification. Each sub-figure corresponds to a different dimension of heterogeneity. The Household is Doing One or Fewer Activities dimension was not pre-specified. All outcomes have been normalised relative to the control group. Income index is standardised monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Index is standardised labour supplied in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Wealth Index is standardized non-land wealth which is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Consumption Index is standardised monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Regressions include stratification fixed effects and the baseline value of the outcome. Heteroskedasticity-robust standard errors are clustered at the cluster level. Confidence intervals are presented at the 95% significance level.

Figure A5: Heterogeneous Effects by Village Characteristics on Primary Outcomes



Notes: This figure plots the coefficient of the interaction between treatment and a dimension of heterogeneity using a heterogeneous treatment effects specification. Each sub-figure corresponds to a different dimension of heterogeneity, that is determined at the village level. The Below Median Average of Number of Activities dimension was not pre-specified. All outcomes have been normalised relative to the control group. Income index is standardised monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Index is standardised labour supplied in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Wealth Index is standardized non-land wealth which is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Consumption Index is standardised monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Regressions include stratification fixed effects and the baseline value of the outcome. Heteroskedasticity-robust standard errors are clustered at the cluster level. Confidence intervals are presented at the 95% significance level.

Figure A6: Comparison of Treatment Effects between the RTV Program and Other Graduation Programs and Cash Transfers, Standardized Summary Outcomes



Notes: Treatment effects and standard errors for "TUP 6 countries" taken from Table 3 column (4) of Banerjee et al. (2015) 3 years after the start of the program, for "TUP Bangladesh" from Table VI of Bandiera et al. (2017) 4 years after the start of the program, for "Kenya cash" from Tables 2 and 3 of Orkin et al. (2023) 17 months after the cash transfer, and author's findings 3 years after the start of the program as specified below. Consumption is total monthly consumption per capita, where consumption includes food, non-food and durables goods consumption (ie education spending is excluded compared to the definition of consumption used for this study, and consumption is converted to per capita (see Table OS20). Orkin et al. (2023) do not report per capita consumption and so household total consumption is used instead. Food security captures hunger of adults and children (see Table OS23 for our measure). Orkin et al. (2023) does not report food security. Assets are the value of both assets and livestock (Table A20 columns (2) and (3)). Net finance is the value of savings and outstanding borrowing (Table A20 columns (4) and (5)). Orkin et al. (2023) does not report assets and net finance separately, and so their combined measure is shown under assets. Labour supply is the total household labour to all activities - measured in days in the last 4 weeks in our study (Table A8) and Orkin et al. (2023), minutes in the last day in Banerjee et al. (2015) and is the total time the main female respondent and male household head spent in productive activities on a typical day during the past year in Bandiera et al. (2017). Income is the household revenue from crop and animal sales, business profits and wages (ie excludes rental income compared to the definition used here - Table A9 excluding column (6)). Health and mental health differ along the following dimensions: For health, (Banerjee et al., 2015) and Bandiera et al. (2017) use indicators like daily living activities and self-reported health, while this study also considers work inability due to illness and activity difficulties (see Table OS29 for our components). Orkin et al. (2023) does not measure physical health. For mental health, Banerjee et al. (2015) emphasizes emotional distress and prolonged worry, Bandiera et al. (2017) captures self-reported happiness and mental anxiety, Orkin et al. (2023) captures depression, whereas this study measures depression, stress, life satisfaction, and happiness (see Table A27 for our measures).

Online Supplement for "We're All in This Together": Experimental Evidence from a Universal Livelihoods Program

Mahreen Mahmud and Emma Riley

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A Figures and Tables

Table OS1: Summary Statistics

			Percentiles			
	Mean	Median	5th	25th	75th	95th
HH Head Age	44.55	40.00	23.00	32.00	55.00	76.00
HH Head Has No Schooling	0.21					
HH Head Female	0.25					
Total Adults	2.37	2.00	1.00	2.00	3.00	5.00
Total Children	2.57	3.00	0.00	2.00	3.00	5.00
Total Consumption (USD PPP)	583.2	515.1	158.2	326.7	759.2	1,253.1
Consumption Per Capita Per Day Equivalent (USD PPP)	3.08	2.67	0.98	1.80	3.86	6.35
Food Purchased Consumption	171.3	125.6	9.8	65.1	230.3	485.3
Food Produced Consumption	288.1	244.3	27.7	130.3	395.6	721.8
Non-Land Wealth (USD PPP)	1,275.1	579.1	-120.1	209.0	1,460.7	5,149.0
Asset Value	620.3	312.7	64.2	171.0	597.4	2,720.8
Livestock Value	606.9	190.0	0.0	0.0	608.0	2,466.2
Savings	207.1	38.0	0.0	0.0	228.0	912.0
Amount of Money Lent	88.26	0.00	0.00	0.00	11.40	380.00
Outstanding Loan Amount	-246.9	-21.7	-1,311.0	-243.2	0.0	0.0
Total Income (USD PPP)	158.2	96.0	5.1	40.0	192.8	543.1
Crop Sales (Monthly)	79.05	47.50	0.00	16.15	111.15	260.30
Income from Animals	11.78	0.00	0.00	0.00	3.17	63.33
Profits	33.21	0.00	0.00	0.00	0.00	228.00
Total Wage	28.32	0.00	0.00	0.00	22.80	136.80
Any Crop Income	0.89					
Any Perennial Income	0.60					
Any Animal Income	0.29					
Any Business Income	0.23					
Any Wage Income	0.37					
HH Owns Land	0.97					
HH Has Farming Activities	0.98					
Number of Crops Grown	6.91	7.00	2.00	4.00	9.00	13.00
Number of Perennial Crops	4.98	5.00	0.00	3.00	7.00	9.00
WB Consumption Poverty Line	0.35					
N	1,794	1,794	1,794	1,794	1,794	1,794

Notes: All reported statistics are from the endline household survey data from control villages only. HH Head has no schooling is an indicator for household head having no schooling. HH Head Female is an indicator for female household head. Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Consumption per capita per day is total consumption divided by the number of adult equivalents in the household. Total Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wage, and rental income. Any crop income, any perennial income, any animal income, any business income, and any wage income are indicators for the household earning income from that activity. HH Owns Land is an indicator for household ownership for any type of land. HH Has Farming Activities is an indicator for household having grown a crop in the last two farming seasons. Number of Crops Grown is the number of crops grown across seasons 1 and 2. Number of Perennial Crops is the total number of perennials grown by a household in a year. WB Consumption Poverty Line is a binary variable equal to 1 if the household consumption per capita per day is below the World Bank poverty line of USD 2.15 PPP a day.

Table OS2: Impact on Household Size, Fertility and Migration

	(1) Household Size	(2) Number of Children Under 6	(3) Any Migration
Treated	0.063	0.011	-0.007
	(0.065)	(0.045)	(0.006)
Control Mean	5.747	1.091	0.025
N	3,560	3,560	3,560

Notes: Household Size is the number of members in the household. Number of Children Under 6 includes the number of household members that are aged below 6. Any Migration is a binary variable equal to 1 if any household member has migrated. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS3: Impact on Primary Economic Outcomes (Robustness Specifications)

	(1) Monthly Income	(2) Labour Supplied (Days)	(3) Non-Land Wealth	(4) Monthly Consumption
Panel A. No Baseline Controls				
Treated	41.428***	2.900**	420.364***	56.913***
	(9.188)	(1.284)	(84.919)	(14.845)
Control Mean	158.173	43.918	1,275.143	583.228
N	3,560	3,560	3,560	3,560
Panel B. No Winsorisation				
Treated	50.702***	3.276**	427.763***	61.013***
	(12.448)	(1.295)	(92.567)	(15.097)
Control Mean	167.555	43.918	1,300.222	590.924
N	3,560	3,560	3,560	3,560

Notes: Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Panel A omits baseline controls from the regression. Panel B uses outcome variables that have not been winsorized. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315, adjusted for inflation. In Panel A, the values are winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS4: Impact on Social Desirability

	(1)
	Social Desirability Standardized Score
Treated	0.024
	(0.042)
Control Mean	0.000
N	3,560

Notes: Social Desirability Standardized Score is a standardized variable measuring social desirability. This is constructed using an index of 13 questions following Dizon-Ross and Jayachandran (2023). Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS5: Impact on Primary Economic Outcomes by Social Desirability

	(1) Monthly Income	(2) Labour Supplied (Days)	(3) Non-Land Wealth	(4) Monthly Consumption
Treated	35.150***	4.334**	330.644***	59.030***
	(10.481)	(1.912)	(109.357)	(20.037)
High Social Desirability	31.814***	4.121***	155.453*	-19.538
	(9.076)	(1.377)	(88.136)	(15.466)
Treated × High Social Desirability	8.188	-1.937	93.692	0.354
	(14.348)	(2.181)	(139.391)	(23.454)
Control Mean	158.173	43.918	1,275.143	583.228
N	3,560	3,560	3,560	3,560

Notes: Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. The regression includes heterogeneous effects by High Social Desirability which is a binary variable equal to 1 if the household has an above median social desirability score which is constructed using an index of 13 questions following Dizon-Ross and Jayachandran (2023). Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS6: Quantile Regression for Monthly Income

