

Supporting Women’s Livelihoods at Scale: RCT Evidence from a Nationwide Graduation Program

Ioana Botea, Markus Goldstein, Corinne Low, Gareth Roberts

November 4, 2021

Abstract

The success of “graduation model” programs at bringing low-income women out of poverty raises the question of how these programs can be usefully implemented at scale by developing countries that may have varying state capacity. We examine these questions with a Randomized Controlled Trial layered onto the government of Zambia’s loan-funded implementation of a nationwide graduation-style program with 75,000 beneficiaries, called “Supporting Women’s Livelihoods.” We find that the program led to 25% higher consumption 10 months after grant delivery, mostly funded through new income generating activities. This was accompanied by large increases in subjective well being and food security. However, the “full package” arm that included training and mentorship in addition to financial capital had no marginal benefit to recipients over financial capital only, and the arm with these human capital elements alone had mostly zero effect. Takeup of the training was high, indicating that its lack of efficacy may have stemmed from either low expertise and incentives of the government-hired instructors or human capital not being the binding constraint in women increasing their earnings (versus credit constraints). Our findings suggest that governments can successfully implement highly impactful grant delivery at scale, resulting in a positive return on aid investment, but that the cost-benefit of at-scale training as part of a multi-pronged intervention should be more carefully considered.

1 Introduction

A growing body of evidence suggests that multifaceted “graduation approach” programs can help poor households develop stable income-generating activities and escape poverty through a one-time comprehensive livelihood intervention (Bandiera et al., 2016; Blattman et al., 2016; Banerjee et al., 2015). Based on the premise that extreme poverty is a complex problem that cannot be solved with one individual fix, the graduation model provides a holistic package (often referred to as a “big push”) that typically includes a productive asset transfer, consumption support, individual coaching, savings support, and life and livelihood skills training. Emerging long-term evidence shows that the positive impacts on income, consumption and

asset ownership persist after seven and ten years (Banarjee et al., 2016; Banarjee et al., 2020a; Bandiera et al., 2017; Balboni et al., 2020). While relatively expensive and logistically complex, this type of multipronged program is thus appealing because of the promise that a time-bound engagement will have persistent impact on poverty reduction.

The strong initial evidence has led to a “surge” in graduation-style programming as developing country governments attempt to reduce poverty and aid dependency (Andrews et al., 2020). What is less clear from the existing literature, however, is whether governments can be equally effective as the specialist NGOs in implementing these multi-pronged approaches, and, if so, which elements of the program are most crucial, and cost-effective, to create the desired effects. Indeed, a second generation of impact evaluations aims to unbundle the graduation package and isolate mechanisms through which the intervention operates. While emerging evidence suggests that multipronged interventions are more effective than standalone interventions and that the interaction between the components is likely to drive overall program impacts (Banarjee et al., 2018; Chowdhury et al., 2017; Sedlmayr, Shah, and Sulaiman 2019), the existing evidence base is dominated by programs implemented by NGOs.

To answer these questions, we layered a multi-arm RCT onto the government of Zambia’s “Supporting Women’s Livelihoods” (SWL) program, which was funded with an \$36 million loan from the World Bank and aimed to reach 75,000 beneficiaries over 5 years.¹ The government decided to implement a streamlined version of the BRAC graduation model, exclusively through the Ministry of Community Development and Social Services (MCDSS) and its decentralized structures. The SWL package consisted of four activities, each intended to alleviate one or more constraints to women’s income generation: (i) a 21-day life and business skills training delivered through community-based volunteers, (ii) a productive grant of US \$225, (iii) savings groups, and (iv) six months of follow-up support and group mentoring. Productive grants were chosen instead of an asset transfer because of the large geographical heterogeneity in preferred livelihoods throughout Zambia.²

Beneficiaries were randomized into four separate arms. The first was a pure control, receiving simple cell phones for enumerator follow-up only. The second was the complete package. The third group, “financial capital,” received the productive grant and access to a savings group only. And the final group, “human capital,” received the training and follow-up

¹The program received US \$37.8 million additional financing in 2019 to reach another 60,000 beneficiaries, for a total of 135,000 beneficiaries in 81 out of 103 districts, by 2025.

²The modal business entered was petty trading. The training was thus a more general life and business skills training not specific to livestock rearing. Nonetheless, many individuals did also purchase livestock with their grant.

mentoring only. Additionally, because the main program the government was implementing did not include consumption support, the government agreed to randomize those receiving the full package into arms with and without additional cash transfers, in order to test whether this support would improve the program’s efficacy.³

To enable the causal identification of impacts, the assignment of the treatment was conducted in two stages. First, communities (or CWACs, Community Welfare Assistance Committees) were selected to receive SWL in the second phase of program implementation, and participate in the impact evaluation, through public lotteries in each district. The randomization was stratified at the ward level. To keep baseline survey respondents blind to the treatment, communities across treatment arms – including control, or “phones only” – were just told during these community-lotteries that they would receive one of five variations of SWL in Phase 2, with the assignment announced after the baseline survey. After the 298 communities were assigned, 20 beneficiaries on average were randomly selected from those eligible within each CWAC, with variation depending on the size of the CWAC. For this paper, our analysis sample includes 5,613 individuals assigned to the four arms, of which 5,238 were surveyed at follow-up.