	(1) OLS	(2) Q(10)	(3) Q(25)	(4) Q(50)	(5) Q(75)	(6) Q(90)
Treated	40.703***	3.604	15.372***	26.295***	60.278***	122.623***
	(9.393)	(2.259)	(3.616)	(5.999)	(11.175)	(27.185)
Control Mean	158.173	13.680	40.027	95.950	192.787	372.717
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: This table presents coefficient estimates from an OLS regression, alongside quantile regressions at 10, 25, 50, 75 and 90 quantiles. Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS7: Quantile Regression for Labour Supplied (Days)

	(1) OLS	(2) Q(10)	(3) Q(25)	(4) Q(50)	(5) Q(75)	(6) Q(90)
Treated	3.276**	2.216*	2.451**	3.417***	5.622***	4.625
	(1.295)	(1.179)	(1.095)	(1.208)	(1.628)	(2.912)
Control Mean	43.918	12.000	24.000	39.000	56.000	78.750
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: This table presents coefficient estimates from an OLS regression, alongside quantile regressions at 10, 25, 50, 75 and 90 quantiles. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS8: Quantile Regression for Non-Land Wealth

	(1) OLS	(2) Q(10)	(3) Q(25)	(4) Q(50)	(5) Q(75)	(6) Q(90)
Treated	389.518***	79.144***	134.233***	312.703***	496.322***	692.841***
	(82.076)	(22.042)	(22.919)	(41.109)	(90.504)	(231.177)
Control Mean	1,275.143	41.800	209.000	579.120	1,460.720	3,298.400
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: This table presents coefficient estimates from an OLS regression, alongside quantile regressions at 10, 25, 50, 75 and 90 quantiles. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS9: Quantile Regression for Monthly Consumption

	(1) OLS	(2) Q(10)	(3) Q(25)	(4) Q(50)	(5) Q(75)	(6) Q(90)
Treated	58.807***	34.535***	41.129***	48.186***	67.074***	110.248***
	(14.380)	(10.536)	(12.770)	(16.455)	(20.048)	(32.990)
Control Mean	583.228	212.330	326.719	515.122	759.204	1,027.629
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: This table presents coefficient estimates from an OLS regression, alongside quantile regressions at 10, 25, 50, 75 and 90 quantiles. Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS10: Heterogeneous Treatment Effects using Random Forest Algorithms

	(1) Most Affected Group	(2) Least Affected Group	(3) Difference
Monthly Income	48.05***	33.56**	12.62
	(20.66,75.41)	(5.485,61.86)	(-23.73,49.30)
	[0.001]	[0.039]	[0.991]
Labour Supplied (Days)	3.917	1.626	2.066
	(-0.197,8.037)	(-2.466,5.739)	(-3.278,7.520)
	[0.124]	[0.870]	[0.888]
Non-Land Wealth	483.3***	368.4**	103.7
	(219.5,748.9)	(105.4,631.5)	(-250.6,454.7)
	[0.001]	[0.012]	[1.000]
Monthly Consumption	71.69***	47.12	21.76
	(26.34,117.1)	(-0.266,94.02)	(-41.49,85.95)
	[0.004]	[0.103]	[0.992]

Notes: This table presents sorted group average treatment effects following Chernozhukov et al. (2025). Households are divided into 2 groups, based on households being above or below the median of the machine learning proxy predictor for their conditional average treatment effects. Strata fixed effects and clustering at the cluster level are included in the estimation. Random forest algorithms with two-fold cross-validation is used. Columns (1) and (2) present medians of treatment effects over 1,000 splits for the most and least affected groups respectively. Column (3) presents the medians of the differences in treatment effects. Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Labour Supplied (Days) is reported in days and aggregates across all household members the labour supplied to farm, livestock, and business household economic activities, as well as salaried and casual work. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and loan taken and outstanding. Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Baseline covariates used as predictors include monthly income; labour supplied; non-land wealth; monthly consumption; number of adults; number of children; household head age; household head has no schooling; household head has at least some secondary schooling; household head is female; household head is married; asset value; livestock value; savings; net loans; crop sales; income from animals; business profits; total wages; household has business; household has any farming activity; the number of household activities; household below the World Bank income poverty line; household below the World Bank consumption poverty line; household head not depressed; village-level averages of monthly income, non-land wealth, consumption and number of household activities; village-level share of households with a business; village-level standard deviations of monthly income, non-land wealth and consumption; and binary indicators for if the village has a road, trading centre and weekly market. All values in USD PPP at the 2023 exchange rate 1:1315, adjusted for inflation and winsorized at the 1% level. 90% confidence intervals are presented in parentheses, and p-values are in square brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS11: Impact on Household Income Generating Activities

	(1)	(2)	(3)	(4)	(5)	(6)
		Household Income Generating Activities				
	Number of Household Income Generating Activities	Any Crop Income	Any Perennial Income	Any Animal Income	Has Business	Any Wage Income
Treated	0.217***	0.018	0.064***	0.084***	0.052***	-0.040**
	(0.043)	(0.014)	(0.022)	(0.020)	(0.015)	(0.017)
Control Mean	2.043	0.894	0.605	0.292	0.252	0.368
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Number of Household Income Generating Activities is the sum of four binary variables: Any Crop Income (a binary variable equal to 1 if there is any income from crops for Seasons 1 and 2), Any Perennial Income (a binary variable equal to 1 if there is any income from perennials over the past 12 months), Any Animal Income (a binary variable equal to 1 if there is any income from livestock), and Has Business (a binary variable equal to 1 if the household operates a business). Any Wage Income is a binary variable equal to 1 if the household has earned any wage income from outside. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS12: Impact on Labour Supply for Under-16s

	(1) Total Labour Supply	(2) Household Farm	(3) Household Livestock	(4) Household Business	(5) Salaried	(6) Casual
Treated	0.111	0.170	0.040	0.055	-0.022	-0.130***
	(0.496)	(0.366)	(0.216)	(0.046)	(0.032)	(0.042)
Control Mean	5.834	3.887	1.589	0.072	0.055	0.230
N	3,560	3,559	3,560	3,560	3,560	3,560

Notes: All variables are measured using only under-16 households members. Total Labour Supply is reported in days aggregated across all under-16 household members. Household Farm, Household Livestock, and Household Business are measures of labour supplied to different household economic activities for under-16 household members. Labour supply is measured for the last 4 weeks except for to the household farm, for which it is measured over the two farming seasons and then scaled to 4 weeks. Salaried is labour supplied to a salaried job. Casual is casual labour supplied outside the household. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS13: Impact on Farming Outcomes

	(1) Number of Crops Grown	(2) Number of Crops Sold	(3) Value of Crops Sold
Panel A. Season 1			
Treated	0.653***	0.329***	83.863***
	(0.103)	(0.076)	(25.018)
Control Mean	3.679	1.705	368.799
N	3,560	3,560	3,560
Panel B. Season 2			
Treated	0.481***	0.352***	89.637***
	(0.095)	(0.074)	(25.770)
Control Mean	3.232	1.724	393.215
N	3,560	3,560	3,560
Panel C. Perennials			
Treated	0.448***	0.260***	86.596***
	(0.136)	(0.056)	(21.820)
Control Mean	4.977	1.033	178.793
N	3,560	3,560	3,560

Notes: Number of Crops Grown is the distinct number of crops planted. Number of Crops Sold is the distinct number of crops sold. Value of Crops Sold is the monetary value of crops sold. Panels A, B and C report outcomes for Season 1, Season 2 and Perennials respectively. Seasonal crops are over each season, while perennials are for the past year. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS14: Impact on Observable Farm Outcomes

	(1) Observe Compost Pit	(2) Observe Post-Harvest Handling Equipment	(3) Observe Garden
Treated	0.237***	0.036**	0.088***
	(0.018)	(0.016)	(0.016)
Control Mean	0.198	0.265	0.116
N	3,560	3,560	3,560

Notes: Observe Compost Pit is a binary variable equal to 1 if the enumerator observed a compost pit. Observe Post-Harvest Handling Equipment is a binary variable equal to 1 if the enumerator observed any post-harvest handling equipment. Observe Garden is a binary variable equal to 1 if the enumerator observed a vegetable garden. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS15: Impact on Business Outcomes (Enterprise Level)

	(1) Profits	(2) Sales	(3) Expenses	(4) Stock	(5) Assets	(6) Stock Purchases	(7) Asset Purchases
Panel A. All Enterprises							
Treated	15.133	-18.444	-23.043**	-16.897	-97.225	70.519	-7.394
	(21.656)	(100.466)	(11.591)	(93.047)	(74.394)	(82.182)	(5.697)
Control Mean	148.931	613.339	83.091	843.616	576.250	459.921	26.977
N	710	710	714	714	715	716	716
Panel B. Old Enterprises							
Treated	17.502	-44.280	-20.042	-63.717	-74.511	40.164	-4.903
	(25.533)	(129.433)	(13.140)	(113.486)	(90.314)	(100.804)	(7.024)
Control Mean	148.391	669.446	81.719	928.228	571.565	490.651	26.206
N	546	545	547	548	548	549	549
Panel C. New Enterprises							
Treated	5.047	38.542	-30.078*	92.578	-193.774	158.724	-15.283
	(36.246)	(88.177)	(17.568)	(141.651)	(133.651)	(118.380)	(9.705)
Control Mean	150.599	442.939	87.191	585.603	590.362	367.358	29.297
N	164	165	167	166	167	167	167