By implementing our RCT in the context of a large-scale implementation, we are able to test the efficacy of not the “laboratory” version of the graduation model, but rather how it may look when taken to the masses, without the expertise of BRAC or another specialized NGO as implementer. Furthermore, our design allows us to disaggregate the value of the separate elements, as well as examine any possible additional marginal impact of human capital elements on top of the financial capital provided.

Our results show a substantial increase in consumption, food security, asset-holding, and mental health of beneficiaries of the full package. 16-18 months after the first (of two) grant disbursement, consumption was 20% higher in the group that received the full package than in the control group, comparing favorably to the 5% increase in Banerjee et al., 2015a (measured 18-29 months since asset transfer). Interestingly, these results are almost identical between the full package and financial capital arm, and the human capital arm on its own shows no benefits compared to control.

Beneficiaries in both the full package and financial capital arm experienced substantially increased food security, with a 32% decrease in skipping meals. They also experienced a substantial increase in savings (more than doubling control values), an asset index, and a

³The consumption support was in the form of three bi-monthly cash transfers of US \$15 each.

livestock index. In addition to purchases made with grant funds, the large consumption effects appear driven by a 70% increase in business profit and income generating activity (50% more activities) and doubling of agricultural productivity, while the household substituted away from petty labor. Again, these effects are statistically equivalent between the financial capital and full package arms, and entirely absent in the human capital arm.

Our evaluation fills a unique spot in the graduation program literature, by being implemented by the government and at large scale. Our results are apiece with other research showing that scale-ups with government implementers of successful RCTs may face their own challenges (e.g., Banerjee, Duflo, and Glennerster, 2008, Bold et al, 2021). These findings suggest that governments can successfully implement wide-scale grant delivery with results of comparable size to existing graduation literature. They also suggest further research is warranted into enabling factors of successful training scale-up.

2 Experimental Design

2.1 Intervention and RCT Arms

Supporting Women’s Livelihoods (SWL) is a comprehensive economic inclusion intervention implemented by the Ministry of Community Development and Social Services (MCDSS) with World Bank funding. It aims to empower extremely poor women from rural areas through a bundled, “big push”, package consisting of life and business skills training, a productive grant of ZMW 2,500 (USD 225), group mentorship, and support to form savings groups. SWL targets 75,000 beneficiaries across 51 districts nationwide and is implemented exclusively through government structures. Supporting Women’s Livelihoods (SWL) was implemented as part of the World Bank-funded Girls’ Education and Women’s Empowerment and Livelihoods (GEWEL) project in Zambia. Designed based on global evidence that multi-faceted, “big push”, interventions can address multiple constraints faced by extremely poor households and enable them to graduate into sustainable livelihoods, SWL includes the following components: Life and business skills training provided by trained community-based volunteers (CBVs) over the course of three weeks; Productivity grant of ZMW 2,500 (US\$ 225), delivered in two installments through a provider of the beneficiary’s choice;⁴ Savings groups, following the

⁴At the end of the life and business skills training, beneficiaries are enrolled in the payment system and asked to choose among five payment service providers (Zoono, MTN, NatSave, Zampost, UBA). They are provided with mobile phones and sim cards prior to enrollment so that the choice is based on accessibility, fees, and services. Enrollment data from non-impact evaluation districts shows that 77% of beneficiaries chose mobile money in Phase 2.

master trainer model, led by trained community-based volunteers (CBVs); Group mentoring, including refresher training and linkages to other public services, offered just after weekly savings group meetings for 6 months.

In a subset of full package CWACs, beneficiaries were also offered consumption support in the form of three bi-monthly cash transfers of ZMW 180 (US\$ 15), mirroring the government’s “social cash transfer” program, which most SWL beneficiaries were ineligible for.

The SWL program targeted approximately 75,000 female ‘breadwinners’ aged 19 to 64 and living in extremely poor households. These women are selected through a three-step targeting mechanism, which includes: (i) participatory wealth ranking (PWR), where the community identifies extremely poor households with female breadwinners, (ii) self-registration to collect basic information about identified female breadwinners and verify eligibility criteria (i.e., aged 19-64, at least one minor living in the household, resident of the community for minimum 6 months, not a Social Cash Transfer beneficiary), and (iii) community validation and, where the number of eligible women exceeds places available, beneficiary-selection lotteries.⁵

The project was rolled out in 51 out of 103 districts in Zambia over three phases from 2017 to 2020. The impact evaluation was carried out in 10 districts in Phase 2, after the intervention will have been piloted and refined during Phase 1.

The intervention is evaluated using a clustered randomized controlled trial (RCT), with randomization at the community level, and then beneficiaries randomly drawn within communities. Communities (or CWACs, Community Welfare Assistance Committees) were selected to receive SWL in Phase 2, and participate in the impact evaluation, through public lotteries in each district. Communities were randomized into four arms: (1) Control arm, which received simple cell phones for follow-up only; (2) “Full Package,” the complete intervention, with a random half of these communities additionally receiving consumption support; (3) Financial Capital, productive grants and savings groups; and (4) Human Capital, training and mentorship.

The randomization was stratified at the ward level. To keep baseline survey respondents blind to the treatment, communities across treatment arms – including control, or “phones only” – were just told during these community-lotteries that they would receive one of five variations of SWL in Phase 2. The assignment of communities to treatment arms was done subsequently using a Stata program, and publicly announced only after the baseline survey. The RCT design further exploits the oversubscription to SWL to measure spillovers and

⁵93% of CWACs in IE districts conducted lotteries

general equilibrium effects, which will be analyzed in future work. As described above (p. 2), the targeting process culminates in community-level public lotteries to select beneficiaries among all those deemed eligible in the previous two steps of the targeting process.

The randomization was largely successful, however, one large district failed to assign the treatment to the correct beneficiaries. The failure occurred within CWAC, with assigned beneficiaries receiving the grant only 25% of the time, compared to 86% in other districts, as shown in Appendix Table 6. CWACs not assigned to an arm including the grant did not show any grant recipients. Because Petauke is a large district, and thus this extremely low rate of grant receipt by supposed beneficiaries would substantially dilute results, we exclude Petauke from our main analysis. The appendix shows effects including Petauke, which are consistent with our main results. Balance results without Petauke are shown in Appendix table 7.

We analyze using an intent-to-treat approach, comparing each treatment group to the control group (the omitted category), and testing for equivalence between the full package (FP) and financial capital (FC) arms. Because we find no effect of the additional consumption support, for ease of interpretation we pool the two full package arms, and include a control for consumption support. Consumption support effects are shown in the appendix. We include controls for baseline values of all outcome variable where available, as well as strata fixed effects. Robust standard errors are clustered at the CWAC level. Thus, our specification is as follows:

$$Y_i = \beta_0 + \beta_1 FullPackage_i + \beta_2 FinancialCapital_i + \beta_3 HumanCapital_i + \gamma' Z_i + \epsilon_i.$$

2.2 Data Collection

Data collection was conducted by Palm Associates, a survey firm based in Lusaka. Data was gathered electronically through tablets and only 2% of surveys were filled out using emergency paper questionnaires. Data collection was conducted by 10 teams, comprising of five enumerators and a supervisor each, in addition to two teams of two enumerators and one supervisor each in charge of back-checks. The role of the back-check teams was to revisit a random subset of 10% of households and administer an abbreviated questionnaire for data quality control. In addition, high frequency checks were conducted routinely to identify inconsistencies and track progress.

The baseline survey was administered with two instruments—household and community questionnaires—to capture key indicators. The exercise lasted two months (November 2018

to January 2019) and spanned 298 CWACs across 10 districts. Household surveys included a roster of all household members and measured outcomes on employment, consumption, agriculture, finances, and women’s empowerment. The main respondent was the woman selected as an SWL beneficiary during the targeting process. In addition, a male respondent was surveyed in households where the main respondent had a husband or partner living in the household for at least 6 out of the last 12 months. Part of the household questionnaire, male respondent modules captured outcomes on his own employment, business activities, and transfers. Community surveys were conducted by team supervisors in each CWAC. These were group surveys, each one consisting of 4 to 8 participants from the community, including traditional leaders, teachers and business owners. These surveys captured information on access to services, goods and labor markets as well as recent changes experienced by the community.

The endline survey commenced at the beginning of February 2021, after a pilot was conducted in Rufunsa district, and the majority was completed by April. This timing was 16-18 months after the first grant disbursement. 93% of households were successfully followed. In the first phase of the midline survey, all teams first went to Samfya, as it was one of the largest districts. They then spread out to cover Zambezi, Chilubi, Nalolo, Mungwi and Lufwanyama. After completing the surveys in these districts, the teams returned to Lusaka for a week’s debrief and then commenced the second phase of the survey. In the second phase, all teams first went to Petauke, and then spread out to cover Gwembe, Itezhi-tezhi and Mafinga. There were debriefs in each district based on High Frequency Checks HFCs. The teams had to resolve irregularities in the data from the HFCs before moving on to the next district. The backchecker teams left a district approximately one week after the main survey teams. There were a small number of CWACs that were inaccessible due to flooding. The respondents in these CWACs were surveyed between June and August 2021. The median duration of a survey was 1.58 hours.