Notes: Profits, sales and expenses are from the last 4 weeks. Profits are self-reported. Expenses include spending on running the business excluding on durable goods/assets and buying stocks and inventory. Stock is the value of all business stock and inventory. Assets are the value of all business assets. Stock Purchases and Asset Purchases are the amount spent on purchases of stocks and assets respectively for the business in the last 4 weeks. The data is at the enterprise level, rather than the household level. Panel A includes all enterprises. Panel B includes only old enterprises, that were in operation prior to the intervention. Panel C includes only new enterprises, that were opened after the intervention. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS16: Impact on Expenditure

	(1) Total Expenditure Post Harvest	(2) Total Expenditure Lean Season
Treated	19.241**	69.573***
	(8.261)	(13.469)
Control Mean	278.267	212.561
N	3,560	3,734

Notes: Total expenditure is total household monthly spending on food and non-food household items, durable goods and education. Harvest refers to the period immediately post harvest captured using in-person surveys. Lean season refers to the point immediately before the next harvest captured in a phone survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS17: Impact on Small Assets

	(1) Radios	(2) Mobile Phones	(3) Small Farm Tools	(4) Electric and Hand Tools	(5) Jerry Cans	(6) Pots and Pans	(7) Jewelry and Watches
Panel A. Asset Ownership							
Treated	0.076***	0.013	0.007**	0.012	0.018***	0.004*	0.029*
	(0.018)	(0.013)	(0.003)	(0.008)	(0.006)	(0.002)	(0.015)
Control Mean	0.412	0.807	0.985	0.051	0.959	0.993	0.179
N	3,560	3,560	3,560	3,560	3,560	3,560	3,560
Panel B. Number of Assets							
Treated	0.088***	0.077**	0.454***	0.013	0.297***	0.473***	0.069**
	(0.019)	(0.037)	(0.076)	(0.016)	(0.073)	(0.080)	(0.029)
Control Mean	0.425	1.208	3.369	0.081	2.154	3.742	0.288
N	3,560	3,560	3,560	3,560	3,560	3,557	3,560
Panel C. Value of Assets							
Treated	2.607***	6.948***	2.941***	0.057	1.919***	7.094***	0.150
	(0.522)	(2.309)	(0.563)	(0.083)	(0.373)	(1.354)	(0.156)
Control Mean	8.022	39.611	17.620	0.488	8.876	33.388	1.168
N	3,560	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Panel A includes binary variables equal to 1 if the household owns the asset. Panel B includes the number of assets owned by the household. Panel C includes the value of the assets owned by the household. Small Farm Tools include implements such as hand hoes, machetes and slashers. Electric Hand Tools include power saws, drills and pliers. These values are unconditional, so if a household does not own a specific type of asset, the number and value assigned to them is 0. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS18: Impact on Large Assets

	(1) Furn-iture	(2) Farm Equi-pment	(3) Bikes and Vehicles	(4) Solar Panels and Generators	(5) Beds	(6) Ovens and Stoves	(7) Fans, TVs and Fridges
Panel A. Asset Ownership							
Treated	0.013***	0.051***	0.042***	0.070***	0.012***	0.024*	0.003
	(0.005)	(0.014)	(0.015)	(0.015)	(0.004)	(0.014)	(0.011)
Control Mean	0.966	0.128	0.239	0.668	0.973	0.124	0.110
N	3,560	3,560	3,560	3,560	3,560	3,560	3,560
Panel B. Number of Assets							
Treated	0.495***	0.083***	0.059***	0.165***	0.457***	0.025	0.009
	(0.098)	(0.018)	(0.018)	(0.038)	(0.079)	(0.016)	(0.014)
Control Mean	3.368	0.140	0.261	0.983	3.245	0.140	0.127
N	3,560	3,560	3,560	3,560	3,559	3,560	3,560
Panel C. Value of Assets							
Treated	12.934***	1.389***	40.469*	11.924***	27.508***	0.208**	0.683
	(3.223)	(0.503)	(22.111)	(2.838)	(5.176)	(0.098)	(1.785)
Control Mean	64.812	4.206	219.252	56.103	140.044	0.788	16.570
N	3,560	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Panel A includes binary variables equal to 1 if the household owns the asset. Panel B includes the number of assets owned by the household. Panel C includes the value of the assets owned by the household. Furniture includes chairs, sofas, tables, desks and cupboards. Farm Equipment includes farm machinery and irrigation equipment. Bikes and Vehicles include bicycles, motorcycles, scooters and any other form of transport. Solar Panels and Generators include solar panels, batteries and generators. Beds include beds and mattresses. Fans, TVs and Fridges also includes other electrical items. These values are unconditional, so if a household does not own a specific type of asset, the number and value assigned to them is 0. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS19: Impact on Housing Quality

	(1) Housing Quality Index	(2) Not Mud Floor	(3) Not Thatched/Tin Roof	(4) Not Mud/Plant Walls	(5) Wall Quality	(6) Home Improvement Spending
Treated	0.083*	0.007	0.005	0.019	0.067**	38.424*
	(0.042)	(0.014)	(0.006)	(0.022)	(0.031)	(21.210)
Control Mean	0.000	0.158	0.972	0.386	2.338	119.738
N	3,560	3,560	3,560	3,560	3,543	3,558

Notes: Housing Quality Index is an index of Not Mud Floor (a binary variable equal to 1 if it is not a mud floor), Not Thatched/Tin Roof (a binary variable equal to 1 if the roof is not thatched or tin), Not Mud/Plant Walls (a binary variable equal to 1 if the wall is not mud or plant matter), Wall Quality (a categorical variable for wall quality ranging from 1 to 3) and Home Improvement Spending (the total spending on housing improvements). Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS20: Impact on Alternative Consumption Outcomes

	(1) Total Consumption per Adult Equivalent	(2) Total Consumption per Capita without Education
Treated	18.184***	9.300***
	(5.158)	(2.687)
Control Mean	205.844	106.754
N	3,560	3,560

Notes: Total Consumption per Adult Equivalent is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending, all divided by the number of adult equivalent household members. Total Consumption per Capita without Education is monthly household consumption without education comprised of scaled food consumption (produced and purchased), durable goods and non-food non-durable goods, all divided by the number of household members. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS21: Impact on Food Consumption

	(1) Food Purchased	(2) Food Produced	(3) Food Purchased per Adult Equivalent	(4) Food Produced per Adult Equivalent
Treated	6.220	39.096***	2.855	12.285***
	(5.945)	(10.102)	(2.387)	(3.454)
Control Mean	171.324	288.099	62.645	100.431
N	3,560	3,560	3,560	3,560

Notes: Food Purchased is the total food purchased by the household in the last 7 days. Food Produced is the total food produced by the household in the last 7 days. Dietary Diversity is the number of different food groups consumed in the last 7 days. The per Adult Equivalent variables divide the intial variable by the number of adult equivalent household members. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS22: Impact on Dietary Diversity

	(1) Dietary Diversity	(2) Staples	(3) Pulses	(4) Milk	(5) Vegetables	(6) Fruits	(7) Eggs and Meat
Treated	0.290***	-0.001	0.015**	0.046**	0.059***	0.038**	0.114***
	(0.049)	(0.003)	(0.007)	(0.022)	(0.019)	(0.015)	(0.022)
Control Mean	5.027	0.993	0.940	0.238	0.576	0.790	0.571
N	3,560	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Dietary Diversity is the number of different food groups consumed in the last 7 days. Staples, Pulses, Milk, Vegetables, Fruits and Eggs and Meat are binary variables equal to 1 if the household consumed any of these foods in the last 7 days. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS23: Impact on Hunger

	(1) Any Hunger	(2) Hunger Frequency	(3) Adult Sleep Hungry	(4) Child Sleep Hungry	(5) Adult Sleep Hungry Frequency	(6) Child Sleep Hungry Frequency
Treated	-0.105***	-0.203***	-0.073***	-0.050***	-0.120***	-0.084***
	(0.017)	(0.032)	(0.011)	(0.010)	(0.019)	(0.017)
Control Mean	0.310	0.550	0.161	0.111	0.251	0.174
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Any Hunger is a binary variable equal to 1 if there was ever no food to eat of any kind in the house because of lack of resources to get food in the last 30 days. Hunger Frequency is the frequency of there being no food to eat of any kind in the house because of lack of resources to get food in the last 30 days. Adult Sleep Hungry and Child Sleep Hungry are binary variables equal to 1 if any adult household member and child household member respectively went to sleep at night hungry because there was not enough food in the house in the last 30 days. Adult Sleep Hungry Frequency and Child Sleep Hungry Frequency are the frequencies of any adult household member and child household member respectively going to sleep at night hungry because there was not enough food in the house in the last 30 days. The frequency variables are measured on a scale of 0 to 3, 0 if never, 1 if it happens rarely, 2 if sometimes and 3 if often. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS24: Impact on Education (Child Level)