3 Results

Table 3 shows that the full package induced a substantial increase in beneficiary consumption and food security. Total consumption increased 20% on an annualized basis, when measured 16-18 months from the first grant delivery. Both food and non-food consumption increased. Although the follow-up was not quite as far out as in Banerjee et al. (2015a), which was measured 18-29 months from asset disbursement, the effect size is approximately 4 times as

Table 1: Consumption and Food Security

Panel A: Consumption (Zambian Kwacha, ZMW)				
	(1)	(2)	(3)	
	Total	Food	Non-food	
	consumption	consumption	consumption	
Full package	404.70*** (110.773)	306.13*** (96.120)	105.84*** (30.453)	
Financial capital	397.34*** (126.561)	302.85*** (105.964)	112.46*** (30.327)	
Human capital	4.31 (115.690)	15.54 (101.463)	8.28 (23.589)	
Observations	3798	3814	3809	
Control mean	2005.485	1711.154	293.827	
p-value (FC=FP)	0.952	0.975	0.831	
Panel B: Food Security				
	(4)	(5)	(6)	(7)
	Did not get	Two or more	Skipped meal	Borrowed food
	enough food	meals a day	in last 7 days	
Full package	-0.20*** (0.035)	0.15*** (0.033)	-0.14*** (0.039)	-0.11*** (0.035)
Financial capital	-0.16*** (0.036)	0.12*** (0.034)	-0.13*** (0.041)	-0.10*** (0.035)
Human capital	-0.04 (0.041)	0.06* (0.035)	-0.07* (0.042)	-0.01 (0.034)
Observations	3826	3826	3826	3826
Control mean	0.621	0.737	0.400	0.356
p-value (FC=FP)	0.109	0.093	0.904	0.949

Notes: All outcomes are annual unless otherwise specified. Consumption outcomes are calculated per capita. Robust CWAC-clustered standard errors in parentheses. All regressions include (absorbed) strata dummies and the baseline outcomes as controls, in addition to a control for the additional consumption support in half the full package CWACs. *p<.1 **p<.05 ***p<.01.

Table 2: Assets and Savings

	(1)	(2)	(3)	(4)	(5)	(6)
	Total savings (ZMW)	Total borrowing (ZMW)	Assets index (Z-score)	Livestock index (Z-score)	Number of Goats	Number of Pigs
Full package	365.60*** (62.685)	24.31* (14.589)	0.26*** (0.079)	0.15** (0.075)	0.64** (0.256)	0.44*** (0.145)
Financial capital	344.74*** (66.012)	1.75 (8.165)	0.25*** (0.084)	0.21** (0.101)	0.89*** (0.273)	0.36*** (0.106)
Human capital	-23.75 (50.685)	-17.72 (10.865)	-0.03 (0.074)	0.03 (0.063)	0.11 (0.254)	0.17* (0.091)
Observations	3810	3825	3826	3812	3824	3825
Control mean	202.040	26.082	-0.000	-0.000	1.011	0.199
p-value (FC=FP)	0.755	0.115	0.893	0.542	0.321	0.598

Notes: Outcomes represent a moment-in-time count at the household level. Robust CWAC-clustered standard errors in parentheses. All regressions include (absorbed) strata dummies and the baseline outcomes as controls (except for asset and livestock indices, where the baseline questions were not equivalent), in addition to a control for the additional consumption support in half the full package CWACs. *p<.1 **p<.05 ***p<.01.

large, and at a point in time when individuals are unlikely to be still consuming the grant itself. Interestingly, the effects are identical between the Full Package and the Financial Capital arm. Moreover, Appendix Table 8 also shows no effect of consumption support on top of the full package for any of our main outcomes. Appendix Table 9 shows that results are robust to including the non-compliant Petauke district. These consumption effects are per capita, with an average household size of 5.2 individuals, meaning total consumption increased by 2,000 Kwacha per annum, which alone almost matches the value of the grant.

Food security shows similar gains, with households reporting not getting enough food less frequently, an increase in eating two or more meals a day, fewer days skipping meals, and less of a need to borrow food. Again, full package and financial capital are equivalent, and human capital shows little effect, although a marginal effect on meals.

Table 3 shows a large effect from the full package on savings, with a more than 100% increase. There is little effect on borrowing. Assets increase substantially, with a 0.15 increase in the z-score, and livestock experiences an even larger 0.64 z-score increase. The livestock increase is driven by an increase in pigs and goats (other livestock see only small changes), with an average of about a half additional animal of each. This is a 60% increase in goats and a 200% increase in pigs from the control mean. Again, results between the full package and financial capital are indistinguishable, and human capital is mostly zero.

Table 3 explores changes in occupation and earnings. Full package and financial capital beneficiaries reduced their time supplying petty wage labor, or *ganyu*. There was a 7 per-

Table 3: Occupation and Earnings

	Panel A: Occupation						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Any labor earnings	Running non-farm business	Number of IGAs	HH does agricul- ture	Sold crops in the last year	HH owned livestock	Sold livestock
Full package	-0.09*** (0.033)	0.07** (0.031)	0.27*** (0.054)	0.01 (0.033)	0.20*** (0.041)	0.23*** (0.038)	0.11*** (0.029)
Financial capital	-0.08** (0.034)	0.07* (0.035)	0.27*** (0.056)	-0.01 (0.035)	0.21*** (0.039)	0.24*** (0.038)	0.07** (0.034)
Human capital	-0.03 (0.031)	-0.03 (0.033)	0.04 (0.055)	-0.03 (0.038)	0.10*** (0.037)	0.07** (0.036)	0.04 (0.029)
Observations	3826	3826	3826	3826	3822	3826	3826
Control mean	0.346	0.198	0.575	0.714	0.395	0.531	0.245
p-value (FC = FP)	0.893	0.977	0.965	0.523	0.656	0.892	0.213
	Panel B: Earnings (ZMW, annual)						
	(8)	(9)		(10)		(11)	
	Labor earning	Business profits		Income from selling crops		Income from selling livestock	
Full package	-270.2*** (73.7)	778.2*** (285.6)		518.2** (259.1)		7.1 (54.1)	
Financial capital	-108.7 (113.9)	1132.7*** (335.6)		897.5*** (299.9)		18.1 (49.6)	
Human capital	-185.5** (81.3)	-232.2 (248.8)		-38.8 (253.5)		-27.0 (46.3)	
Observations	3817	3811		3815		3826	
Control mean	646.4	1547.1		893.3		197.2	
p-value (FC = FP)	0.137	0.285		0.116		0.799	

Notes: Robust CWAC-clustered standard errors in parentheses. All regressions include (absorbed) strata dummies and the baseline outcomes as controls (except for crop and livestock sales, where the baseline questions were not equivalent), in addition to a control for the additional consumption support in half the full package CWACs. *p<.1 **p<.05 ***p<.01.

Table 4: Mental Health (z-scores)

	(1) Perceived happiness	(2) Self esteem index	(3) Mental health index	(4) Decision making index
Full package	0.16*** (0.033)	-0.08 (0.058)	0.18*** (0.063)	0.10 (0.074)
Financial capital	0.21*** (0.034)	-0.01 (0.062)	0.23*** (0.062)	0.12 (0.085)
Human capital	0.02 (0.034)	0.02 (0.057)	-0.05 (0.069)	-0.02 (0.075)
Observations	3826	3826	3826	3826
Control mean	0.560	-0.000	-0.000	0.000
p-value (FC = FP)	0.106	0.303	0.321	0.720

Notes: Robust CWAC-clustered standard errors in parentheses. Outcomes presented in standardized z-scores. All regressions include (absorbed) strata dummies and the baseline outcomes as controls (except for perceived happiness where baseline data is not available), in addition to a control for the additional consumption support in half the full package CWACs. * $p < .1$ ** $p < .05$ *** $p < .01$.

centage point increase in running non-farm businesses, and a more substantial increase in the number of income generating activities, 27 percentage points, a 50% increase from the control mean. Most households participated in agriculture, so there was little change there, but there was a 50% increase in households selling crops for profit, from a control mean base of 40%. There was also a substantial increase in the share that owned livestock and sold any livestock.

These changes in occupation correlate with changes in earnings. Wage labor earnings decreased, while business profits increased, by about 50%. The increase in business profits alone would be sufficient to earn back the grant money in three years. There was also a 60% increase in crop income. Interestingly, there was no change to livestock income, which may mean that these assets have not begun to be sold yet.

Once more, the financial capital arm is similar to the full package arm, with a small effect of human capital on agriculture for-profit participation, but not earnings.

Table 4 explores the impact on respondent mental health, and shows a substantial improvement in perceived happiness and a mental health index of symptoms such as depression and exhaustion. The full package is associated with a 0.18 z-score movement in the mental health index, with the financial capital impacts being if anything larger. Interestingly, there was little change in self esteem and, since beneficiaries were female breadwinners who may have already been substantially empowered, little change to a female decision-making index.