	(1) Education Expenses	(2) Currently Enrolled	(3) Missed School Due to Illness
Panel A. Main Specification			
Treated	5.508	0.009	-0.061***
	(9.040)	(0.012)	(0.018)
Control Mean	167.852	0.759	0.434
N	9,827	9,827	7,494
Panel B. Gender Specification			
Treated	0.546	0.005	-0.037*
	(10.220)	(0.013)	(0.019)
Female	-3.425	-0.003	0.038**
	(5.908)	(0.012)	(0.017)
Treated × Female	10.180	0.009	-0.048**
	(10.156)	(0.017)	(0.022)
Control Mean	167.852	0.759	0.434
N	9,827	9,827	7,494
Panel C. Age Specification			
Treated	3.001	0.000	-0.053**
	(6.580)	(0.011)	(0.021)
$\mathbb{1}$(Age $\geq$ 13)	92.315***	-0.335***	-0.071***
	(11.600)	(0.012)	(0.020)
Treated × $\mathbb{1}$(Age $\geq$ 13)	3.366	0.035*	-0.020
	(16.827)	(0.020)	(0.027)
Control Mean	167.852	0.759	0.434
N	9,827	9,827	7,494

Notes: Education Expenses is the expenditure on education for each child. Currently Enrolled is a binary variable equal to 1 if the child is currently enrolled. Missed School Due to Illness is a binary variable equal to 1 if the child missed school due to illness in the last 30 days. Panel A includes the main regression specification. Panel B includes heterogeneous effects by Female (a binary variable equal to 1 if the child is a female). Panel C includes heterogeneous effects by whether the child is aged 13 and over. Regressions are at the child level. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS25: Impact on Inequality

	(1) Monthly Income	(2) Non-Land Wealth	(3) Monthly Consumption
Panel A. Ratio of 75^{th} *to* 25^{th} *Percentile*			
Treated	-0.411	-0.798	-0.034
	(0.752)	(2.522)	(0.100)
Control Mean	6.227	9.306	2.377
N	335	335	335
Panel B. Gini Coefficient			
Treated	-0.009	-0.040***	-0.004
	(0.013)	(0.013)	(0.008)
Control Mean	0.483	0.555	0.283
N	335	335	335

Notes: Ratio of 75^{th} to 25^{th} Percentile measures the ratio between households in a village at the 75^{th} percentile relative to households at the 25^{th}. The Gini Coefficient measures the degree of inequality within the village. Monthly Income is monthly household income comprised of scaled aggregate of the sale of crops and perennials, sale of livestock and animal products, business profits, wages, and rental income. Non-Land Wealth is an aggregate of household value of assets, livestock, savings, and net loans (outstanding loans given minus loans taken). Monthly Consumption is monthly household consumption comprised of scaled food consumption (produced and purchased), durable goods, non-food non-durable goods and education spending. Treated is an indicator for the village being in a cluster that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS26: Impact on Lean Season Consumption

	(1) Total Consumption	(2) Food	(3) Durables	(4) Non-Food Non-Durables	(5) Education Expenditure
Treated	150.149***	110.562***	1.258***	23.710***	15.664***
	(21.585)	(18.208)	(0.287)	(3.244)	(3.231)
Control Mean	386.759	302.545	1.242	49.482	40.081
N	3,734	3,734	3,734	3,734	3,143

Notes: Total Consumption is monthly household consumption comprised of consumption of Food, Durables, Non-Food Non-Durables and Education Expenditure. Food is the total food consumed in the last 7 days within and outside the household, whether purchased or produced. Durables are total spending on purchasing durable goods in the last month. Non-Food Non-Durable is the sum of spending on personal goods, house maintenance, utilities, transport, recreation, gifts and health, all scaled to the last month. Education Expenditure is the total spending the last complete academic year and is only reported for households with at least one member aged 6-21. Variables are from the phone survey conducted 9 months after the endline survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315, adjusted for inflation and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS27: Impact on Lean Season Food Consumption

	(1) Food Purchased	(2) Food Produced	(3) Dietary Diversity
Treated	27.955**	82.730***	0.499***
	(11.298)	(12.375)	(0.094)
Control Mean	146.958	157.566	4.790
N	3,734	3,734	3,734

Notes: Food Purchased is the total food purchased by the household in the last 7 days. Food Produced is the total food produced by the household in the last 7 days. Dietary Diversity is the number of different food groups consumed in the last 7 days. Variables are from the phone survey conducted 9 months after the endline survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315, adjusted for inflation and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS28: Impact on Lean Season Hunger

	(1) Any Hunger	(2) Hunger Frequency	(3) Adult Sleep Hungry	(4) Child Sleep Hungry	(5) Adult Sleep Hungry Frequency	(6) Child Sleep Hungry Frequency
Treated	-0.351***	-0.518***	-0.321***	-0.206***	-0.429***	-0.252***
	(0.044)	(0.067)	(0.041)	(0.033)	(0.056)	(0.038)
Control Mean	0.438	0.641	0.384	0.246	0.512	0.300
N	3,734	3,734	3,734	3,734	3,734	3,734

Notes: Any Hunger is a binary variable equal to 1 if there was ever no food to eat of any kind in the house because of lack of resources to get food in the last 30 days. Hunger Frequency is the frequency of there being no food to eat of any kind in the house because of lack of resources to get food in the last 30 days. Adult Sleep Hungry and Child Sleep Hungry are binary variables equal to 1 if any adult household member and child household member respectively went to sleep at night hungry because there was not enough food in the house in the last 30 days. Adult Sleep Hungry Frequency and Child Sleep Hungry Frequency are the frequencies of any adult household member and child household member respectively going to sleep at night hungry because there was not enough food in the house in the last 30 days. The frequency variables are measured on a scale of 0 to 3, 0 if never, 1 if it happens rarely, 2 if sometimes and 3 if often. Variables are from the phone survey conducted 9 months after the endline survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS29: Impact on Physical Health

	(1) Physical Health Index	(2) Difficulty Bathing	(3) Difficulty Lifting	(4) Difficulty Walking	(5) Difficulty Working	(6) Unable to Work	(7) Days Unable to Work
Treated	0.125***	0.001	-0.096**	-0.125***	-0.144***	-0.077***	-0.880***
	(0.039)	(0.019)	(0.044)	(0.043)	(0.048)	(0.020)	(0.246)
Control Mean	-0.000	1.165	1.834	1.779	2.138	0.527	4.676
N	3,560	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Physical Health Index is an index of reverse-coded measures for difficulty in completing daily activities including bathing, lifting, walking and working, an indicator for the respondent being unable to work due to sickness in the last 30 days, and the number of days of work missed by the respondent. Difficulty Bathing is a categorical variable for whether the respondent has difficulty bathing. Difficulty Lifting is a categorical variable for where the respondent can lift or carry heavy things, such as a bucket of water. Difficulty Walking is a categorical variable for whether the respondent can walk for two hours without resting. Difficulty Working is a categorical variable for whether the respondent can work in the fields for an entire day with regular rest. The categorical variables equal 1 if can complete this easily, 2 if can complete without help but it is difficult, 3 if can only complete with help and 4 if cannot complete. Unable to Work is a binary variable equal to 1 if in the last 30 days, the respondent has been completely unable to work or perform your usual daily activities because of sickness. Days Unable to Work is the number of days for which the respondent was unable to work or perform their usual daily activities because of sickness. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS30: Impact on Child Illness

	(1) Any Child Illness	(2) Diarrhea	(3) Vomitting	(4) Cough	(5) Fever
Treated	-0.041**	0.024	-0.007	-0.022	-0.033
	(0.017)	(0.020)	(0.016)	(0.022)	(0.022)
Control Mean	0.843	0.207	0.174	0.544	0.658
N	2,242	2,242	2,242	2,242	2,242

Notes: Any Child Illness is a binary variable equal to 1 if any children in the household has experienced any diarrhea, vomiting, cough or fever in the last 30 days. Diarrhea, Vomiting, Cough and Fever are binary variables equal to 1 if any children in the household has experienced those symptoms in the last 30 days. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS31: Impact on Health Improvement

	(1) Health Improvement Index	(2) Dish Rack	(3) Handwashing Outside Toilet	(4) Hangline	(5) Improved Drinking Water	(6) Covered Pit Latrine
Treated	0.389***	0.325***	0.267***	0.078***	0.034	0.000
	(0.041)	(0.017)	(0.016)	(0.017)	(0.023)	(0.013)
Control Mean	-0.000	0.115	0.087	0.594	0.634	0.130
N	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Health Improvement Index is an index of Dish Rack (a binary variable equal to 1 for having a two tiered dish rack), Handwashing Outside Toilet (a binary variable equal to 1 for having hand washing facilities outside the toilet), Hangline (a binary variable equal to 1 for having a hangline), Improved Drinking Water (a binary variable equal to 1 for any measure to improve water quality) and Covered Pit Latrine (a binary variable equal to 1 for having a covered pit latrine). Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS32: Impact on Psychological Index

	(1) Psychological Index	(2) Aspirations Index	(3) Expected Income Level	(4) Self-Efficacy Score
Treated	0.124***	0.093***	169.657***	0.207
	(0.037)	(0.035)	(53.687)	(0.164)
Control Mean	-0.000	-0.000	749.453	24.047
N	3,560	3,560	3,504	3,560

Notes: Psychological Index is an index of Aspirations Index (an index of the desired level of future household income for the household in 10 years and attitudes towards the future), Expected Income Level (the level of expected income for the household in 10 years), and Self-Efficacy Score (the sum of responses to 7 statements for the generalised self-efficacy scale on a scale of 1 to 4 where 1 is not at all true, 2 is not very true, 3 is somewhat true, and 4 is completely true). Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS33: Impact on Aspirations