Finally, we follow Banerjee et al. (2015a) in examining effects throughout the distribution, using a quantile regression, in Table 5. We find that consumption, food security, assets,

Table 5: Quantile Regressions

	Full Package				
	(1) 10th	(2) 25th	(3) 50th	(4) 75th	(5) 90th
Per capita consumption, z-score	0.043*** (0.014)	0.065*** (0.019)	0.069*** (0.024)	0.071** (0.033)	0.086* (0.050)
Food security index, z-score	0.182*** (0.043)	0.162 (0.127)	0.182*** (0.063)	0.000 (0.042)	0.000 (0.010)
Asset index, z-score	0.051*** (0.013)	0.072*** (0.018)	0.101*** (0.033)	0.118** (0.057)	0.185** (0.078)
Total savings amount, z-score	0.000 (0.008)	0.000 (0.007)	0.141*** (0.015)	0.251*** (0.023)	0.347*** (0.095)
Labor earnings, z-score	0.000 (0.001)	0.000 (0.001)	-0.029*** (0.010)	-0.103*** (0.027)	-0.200*** (0.041)
Business profit, z-score	0.000 (0.003)	0.000 (0.002)	0.028*** (0.009)	0.078*** (0.027)	0.153* (0.091)
Mental health index, z-score	0.109* (0.059)	0.075** (0.037)	0.035 (0.030)	0.062* (0.033)	0.049** (0.023)
	Financial Capital Only				
	(6) 10th	(7) 25th	(8) 50th	(9) 75th	(10) 90th
Per capita consumption, z-score	0.114** (0.049)	0.143** (0.057)	0.166 (0.105)	0.280** (0.129)	0.450* (0.254)
Food security index, z-score	0.182 (0.166)	0.243* (0.129)	0.729*** (0.156)	0.000 (0.099)	0.000 (0.037)
Asset index, z-score	0.141*** (0.046)	0.205*** (0.069)	0.266*** (0.103)	0.300** (0.128)	0.201 (0.231)
Total savings amount, z-score	-0.000 (0.009)	0.000 (0.007)	0.281*** (0.039)	0.568*** (0.076)	1.027*** (0.176)
Labor earnings, z-score	0.000 (0.006)	0.000 (0.005)	-0.076** (0.033)	-0.291*** (0.092)	-0.408* (0.240)
Business profit, z-score	-0.000 (0.005)	0.000 (0.004)	0.074** (0.032)	0.409*** (0.085)	0.903 (0.624)
Mental health index, z-score	0.441*** (0.152)	0.330*** (0.103)	0.212** (0.085)	0.188** (0.089)	0.178** (0.084)

Notes: The p-value of the Kolmogorov-Smirnov test is 0.000 for all variables except for the mental health index. All regressions include (absorbed) strata dummies in addition to a control for the additional consumption support in half the full package CWACs. Baseline lagged controls are included for all indicators, with the exception of the asset index for which comparable baseline data was not available. *p<.1 **p<.05 ***p<.01.

and mental health improved throughout the distribution. However, livelihood changes, shifting from labor earning to business profits, occurred only at and above the median of the distribution. Similarly, savings only changed at higher percentiles in the distribution.

4 Conclusion and Discussion

Our study finds that a graduation program can create large impacts at scale, with the government as the implementer. However, we find these impacts were entirely driven by the financial capital element of the program. The human capital treatment of training and mentoring had no impact, either on its own or as a marginal effect when combined with financial capital in the full package.

The training in our program was implemented by the government itself, who enlisted community-based volunteers, who were trained using a three-level waterfall approach. Thus, our findings do not negate that high impacts are possible when specialized NGOs implement the training, as in the large effects seen in e.g., Campos et al., 2017, Bossuroy et al., 2021. However, such training systems have not been evaluated at a similarly large scale. The training’s lack of efficacy in our case did not stem from low takeup: most beneficiaries attended all days of the training, and the takeup and participation was higher in the full package arm, with no greater benefit. This points to a potential channel of less skilled training administrators, since the training was delivered by community-based volunteers who were not themselves given intensive training, who had varying levels of literacy, and who were not given large incentives or resources to support their work.

On the other hand, the government was able to perform a highly effective cash delivery, via a digital money platform. Nearly all beneficiaries slated to receive the grant actually received it (outside of Petauke district, where there was non-compliance with the random assignment, but equal levels of grant delivery). The government was able to track and monitor the cash delivery using more similar M&E systems to those already in place to monitor their existing cash transfer program. The large results possible through cash alone in this setting demonstrate that a grant-only graduation model may be a useful substitute in settings without institutional capacity for wide-scale training. And, funders and donors should consider the cost effectiveness of scaling up cash alone versus bundled programs in multiple contexts, something further research can shed additional light on.