	(1) Aspirations Index	(2) Dream Better Future	(3) Better to Have Aspirations	(4) Desired Income
Treated	0.093***	0.115**	-0.036	352.693***
	(0.035)	(0.045)	(0.035)	(112.812)
Control Mean	-0.000	2.420	4.109	1,653.141
N	3,560	3,560	3,560	3,544

Notes: Aspirations Index is an index of Dream Better Future (a categorical variable for if it is better to dream for a better future than it is to learn to accept the reality of things), Better to Have Aspirations (a categorical variable for whether it is better to have aspirations for your family than to accept each day as it comes), and Desired Income (the level of monthly income that you would like your household to be earning in 10 years time). The categorical variables are equal to 1 if strongly disagree, 2 if disagree, 3 if neutral, 4 if agree and 5 is strongly agree. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS34: Impact on Community Empowerment

	(1) Community Empowerment Index	(2) Voice in Community	(3) Trust in Community	(4) Leadership Position Held
Treated	0.090**	0.093**	0.106***	0.030**
	(0.035)	(0.041)	(0.037)	(0.015)
Control Mean	-0.000	-0.000	-0.000	0.307
N	3,560	3,560	3,560	3,344

Notes: Community Empowerment Index is an index of Voice in Community (an index of indicator variables capturing feeling comfortable speaking up in public about infrastructure and disputes and approaching the village elder and the number of village meetings attended and participated), Trust in Community (an index of categorical variables about whether people in the village can be trusted and relied on, and out of 10 women how many they could borrow from or go to for advice) and Leadership Position Held (an indicator of if the household head has any leadership position in the village). Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS35: Impact on Voice in Community

	(1) Voice in Community	(2) Speak On Infra-structure	(3) Speak to Intervene Dispute	(4) Approached Elder	(5) Attend Meetings	(6) Participate in Meetings
Treated	0.093**	0.035	-0.001	-0.009	0.121***	0.019
	(0.041)	(0.044)	(0.041)	(0.018)	(0.036)	(0.037)
Control Mean	-0.000	4.379	4.348	0.374	0.884	1.199
N	3,560	3,468	3,468	3,468	3,560	2,325

Notes: Voice in Community is an index of indicator variables capturing feeling comfortable speaking up in public about infrastructure and disputes and approaching the village elder and the number of village meetings attended and participated. Speak On Infrastructure is a categorical variable if the respondent feels comfortable speaking up in public to help decide on infrastructure to be built in the community, with 1 no not at all comfortable, 2 yes but with a great deal of difficult, 3 yes but with a little difficult, 4 yes fairly comfortably and 5 yes very comfortable. Speak to Intervene Dispute is a categorical variable equal if the respondent feels comfortable speaking up in public to intervene in case of a family dispute, with 1 no not at all comfortable, 2 yes but with a great deal of difficult, 3 yes but with a little difficult, 4 yes fairly comfortably and 5 yes very comfortable. Approached Elder is a binary variable equal to 1 if the respondent approached the village leadership about their needs or any issue in the village in the last 6 months. Attend Meetings is the number of meeting types attended in the last year, ranging from 0 to 3. Participate in Meetings is the number of meeting types that the respondent spoke in conditional on having attended a meeting. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS36: Impact on Trust in Community

	(1) Trust in Community Index	(2) Trust Community	(3) Agree Helper	(4) Agree Difference	(5) Agree React	(6) Financial Community	(7) Household Borrow	(8) Household Problem
Treated	0.106***	0.037	0.050**	0.014	0.048	0.021	0.266***	0.144*
	(0.037)	(0.028)	(0.020)	(0.024)	(0.039)	(0.013)	(0.098)	(0.082)
Control Mean	-0.000	3.012	3.233	3.245	2.370	1.850	3.586	3.948
N	3,560	3,560	3,560	3,560	3,560	3,560	3,560	3,560

Notes: Trust in Community is an index of categorical variables about whether people in the village can be trusted and relied on, and out of 10 women how many they could borrow from or go to for advice. The categorical variables equal 4 if completely agree, 3 if agree, 2 if disagree, and 1 if completely disagree that people in the village can be trusted and relied on. Trust Community asks the question whether generally speaking would you say that the people in your village could be trusted? Agree Helper asks the question whether if I have a problem, there is always someone in the village to help me? Agree Difference asks the question whether people like me can make a difference in the village, if we wish? Agree React asks the question whether if I do not agree with something my neighbor is doing, or saying, I react? Financial Community asks the question whether you can count on your village community to help you in case of financial difficulties? Household Borrow asks the question: out of 10 people in your community, how many of them would you be able to ask to borrow money from in an emergency? Household Problem asks: out of 10 people in your community, how many of them would you go to for advice if you had a problem? Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS37: Impact on Community Cohesion (Village Elder Report)

	(1) Trust Scale	(2) Village Helpful	(3) Village Helpful for Financial Difficulties
Treated	-0.077	0.132*	0.196**
	(0.101)	(0.079)	(0.089)
Control Mean	2.241	4.159	3.600
N	335	335	335

Notes: Trust Scale is a categorical variable that asks whether generally speaking would you say that the people in your village trust each other. This categorical variable is equal 1 if completely agree, 2 if agree, 3 if disagree, and 4 if completely disagree. Village Helpful is a categorical variable that asks how likely is a typical person in your village to agree with this statement that there is always someone in the village to help me. This categorical variable is equal 5 if completely agree, 4 if agree, 3 if disagree, and 2 if completely disagree. Village Helpful for Financial Difficulties is a categorical variable that asks how likely is a typical person in your village to agree with the statement that you can count on your village community to help you in case of financial difficulties. This categorical variable is equal 5 if completely agree, 4 if agree, 3 if disagree, and 2 if completely disagree. Variables are from the endline village elder survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS38: Impact on Daily Wages Earned and Paid

	(1)	(2)	(3)	(4)	(5)
	Casual Wage Earned	Business	Cropping Season 1	Cropping Season 2	Perennials
Treated	0.455**	-0.091	0.161	-0.172	0.411
	(0.187)	(1.090)	(0.116)	(0.138)	(1.071)
Control Mean	5.267	4.633	4.529	4.693	5.819
N	1,015	212	1,673	1,398	384

Notes: Casual Wage Earned is the total amount earned divided by the total number of days of casual work done by households members. Daily wage is calculated using the total expenses on hiring of outside labour for that activity divided by the total number of days for which labour was hired by the household. The daily wage is a conditional variable, defined only for individuals who hire labour for that activity. As a result, the number of observations differs across columns. These outcomes were not pre-specified. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Values in USD PPP at the 2023 exchange rate 1:1315. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS39: Impact on Market Characteristics

	(1)	(2)	(3)	(4)
	Number of Markets	Number of Vendors	Number of Days Open Per Week	Operating Time
Treated	-0.023	-1.606	0.029	-0.885
	(0.191)	(1.935)	(0.101)	(1.779)
Control Mean	2.421	9.599	6.629	14.846
N	114	114	114	114

Notes: Number of Markets measures the number of trading centres located in a village. Number of Vendors is the number of vendors selling at the market. Number of Days Open Per Week is the number of days that the market is open during a week. Operating Time is the number of years that the market has been operating. Variables are from the endline price survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS40: Impact on Market Products

	(1) Agricultural Inputs	(2) Livestock Inputs	(3) Livestock	(4) Crops
Treated	-0.046	-0.034	-0.031	0.021
	(0.093)	(0.097)	(0.062)	(0.076)
Control Mean	0.614	0.526	0.140	0.772
N	114	114	114	114

Notes: All variables are binary variables equal to 1 if the goods are sold at the market. Variables are from the endline price survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS41: Impact on Village Price Indices

	(1) Village Elder Season 1 Crop Price Index	(2) Selling Season 1 Crop Price Index	(3) Selling Season 2 Crop Price Index	(4) Village Elder Livestock Price Index	(5) Selling Livestock Price Index
Treated	-0.003	-0.008	0.008	0.026	0.021
	(0.018)	(0.006)	(0.007)	(0.019)	(0.014)
Control Mean	0.737	0.864	0.759	5.742	5.473
N	335	335	335	335	335

Notes: Price indices are calculated as linear log-price indices weighted by the value shares of each product. Village elder price indices use prices reported by the village elder. Selling price indices are constructed at the village level using household survey data based on reported selling prices. For each product, the median price amongst all households in a village is used to create the village-level price. The weights used in the indices are calculated using the value of the products for households in control villages. The methodology follows that of Egger et al. (2022), where missing prices are imputed using the mean price of all other villages of the same treatment status. The Crop Price Index is calculated separately for season 1 and season 2 using the prices for beans (0.39; 0.38), maize (0.38; 0.40), Irish potatoes (0.15; 0.14), ground nuts (0.07; 0.06) and cassava (0.02; 0.02), with weights included in parentheses in order of season 1 and 2. The Livestock Price Index is calculated using prices for mature cows (0.31) mature goats (0.27), mature pigs (0.12), mature chickens (0.05) and young cows (0.09) young goats (0.09), young pigs (0.04) and young chickens (0.02), with weights included in parentheses. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table OS42: Cluster Spillover Summary Statistics

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			Percentiles					
	Mean	Std. Dev.	10^{th}	25^{th}	50^{th}	75^{th}	90^{th}	N
Panel A. Distance of 0-5km								
Treated Clusters	4.9	2.1	2.0	4.0	5.0	7.0	8.0	114
Total Clusters	9.3	3.7	5.0	7.0	9.0	12.0	15.0	114
Share of Treated Clusters	0.53	0.16	0.36	0.43	0.51	0.62	0.71	114
Panel B. Distance of 0-5km for Control Clusters								
Treated Clusters	4.8	2.1	2.0	3.0	5.0	7.0	8.0	57
Total Clusters	8.8	3.6	4.0	6.0	8.0	11.0	14.0	57
Share of Treated Clusters	0.56	0.16	0.33	0.43	0.56	0.67	0.75	57
Panel C. Distance of 0-5km for Treated Clusters								
Treated Clusters	4.9	2.0	3.0	4.0	4.0	6.0	8.0	57
Total Clusters	9.7	3.8	5.0	7.0	9.0	12.0	15.0	57
Share of Treated Clusters	0.50	0.14	0.36	0.43	0.50	0.58	0.64	57

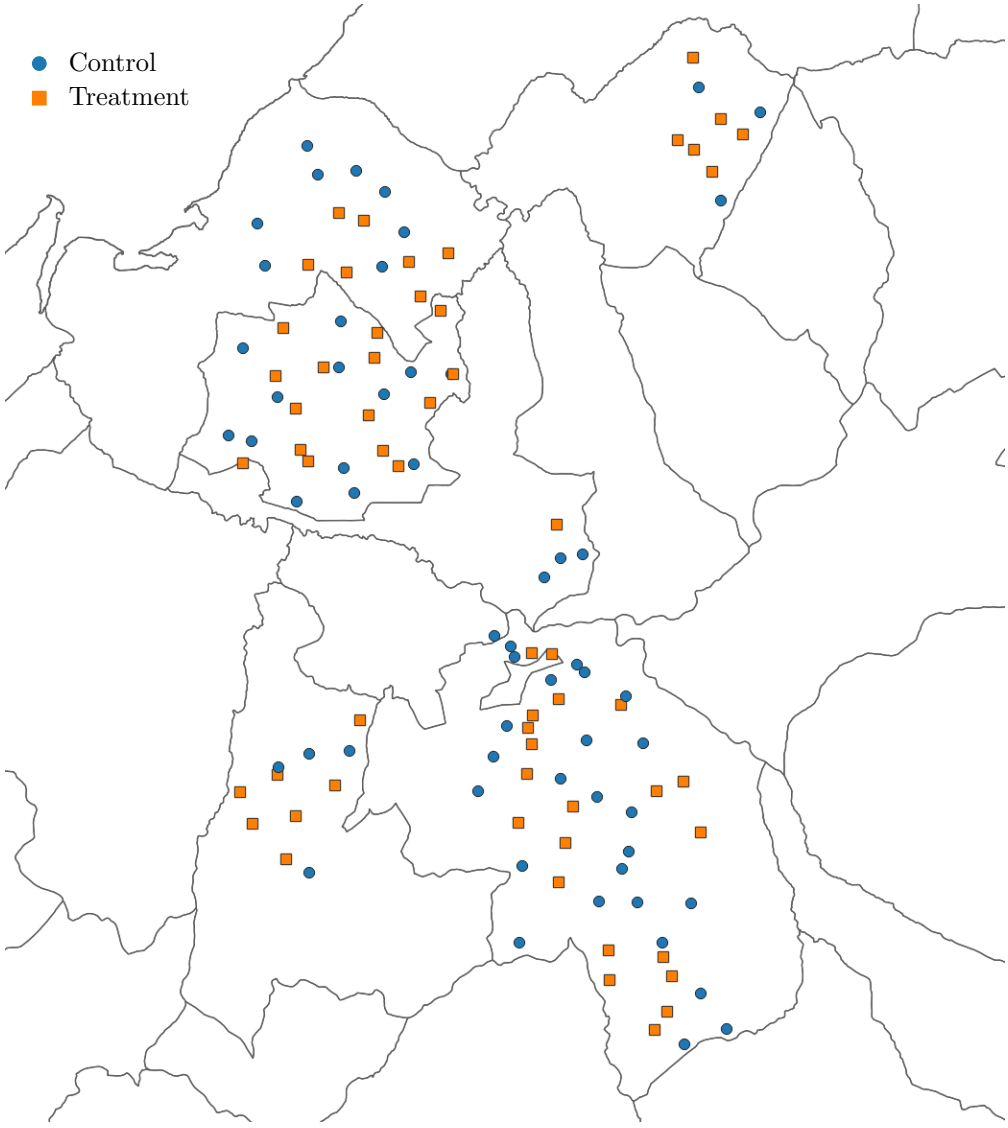
Notes: The table reports summary statistics for the number of clusters, number of treated clusters and share of treated clusters within a certain distance of a cluster. Panel A includes statistics for distances within 5km for all clusters. Panel B and C separate clusters by treatment status. Distances are calculated using the cluster centroids based on the location of the sample of households from the cluster.

Table OS43: Impact on Annual Non-Durable Consumption and Households Assets

	(1) Non-durable Annual Consumption Y2	(2) Non-durable Annual Consumption Y3	(3) Household Assets Y3
Treated	289.449*	658.359***	101.952***
	(171.806)	(168.195)	(30.627)
Control Mean	6,210.983	6,921.776	596.230
N	2,253	3,560	3,560

Notes: Non-durable consumption is total food consumption, non-food non-durable spending on personal goods, house maintenance, utilities, transport, recreation, gifts and health and education expenditure on an annual basis. Household assets is the value of all non-productive durable assets such as furniture and electronics. Y2 refers to the midline and Y3 to the endline survey. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Figure OS1: Map of Study Clusters



Notes: This figure displays a map of the 114 study clusters, with 57 treatment clusters in orange and 57 control clusters in blue. Cluster centroids are calculated as the median of village centroids belonging to the cluster. Black lines indicate sub-county boundaries.

B Cost Scenarios

B.1 Program Cost Details

Program costs are detailed in Table A2.[61] Under (1) Asset/input transfer, we capture all household and village transfers. Household transfers include seeds, tools such as spades and sacks, seedlings and the initial pigs transfers. Village transfers include communal tools and equipment such as wheelbarrows and milling machines, seeds and plants used for demonstration plots, medications and vaccinations for livestock, handouts and materials provided during training and well installation. These are valued at the price and quantity that RTV uses to purchase them and allocated at the cluster level. To obtain an average household-level cost share, we divide the total cost summed across all clusters by the total number of households in all clusters.

Under (2) Personnel costs, we include the cost of RTV program staff during all trainings, as well as subsequent follow-up visits and monitoring. These costs also include other costs associated with the trainings, such as refreshments. We capture all travel to communities by RTV program staff or government workers involved in the program. RTV utilises government workers to support the program trainings and implementation, particularly vets, agricultural extension and health workers. RTV pay the transport costs and a per diem to these government workers, with the government contributing their time. However, to fully account for the cost of these workers, we value the time that government staff contribute to the program using RTV program officer salary scales, to capture the costs that RTV would have incurred had they hired these workers themselves. For this, we use the salary of the RTV staff officer with the closest skill profile, convert this annual salary plus fringe benefits into a daily salary and multiply this by the number of person-days utilised. These costs are allocated at a cluster level. To obtain an average household-level cost share, we divide the average cost in a cluster by the average number of households in a cluster.

Indirect costs (3) include two components. The first is local support and office costs. This includes the total costs at the country level of salaries of all local support staff, utilities and office rent. 80% of the total costs were allocated to the RCT communities in year one, as the RCT communities were in the intensive phase, and 20% of the total costs were allocated in year two, as RCT communities moved to the follow-up and transition phase. The second component is international support and office costs. This includes costs related to program development and fundraising, as well as support personnel and office costs.

[61] See Table B2 for a comparison of program costs in the RTV program against those in the TUP programs in 2014 USD PPP.

These were allocated using an assumption of 40% of total costs assigned to RCT communities in year one and 20% in year two. To obtain an average household-level cost share, we divide the cost by the total number of households in all treated communities. Start-up expenses (4) include costs related to village identification, climatic data and community needs assessment. These are allocated to the RCT treatment communities in proportion to the communities in the RCT as a share of all communities RTV worked in during 2020-2021. To obtain an average household-level cost share, we divide the cost by the total number of households in all treated communities.

B.2 CBA Scenarios

In this section, we consider alternative scenarios for the costs and benefits of the RTV program. We first consider an alternative total cost by valuing the time that committee members contribute to the program. We then consider two alternatives regarding the benefits of the RTV program. These scenarios are shown in Table B1.

In Scenario 1, we value the time commitment that volunteers provide to committees (shown in column 1). We do this using the casual labour wage rate that treated households earn of USD 5.722 PPP an hour (Table OS38 column 1). We worked with RTV to obtain estimates of the time commitment of committee members by committee type during the different stages of program implementation. On average, a committee member spends 155 hours during the first two years of the program working on committee activities, and there are 12 committee members per village. Valuing these hours at the casual wage rate and allocating on a per-household basis results in an inferred cost of USD 85 PPP per household. Including this cost in the total cost of the program results in a total program cost of USD 424 PPP, and a benefit-cost ratio of 217%. Even accounting for volunteer time, the program remains extremely cost-effective.