References

- Alibhai, Salman; Buehren, Niklas; Frese, Michael .; Goldstein, Markus P.; Papineni, Sreelakshmi; Wolf, Kathrin. 2019. Full Esteem Ahead? Mindset-Oriented Business Training in Ethiopia. Washington, D.C. : World Bank Group.
- Andrews, Colin, Aude de Montesquiou, Inés Arévalo Sánchez, Puja Vasudeva Dutta, Boban Varghese Paul, Sadna Samaranayake, Janet Heisey, Timothy Clay, and Sarang Chaudhary. 2021. The State of Economic Inclusion Report 2021: The Potential to Scale. Washington, DC: World Bank.
- Argent, Jonathan, Britta Augsburg, and Imran Rasul. 2014. “Livestock Asset Transfers with and without Training: Evidence from Rwanda.” *Journal of Economic Behavior and Organization* 108: 19–39.
- Bandiera, Oriana, Robin Burgess, Narayan Das, Selim Gulesci, Imran Rasul, and Munshi Sulaiman. 2017. “Labor Markets and Poverty in Village Economies.” *The Quarterly Journal of Economics* 132 (2): 811–70.
- Banerjee, Abhijit, Esther Duflo, Nathanael Goldberg, Dean Karlan, Robert Osei, William Parienté, Jeremy Shapiro, Bram Thuysbaert, and Christopher Udry. 2015. “A Multi-faceted Program Causes Lasting Progress for the Very Poor: Evidence from Six Countries.” *Science* 348 (6236).
- Banerjee, A., E. Duflo, R. Chattopadhyay, and J. Shapiro. 2016. “The Long Term Impacts of a ‘Graduation’ Program : Evidence from West Bengal.” Mimeo.
- Banerjee, Abhijit, Esther Duflo, and Garima Sharma. 2020a. “Long-Term Effects of the Targeting the Ultra Poor Program.” NBER Working Papers, no. 28074 (November).
- Banerjee, Abhijit, Karlan, Dean, Robert Osei, Hannah Trachtman, and Udry Christopher. 2020b. “Unpacking a Multi-Faceted Program to Build Sustainable Income for the Very Poor.” Mimeo.
- Bedoya, Guadalupe, Aidan Coville, Johannes Haushofer, Mohammad Isaqzadeh, and Jeremy P. Shapiro. 2019. “No Household Left Behind: Afghanistan Targeting the Ultra Poor Impact Evaluation,” NBER Working Papers, no. 25981 (June).
- Bossuroy, Thomas; Goldstein,Markus P.; Karlan,Dean S.; Kazianga,Harounan; Pariente,William; Premand,Patrick; Thomas,Catherine Cole; Udry,Christopher Robert; Vaillant,Julia;Wright,Kelsey Ann. Pathways out of Extreme Poverty : Tackling Psychosocial and Capital Constraints with a Multi-faceted Social Protection Program in Niger. Washington, D.C. : World Bank Group, 2021.
- Chowdhury, Reajul, Elliott Collins, Ethan Ligon, and Munshi Sulaiman. 2017. “Valuing Assets Provided to Low-Income Households in South Sudan.” Discussion Paper, BRAC University, Dhaka, Bangladesh.
- Egger, D., Haushofer, J., Miguel, E., Niehaus, P., and Walker, M. W. (2019). General equilibrium effects of cash transfers: experimental evidence from Kenya (No. w26600). National

Bureau of Economic Research.

Laaaj, Rachid, Karen Macours, Daniel Alejandro Pinzon Hernandez, Omar Arias, Samuel D. Gosling, Jeff Potter, Marta Rubio-Codina, Renos Vakis, Challenges to capture the big five personality traits in non-WEIRD populations, *Science Advances*, 5, 7, (2019).

Sedlmayr, Richard, Anuj Shah, and Munshi Sulaiman. 2019. "Cash-Plus: Poverty Impacts of Alternative Transfer-Based Approaches." *Journal of Development Economics* 102418.

A Appendix

Table 6: Compliance

	Excluding Petauke (%)		Petauke (%)	
	Did not receive grant	Received grant	Did not receive grant	Received grant
Control	99.8	0.2	100	0
Financial capital	14.4	85.6	76.2	23.8
Human capital	100	0	100	0
Full package	11.3	88.7	74.2	25.8