In Scenarios 2 and 3, we adopt a poverty-focused perspective: we assign the program's entire cost to the poorer households and count only the welfare gains that accrue to them. These scenarios consider the costs and benefits under the scenario that we only place value on the welfare of the poorest households, but still have to provide the program to the entire community.[62] These scenarios reflect extremely redistributive social welfare functions that place zero weight on the welfare of households above the bottom 25 or 50%.

In column (2), we consider the poorest 50% of the community, and in column (3), we consider the poorest quartile. These scenarios were motivated by our review of 54 studies

[62]Since we have no variation in whether everyone received the program or not, we cannot estimate program benefits under scenarios where resources were reassigned from richer to poorer households, or only part of the community received the program.

of anti-poverty programs, where, in the 20 papers that documented the share targeted, on average, 33% of the community was eligible for the program (range 5-82%).[63]. It is further motivated by the share of households in our sample that meet the World Bank extreme poverty line during the harvest (35%) and lean (65%) seasons (Table A1). As most targeted programs use assets as a key part of the targeting criteria, we use wealth to quantify who were the poorest households at baseline. The per-household costs are multiplied by either 2 or 4, since we are allocating the village-level cost to either half or one-quarter of the households. We measure the total benefits to the poorest 50% and 25% by taking the treatment effects on non-durable consumption and household assets from Tables B3 and B4. Note that the total benefits for the bottom quartile and bottom half by wealth are very similar to the average benefits, since we find little heterogeneity.

Table B1: Cost-benefit Analysis Scenarios

	(1) Committee time	(2) Poorest half	(3) Poorest quartile
Total cost (as if incurred yr 0)	424	678	1,356
(a) Inflated total cost yr3	491	786	1,572
(b) Y1 annual nondurable consumption ITT	0	0	0
(c) Y2 annual nondurable consumption ITT	289	173	284
(d) Y3 household asset ITT	102	139	133
(e) Y3 annual nondurable consumption ITT	658	760	756
(f) Total benefit (b)+(c)+(d)+(e)	1,050	1,072	1,173
Benefit-cost ratio (f)/(a)	214%	136%	75%

Notes: Costs deflated at 5% annual rate to year 3. All numbers shown are annual on a per household basis. In column (1), we show a cost benefit scenario accounting for the time commitment of volunteer committee members using the treatment village casual wage rate. In column (2), we consider the costs and benefits only for the poorest half of the village. We share the village total costs only over the poorest half of the village (despite the whole community still receiving the program) and we take the treatment effects for the bottom half as the program benefits. In column (3), we consider the costs and benefits only for the poorest quartile of the village. We share the village total costs only over the poorest quarter of the village (despite the whole community still receiving the program) and we take the treatment effects for the bottom quarter as the program benefits.

We see that the program remains cost-effective, with benefits exceeding costs within 3 years, when we consider the welfare of the poorest half of the village only. When we consider the welfare of only the poorest quartile, benefits are 75% of program costs after 3 years, making the benefit-cost ratio of the RTV program comparable to that seen in other

[63]This excludes universal programs.

anti-poverty programs (Table 4). We view the latter as an extreme scenario, given most anti-poverty programs target more than the poorest quartile, poverty rates are higher than 25% even post-harvest in the study communities, and only an extremely redistributive social welfare function would place zero weight on improving the outcomes of the near poor.

Table B2: Cost Elements of RTV versus the targeting the ultra poor (TUP) graduation programs in Banerjee et al. (2015) (2014 USD PPP)

	RTV	TUP Average	TUP India
(1) Asset/input transfer	111	1,064	700
Asset cost household	56	758	437
Seeds	35	-	-
Livestock	21	758	437
Food stipend	-	305	263
Asset cost village	55	-	-
(2) Personnel costs	50	2,026	407
Salaries	21	1,183	297
Materials		64	1
Training		229	19
Travel costs	6	150	17
Other costs	23	400	73
(3) Indirect costs	118	450	112
Support & office local	88	-	-
Support & office int.	30	-	-
(4) Start-up expenses	9	73	38
Total Cost (1)+(2)+(3)+(4)	288	3,612	1,257

RTV costs deflated to 2014 using the World Bank annual headline consumer price inflation and converted to 2014 PPP using the World Bank annual PPP conversion factor for Uganda (Ha et al., 2023). See Section B.1 for a discussion of the costs included as part of the RTV program. Average across 6 graduation programs from Table 4 of Banerjee et al., 2015. See Banerjee et al. (2015) for a breakdown of the cost categories in their study.

Table B3: Impact on Annual Non-Durable Consumption and Households Assets by Baseline Wealth Median Split

	(1) Non-durable Annual Consumption Y2	(2) Non-durable Annual Consumption Y3	(3) Household Assets Y3
Treated	172.668	760.236***	139.251***
	(202.198)	(200.068)	(31.299)
Treated × Above Median	211.888	-230.670	-74.374
	(301.539)	(252.801)	(54.271)
Control Mean Below Median	5549.15	5977.93	343.78
N	2,253	3,560	3,560

Notes: Non-durable consumption is total food consumption, non-food non-durable spending on personal goods, house maintenance, utilities, transport, recreation, gifts and health and education expenditure on an annual basis. Household assets is the value of all non-productive durable assets such as furniture and electronics. Y2 refers to the midline and Y3 to the endline survey. Median indicators correspond to the household's baseline non-land wealth median. Above Median represents the top 50% of households by baseline non-land wealth. Below Median is the omitted group. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table B4: Impact on Annual Non-Durable Consumption and Households Assets by Baseline Wealth Quartile

	(1) Non-durable Annual Consumption Y2	(2) Non-durable Annual Consumption Y3	(3) Household Assets Y3
Treated	284.437	756.196***	133.486***
	(274.778)	(282.465)	(38.672)
Treated × Quartile 2	-238.611	-16.286	10.091
	(381.256)	(366.378)	(52.801)
Treated × Quartile 3	359.697	-153.688	-26.305
	(401.284)	(336.204)	(59.669)
Treated × Quartile 4	-205.351	-334.123	-113.808
	(429.816)	(385.917)	(77.200)
Control Mean Q1	5430.83	5735.73	304.75
N	2,253	3,560	3,560

Notes: Non-durable consumption is total food consumption, non-food non-durable spending on personal goods, house maintenance, utilities, transport, recreation, gifts and health and education expenditure on an annual basis. Household assets is the value of all non-productive durable assets such as furniture and electronics. Y2 refers to the midline and Y3 to the endline survey. Quartile indicators correspond to the household's baseline non-land wealth quartile. Quartile 1 represents the bottom 25% of households by baseline non-land wealth, while Quartile 4 represents the top 25%. Quartile 1 is the omitted group. Treated is an indicator for the household being in a village that was randomly assigned to receive RTV's programme. Regressions include stratification fixed effects and the baseline value of the outcome when available. All values in USD PPP at the 2023 exchange rate 1:1315 and winsorized at the 1% level. Heteroskedasticity-robust standard errors clustered at the cluster level are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

C Variable Definitions

Table C1: Primary Outcome Family: Consumption

Outcome	Component	Definition	Survey question
Aggregate			
Total monthly consumption (USD PPP)	Total monthly household consumption	Sum of food consumption, durable goods, non-food non-durable goods, and education expenditure. Expressed in USD PPP per month.	—
(a) Food consumption			
Food consumption	Purchased and gifted food	Sum of seven food-category expenditures (staples, pulses, milk and milk products, vegetables, fruits and nuts, eggs/fish/meat, other food), meals and snacks outside the home, food gifts from outside the household, and food received in-kind as payment for work. All collected on a 7-day recall, scaled to monthly by multiplying by 30/7.	"What did your household spend on [food category] in the last 7 days?"; "What is the total value of all food consumed in the last 7 days that was given as a gift by someone/an organisation from outside the household?"; "What is the total value of all food consumed in the last 7 days that was given in-kind as payment for work?"

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Table C1 continued from previous page

Outcome	Component	Definition	Survey question
	Own-crop consumed	For each annual crop: quantity consumed from own production in the last 7 days multiplied by the household-reported market price, summed across crops, and scaled to monthly (30/7).	Quantity consumed and market price collected per crop.
	Own animal-product consumed	For each animal product: quantity consumed from own production in the last 7 days multiplied by the household-reported market price, summed across products, and scaled to monthly (30/7).	Quantity consumed and market price collected per animal product.
	Own-perennial crop consumed	For each perennial crop: quantity consumed from own production in the last 7 days multiplied by the household-reported market price, summed across crops, and scaled to monthly (30/7).	Quantity consumed and market price collected per perennial crop.
(b) Durable goods			

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Table C1 continued from previous page

Outcome	Component	Definition	Survey question
Durables	Total spending on durables	Total value of durable goods purchased in the last 12 months, entered directly as a monthly stock.	"What is the total value of durable products such as furniture, electronics and other household appliances, purchased in the last 12 months by your household?"
(c) Non-food non-durable goods			
Non-food non-durables	Fuel & lighting	Monthly spending on fuel and lighting (paraffin/kerosene, charcoal, wood, petrol, electricity).	"How much did your household spend on fuel and lighting in the last month?"
	Water	Monthly spending on utilities, e.g. water.	"How much did your household spend on utilities, e.g. water, in the last month?"
	Phone credit	Monthly spending on phone credit.	"How much did your household spend on phone credit in the last month?"
	Transport	Monthly spending on transport (boda, bus).	"How much did your household spend on transport in the last month?"
	Soap & personal care	Monthly spending on personal washing and cleaning products (soap, toothpaste, cosmetics).	"How much did your household spend on personal washing and cleaning products in the last month?"
	Rent	Monthly rent paid for homestead (excludes land rent).	"How much did your household pay in rent for the homestead in the last month?"
	Women's clothing	Annual spending on clothing for adult women, divided by 12.	"How much did your household spend on clothing for adult women in the last year?"

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Table C1 continued from previous page

Outcome	Component	Definition	Survey question
	Girls' clothing	Annual spending on clothing for children (girls), divided by 12.	"How much did your household spend on clothing for children (girls) in the last year?"
	Men's clothing	Annual spending on clothing for adult men, divided by 12.	"How much did your household spend on clothing for adult men in the last year?"
	Boys' clothing	Annual spending on clothing for children (boys), divided by 12.	"How much did your household spend on clothing for children (boys) in the last year?"
	Household items	Annual spending on household items (buckets, linen, pictures, books, kitchen utensils and crockery), divided by 12.	"How much did your household spend on household items in the last year?"
	Maintenance	Annual spending on maintenance and repairs of the house, divided by 12.	"How much did your household spend on maintenance of the house in the last year?"
	Medical care	Annual spending on medical care, divided by 12.	"How much did your household spend on medical care in the last year?"
	Gifts	Annual spending on gifts (cash and non-cash) to people and organisations (e.g. church), divided by 12.	"How much did your household spend on gifts to people and organisations in the last year?"
	Recreation	Annual spending on recreation and entertainment, divided by 12.	"How much did your household spend on recreation/entertainment in the last year?"
(d) Education			

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Table C1 continued from previous page

Outcome	Component	Definition	Survey question
Education	Tuition	For each household member: amount paid by the household towards tuition in the last completed academic year, divided by 12.	"How much did the household pay towards tuition for [member] in the last completed academic year?"
	School supplies	For each household member: household spending on school-related supplies and uniforms in the last completed academic year, divided by 12.	"How much did the household spend on other school-related supplies and uniforms for [member] in the last completed academic year?"

Table C2: Primary Outcome Family: Labour Supply

Outcome	**Component**	**Definition**	**Survey question**
Aggregate			
Total labour supply (days)	Total household labour supply	Sum of days worked across all five activities (livestock, farm, non-farm enterprise, salaried employment, casual labour) in the last 4 weeks, across all household members.	—
Components (days in last 4 weeks, all household members)			
Labour supply	Livestock	Total days worked by all household members on household livestock in the last 4 weeks. Set to zero if the household reports no livestock work.	"How many days did [member] work on the household livestock in the last 4 weeks?"
	Farm	Total days worked by all household members on the household farm in the last 4 weeks. Set to zero if the household reports no farm work.	"How many days did [member] work on the household farm in the last 4 weeks?"

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Table C2 continued from previous page

Outcome	Component	Definition	Survey question
	Non-farm enterprise	Total days worked by all household members across up to five businesses (pre-existing and new) in the last 4 weeks. Set to zero if no household member operates a business or if no household member works on the business.	"How many days did [member] work in this business in the last 4 weeks?"
	Salaried employment	Total days in formal salaried employment outside the household for all household members in the last 1 month. Set to zero if the household reports no salaried employment.	"How many days did [member] work outside the household as a salaried employee in the last 1 month?"
	Casual labour	Total days in casual labour outside the household for all household members in the last 4 weeks. Set to zero if the household reports no casual work.	"How many days did [member] work outside the household as a casual labourer in the last 4 weeks?"

Table C3: Primary Outcome Family: Wealth

Outcome	**Component**	**Definition**	**Survey question**
Aggregate			
Total wealth (USD PPP)	Total household wealth	Sum of total asset value, livestock value, total savings, and net lending.	—
(a) Assets			

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Table C3 continued from previous page

Outcome	Component	Definition	Survey question
Assets	Total asset value	Sum of self-reported current market values across 14 asset categories. Set to zero where the household doesn't own the asset. Categories: (1) Radio, (2)Mobile phones, (3) Furniture (Chairs, sofas, tables, desks, cupboards) (4) Small farm implements (hand hoes, machetes, slashers), (5) Electric and hand tools (power saw, drill, pliers) (6) Farm equipment & Machinery (including irrigation equipment)', (7) Bicycles/Motorcycles/Scooters or any other form of transport, (8) Solar panels/batteries/generators, (9) Matresses, bedd, (10) Jerrycans, (11) Cooking pots/pans, (12) Ovens/stoves (13) Jewellery and watches, (14) Electrical items e.g. TV, fan, fridge.	"Number of working [asset type]s in a household" and "Asset value" (asked per asset category).
(b) Livestock			

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Table C3 continued from previous page

Outcome	Component	Definition	Survey question
Livestock	Total livestock value	For each species: (number of mature animals owned × prevailing market price for mature animals) plus (number of young animals owned × prevailing market price for young animals), summed across goats, sheep, chicken, pigs, rabbits, cows, turkey, bees, guinea pigs, ducks, and other livestock. Set to zero if missing.	"Total number of mature/young [species] owned" and "Prevailing market price for mature/young [species]."
(c) Savings			
Savings	Total household savings	Sum of amounts currently saved across seven savings modes: bank account, SACCO, mobile money account, with a shopkeeper, with family and friends, on person or at home, and VSLA/cash round. Set to zero if the household reports no savings.	"What amount in USD PPP is currently saved in [savings mode]?"
(d) Net lending			

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Table C3 continued from previous page

Outcome	Component	Definition	Survey question
Net lending	Outstanding loans given	Total amount still owed to the household from loans extended to individuals outside the household, including any interest. Set to zero if the household reports no outstanding loans given.	"How much money must still be repaid to you or your household members? Include any interest you would charge, and the value of any loans made in goods or food."
	Outstanding loans taken	Sum of remaining balances on up to five current outstanding loans. Set to zero if the household reports no current loans.	"What is the total amount that still needs to be repaid for this loan?"
	Net lending (aggregate)	Outstanding loans given minus outstanding loans taken.	—

Table C4: Primary Outcome Family: Income

Outcome	Component	Definition	Survey question
Aggregate			
Total monthly income (USD PPP)	Total monthly household income	Sum of monthly crop sales, animal income, non-farm enterprise profits, wage and salary income, and rental income.	—
(a) Crop sales			
Income	Season 1 crop sales	For each annual crop: quantity sold in season 1 multiplied by the season 1 market price, summed across crops. The seasonal total is divided by 6 to obtain a monthly figure.	Quantity sold and market price collected per crop for season 1.
	Season 2 crop sales	For each annual crop: quantity sold in season 2 multiplied by the season 2 market price, summed across crops. The seasonal total is divided by 6 to obtain a monthly figure.	Quantity sold and market price collected per crop for season 2.
	Perennial crop sales	For each perennial crop: quantity sold multiplied by price, summed across perennial crops. The annual total is divided by 12 to obtain a monthly figure.	Quantity sold and market price collected per perennial crop on an annual recall.

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Table C4 continued from previous page

Outcome	Component	Definition	Survey question
	Total monthly crop sales	Sum of season 1, season 2, and perennial crop sales.	—
(b) Livestock and animal product sales			
	Livestock sales	For each species: (number of mature animals sold × mature price) plus (number of young animals sold × young price), summed across all species. Annual total divided by 12 to obtain a monthly figure.	Number of mature/young animals sold and prevailing market prices collected per species on an annual recall.
	Animal product sales	For each animal product: quantity sold in the last month multiplied by price, summed across products.	Quantity sold and market price collected per animal product on a monthly recall.
	Total animal income	Sum of monthly livestock sales and monthly animal product sales. Set to zero if missing.	—
(c) Non-farm enterprise profits			
	Enterprise profits	Sum of profits from up to three pre-existing businesses and up to three new businesses over the last 4 weeks. Set to zero if the household operates no business.	"What was the profit the business earned in the last 4 weeks?"

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Table C4 continued from previous page

Outcome	Component	Definition	Survey question
(d) Salaried and casual labour income			
	Casual labour earnings	For each household member engaged in casual labour: total earnings (including the value of any in-kind payments) in the last 4 weeks, summed across members. Set to zero if the household reports no casual work.	"In the last 4 weeks, how much did [member] earn from this activity in total? Include the value of any in-kind payments."
	Salaried earnings	For each household member in formal salaried employment: total earnings (including the value of any in-kind payments) in the last 1 month, summed across members. Set to zero if the household reports no salaried employment.	"In the last 1 month how much did [member] earn from this activity in total? Include the value of any in-kind payments."
	Total wage income	Sum of all casual earnings and salaried earnings.	—
(e) Rental income			
	Non-land rental income	Annual net income earned from renting out up to three non-land assets, divided by 12.	"Annual net income earned from [rental asset]."

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Table C4 continued from previous page

Outcome	Component	Definition	Survey question
	Land rental income	Rent received for land rented out in season 1 and season 2, combined and divided by 12.	"How much rent do you receive per season for this land?"
	Total monthly rental income	Sum of monthly non-land and land rental income. Set to zero if missing.	—