Table 7: Balance Across Arms

Variable	Control	Financial	Human	Full	T-test of Differences		
	N=656, 52 clstrs	capital N=623, 51 clstrs	capital N=858, 52 clstrs	package N=1685, 104 clstrs	(C)-(FC)	(C)-(HC)	(C)-(FP)
Respondent age	34.96 [16.52]	35.00 [14.08]	34.48 [12.94]	34.94 [14.49]	-0.04	0.47	0.02
HH head	0.45 [1.05]	0.44 [0.95]	0.46 [1.07]	0.48 [1.00]	0.01	-0.01	-0.03
Household size	5.59 [3.57]	5.59 [3.38]	5.74 [4.21]	5.59 [3.69]	-0.01	-0.15	0.00
Single	0.09 [0.49]	0.06 [0.34]	0.06 [0.46]	0.08 [0.58]	0.04*	0.04**	0.01
Ever attended school	0.82 [0.53]	0.80 [0.66]	0.84 [0.42]	0.84 [0.60]	0.01	-0.03	-0.02
Years of education	4.71 [6.36]	4.39 [7.86]	4.79 [4.52]	4.82 [6.42]	0.32	-0.08	-0.11
Total consumption	948.89 [1627.62]	1001.09 [1812.48]	997.01 [2326.27]	1014.25 [2145.88]	-52.20	-48.12**	-65.36*
Not enough food	0.73 [0.74]	0.70 [0.72]	0.79 [0.72]	0.78 [0.65]	0.03	-0.06	-0.05
Total savings	44.89 [180.62]	37.50 [188.68]	42.37 [206.79]	41.25 [216.72]	7.39	2.52	3.64
Total borrowing	5.51 [40.02]	7.37 [52.61]	9.00 [60.97]	7.85 [60.76]	-1.86	-3.49	-2.34
Any labor earning	0.26 [0.78]	0.29 [0.77]	0.28 [0.73]	0.26 [0.72]	-0.03	-0.02	0.00
Running business	0.13 [0.64]	0.15 [0.67]	0.15 [0.90]	0.19 [0.86]	-0.02	-0.02	-0.06*
HH agriculture	0.61 [0.81]	0.67 [0.94]	0.67 [1.03]	0.58 [1.13]	-0.07*	-0.06	0.03
Labor earnings	277.37 [817.30]	351.98 [1182.13]	293.52 [923.00]	344.55 [1050.14]	-74.61	-16.14	-67.17**
Profits from IGAs	703.26 [2933.35]	633.77 [1981.50]	486.59 [2703.71]	681.87 [3504.37]	69.49	216.67	21.39

Table 8: Effect of Consumption Support

	(1)	(2)	(3)	(4)	(5)
	Total consumption	Did not get enough food	Total savings (current)	Assets index	Livestock index
Consumption support	34.45	0.03	-29.24	-0.03	-0.05
	(116.859)	(0.024)	(53.346)	(0.064)	(0.053)
Observations	1677	1690	1677	1690	1682
Mean w/out CS	2352.820	0.475	506.498	0.155	0.032
	(6)	(7)	(8)	(9)	(10)
	Any labor earnings	Running non-farm business	Labor earnings	Business profit	Mental health index
Consumption support	-0.02	0.02	152.12**	133.75	-0.05
	(0.026)	(0.024)	(65.127)	(288.170)	(0.052)
Observations	1690	1690	1686	1682	1690
Mean w/out CS	0.257	0.277	535.213	2381.200	0.089

Notes: Robust CWAC-clustered standard errors in parentheses. All regressions include (absorbed) strata dummies and the baseline outcomes as controls (where available). *p<.1 **p<.05 ***p<.01.

Table 9: Effect Including Petauke District

	(1)	(2)	(3)	(4)	(5)
	Total consumption	Did not get enough food	Total savings (current)	Assets index	Livestock index
Full package	288.07*** (107.093)	-0.14*** (0.033)	245.03*** (36.038)	0.23*** (0.068)	0.18*** (0.066)
Financial capital	177.25 (112.741)	-0.10*** (0.031)	236.06*** (40.531)	0.17** (0.066)	0.17** (0.083)
Human capital	-80.31 (107.684)	-0.01 (0.033)	-34.17 (34.687)	-0.06 (0.060)	0.01 (0.055)
Consumption support	36.93 (92.909)	0.01 (0.025)	-19.57 (38.601)	-0.07 (0.061)	-0.04 (0.062)
Observations	5191	5242	5202	5242	5228
Control mean	2045.382	0.605	149.012	-0.000	-0.000
p-value (FC=FP) \hat{E}	0.263	0.111	0.828	0.347	0.975
	(6)	(7)	(8)	(9)	(10)
	Any labor earnings	Running non-farm business	Labor earnings	Business profit	Mental health index
Full package	-0.04 (0.032)	0.04 (0.024)	-237.37*** (58.520)	552.05** (218.188)	0.01 (0.095)
Financial capital	-0.04 (0.035)	0.04* (0.026)	-92.30 (86.956)	713.49*** (255.878)	-0.16** (0.072)
Human capital	0.01 (0.031)	-0.03 (0.026)	-104.18 (75.455)	-351.44* (195.346)	0.04 (0.065)
Consumption support	-0.02 (0.026)	0.02 (0.021)	124.77** (56.950)	28.08 (238.975)	-0.02 (0.050)
Observations	5242	5242	5230	5218	5242
Control mean	0.317	0.168	623.034	1302.101	0.000
p-value (FC=FP) \hat{E}	0.844	0.796	0.086	0.529	0.639

Notes: Robust CWAC-clustered standard errors in parentheses. All regressions include (absorbed) strata dummies and the baseline outcomes as controls (where available). *p<.1 **p<.05 ***p<.01.